



CITY OF BLACK DIAMOND
February 19, 2026 Council Meeting Agenda - Revised 2/18/26
Council Chambers, 25510 Lawson St.
Black Diamond, WA 98010

THIS IS OFFERED AS A HYBRID MEETING AND MAY BE ATTENDED IN PERSON AT THE ABOVE NOTED ADDRESS OR BY JOINING VIRTUAL/TELEPHONICALLY. CALL IN AND JOINING INFORMATION FOLLOWS:

Zoom link to join meeting: <https://zoom.us/j/4454477047?pwd=eGxRY3ZEeU14SVM2cGRBcUxCSjdmZz09>

(Note: You do not need a web cam to join the meeting, but you will need audio to hear the proceedings.)

Meeting ID: 445 447 7047 Password: Council

Telephone dial in options: +1 253 215 8782 US (Tacoma) +1 206 337 9723 US (Seattle) Meeting ID: 445 447 7047

7:00 P.M. CALL TO ORDER, FLAG SALUTE, ROLL CALL

AGENDA REVIEW AND APPROVAL:

PUBLIC COMMENTS: Persons wishing to address the City Council regarding items of new business are encouraged to do so at this time. When recognized by the Mayor, please come to the podium and clearly state your name. Please limit your comments to 3 minutes. If you desire a formal agenda placement, please contact the City Clerk at 360-851-4500. Thank you for attending.

APPOINTMENTS, ANNOUNCEMENTS, PROCLAMATIONS AND PRESENTATIONS:

1) **AB26-020** – Appointment of Mountain View Fire & Rescue Board Representative

Mr. O'Neill

COMMITTEE REPORTS:

DEPARTMENT REPORTS:

Fire - Chief Judkins

CONSENT AGENDA:

2) **Claim Checks** – February 19, 2026, Check No. 57024 through Check No. 57069 and EFTs in the amount of \$831,134.05

3) **Payroll** – January 2026, Check No. 20586 through Check No. 20593 and EFTs in the amount of \$649,117.13

4) **Minutes** – Council Meeting of February 5, 2026

5) **AB26-021** – Resolution Regarding Amendment #9 to Agreement with RH2 for Springs Rehabilitation Project Mr. Hanis

PUBLIC HEARINGS:

6) **AB26-022** – Quasi-Judicial Closed Record Hearing – Pipeline Road Major Amendment

Mr. Linehan

UNFINISHED BUSINESS: None

NEW BUSINESS:

7) **AB26-023** – Resolution Authorizing Agreement with BERK Consulting for Strategic Planning Services

Mr. O'Neill

8) AB26-024– Resolution Authorizing Agreement with Parametrix for the Central Area Parking Study

Mr. Hanis

MAYOR'S REPORT:

COUNCIL REPORTS:

- Councilmember Sorci
- Councilmember Young
- Councilmember Dal Santo
- Councilmember Kumar
- Councilmember Deady
- Councilmember Nielsen
- Councilmember Peterson

CITY ADMINISTRATOR REPORT:

ATTORNEY REPORT:

PUBLIC COMMENTS:

EXECUTIVE SESSION: RCW 42.30.110(1)(g) Personnel

ADJOURNMENT:

**City of Black Diamond
Post Office Box 599
Black Diamond, WA 98010**

ITEM INFORMATION		
SUBJECT: Council Appointment of Mountain View Fire & Rescue Board of Commissioners Representative	Agenda Date: February 19, 2026	
	AB26-020	
	Mayor John Adler	
	City Administrator - Kevin O'Neill	X
	City Attorney - David Linehan	
	City Clerk – Brenda L. Martinez	
	Com Dev –Andy Williamson	
	Finance – Xavier Mason	
	MDRT/Ec Dev – Andy Williamson	
Cost Impact (see also Fiscal Note):	Police – Chief Kiblinger	
Fund Source:	Public Works – Scott Hanis	
Timeline:	Court – Judge Swain/Tawnya Parks	
Agenda Placement: ☐ Mayor ☐ Two Councilmembers ☐ Committee Chair ☒ City Administrator		
Attachments:		
SUMMARY STATEMENT: Over the past several years, the City Council has appointed a Council Representative to attend the Mountain View Fire & Rescue Board of Commissioners meetings in a non-voting capacity. Last year, Councilmember Young was appointed to serve in this role for a three-month term. It is now time for the Council to make a new appointment. For continuity and consistency, staff is recommending that this appointment extend through the remainder of 2026.		
FISCAL NOTE (Finance Department): N/A		
COUNCIL COMMITTEE REVIEW AND RECOMMENDATION:		
RECOMMENDED ACTION: MOTION to appoint Councilmember ? as the Black Diamond Council Representative to the Mountain View Fire & Rescue Board of Commissioners for the remainder of 2026.		
RECORD OF COUNCIL ACTION		
Meeting Date	Action	Vote
February 19, 2026		



CERTIFICATION

Finance Committee: Meeting February 12, 2026

Council Date: February 19, 2026

Check No.'s / EFT	Batch Name	Check / EFT Date	Amount
EFT	January 2026 - EFT Batch	1/2/2026 - 1/30/2026	\$ 52,456.61
EFT	January 2026 - Credit Card Batch	1/23/2026	\$ 11,100.58
57024 - 57069	February 2026 - Regular Batch 2	2/20/2026	\$ 767,576.86
TOTAL:			\$ 831,134.05

I, THE UNDERSIGNED DO HEREBY CERTIFY UNDER THE PENALTY OF PERJURY, THAT THE MATERIALS HAVE BEEN FURNISHED, THE SERVICES RENDERED AND OR THE LABOR PERFORMED AS DESCRIBED HEREIN AND THAT THE CLAIM IS A JUST, DUE AND UNPAID OBLIGATION AGAINST THE CITY OF BLACK DIAMOND, AND THAT I AM AUTHORIZED TO AUTHENTICATE AND CERTIFY TO SAID CLAIM.

Xavier Mason

Xavier Mason, Finance Director

DATE: 02/10/2026

John Adler, Mayor

DATE:



Register

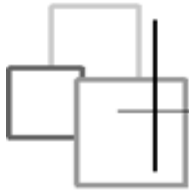
Fiscal: 2026

Deposit Period: 2026 - February, 2026 - January

Check Period: 2026 - February - 2026-02 February - Regular Batch 2, 2026 - January - 2026-01 January - Credit Card Batch, 2026 - January - 2026-01 January - EFT Batch

Number	Name	Print Date	Clearing Date	Amount
Umpqua Bank	4026			
Check				
<u>57024</u>	A-Advanced Septic Services	2/20/2026		\$2,970.25
<u>57025</u>	Alexis Elton	2/20/2026		\$303.90
<u>57026</u>	Alsco	2/20/2026		\$377.82
<u>57027</u>	Association of Washington Cities	2/20/2026		\$710.00
<u>57028</u>	Big Mountain Electric, Inc	2/20/2026		\$621.30
<u>57029</u>	Bigleaf Networks Inc	2/20/2026		\$264.62
<u>57030</u>	Black Diamond Community Center	2/20/2026		\$25,000.00
<u>57031</u>	CenturyLink (WA)	2/20/2026		\$722.68
<u>57032</u>	City of Black Diamond	2/20/2026		\$2,539.23
<u>57033</u>	Civic Forge LLC	2/20/2026		\$967.74
<u>57034</u>	Core & Main LP	2/20/2026		\$431.23
<u>57035</u>	District and Municipal Court Judges' Association	2/20/2026		\$330.00
<u>57036</u>	Elwalu LLC (Elephant Car Wash)	2/20/2026		\$83.21
<u>57037</u>	Enumclaw School District	2/20/2026		\$312,649.00
<u>57038</u>	First Responder Outfitters - TAC	2/20/2026		\$24.18
<u>57039</u>	GMP Consultants, LLC	2/20/2026		\$3,750.00
<u>57040</u>	Grainger	2/20/2026		\$584.30
<u>57041</u>	Gunderson Law Firm	2/20/2026		\$6,100.00
<u>57042</u>	Intercom Language Services, Inc.	2/20/2026		\$510.00
<u>57043</u>	Jaydn Bond	2/20/2026		\$1,055.00
<u>57044</u>	Johnsons Home & Garden	2/20/2026		\$421.70
<u>57045</u>	KD Water Systems LLC	2/20/2026		\$827.64
<u>57046</u>	King County Finance	2/20/2026		\$150,822.62
<u>57047</u>	King County Prosecuting Attorney	2/20/2026		\$96.52
<u>57048</u>	Law Office of Krista White Swain	2/20/2026		\$9,050.00
<u>57049</u>	LN Curtis & Sons	2/20/2026		\$355.72
<u>57050</u>	Maria Moscoso	2/20/2026		\$140.00
<u>57051</u>	Motorola Solutions Inc.	2/20/2026		\$18,557.95
<u>57052</u>	Oakpointe LLC/CCD Black Diamond	2/20/2026		\$161,376.65
<u>57053</u>	Office Products Nationwide	2/20/2026		\$203.13
<u>57054</u>	Olympic Environmental Resources	2/20/2026		\$3,579.20
<u>57055</u>	Orkin Commercial Services	2/20/2026		\$172.88
<u>57056</u>	Palmer Coking Coal Company	2/20/2026		\$72.83
<u>57057</u>	Miner, Blake	2/20/2026		\$48.00

Number	Name	Print Date	Clearing Date	Amount
<u>57058</u>	Pye-Barker Fire & Safety LLC	2/20/2026		\$14,156.34
<u>57059</u>	Severson's Building Maintenance	2/20/2026		\$2,650.00
<u>57060</u>	Somer Johnson	2/20/2026		\$3,665.00
<u>57061</u>	Summit Law Group, PLLC	2/20/2026		\$3,264.50
<u>57062</u>	United Business Machines of WA Inc	2/20/2026		\$57.87
<u>57063</u>	Utilities Underground Location Center	2/20/2026		\$129.60
<u>57064</u>	Valley Communications Center	2/20/2026		\$10,671.54
<u>57065</u>	Wa Association of Sheriffs & Police Chiefs	2/20/2026		\$180.00
<u>57066</u>	Washington State Patrol	2/20/2026		\$117.00
<u>57067</u>	Washington State Treasurer	2/20/2026		\$8,337.27
<u>57068</u>	Water Management Laboratories, Inc.	2/20/2026		\$192.00
<u>57069</u>	Zoom Video Communications, Inc	2/20/2026		\$18,436.44
<u>EFT PYMT AMAZON 01/20261</u>	Amazon Capital Services, Inc.	1/21/2026		\$1,285.45
<u>EFT PYMT COLUMBIA 01/20261</u>	Columbia Bank	1/21/2026		\$1,647.11
<u>EFT PYMT COMCAST 01/20261</u>	Comcast	1/29/2026		\$184.87
<u>EFT PYMT DOL 01/20261</u>	Dept of Licensing-Firearms Online	1/6/2026		\$36.00
<u>EFT PYMT FIRST BANKCARD 01/20261</u>	First Bankcard	1/23/2026		\$11,100.58
<u>EFT PYMT HONEY BUCKET 01/20261</u>	Honey Bucket	1/2/2026		\$725.00
<u>EFT PYMT MCS 01/20261</u>	Merchant Card Services / Vantive Holding, LLC	1/8/2026		\$87.37
<u>EFT PYMT PSE 01/20261</u>	Puget Sound Energy	1/27/2026		\$15,963.75
<u>EFT PYMT TPU 01/20261</u>	Tacoma Public Utilities	1/30/2026		\$15,070.35
<u>EFT PYMT US BANK 01/20261</u>	US Bank Equipment Finance	1/12/2026		\$1,986.34
<u>EFT PYMT WA DOR 01/20261</u>	Washington State Department of Revenue	1/27/2026		\$10,037.81
<u>EFT PYMT WILLSCOT 01/20261</u>	Williams Scotsman, Inc.	1/21/2026		\$5,432.56
	Total		Check	\$831,134.05
	Total		4026	\$831,134.05
	Grand Total			\$831,134.05



Voucher Directory with Transaction Date

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
A-Advanced Septic Services				
	57024	1/21/2026	2026 - February - 2026-02 February - Regular Batch 2	
	734763			
		SERVICE - JANUARY 2026		
		407-000-000-535-80-48-03	SWR: System Repair & Maint-Ext/Int	\$2,970.25
			Fabrication & Installation of Sewer System Part	
	Total 734763			\$2,970.25
	Total 57024			\$2,970.25
	Total A-Advanced Septic Services			\$2,970.25
Alexis Elton				
	57025	2/2/2026	2026 - February - 2026-02 February - Regular Batch 2	
	A Elton 02/02/26			
		REIMBURSEMENT - FLEX		
		001-000-900-582-30-00-00	Flex 125 Deposit Refund	\$303.90
			Aflac Flex Reimbursement	
	Total A Elton 02/02/26			\$303.90
	Total 57025			\$303.90
	Total Alexis Elton			\$303.90
Alsco				
	57026	1/20/2026	2026 - February - 2026-02 February - Regular Batch 2	
	LTAC1153616			
		SERVICE - 01/20/26		
		001-000-270-576-80-41-04	PRK: Uniform Services	\$14.57
			UNIFORM SERVICE; PRK	
		001-000-280-536-20-41-04	CEM: Uniform Services	\$5.22
			UNIFORM SERVICE; CEM	
		101-000-000-542-30-41-04	STRT: Uniform Services	\$25.55
			UNIFORM SERVICE; STRT	
		401-000-000-534-80-41-04	WTR: Uniform Services	\$28.42
			UNIFORM SERVICE; WTR	
		407-000-000-535-80-41-04	SWR: Uniform Services	\$27.53
			UNIFORM SERVICE; SWR	

Vendor	Transaction Number Transaction Reference	Invoice Date Account Number	Fiscal Description Name Title	Void Amount
		410-000-000-531-10-41-04	STRM: Uniform Services	\$24.65
		UNIFORM SERVICE; STRM		
	Total LTAC1153616			\$125.94
57026		1/27/2026	2026 - February - 2026-02 February - Regular Batch 2	
	LTAC1154699			
		SERVICE - 01/27/26		
		001-000-270-576-80-41-04	PRK: Uniform Services	\$14.57
		UNIFORM SERVICE; PRK		
		001-000-280-536-20-41-04	CEM: Uniform Services	\$5.22
		UNIFORM SERVICE; CEM		
		101-000-000-542-30-41-04	STRT: Uniform Services	\$25.55
		UNIFORM SERVICE; STRT		
		401-000-000-534-80-41-04	WTR: Uniform Services	\$28.42
		UNIFORM SERVICE; WTR		
		407-000-000-535-80-41-04	SWR: Uniform Services	\$27.53
		UNIFORM SERVICE; SWR		
		410-000-000-531-10-41-04	STRM: Uniform Services	\$24.65
		UNIFORM SERVICE; STRM		
	Total LTAC1154699			\$125.94
57026		2/3/2026	2026 - February - 2026-02 February - Regular Batch 2	
	LTAC1155787			
		SERVICE - 02/03/26		
		001-000-270-576-80-41-04	PRK: Uniform Services	\$14.57
		UNIFORM SERVICE; PRK		
		001-000-280-536-20-41-04	CEM: Uniform Services	\$5.22
		UNIFORM SERVICE; CEM		
		101-000-000-542-30-41-04	STRT: Uniform Services	\$25.55
		UNIFORM SERVICE; STRT		
		401-000-000-534-80-41-04	WTR: Uniform Services	\$28.42
		UNIFORM SERVICE; WTR		
		407-000-000-535-80-41-04	SWR: Uniform Services	\$27.53
		UNIFORM SERVICE; SWR		
		410-000-000-531-10-41-04	STRM: Uniform Services	\$24.65
		UNIFORM SERVICE; STRM		
	Total LTAC1155787			\$125.94
	Total 57026			\$377.82
Total Alsco				\$377.82

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
Amazon Capital Services, Inc.				
	EFT PYMT AMAZON 01/20261 14CF-P76K-KVG7	1/10/2026	2026 - January - 2026-01 January - EFT Batch	
	SUPPLIES			
	999-000-006-000-00-31-00		6-Shared Office & Operating Supplies	\$236.24
			Power Tool Battery Charger	
	Total 14CF-P76K-KVG7			\$236.24
	EFT PYMT AMAZON 01/20261 179T-913X-11YC	1/14/2026	2026 - January - 2026-01 January - EFT Batch	
	SUPPLIES			
	999-000-006-000-00-31-00		6-Shared Office & Operating Supplies	\$18.26
			Wall Calendar	
	Total 179T-913X-11YC			\$18.26
	EFT PYMT AMAZON 01/20261 1FT3-3CFK-HJJD	1/10/2026	2026 - January - 2026-01 January - EFT Batch	
	SUPPLIES			
	001-000-530-522-10-31-00		FIRE: Office & Operating Supplies	\$122.96
			Paper Towel Dispensers	
	Total 1FT3-3CFK-HJJD			\$122.96
	EFT PYMT AMAZON 01/20261 1LCT-M49W-CHPD	1/8/2026	2026 - January - 2026-01 January - EFT Batch	
	SUPPLIES			
	999-000-006-000-00-31-00		6-Shared Office & Operating Supplies	\$67.86
			Ink Cartridge	
	Total 1LCT-M49W-CHPD			\$67.86
	EFT PYMT AMAZON 01/20261 1MGX-YLJ6-PWTF	1/3/2026	2026 - January - 2026-01 January - EFT Batch	
	SUPPLIES			
	310-000-002-594-18-62-05		Gym Improvements	\$76.29
			Picture Frames	
	Total 1MGX-YLJ6-PWTF			\$76.29
	EFT PYMT AMAZON 01/20261 1NC9-4VYC-L9RM	1/10/2026	2026 - January - 2026-01 January - EFT Batch	
	SUPPLIES			
	001-000-530-522-10-31-00		FIRE: Office & Operating Supplies	\$156.84
			Soap Dispensers	
	Total 1NC9-4VYC-L9RM			\$156.84

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
	EFT PYMT AMAZON 01/20261 1QWP-17YK-JQJP	1/8/2026	2026 - January - 2026-01 January - EFT Batch	
	SUPPLIES			
	001-000-180-518-50-31-00		CEN SVCS: Office & Operating Supplies	\$513.20
	Hand Soap, Multifold Towels, Toilet Paper			
	Total 1QWP-17YK-JQJP			\$513.20
	EFT PYMT AMAZON 01/20261 1R9R-G69H-XJRK	1/9/2026	2026 - January - 2026-01 January - EFT Batch	
	SUPPLIES			
	001-000-140-514-23-31-00		FIN: Office & Operating Supplies	\$93.80
	Plastic Utensils, Binders, ID Holders, Scales			
	Total 1R9R-G69H-XJRK			\$93.80
	Total EFT PYMT AMAZON 01/20261			\$1,285.45
	Total Amazon Capital Services, Inc.			\$1,285.45
	Association of Washington Cities			
	57027	1/1/2026	2026 - February - 2026-02 February - Regular Batch 2	
	167585			
	SERVICE - 2026 (ANNUAL)			
	101-000-000-542-30-49-02		STRT: Dues & Memberships	\$177.50
	Drug & Alcohol Consortium Fee; STRT			
	401-000-000-534-80-49-02		WTR: Dues & Memberships	\$177.50
	Drug & Alcohol Consortium Fee; WTR			
	407-000-000-535-80-49-02		SWR: Dues & Memberships	\$177.50
	Drug & Alcohol Consortium Fee; SWR			
	410-000-000-531-10-49-02		STRM: Dues & Memberships	\$177.50
	Drug & Alcohol Consortium Fee; STRM			
	Total 167585			\$710.00
	Total 57027			\$710.00
	Total Association of Washington Cities			\$710.00
	Big Mountain Electric, Inc			
	57028	2/5/2026	2026 - February - 2026-02 February - Regular Batch 2	
	5808-2			
	SERVICE - 24301 ROBERTS DR			
	310-000-002-594-18-62-03		CIP - Gen Govt - Campus Improvements	\$621.30

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
			Installation of Light Fixtures at Modular Building	
	Total 5808-2			\$621.30
	Total 57028			\$621.30
Total Big Mountain Electric, Inc				\$621.30
Bigleaf Networks Inc				
	57029	2/1/2026	2026 - February - 2026-02 February - Regular Batch 2	
	INV146759			
		SERVICE - FEBRUARY 2026		
		001-000-145-518-80-41-02	IT: Software Security Services	\$264.62
		IP Address Block		
	Total INV146759			\$264.62
	Total 57029			\$264.62
Total Bigleaf Networks Inc				\$264.62
Black Diamond Community Center				
	57030	2/2/2026	2026 - February - 2026-02 February - Regular Batch 2	
	BDCC 02/2026			
		REIMBURSEMENT - INSURANCE PREMIUMS		
		001-000-270-575-50-49-00	Community Center Support	\$25,000.00
		Insurance Premiums		
	Total BDCC 02/2026			\$25,000.00
	Total 57030			\$25,000.00
Total Black Diamond Community Center				\$25,000.00
CenturyLink (WA)				
	57031	1/12/2026	2026 - February - 2026-02 February - Regular Batch 2	
	CENTURYLINK 3333977608 01/2026			
		SERVICE - JANUARY 2026		
		401-000-000-534-80-42-00	WTR: Telephone / DSL / Radios / Air Cards	\$399.70
		Internet/Phone Service - Water Facilities		
		407-000-000-535-80-42-00	SWR: Telephone / DSL / Radios / Air Cards	\$322.98
		Internet/Phone Service - Sewer Facilities		
	Total CENTURYLINK 3333977608 01/2026			\$722.68
	Total 57031			\$722.68
Total CenturyLink (WA)				\$722.68

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
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City of Black Diamond

57032

COBD 01/2026

1/31/2026

2026 - February - 2026-02 February - Regular Batch 2

SERVICE - JANUARY 2026

001-000-120-512-51-47-01	CRT: Utilities	\$45.01
	WTR/SWR/STRM UTILITIES - CRT	
001-000-135-513-11-47-01	ADMIN: Utilities	\$12.39
	WTR/SWR/STRM UTILITIES - ADM	
001-000-137-514-21-47-01	CLK: Utilities	\$30.98
	WTR/SWR/STRM UTILITIES - CLK	
001-000-140-514-23-47-01	FIN: Utilities	\$103.65
	WTR/SWR/STRM UTILITIES - FIN	
001-000-145-518-80-47-01	IT: Utilities	\$34.55
	WTR/SWR/STRM UTILITIES - IT	
001-000-180-518-50-47-01	CEN SVCS: Utilities	\$524.91
	WTR/SWR/STRM UTILITIES - CNSV	
001-000-212-521-50-47-01	PD: Utilities	\$193.47
	WTR/SWR/STRM UTILITIES - PD	
001-000-240-558-50-47-01	Code Enf: Utilities	\$3.72
	WTR/SWR/STRM UTILITIES - CODE	
001-000-240-558-51-47-01	PERM: Utilities	\$59.11
	WTR/SWR/STRM UTILITIES - PERM	
001-000-240-558-60-47-01	PLN: Utilities	\$39.66
	WTR/SWR/STRM UTILITIES - PLN	
001-000-248-518-20-47-01	MDRT: Utilities	\$64.78
	WTR/SWR/STRM UTILITIES - MDRT	
001-000-270-575-30-47-01	PRK: Museum Utilities	\$202.52
	WTR/SWR/STRM UTILITIES - MUSM	
001-000-270-575-51-47-01	GYM: Utilities	\$139.39
	WTR/SWR/STRM UTILITIES - GYM	
001-000-270-575-70-47-01	Lake Sawyer: Utilities	\$117.00
	WTR/SWR/STRM UTILITIES - LKSR	
001-000-270-576-80-47-01	PRK: Utilities	\$266.12
	WTR/SWR/STRM UTILITIES - PRK	
001-000-280-536-20-47-01	CEM: Utilities	\$45.30
	WTR/SWR/STRM UTILITIES - CEM	
001-000-530-522-10-47-01	FIRE: Utilities	\$207.73
	WTR/SWR/STRM UTILITIES - FIRE	
101-000-000-543-50-47-01	STRT: Utilities	\$52.66
	WTR/SWR/STRM UTILITIES - STRT	

Vendor	Transaction Number Transaction Reference	Invoice Date	Fiscal Description Name	Void Amount
		Account Number	Title	
		401-000-000-534-80-47-01	WTR: Utilities	\$195.08
		WTR/SWR/STRM UTILITIES - WTR		
		407-000-000-535-80-47-01	SWR: Utilities	\$139.48
		WTR/SWR/STRM UTILITIES - SWR		
		410-000-000-531-10-47-01	STRM: Utilities	\$61.72
		WTR/SWR/STRM UTILITIES - STRM		
	Total COBD 01/2026			\$2,539.23
	Total 57032			\$2,539.23
	Total City of Black Diamond			\$2,539.23
Civic Forge LLC				
	57033	2/3/2026	2026 - February - 2026-02 February - Regular Batch 2	
	BD001			
		SERVICE - JANUARY 2026		
		001-000-180-518-50-41-04	CEN SVCS: Professional Services	\$967.74
		LOBBYING SERVICES		
	Total BD001			\$967.74
	Total 57033			\$967.74
	Total Civic Forge LLC			\$967.74
Columbia Bank				
	EFT PYMT COLUMBIA 01/20261	12/31/2025	2026 - January - 2026-01 January - EFT Batch	
	COLUMBIA BANK Q4 2025			
		SERVICE - Q4 2025		
		001-000-120-512-51-49-50	CRT: Bank Analysis / Merch CC / Lien Fees	\$107.86
		City Bank Account Analysis Fees; CRT		
		001-000-120-512-51-49-50	CRT: Bank Analysis / Merch CC / Lien Fees	\$58.04
		Court Bank Account Analysis Fees		
		001-000-135-513-11-49-50	ADMIN: Bank Analysis / Merch CC / Lien Fees	\$28.76
		City Bank Account Analysis Fees; ADM		
		001-000-137-514-40-49-50	CLK: Bank Analysis / Merch CC / Lien Fees	\$71.90
		City Bank Account Analysis Fees; CLK		
		001-000-140-514-23-49-50	FIN: Bank Analysis / Merch CC / Lien Fees	\$172.57
		City Bank Account Analysis Fees; FIN		
		001-000-145-518-80-49-50	IT: Bank Analysis / Merch CC / Lien Fees	\$57.52
		City Bank Account Analysis Fees; IT		
		001-000-210-521-10-49-50	PD: Bank Analysis / Merch CC / Lien Fees	\$463.63
		City Bank Account Analysis Fees; PD		
		001-000-240-558-50-49-50	Code Enf: Bank Analysis / Merch CC / Lien Fees	\$8.63
		City Bank Account Analysis Fees; CODE		

Vendor	Transaction Number Transaction Reference	Invoice Date	Fiscal Description Name	Void Amount
	Account Number		Title	
	001-000-240-558-51-49-50		PERM: Bank Analysis / Merch CC / Lien Fees	\$137.19
			City Bank Account Analysis Fees; PERM	
	001-000-240-558-60-49-50		PLN: Bank Analysis / Merch CC / Lien Fees	\$92.04
			City Bank Account Analysis Fees; PLN	
	001-000-246-558-70-49-50		MDRT: Bank Analysis / Merch CC / Lien Fees	\$107.86
			City Bank Account Analysis Fees; MDRT	
	001-000-270-576-80-49-50		PRK: Bank Analysis / Merch CC / Lien Fees	\$37.97
			City Bank Account Analysis Fees; PRK	
	001-000-280-536-20-49-50		CEM: Bank Analysis / Merch CC / Lien Fees	\$11.79
			City Bank Account Analysis Fees; CEM	
	101-000-000-542-30-49-50		STRT: Bank Analysis / Merch CC / Lien Fees	\$66.58
			City Bank Account Analysis Fees; STRT	
	401-000-000-534-80-49-50		WTR: Bank Analysis / Merch CC / Lien Fees	\$74.06
			City Bank Account Analysis Fees; WTR	
	407-000-000-535-80-49-50		SWR: Bank Analysis / Merch CC / Lien Fees	\$68.31
			City Bank Account Analysis Fees; SWR	
	410-000-000-531-10-49-50		STRM: Bank Analysis / Merch CC / Lien Fees	\$82.40
			City Bank Account Analysis Fees; STRM	
	Total COLUMBIA BANK Q4 2025			\$1,647.11
	Total EFT PYMT COLUMBIA 01/20261			\$1,647.11
Total Columbia Bank				\$1,647.11
Comcast				
	EFT PYMT COMCAST 01/20261	1/5/2026	2026 - January - 2026-01 January - EFT Batch	
	COMCAST 01/2026			
	SERVICE - JANUARY 2025			
	001-000-191-525-60-31-00		EM - Supplies	\$14.72
			Acct 5476; 24301 Roberts Dr - EM Cable TV	
	001-000-212-521-50-49-04		PD: Security	\$155.41
			Acct 0559; 22480 SE 296th St - Internet Service	
	001-000-214-521-20-42-00		PD: Telephone / DSL / Radios / Air Cards	\$14.74
			Acct 2887; 25510 Lawson St - PD Cable TV	
	Total COMCAST 01/2026			\$184.87
	Total EFT PYMT COMCAST 01/20261			\$184.87
Total Comcast				\$184.87

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
Core & Main LP				
	57034	1/30/2026	2026 - February - 2026-02 February - Regular Batch 2	
	Y392758			
		SUPPLIES		
		401-000-000-534-80-31-00	WTR: Office & Operating Supplies	\$431.23
		BRASS FITTINGS, WATER METER PARTS		
	Total Y392758			\$431.23
	Total 57034			\$431.23
	Total Core & Main LP			\$431.23
Dept of Licensing-Firearms Online				
	EFT PYMT DOL 01/20261	1/6/2026	2026 - January - 2026-01 January - EFT Batch	
	DOL FIREARMS 01/2026			
		REMITTANCE - JANUARY 2026		
		633-000-400-589-30-00-00	CPL Fees for DOL - Firearms EFT	\$36.00
		Concealed Pistol License Fee Remittance		
	Total DOL FIREARMS 01/2026			\$36.00
	Total EFT PYMT DOL 01/20261			\$36.00
	Total Dept of Licensing-Firearms Online			\$36.00
District and Municipal Court Judges' Association				
	57035	12/15/2025	2026 - February - 2026-02 February - Regular Batch 2	
	00097			
		DUES - 2026 (ANNUAL)		
		001-000-120-512-51-49-02	CRT: Dues & Memberships	\$330.00
		Annual Dues - Judge Swain		
	Total 00097			\$330.00
	Total 57035			\$330.00
	Total District and Municipal Court Judges' Association			\$330.00
Elwalu LLC (Elephant Car Wash)				
	57036	1/17/2026	2026 - February - 2026-02 February - Regular Batch 2	
	9272			
		SERVICE - JANUARY 2026		
		001-000-210-521-10-48-01	PD: Vehicle/Eq. Mtc. & Repair	\$83.21

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
		Oil Change		
	Total 9272			\$83.21
	Total 57036			\$83.21
	Total Elwalu LLC (Elephant Car Wash)			\$83.21
Enumclaw School District				
	57037	1/31/2026	2026 - February - 2026-02 February - Regular Batch 2	
	ESD 01/2026			
		REMITTANCE - JANUARY 2026		
		111-000-100-518-65-49-01	Enumclaw School Mitigation Fees MPD Single-Fam	\$312,649.00
		MPD Single Fam		
	Total ESD 01/2026			\$312,649.00
	Total 57037			\$312,649.00
	Total Enumclaw School District			\$312,649.00
First Bankcard				
	EFT PYMT FIRST BANKCARD			
	01/20261	1/20/2026	2026 - January - 2026-01 January - Credit Card Batch	
	Crooker, T 01/2026			
		CREDIT CARD CHARGES - JANUARY 2026		
		001-000-210-521-10-31-04	PD: Uniform Allowance	\$424.31
		Amazon - Shirts, Holsters, Glasses, Socks, Flashlight		
	Total Crooker, T 01/2026			\$424.31
	EFT PYMT FIRST BANKCARD			
	01/20261	1/20/2026	2026 - January - 2026-01 January - Credit Card Batch	
	Elton, A 01/2026			
		CREDIT CARD CHARGES - JANUARY 2026		
		001-000-180-518-50-31-03	CEN SVCS: City Wellness Supplies	\$67.90
		Walmart - Cornhole set		
	Total Elton, A 01/2026			\$67.90
	EFT PYMT FIRST BANKCARD			
	01/20261	1/20/2026	2026 - January - 2026-01 January - Credit Card Batch	
	Esping, K 01/2026			
		CREDIT CARD CHARGES - JANUARY 2026		
		001-000-120-512-51-31-00	CRT: Office & Operating Supplies	\$196.71
		Walmart - Air Purifiers		
		001-000-140-514-23-31-00	FIN: Office & Operating Supplies	\$16.56
		Smart Signs - Employee Only Sign		

Vendor	Transaction Number Transaction Reference	Invoice Date	Fiscal Description Name	Void Amount
	Account Number		Title	
	401-000-000-534-80-31-00		WTR: Office & Operating Supplies	\$20.48
	Smart Signs - Drop Box Sign			
	999-000-006-000-00-31-00		6-Shared Office & Operating Supplies	\$16.57
	Smart Signs - Employee Only Sign			
	999-000-006-000-00-31-00		6-Shared Office & Operating Supplies	\$146.43
	Harbor Freight - Hand Tools, Moving Blankets, Hardware			
	999-000-006-000-00-31-00		6-Shared Office & Operating Supplies	\$161.40
	Costco - Paper Plates, Cups, Utensils, Candy			
	Total Esping, K 01/2026			\$558.15
EFT PYMT FIRST BANKCARD				
01/20261	1/20/2026	2026 - January - 2026-01 January - Credit Card Batch		
Gill, D 01/2026				
	CREDIT CARD CHARGES - JANUARY 2026			
	001-000-210-521-10-31-04		PD: Uniform Allowance	\$36.33
	Hanes - Shirts			
	001-000-210-521-10-49-02		PD: Dues & Memberships	\$50.00
	LEIRA - Annual membership fee			
	001-000-210-521-10-49-02		PD: Dues & Memberships	\$65.00
	IAPE - Annual membership fee			
	Total Gill, D 01/2026			\$151.33
EFT PYMT FIRST BANKCARD				
01/20261	1/20/2026	2026 - January - 2026-01 January - Credit Card Batch		
Goddard, D 01/2026				
	CREDIT CARD CHARGES - JANUARY 2026			
	001-000-210-521-10-31-04		PD: Uniform Allowance	\$22.69
	Amazon - Utility Belt			
	001-000-210-521-10-31-04		PD: Uniform Allowance	(\$18.37)
	Amazon - Returned Flashlight			
	001-000-210-521-10-31-04		PD: Uniform Allowance	\$72.39
	Amazon - Undershirts, Flashlight			
	001-000-210-521-10-31-04		PD: Uniform Allowance	(\$54.02)
	Amazon - Returned Undershirts			
	001-000-210-521-10-31-04		PD: Uniform Allowance	\$27.03
	Amazon - Cap			
	001-000-210-521-10-31-04		PD: Uniform Allowance	\$129.70
	Amazon - Undershirts			
	001-000-210-521-10-31-04		PD: Uniform Allowance	\$54.02
	Amazon - Undershirts			
	001-000-210-521-10-31-04		PD: Uniform Allowance	\$10.80
	Amazon - Mourning Bands			
	001-000-210-521-10-31-04		PD: Uniform Allowance	(\$27.03)
	Amazon - Returned Cap			

Vendor	Transaction Number Transaction Reference	Invoice Date Account Number	Fiscal Description Name Title	Void Amount
		001-000-210-521-10-31-04	PD: Uniform Allowance	\$54.00
		Amazon - Pocket Flashlight		
	Total Goddard, D 01/2026			\$271.21
	EFT PYMT FIRST BANKCARD			
	01/20261	1/20/2026	2026 - January - 2026-01 January - Credit Card Batch	
	Greve, E 01/2026			
		CREDIT CARD CHARGES - JANUARY 2026		
		001-000-210-521-10-32-00	PD: Fuel	\$34.69
		Cenex - Fuel		
	Total Greve, E 01/2026			\$34.69
	EFT PYMT FIRST BANKCARD			
	01/20261	1/20/2026	2026 - January - 2026-01 January - Credit Card Batch	
	Henrich, M 01/2026			
		CREDIT CARD CHARGES - JANUARY 2026		
		001-000-210-521-10-35-00	PD: Firearms Program	\$93.74
		Axon - Taser 10 Holster		
	Total Henrich, M 01/2026			\$93.74
	EFT PYMT FIRST BANKCARD			
	01/20261	1/20/2026	2026 - January - 2026-01 January - Credit Card Batch	
	Hopkins, G 01/2026			
		CREDIT CARD CHARGES - JANUARY 2026		
		001-000-140-514-23-49-01	FIN: Training and Workshops	\$50.00
		MRSC - Payroll training		
	Total Hopkins, G 01/2026			\$50.00
	EFT PYMT FIRST BANKCARD			
	01/20261	1/20/2026	2026 - January - 2026-01 January - Credit Card Batch	
	Jewett, L 01/2026			
		CREDIT CARD CHARGES - JANUARY 2026		
		310-000-002-594-18-62-03	CIP - Gen Govt - Campus Improvements	\$879.63
		Steel Lighting Co. - Exterior Light Fixtures		
	Total Jewett, L 01/2026			\$879.63
	EFT PYMT FIRST BANKCARD			
	01/20261	1/20/2026	2026 - January - 2026-01 January - Credit Card Batch	
	Jewett, R 01/2026			
		CREDIT CARD CHARGES - JANUARY 2026		
		999-000-004-000-00-35-00	4-Small Tools & Safety Equipment	\$235.80
		Central Welding Supply - Welding Gas		
		999-000-004-000-00-35-00	4-Small Tools & Safety Equipment	\$23.44
		Central Welding Supply - Cutting Tip		
	Total Jewett, R 01/2026			\$259.24

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
	EFT PYMT FIRST BANKCARD			
	01/20261	1/20/2026	2026 - January - 2026-01 January - Credit Card Batch	
	Losvar, D 01/2026			
	CREDIT CARD CHARGES - JANUARY 2026			
	001-000-210-521-10-31-04		PD: Uniform Allowance	\$128.75
	Amazon - Pouches			
	Total Losvar, D 01/2026			\$128.75
	EFT PYMT FIRST BANKCARD			
	01/20261	1/20/2026	2026 - January - 2026-01 January - Credit Card Batch	
	Redd, T 01/2026			
	CREDIT CARD CHARGES - JANUARY 2026			
	001-000-246-558-70-42-01		MDRT: Postage	\$936.00
	USPS - Postage			
	Total Redd, T 01/2026			\$936.00
	EFT PYMT FIRST BANKCARD			
	01/20261	1/20/2026	2026 - January - 2026-01 January - Credit Card Batch	
	Reed, R 01/2026			
	CREDIT CARD CHARGES - JANUARY 2026			
	001-000-145-518-80-41-14		IT: Net Motion Support	\$240.00
	Duo.com - Multi Factor Authentication			
	001-000-145-518-80-41-14		IT: Net Motion Support	\$9.98
	Name Cheap - Premium DNS			
	001-000-145-518-80-41-15		IT: Web Hosting Cost	\$3,010.25
	Zendesk - Talk Usage Subscription, Annual Renewal			
	001-000-145-518-80-48-00		IT: Bld Repair & Maintenance	\$195.00
	Starlink - Access Charge			
	Total Reed, R 01/2026			\$3,455.23
	EFT PYMT FIRST BANKCARD			
	01/20261	1/20/2026	2026 - January - 2026-01 January - Credit Card Batch	
	Riepl, W 01/2026			
	CREDIT CARD CHARGES - JANUARY 2026			
	001-000-210-521-10-31-00		PD: Office & Operating Supplies	\$13.71
	Autozone - Coolant			
	001-000-210-521-10-31-04		PD: Uniform Allowance	(\$10.90)
	Amazon - Returned Band			
	001-000-210-521-10-31-04		PD: Uniform Allowance	\$164.25
	Amazon - Flashlight			
	001-000-210-521-10-31-04		PD: Uniform Allowance	\$208.47
	Danner - Boots			
	001-000-210-521-10-35-00		PD: Firearms Program	\$57.72
	Amazon - Sling Straps			
	Total Riepl, W 01/2026			\$433.25

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
	EFT PYMT FIRST BANKCARD 01/20261	1/20/2026	2026 - January - 2026-01 January - Credit Card Batch	
	Ross, J 01/2026			
	CREDIT CARD CHARGES - JANUARY 2026			
	001-000-270-576-80-31-00		PRK: Office & Operating Supplies	\$2,126.21
			Tyee Lumber - Fence supplies for Union Stump Park	
	001-000-270-576-80-49-50		PRK: Bank Analysis / Merch CC / Lien Fees	\$39.00
			First Bankcard - Overlimit Fee	
	Total Ross, J 01/2026			\$2,165.21
	EFT PYMT FIRST BANKCARD 01/20261	1/20/2026	2026 - January - 2026-01 January - Credit Card Batch	
	Sloss, J 01/2026			
	CREDIT CARD CHARGES - JANUARY 2026			
	001-000-210-521-10-49-02		PD: Dues & Memberships	\$50.00
			LEIRA - Annual membership fee	
	Total Sloss, J 01/2026			\$50.00
	EFT PYMT FIRST BANKCARD 01/20261	1/20/2026	2026 - January - 2026-01 January - Credit Card Batch	
	Stavano, J 01/2026			
	CREDIT CARD CHARGES - JANUARY 2026			
	401-000-000-534-80-49-01		WTR: Training & Workshops	\$141.00
			WA Certification Services - WDM1 Application; Harvey	
	401-000-000-534-80-49-01		WTR: Training & Workshops	\$141.00
			WA Certification Services - WDM1 Application; Keating	
	401-000-000-534-80-49-01		WTR: Training & Workshops	\$340.00
			Green River CC - Water Main Testing; Keating	
	401-000-000-534-80-49-01		WTR: Training & Workshops	\$340.00
			Green River CC - Water Main Testing; Harvey	
	Total Stavano, J 01/2026			\$962.00
	EFT PYMT FIRST BANKCARD 01/20261	1/20/2026	2026 - January - 2026-01 January - Credit Card Batch	
	Thornquist, C 01/2026			
	CREDIT CARD CHARGES - JANUARY 2026			
	001-000-137-514-21-49-01		CLK: Training & Workshops	\$153.76
			PCCFOA - Excel Training	
	001-000-180-518-50-31-00		CEN SVCS: Office & Operating Supplies	\$26.18
			Costco - Water bottles, tissue (for all staff meeting)	
	Total Thornquist, C 01/2026			\$179.94
	Total EFT PYMT FIRST BANKCARD 01/20261			\$11,100.58
Total First Bankcard				\$11,100.58

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
First Responder Outfitters - TAC				
57038	21491-3	8/28/2025	2026 - February - 2026-02 February - Regular Batch 2	
		CREDIT MEMO		
		001-000-210-521-10-31-04	PD: Uniform Allowance	(\$103.35)
		Returned Uniform Items		
	Total 21491-3			(\$103.35)
57038	26895-3	1/30/2026	2026 - February - 2026-02 February - Regular Batch 2	
		SUPPLIES		
		001-000-210-521-10-31-04	PD: Uniform Allowance	\$127.53
		Shirts, Patches		
	Total 26895-3			\$127.53
	Total 57038			\$24.18
Total First Responder Outfitters - TAC				\$24.18
GMP Consultants, LLC				
57039	26-040	1/28/2026	2026 - February - 2026-02 February - Regular Batch 2	
		SERVICE - JANUARY 2026		
		001-000-240-558-50-41-00	Code Enf: Professional Services	\$136.12
		Community Development Director Recruitment; CODE		
		001-000-240-558-51-41-00	PERM: Professional Services	\$2,163.00
		Community Development Director Recruitment; PERM		
		001-000-240-558-60-41-00	PLN: Professional Services	\$1,450.88
		Community Development Director Recruitment; PLN		
	Total 26-040			\$3,750.00
	Total 57039			\$3,750.00
Total GMP Consultants, LLC				\$3,750.00
Grainger				
57040	9635323166	9/9/2025	2026 - February - 2026-02 February - Regular Batch 2	
		CREDIT MEMO		
		310-000-002-594-18-62-03	CIP - Gen Govt - Campus Improvements	(\$134.16)
		Returned Ducting		
	Total 9635323166			(\$134.16)

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
	57040	1/21/2026	2026 - February - 2026-02 February - Regular Batch 2	
	9779345926			
		SUPPLIES		
		401-000-000-534-80-31-00	WTR: Office & Operating Supplies	\$718.46
		Ceiling Heater		
	Total 9779345926			\$718.46
	Total 57040			\$584.30
Total Grainger				\$584.30
Gunderson Law Firm				
	57041	2/1/2026	2026 - February - 2026-02 February - Regular Batch 2	
	1566			
		SERVICE - JANUARY 2026		
		001-000-121-512-51-41-06	CRT: AOC-Therapeutic Grant 07/01/2025 - 06/30/2026	\$500.00
		Prosecution Services - Community Court		
		001-000-151-515-41-41-04	CRT - Legal - Pros Attorney	\$5,600.00
		Prosecution Services - Mainstream Court		
	Total 1566			\$6,100.00
	Total 57041			\$6,100.00
Total Gunderson Law Firm				\$6,100.00
Honey Bucket				
	EFT PYMT HONEY BUCKET 01/20261	12/23/2025	2026 - January - 2026-01 January - EFT Batch	
	0555296048			
		SERVICE - JANUARY 2025		
		001-000-270-576-80-31-03	PRK: Portable Restroom Facility	\$362.50
		Portable Restroom Facility Service; PRK		
	Total 0555296048			\$362.50
	EFT PYMT HONEY BUCKET 01/20261	12/30/2025	2026 - January - 2026-01 January - EFT Batch	
	0555307038			
		SERVICE - JANUARY 2025		
		001-000-270-575-70-41-02	Lake Sawyer: Portable Restroom Facility	\$264.50
		Portable Restroom Facility Service; LKSR		
	Total 0555307038			\$264.50

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
	EFT PYMT HONEY BUCKET 01/20261 0555307039	12/30/2025	2026 - January - 2026-01 January - EFT Batch	
		SERVICE - JANUARY 2025 001-000-270-575-70-41-02	Lake Sawyer: Portable Restroom Facility Portable Restroom Facility Service; LKSR	\$98.00
	Total 0555307039			\$98.00
	Total EFT PYMT HONEY BUCKET 01/20261			\$725.00
Total Honey Bucket				\$725.00
Intercom Language Services, Inc.				
	57042 26-022	1/30/2026	2026 - February - 2026-02 February - Regular Batch 2	
		SERVICE - JANUARY 2026 001-000-120-512-51-41-04	CRT: Interpreter Interpreter Service	\$510.00
	Total 26-022			\$510.00
	Total 57042			\$510.00
Total Intercom Language Services, Inc.				\$510.00
Jaydn Bond				
	57043 27	1/31/2026	2026 - February - 2026-02 February - Regular Batch 2	
		SERVICE - JANUARY 2026 001-000-121-512-51-41-06	CRT: AOC-Therapeutic Grant 07/01/2025 - 06/30/2026 Case Manager Services	\$1,055.00
	Total 27			\$1,055.00
	Total 57043			\$1,055.00
Total Jaydn Bond				\$1,055.00
Johnsons Home & Garden				
	57044 491826	1/29/2026	2026 - February - 2026-02 February - Regular Batch 2	
		SUPPLIES 999-000-006-000-00-31-00	6-Shared Office & Operating Supplies Gloves, Key Ring, Keys	\$95.06
	Total 491826			\$95.06

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
	57044	2/3/2026	2026 - February - 2026-02 February - Regular Batch 2	
	491908			
		SUPPLIES		
		999-000-006-000-00-31-00	6-Shared Office & Operating Supplies	\$326.64
		Trash Bags, Hardware, Small Tools, Tape		
	Total 491908			\$326.64
	Total 57044			\$421.70
Total Johnsons Home & Garden				\$421.70
KD Water Systems LLC				
	57045	11/26/2025	2026 - February - 2026-02 February - Regular Batch 2	
	3944			
		RENT - DECEMBER 2025		
		001-000-120-591-12-70-04	CRT: Watercooler Lease	\$13.00
		WATER COOLER LEASE; CRT		
		001-000-135-591-13-70-04	ADMIN: Watercooler Lease	\$5.85
		WATER COOLER LEASE; ADM		
		001-000-137-591-18-70-04	CLK: Watercooler Lease	\$14.64
		WATER COOLER LEASE; CLK		
		001-000-140-591-18-70-04	FIN: Watercooler Lease	\$50.08
		WATER COOLER LEASE; FIN		
		001-000-145-591-18-70-04	IT: Watercooler Lease	\$16.69
		WATER COOLER LEASE; IT		
		001-000-210-591-21-70-04	PD: Watercooler Lease	\$55.90
		WATER COOLER LEASE; PD		
		001-000-240-591-58-70-04	Code Enf: Watercooler Lease	\$1.76
		WATER COOLER LEASE; CODE		
		001-000-240-591-58-71-04	PERM: Watercooler Lease	\$27.93
		WATER COOLER LEASE; PERM		
		001-000-240-591-58-72-04	PLN: Watercooler Lease	\$18.73
		WATER COOLER LEASE; PLN		
		001-000-246-591-58-70-04	MDRT: Watercooler Lease	\$100.21
		WATER COOLER LEASE; MDRT		
		001-000-270-591-76-70-04	PRK: Watercooler Lease	\$11.40
		WATER COOLER LEASE; PRK		
		001-000-280-591-36-70-04	CEM: Watercooler Lease	\$3.86
		WATER COOLER LEASE; CEM		
		101-000-000-591-95-70-04	STRT: Watercooler Lease	\$21.45
		WATER COOLER LEASE; STRT		
		401-000-000-591-37-70-04	WTR: Watercooler Lease	\$23.86
		WATER COOLER LEASE; WTR		

Vendor	Transaction Number Transaction Reference	Invoice Date	Fiscal Description Name	Void Amount
		Account Number	Title	
		407-000-000-591-35-70-04	SWR: Watercooler Lease	\$22.11
		WATER COOLER LEASE; SWR		
		410-000-000-591-31-70-04	STRM: Watercooler Lease	\$25.97
		WATER COOLER LEASE; STRM		
	Total 3944			\$413.44
57045		1/27/2026	2026 - February - 2026-02 February - Regular Batch 2	
	4156			
		RENT - FEBRUARY 2026		
		001-000-120-591-12-70-04	CRT: Watercooler Lease	\$13.03
		WATER COOLER LEASE; CRT		
		001-000-135-591-13-70-04	ADMIN: Watercooler Lease	\$5.87
		WATER COOLER LEASE; ADM		
		001-000-137-591-18-70-04	CLK: Watercooler Lease	\$14.66
		WATER COOLER LEASE; CLK		
		001-000-140-591-18-70-04	FIN: Watercooler Lease	\$50.18
		WATER COOLER LEASE; FIN		
		001-000-145-591-18-70-04	IT: Watercooler Lease	\$16.73
		WATER COOLER LEASE; IT		
		001-000-210-591-21-70-04	PD: Watercooler Lease	\$56.00
		WATER COOLER LEASE; PD		
		001-000-240-591-58-70-04	Code Enf: Watercooler Lease	\$1.76
		WATER COOLER LEASE; CODE		
		001-000-240-591-58-71-04	PERM: Watercooler Lease	\$27.98
		WATER COOLER LEASE; PERM		
		001-000-240-591-58-72-04	PLN: Watercooler Lease	\$18.77
		WATER COOLER LEASE; PLN		
		001-000-246-591-58-70-04	MDRT: Watercooler Lease	\$100.39
		WATER COOLER LEASE; MDRT		
		001-000-270-591-76-70-04	PRK: Watercooler Lease	\$11.42
		WATER COOLER LEASE; PRK		
		001-000-280-591-36-70-04	CEM: Watercooler Lease	\$3.86
		WATER COOLER LEASE; CEM		
		101-000-000-591-95-70-04	STRT: Watercooler Lease	\$21.49
		WATER COOLER LEASE; STRT		
		401-000-000-591-37-70-04	WTR: Watercooler Lease	\$23.89
		WATER COOLER LEASE; WTR		
		407-000-000-591-35-70-04	SWR: Watercooler Lease	\$22.16
		WATER COOLER LEASE; SWR		
		410-000-000-591-31-70-04	STRM: Watercooler Lease	\$26.01
		WATER COOLER LEASE; STRM		
	Total 4156			\$414.20

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
	Total 57045			\$827.64
Total KD Water Systems LLC				\$827.64
King County Finance				
	57046	2/1/2026	2026 - February - 2026-02 February - Regular Batch 2	
	30044472			
		SERVICE - FEBRUARY 2026		
		407-000-000-535-80-41-02	SWR: Metro Sewer Charges	\$150,822.62
		Monthly King County Sewer Costs		
	Total 30044472			\$150,822.62
	Total 57046			\$150,822.62
Total King County Finance				\$150,822.62
King County Prosecuting Attorney				
	57047	1/31/2026	2026 - February - 2026-02 February - Regular Batch 2	
	KCPA 01/2026			
		REMITTANCE - JANUARY 2026		
		633-000-100-589-30-00-00	CRT - Fees for King County	\$96.52
		Court Remittance		
	Total KCPA 01/2026			\$96.52
	Total 57047			\$96.52
Total King County Prosecuting Attorney				\$96.52
Law Office of Krista White Swain				
	57048	1/26/2026	2026 - February - 2026-02 February - Regular Batch 2	
	LOKWS 01/2026			
		SERVICE - JANUARY 2026		
		001-000-120-512-51-41-01	CRT: Judge	\$8,555.00
		Judicial Services		
		001-000-121-512-51-41-06	CRT: AOC-Therapeutic Grant 07/01/2025 - 06/30/2026	\$495.00
		Therapeutic Court Supplement		
	Total LOKWS 01/2026			\$9,050.00
	Total 57048			\$9,050.00
Total Law Office of Krista White Swain				\$9,050.00

Vendor	Transaction Number	Invoice Date	Fiscal Description	Void
	Transaction Reference	Account Number	Name Title	Amount
LN Curtis & Sons				
	57049	1/20/2026	2026 - February - 2026-02 February - Regular Batch 2	
	INV1030211			
		SUPPLIES		
		001-000-210-521-10-31-04	PD: Uniform Allowance	\$65.80
		NAME PATCH, LEG SHROUD		
	Total INV1030211			\$65.80
	57049	1/21/2026	2026 - February - 2026-02 February - Regular Batch 2	
	INV1030421			
		SUPPLIES		
		001-000-210-521-10-31-04	PD: Uniform Allowance	\$289.92
		SHIRT, PANTS		
	Total INV1030421			\$289.92
	Total 57049			\$355.72
Total LN Curtis & Sons				\$355.72
Maria Moscoso				
	57050	1/25/2026	2026 - February - 2026-02 February - Regular Batch 2	
	26001			
		SERVICE - JANUARY 2026		
		001-000-120-512-51-41-04	CRT: Interpreter	\$140.00
		Interpreter Service		
	Total 26001			\$140.00
	Total 57050			\$140.00
Total Maria Moscoso				\$140.00
Merchant Card Services / Vantive Holding, LLC				
	EFT PYMT MCS 01/20261	1/6/2026	2026 - January - 2026-01 January - EFT Batch	
	MCS 12/2025			
		SERVICE - DECEMBER 2025		
		001-000-270-575-70-49-00	Lake Sawyer: Bank Analysis / Merch CC / Lien Fees	\$87.37
		Lake Sawyer Pay Station		
	Total MCS 12/2025			\$87.37
	Total EFT PYMT MCS 01/20261			\$87.37
Total Merchant Card Services / Vantive Holding, LLC				\$87.37

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
Motorola Solutions Inc.				
	57051	1/30/2026	2026 - February - 2026-02 February - Regular Batch 2	
	8230556032			
		SERVICE - 03/01/26-02/28/27		
		001-000-216-521-10-49-07	PD: Spillman Records Maintenance	\$18,557.95
		Records Maintenance Costs		
	Total 8230556032			\$18,557.95
	Total 57051			\$18,557.95
Total Motorola Solutions Inc.				\$18,557.95
Oakpointe LLC/CCD Black Diamond				
	57052	1/29/2026	2026 - February - 2026-02 February - Regular Batch 2	
	OAKPOINTE 01/29/26			
		REMITTANCE - TRAFFIC IMPACT FEES		
		109-000-000-595-64-41-00	Traffic Impact Mitigation	\$1.86
		COLLECTED CONCURRENCY & INTEREST		
		112-000-000-595-64-41-00	Traffic Impact Improvements	\$161,374.79
		COLLECTED TRAFFIC IMPACT FEES - PROPORTIONATE SHARE PAYMENT & INTEREST		
	Total OAKPOINTE 01/29/26			\$161,376.65
	Total 57052			\$161,376.65
Total Oakpointe LLC/CCD Black Diamond				\$161,376.65
Office Products Nationwide				
	57053	1/29/2026	2026 - February - 2026-02 February - Regular Batch 2	
	1263884-0			
		SUPPLIES		
		001-000-210-521-10-31-00	PD: Office & Operating Supplies	\$203.13
		Printer Paper, Paper Towels, Kleenex		
	Total 1263884-0			\$203.13
	Total 57053			\$203.13
Total Office Products Nationwide				\$203.13
Olympic Environmental Resources				
	57054	1/29/2026	2026 - February - 2026-02 February - Regular Batch 2	
	26OER1			
		SERVICE - JANUARY/JUNE 2026		
		001-000-182-554-90-41-00	Recycling Program- KC Grant	\$3,579.20

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
		Spring Recycling Event		
	Total 260ER1			\$3,579.20
	Total 57054			\$3,579.20
	Total Olympic Environmental Resources			\$3,579.20
Orkin Commercial Services				
	57055	1/29/2026	2026 - February - 2026-02 February - Regular Batch 2	
	288886366			
	SERVICE - JANUARY 2026			
	001-000-254-518-20-48-00		CH: BLD Repair & Maintenance	\$172.88
		Pest Control Services		
	Total 288886366			\$172.88
	Total 57055			\$172.88
	Total Orkin Commercial Services			\$172.88
Palmer Coking Coal Company				
	57056	1/26/2026	2026 - February - 2026-02 February - Regular Batch 2	
	97472			
	SUPPLIES			
	101-000-000-542-30-31-00		STRT: Office & Operating Supplies	\$72.83
		Crushed Gravel		
	Total 97472			\$72.83
	Total 57056			\$72.83
	Total Palmer Coking Coal Company			\$72.83
PD - Transient Vendors				
	57057	1/22/2026	2026 - February - 2026-02 February - Regular Batch 2	
	B Miner 01/22/26		Blake Miner	
	REFUND - CPL FEES			
	001-000-210-322-90-00-00		Gun Permits and Fingerprinting	\$12.00
		REFUND - CPL Fees		
	633-000-400-389-30-00-00		CPL Fees for DOL - Firearms EFT	\$18.00
		REFUND - CPL Fees		
	633-000-500-389-30-00-00		CPL Fees for WSP/FBI - Fingerprint	\$18.00

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
		REFUND - CPL Fees		
	Total B Miner 01/22/26			\$48.00
	Total 57057			\$48.00
	Total PD - Transient Vendors			\$48.00
Puget Sound Energy				
	EFT PYMT PSE 01/20261 PSE 12/2025	1/5/2026	2026 - January - 2026-01 January - EFT Batch	
	SERVICE - DECEMBER 2025			
	001-000-120-512-51-47-00		CRT: Electricity/Gas	\$213.04
			Electric/Gas Charges; CRT	
	001-000-135-513-11-47-00		ADMIN: Electricity/Gas	\$109.69
			Electric/Gas Charges; ADM	
	001-000-137-514-21-47-00		CLK: Electricity/Gas	\$274.24
			Electric/Gas Charges; CLK	
	001-000-140-514-23-47-00		FIN: Electricity/Gas	\$259.86
			Electric/Gas Charges; FIN	
	001-000-145-518-80-47-00		IT: Electricity/Gas	\$570.34
			Electric/Gas Charges; IT	
	001-000-180-518-50-47-00		CEN SVCS: Electricity/Gas	\$237.65
			Electric/Gas Charges; CNSV	
	001-000-212-521-50-47-00		PD: Electricity/Gas	\$1,411.09
			Electric/Gas Charges; PD	
	001-000-240-558-50-47-00		Code Enf: Electricity/Gas	\$32.91
			Electric/Gas Charges; CODE	
	001-000-240-558-51-47-00		PERM: Electricity/Gas	\$523.25
			Electric/Gas Charges; PERM	
	001-000-240-558-60-47-00		PLN: Electricity/Gas	\$351.02
			Electric/Gas Charges; PLN	
	001-000-248-518-20-47-00		MDRT: Electricity/Gas	\$338.35
			Electric/Gas Charges; MDRT	
	001-000-270-575-30-47-00		PRK: Museum Electric/Gas	\$843.07
			Electric/Gas Charges; MUSM	
	001-000-270-575-51-47-00		GYM: Electricity/Gas	\$689.09
			Electric/Gas Charges; GYM	
	001-000-270-576-80-47-00		PRK: Electricity/Gas	\$160.68
			Electric/Gas Charges; PRK	

Vendor	Transaction Number Transaction Reference	Invoice Date	Fiscal Description Name Title	Void Amount
		001-000-280-536-20-47-00	CEM: Electricity/Gas Electric/Gas Charges; CEM	\$46.35
		001-000-530-522-10-47-00	FIRE: Electricity/gas Electric/Gas Charges; FIRE	\$1,465.02
		101-000-000-542-63-47-00	STRT: Street Lighting Electric/Gas Charges; Street Lights	\$3,068.55
		101-000-000-543-50-47-00	STRT: Electricity/Gas Electric/Gas Charges; STRT	\$245.39
		401-000-000-534-80-47-00	WTR: Electricity/Gas Electric/Gas Charges; WTR	\$4,306.71
		407-000-000-535-80-47-00	SWR: Electricity/Gas Electric/Gas Charges; SWR	\$542.87
		410-000-000-531-10-47-00	STRM: Electricity/Gas Electric/Gas Charges; STRM	\$274.58
		Total PSE 12/2025		\$15,963.75
		Total EFT PYMT PSE 01/20261		\$15,963.75
		Total Puget Sound Energy		\$15,963.75
Pye-Barker Fire & Safety LLC				
	57058	1/23/2026	2026 - February - 2026-02 February - Regular Batch 2	
	7790464			
		SERVICE - 32401 BOTTS DR		
		310-000-002-594-18-62-03	CIP - Gen Govt - Campus Improvements Installation of Security System at 32401 Botts Dr (Pump Station)	\$10,715.06
		Total 7790464		\$10,715.06
	57058	2/1/2026	2026 - February - 2026-02 February - Regular Batch 2	
	Pye-Barker 02/2026			
		SERVICE - FEBRUARY 2026		
		001-000-120-512-51-49-04	CRT: Security SECURITY MONITORING SERVICES; CRT	\$146.33
		001-000-135-513-11-49-04	ADMIN: Security SECURITY MONITORING SERVICES; ADM	\$36.37
		001-000-137-514-21-49-04	CLK: Security SECURITY MONITORING SERVICES; CLK	\$90.94
		001-000-140-514-23-49-04	FIN: Security SECURITY MONITORING SERVICES; FIN	\$218.25
		001-000-145-518-80-49-04	IT: Security SECURITY MONITORING SERVICES; IT	\$72.75
		001-000-212-521-50-49-04	PD: Security SECURITY MONITORING SERVICES; PD	\$982.32

Vendor	Transaction Number Transaction Reference	Invoice Date	Fiscal Description Name	Void Amount
	Account Number		Title	
	001-000-240-558-50-49-04		Code Enf: Security	\$10.91
			SECURITY MONITORING SERVICES; CODE	
	001-000-240-558-51-49-04		PERM: Security	\$173.51
			SECURITY MONITORING SERVICES; PERM	
	001-000-240-558-60-49-04		PLN: Security	\$116.40
			SECURITY MONITORING SERVICES; PLN	
	001-000-246-558-70-49-04		MDRT: Security	\$136.41
			SECURITY MONITORING SERVICES; MDRT	
	001-000-270-575-51-49-04		GYM: Security	\$236.54
			SECURITY MONITORING SERVICES; GYM	
	001-000-270-576-80-49-04		PRK: Security	\$115.81
			SECURITY MONITORING SERVICES; PRK	
	001-000-280-536-20-49-04		CEM: Security	\$40.49
			SECURITY MONITORING SERVICES; CEM	
	101-000-000-543-50-49-04		STRT: Security	\$209.43
			SECURITY MONITORING SERVICES; STRT	
	401-000-000-534-80-49-04		WTR: Security	\$408.48
			SECURITY MONITORING SERVICES; WTR	
	407-000-000-535-80-49-04		SWR: Security	\$221.31
			SECURITY MONITORING SERVICES; SWR	
	410-000-000-531-10-49-04		STRM: Security	\$225.03
			SECURITY MONITORING SERVICES; STRM	
	Total Pye-Barker 02/2026			\$3,441.28
	Total 57058			\$14,156.34
	Total Pye-Barker Fire & Safety LLC			\$14,156.34

Severson's Building Maintenance

57059	1/28/2026	2026 - February - 2026-02 February - Regular Batch 2
SEVERSONS 01/2026		
SERVICE - JANUARY 2026		
001-000-120-512-51-48-00		CRT: Bld Repair & Maintenance
		CUSTODIAL COSTS; CRT
001-000-135-513-11-48-00		ADMIN: Bld Repair & Maintenance
		CUSTODIAL COSTS; ADM
001-000-137-514-21-48-00		CLK: Bld Repair & Maintenance
		CUSTODIAL COSTS; CLK
001-000-140-514-23-48-00		FIN: Bld Repair & Maintenance
		CUSTODIAL COSTS; FIN
001-000-145-518-80-48-00		IT: Bld Repair & Maintenance
		CUSTODIAL COSTS; IT

Vendor	Transaction Number Transaction Reference	Invoice Date	Fiscal Description Name Title	Void Amount
		001-000-212-521-50-48-00	PD: Bldg Repairs & Maintenance	\$405.64
		CUSTODIAL COSTS; PD		
		001-000-240-558-50-48-00	Code Enf: Bld Repair & Maintenance	\$10.20
		CUSTODIAL COSTS; CODE		
		001-000-240-558-51-48-00	PERM: Bld Repair & Maintenance	\$162.11
		CUSTODIAL COSTS; PERM		
		001-000-240-558-60-48-00	PLN: Bld Repair & Maintenance	\$108.75
		CUSTODIAL COSTS; PLN		
		001-000-248-518-20-48-00	MDRT: Bld Repair & Maintenance	\$285.44
		CUSTODIAL COSTS; MDRT		
		001-000-270-575-51-48-00	GYM: Bld Repair & Maintenance	\$250.00
		CUSTODIAL COSTS; GYM		
		001-000-270-576-80-48-00	PRK: Bld Repair & Maintenance	\$77.49
		CUSTODIAL COSTS; PRKS		
		001-000-280-536-20-48-00	CEM: Bld Repair & Maintenance	\$25.71
		CUSTODIAL COSTS; CEM		
		101-000-000-543-50-48-00	STRT: Bld Repair & Maintenance	\$149.27
		CUSTODIAL COSTS; STRT		
		401-000-000-534-80-48-00	WTR: Bld Repair & Maintenance	\$166.02
		CUSTODIAL COSTS; WTR		
		407-000-000-535-80-48-00	SWR: Bld Repair & Maintenance	\$151.75
		CUSTODIAL COSTS; SWR		
		410-000-000-531-10-48-00	STRM: Bld Repair & Maintenance	\$192.08
		CUSTODIAL COSTS; STRM		
		Total SEVERSONS 01/2026		\$2,650.00
	Total 57059			\$2,650.00
	Total Severson's Building Maintenance			\$2,650.00

Somer Johnson

57060		1/31/2026	2026 - February - 2026-02 February - Regular Batch 2	
	225			
		SERVICE - JANUARY 2026		
		001-000-121-512-51-41-06	CRT: AOC-Therapeutic Grant 07/01/2025 - 06/30/2026	\$3,165.00
		Community Court Coordinator Salary		
	Total 225			\$3,165.00
57060		2/4/2026	2026 - February - 2026-02 February - Regular Batch 2	
	226			
		SERVICE - JANUARY 2026		
		001-000-121-512-51-41-11	CRT: AOC-Pretrial Monitoring Services Grant	\$500.00

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
		Pre-Trial Monitoring Salary		
	Total 226			\$500.00
	Total 57060			\$3,665.00
Total Somer Johnson				\$3,665.00
Summit Law Group, PLLC				
	57061	1/21/2026	2026 - February - 2026-02 February - Regular Batch 2	
	169349			
		SERVICE - DECEMBER 2025		
		001-000-150-515-41-41-02	Legal: Employment	\$3,264.50
		Labor Related Legal Services		
	Total 169349			\$3,264.50
	Total 57061			\$3,264.50
Total Summit Law Group, PLLC				\$3,264.50
Tacoma Public Utilities				
	EFT PYMT TPU 01/20261 TPU 12/2025	1/21/2026	2026 - January - 2026-01 January - EFT Batch	
		SERVICE - DECEMBER 2025		
		401-000-000-534-80-47-05	WTR: Tacoma PUD	\$15,070.35
		Water Charges		
	Total TPU 12/2025			\$15,070.35
	Total EFT PYMT TPU 01/20261			\$15,070.35
Total Tacoma Public Utilities				\$15,070.35
United Business Machines of WA Inc				
	57062	2/3/2026	2026 - February - 2026-02 February - Regular Batch 2	
	INV552463			
		SERVICE - JANUARY 2026		
		001-000-120-512-51-49-03	CRT: Printing & Binding	\$57.87
		Monthly Per Copy Charge		
	Total INV552463			\$57.87
	Total 57062			\$57.87
Total United Business Machines of WA Inc				\$57.87

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
US Bank Equipment Finance				
	EFT PYMT US BANK 01/20261 571175496	12/17/2025	2026 - January - 2026-01 January - EFT Batch	
	RENT - DECEMBER 2025			
	001-000-135-591-13-70-03		ADMIN: Copier Lease	\$41.33
			Monthly Copier Lease; ADM	
	001-000-137-591-18-70-03		CLK: Copier Lease	\$103.32
			Monthly Copier Lease; CLK	
	001-000-140-591-18-70-03		FIN: Copier Lease	\$458.51
			Monthly Copier Lease; FIN	
	001-000-210-591-21-70-03		PD: Copier Lease	\$344.83
			Monthly Copier Lease; PD	
	001-000-240-591-58-70-03		Code Enf: Copier Lease	\$12.40
			Monthly Copier Lease; CODE	
	001-000-240-591-58-71-03		PERM: Copier Lease	\$197.13
			Monthly Copier Lease; PERM	
	001-000-240-591-58-72-03		PLN: Copier Lease	\$132.24
			Monthly Copier Lease; PLN	
	001-000-248-591-58-70-03		MDRT: Copier Lease	\$377.25
			Monthly Copier Lease; MDRT	
	001-000-270-591-76-70-03		PRK: Copier Lease	\$27.51
			Monthly Copier Lease; PRK	
	001-000-280-591-36-70-03		CEM: Copier Lease	\$8.05
			Monthly Copier Lease; CEM	
	101-000-000-591-95-70-03		STRT: Copier Lease	\$60.04
			Monthly Copier Lease; STRT	
	401-000-000-591-34-70-03		WTR: Copier Lease	\$66.74
			Monthly Copier Lease; WTR	
	407-000-000-591-35-70-03		SWR: Copier Lease	\$56.69
			Monthly Copier Lease; SWR	
	410-000-000-591-31-70-03		STRM: Copier Lease	\$100.30
			Monthly Copier Lease; STRM	
	Total 571175496			\$1,986.34
	Total EFT PYMT US BANK 01/20261			\$1,986.34
	Total US Bank Equipment Finance			\$1,986.34

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
Utilities Underground Location Center				
	57063	1/31/2026	2026 - February - 2026-02 February - Regular Batch 2	
	6010132			
		SERVICE - JANUARY 2026		
		401-000-000-534-80-41-08	WTR: Locating Service	\$129.60
		Utility Locating Service		
	Total 6010132			\$129.60
	Total 57063			\$129.60
	Total Utilities Underground Location Center			\$129.60
Valley Communications Center				
	57064	12/31/2025	2026 - February - 2026-02 February - Regular Batch 2	
	0028882			
		SERVICE - NOVEMBER & DECEMBER 2025		
		001-000-214-521-20-41-00	PD: Valley Comm - Dispatch Service	\$10,671.54
		911 Call Service		
	Total 0028882			\$10,671.54
	Total 57064			\$10,671.54
	Total Valley Communications Center			\$10,671.54
Wa Association of Sheriffs & Police Chiefs				
	57065	1/1/2026	2026 - February - 2026-02 February - Regular Batch 2	
	DUES 2026-00156			
		DUES - 2026		
		001-000-210-521-10-49-02	PD: Dues & Memberships	\$180.00
		Annual Membership Dues		
	Total DUES 2026-00156			\$180.00
	Total 57065			\$180.00
	Total Wa Association of Sheriffs & Police Chiefs			\$180.00
Washington State Department of Revenue				
	EFT PYMT WA DOR 01/20261	12/31/2025	2026 - January - 2026-01 January - EFT Batch	
	WA DOR 12/2025			
		EXCISE TAX - DECEMBER 2025		
		001-000-210-521-10-31-04	PD: Uniform Allowance	\$3.70
		Unpaid Sales Tax from Out of State Purchase		
		001-000-210-521-10-35-00	PD: Firearms Program	\$611.07
		Unpaid Sales Tax from Out of State Purchase		
		001-000-210-521-20-49-05	PD: Sales Excise Tax	\$0.24
		B&O Tax: PD		

Vendor	Transaction Number Transaction Reference	Invoice Date	Fiscal Description Name	Void Amount
		Account Number	Title	
		001-000-280-536-20-49-05	CEM: Sales Excise Tax	\$0.00
		B&O Tax: Cemetery		
		401-000-000-534-80-44-01	WTR: State of WA Utility Excise Tax	\$6,793.46
		Utility Tax: Water		
		401-000-000-534-80-44-01	WTR: State of WA Utility Excise Tax	\$82.80
		B&O Tax: Water		
		407-000-000-535-80-44-01	State of WA Excise Tax	\$7,341.53
		Utility Tax: Sewer		
		407-000-000-535-80-44-01	State of WA Excise Tax	(\$5,533.79)
		Utility Tax: Sewer(KC Credit)		
		407-000-000-535-80-44-01	State of WA Excise Tax	\$500.11
		B&O Tax: Sewer		
		410-000-000-531-10-44-01	STRM: State of Wa Excise Tax	\$234.29
		B&O Tax: Storm		
		633-000-000-589-30-00-00	Sales Tax	\$4.40
		Sales Tax to Remit		
		Total WA DOR 12/2025		\$10,037.81
		Total EFT PYMT WA DOR 01/20261		\$10,037.81
		Total Washington State Department of Revenue		\$10,037.81
Washington State Patrol				
	57066	2/2/2026	2026 - February - 2026-02 February - Regular Batch 2	
	I2604032			
		REMITTANCE - JANUARY 2026		
		633-000-500-589-30-00-00	PD - CPL Fees for WSP/FBI - Fingerprint	\$117.00
		Fingerprinting Fees		
		Total I2604032		\$117.00
	Total 57066			\$117.00
	Total Washington State Patrol			\$117.00
Washington State Treasurer				
	57067	1/31/2026	2026 - February - 2026-02 February - Regular Batch 2	
	WA TREASURER 01/2026			
		REMITTANCE - JANUARY 2026		
		633-000-200-589-30-00-00	CRT - Fees for WA State Treasurer	\$8,337.27
		Court Remittance		
		Total WA TREASURER 01/2026		\$8,337.27
	Total 57067			\$8,337.27
	Total Washington State Treasurer			\$8,337.27

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
Water Management Laboratories, Inc.				
57068	235035	1/22/2026	2026 - February - 2026-02 February - Regular Batch 2	
		SERVICE - 01/06/26		
		401-000-000-534-80-41-02	WTR: Testing and Sampling	\$60.00
		WATER TESTING SERVICE		
	Total 235035			\$60.00
57068	235214	1/27/2026	2026 - February - 2026-02 February - Regular Batch 2	
		SERVICE - 01/14/26		
		401-000-000-534-80-41-02	WTR: Testing and Sampling	\$132.00
		WATER TESTING SERVICE		
	Total 235214			\$132.00
Total 57068				\$192.00
Total Water Management Laboratories, Inc.				\$192.00

Williams Scotsman, Inc.

EFT PYMT WILLSCOT 01/20261	1/1/2026	2026 - January - 2026-01 January - EFT Batch	
WILLSCOT 01/2026			
RENT - JANUARY 2026			
001-000-135-591-13-70-00		ADMIN: Bld & Property Lease	\$294.59
Modular Building Rent; ADM			
001-000-137-591-18-70-00		CLK: Bld & Property Lease	\$736.47
Modular Building Rent; CLK			
001-000-240-591-58-70-00		Code Enf: Bld & Property Lease	\$88.38
Modular Building Rent; CODE			
001-000-240-591-58-71-00		PERM: Bld & Property Lease	\$1,405.18
Modular Building Rent; PERM			
001-000-240-591-58-72-00		PLN: Bld & Property Lease	\$942.68
Modular Building Rent; PLN			
001-000-270-591-76-70-00		PRK: Bld & Property Lease	\$227.41
Modular Building Rent; PRK			
001-000-280-591-36-70-00		CEM: BLD & Property Lease	\$81.42
Modular Building Rent; CEM			
101-000-000-591-95-70-00		STRT: Bld & Property Lease	\$398.67
Modular Building Rent; STRT			
401-000-000-591-34-70-00		WTR: Bld & Property Lease	\$443.58
Modular Building Rent; WTR			
407-000-000-591-35-70-00		SWR: Bld & Property Lease	\$429.55
Modular Building Rent; SWR			

Vendor	Transaction Number Transaction Reference Account Number	Invoice Date	Fiscal Description Name Title	Void Amount
		410-000-000-591-31-70-00	STRM: Bld & Property Lease	\$384.63
		Modular Building Rent; STRM		
	Total WILLSCOT 01/2026			\$5,432.56
	Total EFT PYMT WILLSCOT 01/20261			\$5,432.56
Total Williams Scotsman, Inc.				\$5,432.56
Zoom Video Communications, Inc				
	57069	2/1/2026	2026 - February - 2026-02 February - Regular Batch 2	
	INV339999526			
	SERVICE - 2026 (ANNUAL)			
	001-000-145-518-80-42-04		IT: Communication Services	\$18,436.44
		Annual Zoom Communications Costs		
	Total INV339999526			\$18,436.44
	Total 57069			\$18,436.44
Total Zoom Video Communications, Inc				\$18,436.44
	Vendor Count	58	Grand Total	\$831,134.05

City of Black Diamond

Payroll Register - January 2026

Number	Name	Fiscal Description	Amount
20586	BD Police Officers Association	2026 - January - Month End	\$1,200.00
20587	City of Black Diamond Flex	2026 - January - Month End	\$600.00
20588	HRA VEBA Trust	2026 - January - Month End	\$300.00
20589	Joseph Kaufman	2026 - January - Month End	\$223.20
20590	Minnesota Child Support Payment Ctr	2026 - January - Month End	\$520.00
20591	Teamsters Local 117	2026 - January - Month End	\$3,129.20
20592	Trusted Plans Service CP LTD	2026 - January - Month End	\$130.00
20593	Western States Police Medical	2026 - January - Month End	\$525.00
EFT January 2026 Aflac1	Aflac	2026 - January - Month End	\$43.03
EFT January 2026 DRS: DCP1	DOR - Deferred Comp	2026 - January - Month End	\$13,206.20
EFT January 2026 DRS: Ret 1	Dept of Retirement Systems	2026 - January - Month End	\$55,934.73
EFT January 2026 ESD1	Employment Security Dept	2026 - January - Month End	\$958.60
EFT January 2026 Fed Taxes1	City of Black Diamond Taxes	2026 - January - Month End	\$123,245.93
EFT January 2026 L&I1	Dept of Labor and Industries	2026 - January - Month End	\$8,487.11
EFT January 2026 Medical Ins1	AWC Employee Benefit Trust	2026 - January - Month End	\$100,775.31
EFT January 2026 PFML1	PFML ESD	2026 - January - Month End	\$5,416.22
EFT January 2026 WA Cares1	WA Cares ESD	2026 - January - Month End	\$1,605.33
January 2026 Draw	Payroll - Draw	2026 - January - Month End	\$58,991.80
January 2026 Month End	Payroll - Month End	2026 - January - Month End	\$273,825.47
			\$649,117.13

I hereby certify that payroll and benefits have been processed and delivered as required under contract or legal obligation.

Finance
Director

Xavier Masan

Date 2-10-26

BLACK DIAMOND CITY COUNCIL MINUTES
Council Meeting of February 5, 2026
Hybrid Meeting Via Zoom and In-Person
Council Chamber, 25510 Lawson Street, Black Diamond, Washington

CALL TO ORDER, FLAG SALUTE:

Mayor Adler called the regular meeting to order at 7:00 p.m. and led us all in the Flag Salute.

ROLL CALL:

PRESENT: Councilmembers Deady, Nielsen, Peterson, Sorci (Zoom), Young, Dal Santo, Kumar. (Councilmember Nielsen was not present during roll call and entered the meeting at 7:02 p.m.)

ABSENT: None

Staff present: Xavier Mason, Finance Director; Scott Hanis, Public Works Director; Rob Reed, IS Manager; Jake Kapsandy, IT Tech II; City Administrator, Jamey Kiblinger, Police Chief; Kevin O'Neill; Brenda L. Martinez, City Clerk/HR Manager.

AGENDA REVIEW AND APPROVAL:

Councilmember Deady **moved** to approve the Agenda; **second** Councilmember Young. Motion **passed** with all voting in favor (6-0).

Councilmember Nielsen entered the meeting at 7:02 p.m.

PUBLIC COMMENTS:

Kristen Bryant, Bellevue spoke to Council.

APPOINTMENTS, ANNOUNCEMENTS, PROCLAMATIONS AND PRESENTATIONS:

1) AB26-010 – Legislative Update – Adam Day, Civic Forge

Mr. Day shared with Council his background and presented a State Legislative update for January 2026 and discussed the budget requests submitted that pertain to Black Diamond.

2) AB26-011 – Court 101 -Judge Swain

Judge Krista White Swain presented to Council a PowerPoint presentation on the Judicial branch of government. It gave an overview of the Court's role and responsibilities, staffing,

the types of cases handled, the Court's scheduling, how they receive cases, traffic school, typical case flow for a criminal case, who the court serves, who makes the court run, supportive governance, and the Therapeutic Court program.

COMMITTEE REPORTS: None

DEPARTMENT REPORTS:

3) AB26-012 – Finance – November 2025 Monthly Financial Report

Finance Director Mason shared with Council the monthly Financial Report for November 2025.

CONSENT AGENDA:

Councilmember Deady **moved** to approve the Consent Agenda; **second** Councilmember Young. Motion **passed** with all voting in favor (7-0). The Consent Agenda was approved as follows:

- 4) Claim Checks** – February 5, 2026, Check No. 56912 through Check No. 57023 and EFTs in the amount of \$3,300,968.98
- 5) Payroll** – December 31, 2025, Check No. 20576 through Check No. 20585 in the amount of \$657,049.85
- 6) Minutes** – Special Meeting of January 8, 2026, and Council Meeting of January 15, 2026
- 7) AB26-013** – Resolution Regarding Surplus and Sale of 2012 Ford F250 to Mountain View Fire & Rescue

PUBLIC HEARINGS: None

UNFINISHED BUSINESS: None

NEW BUSINESS:

- 8) AB26-014** – Resolution Regarding Amendment #1 to Agreement with HWA for On-Call Geotech Services

Public Works Director Hanis reported on this item.

Councilmember Young **moved** to adopt Resolution No. 26-1723 authorizing the Mayor to execute Amendment 1 to the agreement with HWA Geosciences, Inc. for On-Call engineering services; **second** Councilmember Dal Santo. Motion **passed** with all voting in favor (7-0).

9) AB26-015 – Resolution Regarding Amendment #1 to Agreement with RH2 for On-Call Engineering Services

Public Works Director Hanis briefed the Council on this item.

Councilmember Deady **moved** to adopt Resolution No. 26-1724 authorizing the Mayor to execute Amendment 1 to the agreement with RH2 Engineering, Inc. for on-call engineering services; **second** Councilmember Dal Santo. Motion **passed** with all voting in favor (7-0).

10) AB26-016 – Resolution Regarding Amendment #2 to Agreement with Parametrix for On-Call Engineering Services

Public Works Director Hanis discussed this item with the Council.

Councilmember Deady **moved** to adopt Resolution No. 26-1725 authorizing the Mayor to execute Amendment 2 to the agreement with Parametrix, Inc. for on-call engineering services; **second** Councilmember Nielsen. Motion **passed** with all voting in favor (7-0).

11) AB26-017 – Resolution Authorizing Purchase of Cameral Equipment for Inspection of Sewer and Storm Conveyance Systems

Public Works Director Hanis provided information to the Council on this item.

Councilmember Deady **moved** to adopt Resolution No. 26-1726 authorizing the purchase of Cues camera equipment as identified in attached quotes; **second** Councilmember Young. Motion **passed** with all voting in favor (7-0).

12) AB26-018 – Resolution Awarding and Authorizing Mayor to Execute Contract with Lakeside Doors for Garage Door Replacement for the Fire Station Renovation

Public Works Director Hanis reported to the Council on this item.

Councilmember Deady **moved** to adopt Resolution No. 26-1727 authorizing the Mayor to execute a contract with Lakeside Doors for the Garage Door Replacement for the Fire Station Renovation; **second** Councilmember Young. Motion **passed** with all voting in favor (7-0).

13) AB26-019 – Ordinance Amending Black Diamond Municipal Code Section 2.04.010 Regarding Changing Council Meeting Day

City Administrator O'Neill briefed the Council on this item.

Councilmember Deady **moved** to adopt Ordinance No. 26-1244 amending Section 2.04.010 for Municipal Code to change the days for holding regular council meetings, work sessions, and town halls; providing for severability; and establishing an effective date; **second** Councilmember Nielsen. Motion **passed** with all voting in favor (7-0).

MAYOR'S REPORT:

Mayor Adler reported that he attended the ribbon-cutting ceremony for Swet Pilates and thanked them for choosing to invest in Black Diamond and for contributing to the vitality of our local business community. He also thanked the Maple Valley Diamond Chamber of Commerce for helping facilitate the ceremony. He met with members of the Lake Sawyer Community Club Board and reported that he will be reviewing with staff and bringing some recommendations in the next coming months as they continue to evaluate the policies and procedures related to recreation at the lake. He stated that he appreciates the professionalism and dedication in all departments as well as the conversations he has had with many residents and he looks forward to working with everyone to deliver for the people of Black Diamond.

COUNCIL REPORTS:

Councilmember Peterson reported that there is the Parks Committee meeting and Public Works meeting that she will be attending and asked about the dates for the retreat.

Councilmember Sorci – no report.

Councilmember Young reported that he attended the Mountain View Fire and Rescue Board of Commissioners meeting last week and said that they set a really high bar and standard for all fire and rescue districts around here. He stated that there is a lot going on and congratulated the newly elected commissioners and the firefighter's promotions. He shared that King County mandated that we bring in the new Lifepak 15 defibrillators as the previous ones are not being serviced anymore. He spoke about Legislative Day, a grant received for the community center, and some incidents that happened in Black Diamond. He also congratulated the Black Diamond Historical Society for winning the John D. Spellman Award and noting that Tuesday is Election Day. He ended his report saying that he is really proud to call Black Diamond home.

Councilmember Dal Santo – no report.

Councilmember Kumar reported that she attended the SCA (Sound Cities Association) meeting and learned that PSRC reviews the comprehensive plan for all cities and she spoke with Jason Thibodeau, who offered to stop by one of our council meetings and help us understand the review process and all the checklists that need to be passed. She was advised by Sarah Perry that several grants are available but are not available until the comp plan is submitted and accepted and that time is ticking and every day, we are losing our chance to apply for these grants.

Councilmember Deady reported that she attended SEAL TC meeting this morning as well as the opening for the new Pilates business in Diamond Square and shared they are Black Diamond residents. She stated that retired Councilmember Mulvihill has stepped up as chair for Labor Days, but they still need a lot of volunteers. She ended with a "Go Hawks" for the Super Bowl this weekend.

Councilmember Nielsen congratulated the new Pilates business and thanked Judge Swain for her informative presentation about their services at the courts. She encouraged residents to come forward with ideas and collaborate with the council so we can continue to improve our great city.

CITY ADMINISTRATOR REPORT:

City Administrator O'Neill reported that he had to push the strategic planning contract to the next meeting which will mean the retreat will be pushed into March.

ATTORNEY REPORT: None

PUBLIC COMMENTS: None

EXECUTIVE SESSION:

At 9:15 p.m. Mayor Adler announced that Council would be going into an executive session to discuss with legal counsel pursuant to RCW 42.30.110(1)(g) – Personnel Performance and RCW 42.30.110.(1)(i). The executive session was anticipated to last 30 minutes with no action to follow. Councilmember exited the Chambers to the patrol room and the executive session started at 9:17 p.m. A 30-minute extension was announced at 9:47, and the executive session ended at 10:17 p.m.

Mayor Adler called the meeting back to order at 10:18 p.m.

ADJOURNMENT:

Councilmember Deady **moved** to adjourn the meeting; **second** Councilmember Dal Santo. Motion **passed** with all voting in favor (7-0). The meeting ended at 10:20 p.m.

ATTEST:

John Adler, Mayor

Brenda L. Martinez, City Clerk

CITY COUNCIL AGENDA BILL

City of Black Diamond
Post Office Box 599
Black Diamond, WA 98010

ITEM INFORMATION		
SUBJECT: Amendment No. 9 to Professional Services Agreement with RH2 Engineering, Inc. for the Black Diamond Springs Rehabilitation project	Agenda Date: February 19, 2026 AB26-021	
	Mayor John Adler	
	City Administrator - Kevin O'Neill	
	City Attorney - David Linehan	
	City Clerk – Brenda L. Martinez	
	Com Dev –Andy Williamson	
	Finance – Xavier Mason	
	MDRT/Ec Dev – Andy Williamson	
	Police – Chief Kiblinger	
	Public Works – Scott Hanis	X
Cost Impact (see also Fiscal Note): \$38,600	Court – Judge Swain/Tawnya Parks	
Fund Source: WSFFA Partners		
Timeline: 2026		
Agenda Placement: ☐ Mayor ☐ Two Councilmembers ☐ Committee Chair ☒ City Administrator		
Attachments: Resolution; Amendment 9		
SUMMARY STATEMENT: The Springs rehabilitation project is driven by the Water Supply Facilities Funding Agreement (WSFFA). In this agreement, major property owners in the City committed to upgrading certain water infrastructure for the City, including upgrades to the Springs water source and piping of water to the City. Design work on the rehabilitation of the springs is nearing completion. The rehabilitation includes water main replacement to the top of the hill next to the Green River. The phase of work following the rehabilitation of the springs includes upgrading the mainlines down the hill to the Green River and crossing the river. There have been numerous challenges to crossing the river, but there looks to be a viable option. The challenge will be delivery of components and equipment for construction. This amendment will explore options for access to the Green River, including upgrades to the access road and/or limits on vehicle delivery sizes. FISCAL NOTE (Finance Department): The Springs project is covered by the partners of the WSFFA.		
COUNCIL COMMITTEE REVIEW AND RECOMMENDATION: Public Works Committee recommends bringing to the full Council as a Consent Agenda item.		
RECOMMENDED ACTION: MOTION to adopt Resolution No. 26-1728 authorizing the Mayor to execute Amendment 9 to the Professional Services Agreement with RH2 Engineering, Inc. for the Black Diamond Springs Rehabilitation project.		

RECORD OF COUNCIL ACTION		
<i>Meeting Date</i>	<i>Action</i>	<i>Vote</i>
February 19, 2026		

RESOLUTION NO. 26-1728

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF
BLACK DIAMOND, KING COUNTY, WASHINGTON
AUTHORIZING THE MAYOR TO EXECUTE AMENDMENT 9
WITH RH2 ENGINEERING, INC. FOR THE BLACK
DIAMOND SPRINGS REHABILITATION PROJECT**

WHEREAS, the City Council approved a professional services agreement with RH2 Engineering, Inc. for the rehabilitation of the springs, pumps, and transmission system by Resolution 18-1278; and

WHEREAS, the water mains currently crossing the Green River are attached to the existing bridge; and

WHEREAS, the construction of a new bridge to support the new water mains has brought challenges to the project; and

WHEREAS, a promising solution for a new bridge is in the works but delivery of bridge components needs more study; and

WHEREAS, this amendment will allow the City to look at potential upgrades to the access road to the Green River crossing;

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF BLACK DIAMOND, WASHINGTON, DOES RESOLVE AS FOLLOWS:

Section 1. The Mayor is hereby authorized to execute Amendment 9 to the Professional Services Agreement with RH2 Engineering, Inc. for the Black Diamond Springs Rehabilitation project, substantially in the form attached hereto.

PASSED BY THE CITY COUNCIL OF THE CITY OF BLACK DIAMOND, WASHINGTON, AT A REGULAR MEETING THEREOF, THIS 19TH DAY OF FEBRUARY, 2026.

CITY OF BLACK DIAMOND:

John Adler, Mayor

Attest:

Brenda L. Martinez, City Clerk

City of Black Diamond
Contract Amendment No. 9
Black Diamond Springs Rehabilitation
Green River Bridge Access Road Evaluation

RH2 Project No. 0518179.00

In accordance with our Professional Services Agreement for the Black Diamonds Springs Rehabilitation dated November 2018, this is an authorization to revise the project parameters as described below. The work will be performed and invoiced using the terms and conditions listed in the original agreement, plus previous amendments.

This Amendment modifies the following elements of the Scope of Work and Fee Estimate:

Reference attached **Exhibit A** and **Exhibit B**.

The engineering fee authorization will increase by \$38,600 for a total authorization amount of **\$1,499,000**.

Please sign this authorization in the space provided below and return to RH2 Engineering, Inc., by mail at the address below, or by email to Contracts@RH2.com.

RH2 Engineering, Inc.

22722 29th Drive SE, Suite 210, Bothell, WA 98021

City of Black Diamond

24301 Roberts Drive, Black Diamond, WA 98010

SIGNATURE

DATE

SIGNATURE

DATE

PRINT NAME & TITLE

PRINT NAME & TITLE

EXHIBIT A
Scope of Work
Amendment No. 9
City of Black Diamond
Black Diamond Springs Rehabilitation
Green River Bridge Access Road Evaluation
January 2026

Background

The Black Diamond Springs are the City of Black Diamond's (City) major source of drinking water supply and are utilized year-round. Groundwater is collected in a series of collection boxes and pipes. Once captured, the piped spring water flows via gravity across the top of an embankment area and down a steep slope. It then crosses the Green River via a 6-inch-diameter pipe on a cable suspension bridge and is pumped to the City's water system via the North Bank Pump Station (NBPS). The existing conveyance pipe from the Black Diamond Springs' junction box to the NBPS is undersized and the existing cable suspension bridge was built approximately 100 years ago. Thus, the City requested support from RH2 Engineering, Inc., (RH2) to investigate potential improvements.

In 2025, RH2 retained Peterson Structural Engineers, Inc., as a subconsultant to conduct a structural feasibility study on the suspension bridge. The study evaluated four alternatives, including replacement of the existing cable structure in kind, but concluded that a prefabricated launched bridge is the most feasible alternative to pursue. Access to the bridge site is provided via an unpaved utility road system. To facilitate construction access, including heavy vehicles with up to a 40-foot goose neck trailer, improvements to the access road are anticipated.

The City has asked that RH2 prepare this Scope of Work to identify the required road improvements to facilitate construction activities at the bridge site.

General Assumptions

The following assumptions were made when preparing this Scope of Work:

- *RH2 will rely upon the accuracy and completeness of information, data, and materials generated or produced by the City or others in relation to this Scope of Work. Information is assumed to be provided by or with written authorization from the owner of the information.*
- *Deliverables will be submitted in electronic format (PDF) unless otherwise noted.*
- *The services described herein will be performed to the level of effort identified in the attached Fee Estimate. If additional effort is needed, that extra work will be mutually determined by the City and RH2.*
- *Design and production of bid documents required for any recommended improvements identified in this Scope of Work will be executed under a separate scope of work.*

Task 1 — Desktop Review and Analysis

Objectives: Establish an understanding of existing site conditions, available data, and project goals. Evaluate the existing access road geometry using vehicle tracking software to determine where the anticipated construction vehicles can and cannot safely travel. Identify required improvements to provide clearance and adequate maneuverability.

Approach:

- 1.1 Attend one (1) on-site visit to evaluate the existing access road with an RH2 traffic engineer to formulate an opinion of the existing road condition.
- 1.2 Coordinate with contractors to confirm assumptions related to construction vehicles, clearance, and maneuverability requirements.
- 1.3 Perform a desktop review of the existing survey and geotechnical data to identify potential constraints such as tight curves or steep slopes.
- 1.4 Perform a vehicle tracking analysis along the existing road alignment to evaluate both inbound and outbound travel. Identify areas where improvements are required.
- 1.5 Recommend specific improvements for identified areas, including widening, grading, or alignment adjustment. Document recommended improvements directly via plan sheets or exhibits.

Assumptions:

- *Existing survey data is accurate and complete for the sections of the access road anticipated to be used by the bridge contractor.*
- *The largest required vehicle is a dual-axle flat-bed truck with a 40-foot goose neck trailer.*
- *Analysis will focus on geometric feasibility and clearance and does not aim to guarantee the structural capacity of the existing roadway.*

Provided by the City:

- Available project records related to the elements of design, including reports, studies, operations records, maintenance records, and other relevant project documents.
- Access to the utility road system and bridge site.

RH2 Deliverables:

- Summary of analysis findings identifying required improvements, documented directly on existing plan sheets or exhibits with annotations.

Task 2 — Project Management

Objective: Manage RH2's project team and maintain regular client communications, including phone calls, emails, and progress meetings.

Approach:

- 2.1 Organize, manage, communicate, and coordinate technical disciplines as described herein. Provide direction, coordination, and oversight to the RH2 project team.
- 2.2 Prepare monthly invoices and budget status summaries.

RH2 Deliverables:

- Monthly invoices.
- Project Schedule

EXHIBIT B**Fee Estimate****Amendment No. 9****City of Black Diamond****Green River Bridge Access Road Evaluation****Jan-26**

Description		Total Hours	Total RH2 Labor	Total Hours	Total ALL Hours	Total ALL Labor	Total RH2 Expense	Total Expense	Total Cost
Task 1	Desktop Review and Analysis	124	\$ 29,414	-	124	\$ 29,414	\$ 2,567	\$ 2,567	\$ 31,981
1.1	Attend on-site visit	18	\$ 4,800	-	18	\$ 4,800	\$ 894	\$ 894	\$ 5,694
1.2	Coordinate with bridge contractors	10	\$ 2,230	-	10	\$ 2,230	\$ 83	\$ 83	\$ 2,313
1.3	Perform desktop review	38	\$ 9,194	-	38	\$ 9,194	\$ 395	\$ 395	\$ 9,589
1.4	Perform vehicle tracking analysis	34	\$ 7,278	-	34	\$ 7,278	\$ 567	\$ 567	\$ 7,845
1.5	Provide recommendations	24	\$ 5,912	-	24	\$ 5,912	\$ 628	\$ 628	\$ 6,540
Task 2	Project Management	30	\$ 6,288	-	30	\$ 6,288	\$ 331	\$ 331	\$ 6,619
2.1	Manage RH2 team	22	\$ 4,912	-	22	\$ 4,912	\$ 297	\$ 297	\$ 5,209
2.2	Prepare monthly invoices	8	\$ 1,376	-	8	\$ 1,376	\$ 34	\$ 34	\$ 1,410
Subtotal Green River Bridge Access Road Evaluation Tasks		154	\$ 35,702	-	154	\$ 35,702	\$ 2,898	\$ 2,898	\$ 38,600
PROJECT TOTAL		154	\$ 35,702	-	154	\$ 35,702	\$ 2,898	\$ 2,898	\$ 38,600

EXHIBIT C
RH2 ENGINEERING, INC.
2026 SCHEDULE OF RATES AND CHARGES

RATE LIST	RATE	UNIT
Professional I	\$181	\$/hr
Professional II	\$200	\$/hr
Professional III	\$223	\$/hr
Professional IV	\$244	\$/hr
Professional V	\$262	\$/hr
Professional VI	\$281	\$/hr
Professional VII	\$307	\$/hr
Professional VIII	\$334	\$/hr
Professional IX	\$338	\$/hr
Technician I	\$141	\$/hr
Technician II	\$154	\$/hr
Technician III	\$174	\$/hr
Technician IV	\$189	\$/hr
Technician V	\$207	\$/hr
Technician VI	\$228	\$/hr
Technician VII	\$248	\$/hr
Technician VIII	\$260	\$/hr
Administrative I	\$95	\$/hr
Administrative II	\$110	\$/hr
Administrative III	\$132	\$/hr
Administrative IV	\$154	\$/hr
Administrative V	\$178	\$/hr
CAD/GIS System	\$27.50	\$/hr
CAD Plots - Half Size	\$2.50	price per plot
CAD Plots - Full Size	\$10.00	price per plot
CAD Plots - Large	\$25.00	price per plot
Copies (bw) 8.5" X 11"	\$0.09	price per copy
Copies (bw) 8.5" X 14"	\$0.14	price per copy
Copies (bw) 11" X 17"	\$0.20	price per copy
Copies (color) 8.5" X 11"	\$0.90	price per copy
Copies (color) 8.5" X 14"	\$1.20	price per copy
Copies (color) 11" X 17"	\$2.00	price per copy
Technology Charge	2.50%	% of Direct Labor
Night Work	10.00%	% of Direct Labor
Mileage	\$0.7250	price per mile (or Current IRS Rate)
Subconsultants	15%	Cost +
Outside Services	at cost	

Rates listed are adjusted annually.

CITY COUNCIL AGENDA BILL

City of Black Diamond
Post Office Box 599
Black Diamond, WA 98010

ITEM INFORMATION		
SUBJECT:	Agenda Date: February 19,2026	AB26-022
Pipeline Road Quasi-Judicial Closed Record Hearing	Mayor John Adler	
	City Administrator - Kevin O'Neill	
	City Attorney - David Linehan	X
	City Clerk – Brenda L. Martinez	
	Com Dev –Andy Williamson	
	Finance – Xavier Mason	
	MDRT/Ec Dev – Andy Williamson	X
	Police – Chief Kiblinger	
Cost Impact (see also Fiscal Note): N/A	Public Works – Scott Hanis	
Fund Source: N/A	Court – Judge Swain/Tawnya Parks	
Timeline: N/A		
Agenda Placement: ☐ Mayor ☐ Two Councilmembers ☐ Committee Chair ☒ City Administrator		
Attachments: Hearing Examiner's Recommendation and Exhibits thereto		
SUMMARY STATEMENT: The Black Diamond City Council will be holding a Quasi-Judicial Closed Record Hearing for the Pipeline Road Major Amendment to the Development Agreement (PLN25-0006).		
FISCAL NOTE (Finance Department): N/A		
COUNCIL COMMITTEE REVIEW AND RECOMMENDATION: N/A		
RECOMMENDED ACTION: MOTION to approved Pipeline Road Major Amendment (PLN25-0006)		
RECORD OF COUNCIL ACTION		
Meeting Date	Action	Vote
February 19, 2026		

1 **DATE OF DECISION:**

January 7, 2026

2 **BACKGROUND**

3 Fifteen years ago, as part of the Master Planned Development approval for Ten Trails,
4 a Development Agreement (DA) was entered into between the City and the Developer
(Oakpointe). In essence, the DA is a contract between the two parties wherein each agrees to
5 certain benefits and responsibilities. One of the responsibilities Oakpointe has accepted is to
construct the Pipeline Road - an east/west road north of and roughly parallel to Roberts Drive
6 between Lake Sawyer Road and SR 169. Currently, the western terminus of this proposed road
is established at the roundabout where Lake Sawyer Road connects with Ten Trails
7 Parkway. The east terminus of the road is at a roundabout under construction along SR 169 near
its intersection with Ravensdale Road. The road in between these points has not been constructed
nor has its location been officially established. It will need to cross property belonging to third
8 parties, most notably Palmer Coking Coal.

9 The DA has a "trigger event" which requires that Pipeline Road must be constructed and
dedicated prior to the 1,746th dwelling unit in Ten Trails. That trigger event is fast approaching
as more than 1,600 building permits have been sought. Through application for a Major
10 Amendment, Oakpointe asks to defer the trigger event to the 2,866th dwelling unit, or
approximately 1,100 dwelling units later (estimated to be 2-3 years). The Major Amendment
11 does not seek to eliminate the responsibility to construct the road, just defer the triggering event
for its construction.

12 The City Departments responsible for transportation issues are the Public Works and Planning
13 Departments. Both recommend that the Major Amendment be approved by City Council. Their
recommendation is based upon updated transportation modeling which demonstrates that the
14 road is not currently needed to maintain required Levels of Service (LOS) on Roberts Drive.
These Departments believe that it would be best to defer construction until there is a concurrent
15 need. The Police and Fire Departments respectfully disagree. They believe that, even if not
needed to maintain Levels of Service, the road has many other important qualities, especially
16 relating to emergency services, and that its construction should not be delayed. Public opinion
as expressed through written and oral comments is decidedly opposed to the
17 requested amendment with the notable exception of Palmer Coking Coal - the owner of
the property over which the road must traverse.

18 **PUBLIC HEARING**

19 The public hearing commenced at 6:00 p.m., on Monday, December 15, 2025, at the Black
Diamond City Council Chambers at 25510 Lawson Street. The hearing took place in person but
20 virtual attendance was allowed as well. All those wishing to testify were sworn under oath and a
verbatim recording was made of the hearing. The City appeared through Alex Campbell, Senior
21 Planner, and was represented by David Linehan, City Attorney. Several other City Staff
members were also present. The Applicant appeared through Justin Wortman and was
22 represented by Nancy Bainbridge Rogers of Cairncross & Hempelmann. A large crowd was
in attendance and many sought to testify.

23 The following exhibits were received in advance of the public hearing:

24	Exhibit 1	Proposed Major Amendment Language to The Villages MPD
		Development Agreement Section 6.4.3
25	Exhibit 2	Notice of Application for City Permit Number PLN25-0006

Recommendations to City Council - 2

CITY OF BLACK DIAMOND HEARING EXAMINER

299 N.W. CENTER ST. / P.O. BOX 939

CHEHALIS, WASHINGTON 98532

Phone: 360-748-3386/Fax: 748-3387

Exhibit 3 Public Comments Received for City File Number PLN25-0006
Exhibit 4 Adoption of the Final Environmental Impact Statement (FEIS) for The Villages Master Planned Development
Exhibit 5 Ten Trails MPD Transportation Model Update per Hearing Examiner MPD Permit Conditions
Exhibit 6 Pipeline Road Sensitivity Analysis Technical Memorandum
Exhibit 7 City Staff Report for PLN25-0006

During the hearing several additional exhibits were presented:

Exhibit 8 City Public Hearing Presentation (PowerPoint)
Exhibit 9 Additional Public Comments Received Prior to Public Hearing
Exhibit 10 City of Black Diamond Police Department Comments
Exhibit 11 Mountain View Fire & Rescue Department Comments
Exhibit 12 Additional Public Comments Received Day of Public Hearing
Exhibit 13 Oakpointe Counsel Written Testimony for Hearing
Exhibit 14 Oakpointe Responsive Memo to Emergency Service Concerns
Exhibit 15 Transpo Traffic Memo Responding to Emergency Service Concerns
Exhibit 16 Public Written Testimony - Mr. Ekberg
Exhibit 17 Public Written Testimony - Mr. Bryant
Exhibit 18 Public Written Testimony - Friends of Black Diamond
Exhibit 19 Friends of Black Diamond Handwritten Notations on Municipal Code Sections
Exhibit 20 Hanis (Public Works) Statement
Exhibit 21 City of Black Diamond Post-Hearing Letter to the Hearing Examiner
Exhibit 22 Parametrix Post-Hearing Response to Emergency Service Concerns
Exhibit 23 Oakpointe Post-Hearing Memo to the Hearing Examiner

City's Presentation.

The hearing began with the testimony of Alex Campbell, Senior Planner and author of the City Staff Report. Due to the large crowd coupled with inclement weather, the Hearing Examiner asked Mr. Campbell to shorten his prepared presentation to just a few minutes. Mr. Campbell obliged and provided shorter testimony than he otherwise might have, relying instead on his written Staff Report (Exhibit 7) and PowerPoint presentation (Exhibit 8). Mr. Campbell began by again explaining that this matter involves a request to amend the "trigger event" for requiring the construction and dedication of the Pipeline Road. Section 6.4.3 of the DA currently requires its construction/dedication by the 1,746th dwelling unit in Ten Trails or upon a demonstration that the Level of Service (LOS) along Roberts Road is no longer acceptable, whichever occurs earlier. Ten Trails is rapidly approaching this triggering event as more than 1,600 building permits have been issued for Ten Trails.

The Developer, Oakpointe, has therefore applied for a Major Amendment to Section 6.4.3 of the DA to allow the triggering event to be reset at the 2,866th dwelling unit¹ Oakpointe's application for a Major Amendment was completed March 4, 2025, and notice of the application was issued

¹ The Applicant initially sought this amendment as a Minor Amendment to the DA, but that request was challenged by Palmer Coking Road. Oakpointe eventually withdrew its application for a Minor Amendment and sought this Major Amendment instead.

1 March 17, 2025, along with the 14-day comment period. More than a dozen public comments
2 were received (Exhibit 3). All of these comments were in opposition to the application with the
noteworthy exception of Palmer Coking Coal which expressed its support.

3 Mr. Campbell then explained that a Major Amendment to the DA is a Type 4 proceeding in
4 which a public hearing is held before the Hearing Examiner who then makes a recommendation
to City Council as the final decision maker. The Council will review the Staff's
5 recommendations and those of the Hearing Examiner in a closed record hearing and then make
its final decision.

6 Mr. Campbell wanted to stress that the parties are not seeking to amend the MPD and its
Condition #32 which requires the Developer to construct Pipeline Road.
7 Rather, Oakpointe seeks to only amend the DA and the timing of when the road is to be
constructed, not the obligation to construct it.

8 Mr. Campbell then reviewed the criteria for amending the DA as established in Section 10.4.2 of
9 the DA as well as Chapter 18.66 and Chapter 18.98 of the City's Municipal Code. After
reviewing these criteria, Mr. Campbell summarized the Staff's Report by stating that the
10 Planning Staff as well as the Public Works Staff recommend approval of the requested
amendment. Staff's recommended approval is based upon detailed traffic
11 analyses demonstrating that due to other recent traffic improvements, Pipeline Road is currently
not needed to maintain required LOS, and that it will not be needed until the 2,866th dwelling
unit.

12 The data supporting this recommendation comes from several sources. It begins with the 2023
13 "Pipeline Road Sensitivity Analysis" (Exhibit 6) prepared by the City's Traffic Engineering
Consultant. This analysis concludes that the timing of the Pipeline Road could be delayed so
14 long as improvements were made at the intersection of Morgan Street and Roberts Drive
(a traffic light). That traffic light has since been installed and operating. According to the
15 Sensitivity Analysis, Roberts Road is currently operating consistently with the Traffic
Monitoring Plan and earlier Traffic Monitoring Reports. A supplemental Traffic Report,
16 prepared by Transpo (Attachment A to Exhibit 13) confirms the findings of the earlier Sensitivity
Analysis. It agrees that construction of the Pipeline Road is not needed to maintain LOS along
17 Roberts Drive until the 2,866th dwelling unit, currently anticipated in early 2029. The report
from Transpo goes on to note that actual traffic along Roberts Drive west of Morgan Street is
18 significantly lower than what was originally projected when the Development Agreement was
entered into. Transpo notes that mitigation required in the DA was based upon those projections,
19 and that current vehicle counts are roughly one-half of what was projected. Transpo also notes
that Roberts Drive is designated as a "Minor Arterial" and that its current traffic volumes are
20 consistent with its designation as a Minor Arterial. Transpo also adds (and City Staff agrees)
that the City is considering various improvements to Roberts Drive east of the library including
sidewalks and other improvements that would greatly improve its functionality.

21 In summary, Mr. Campbell explained that the City Planning Staff and Public Works Staff concur
22 that the Pipeline Road simply isn't needed at this time in order to achieve concurrency
requirements, and that its construction could be safely deferred until the 2,866th dwelling unit in
23 Ten Trails. City Staff therefore recommends that the Major Amendment be approved by City
Council.

1 Alex Atchison, a Professional Engineer and Certified Professional Traffic Operations Engineer
(PTOE) for Parametrix, serves as the City's Transportation Engineering Consultant. Ms.
2 Atchison has been responsible for the City's traffic modeling as well as the Transportation
Element of the City's Comprehensive Plan, and served as the Lead Engineer in preparation of the
3 City's 2023-2024 Traffic Model. Ms. Atchison finds all traffic modeling including the
Sensitivity Analysis to be accurate and reliable, and confirms its findings that a delay in
4 constructing the Pipeline Road would not result in an unacceptable Level of Service.

5 Scott Hanis, Public Works Director, concurs with the conclusions reached by Mr. Campbell and
Ms. Atchison. By brief written memo (Exhibit 20) Mr. Hanis declares:

6 "Upon reviewing the Technical Memorandum and attachments provided by Alex
7 Atchison, PE, PTOE with Parametrix, dated December 1, 2025, I agree with her
analysis and conclusion regarding Pipeline Road. I agree that conditions have
8 changed compared to 2009, including updates to the Morgan Street/Roberts Drive
intersection. I agree that the new information supports the timing of
9 when Pipeline Road needs to be constructed which, according to the
Memorandum, would need to occur in 2027 based on the anticipated construction
10 of the 2,866th dwelling unit. I believe this will maintain consistency
in tying traffic improvements to actual traffic conditions and maintaining the
Level of Service standards on Roberts Drive."

11 **Applicant's Presentation.**

12 The Applicant appeared through its counsel, Nancy Bainbridge Rogers. Ms. Rogers was
13 similarly asked to condense her presentation to better accommodate public testimony. Her
presentation is well summarized in the two Memoranda she presented at the beginning of the
14 hearing. Exhibit 13 is her Memorandum dated December 12 in which she analyzes the
process for considering this amendment under the guidelines set forth in the Development
15 Agreement. Importantly, attached to this Memorandum is a December 12 report from Transpo
referred to earlier in Mr. Campbell's testimony. Exhibit 14 is a follow-up Memorandum which
16 more fully explains the Developer's interpretation of the Development Agreement and why the
proposed amendment is consistent with the intent of the Agreement. The second Memo also
17 responds in detail to the Police Chief's opposition to the amendment. The second Memo also
attaches an earlier August 14, 2023 letter from the City detailing several reasons why
the City would prefer that the road's construction be deferred until it is actually needed.

18 Briefly, Oakpointe reminds the City that current regulation under the Growth Management Act
19 (GMA) imposes the concept of *concurrency*, that is, that development and needed infrastructure
should concur in their timing, and that neither be out of step with the other. Although the notion
20 of concurrency was not formally recognized when the DA was approved fifteen years ago, the
DA *impliedly* recognizes the concept and is based upon it. This is demonstrated by the many
21 provisions of the DA which allow flexibility, and which allow the Agreement to be
amended though both Minor and Major Amendments to better adjust its provisions to the
22 realities of development. Thus, even though Section 6.4.3 of the DA establishes a triggering
event of the 1,746th dwelling unit, the *intended* triggering event is the demonstrated need for the
23 road, and there is currently no demonstrated need.

24 Ms. Rogers diplomatically disagrees with the Police Chief's comments. She first notes
that the responsibility for a recommendation to the City Council is given to the Planning and
25 Public Works Departments, not the Police and Fire Departments. This does not suggest that

1 these departments should not be heard from but simply that the primary responsibility lies with
2 other departments. Ms. Rogers then notes that many of the Chief's concerns are related to
3 the methodology employed by the traffic experts but the Chief is not a traffic expert nor does she
4 have any supporting data from one. In short, the Chief's concerns are generally intuitive rather
5 than documented.

6 By attaching the City's August 14, 2023 letter to her December 15 Memo, Ms. Rogers reminds
7 the City that for several years it has been uneasy about extending the Pipeline Road sooner than
8 needed. This concern is based on several things: The need to acquire a mile of right-of-way and
9 then develop the road across what may be problematic site conditions; concerns over unwanted
10 interactions between City traffic and existing industrial traffic involved in ongoing quarry
11 operations; and the City then having to assume responsibility for the road's maintenance sooner
12 than wanted.

13 Ms. Rogers, with the assistance of Mr. Wortman, made clear that the road Oakpointe must
14 eventually build is only the most basic of roads - the Agreement does not require Oakpointe to
15 also build curbs, gutter, sidewalks, street lighting, street trees, bike lanes, parking lanes, or
16 anything other than two lanes of travel and basic stormwater management. Those improvements
17 will come later when development is proposed along the roadway.

18 Ms. Rogers concludes her comments by noting that Oakpointe has undertaken several other
19 traffic improvements earlier than required (most notably the traffic light at Roberts
20 Road/Morgan) with the express purpose of ensuring the maintenance of required Levels of
21 Service and that as a result of these other improvements the Pipeline Road simply isn't needed at
22 this time.

23 **Public Comment.**

24 Public Comment in Opposition to the Amendment:

25 With only one exception, all public comment has been in opposition to the requested amendment
to the DA.

As noted earlier, the City provided notice of the application to the public with a 14-day
response. This notice generated approximately 15 public comments in opposition to the
request (Exhibit 3). Although these comments varied in their reasons for opposition, there were
many common themes:

- Since the Developer has promised to build the Pipeline Road, there is a great deal
of community benefit, and very little community harm, to having it built now rather than later.

- The terms of the Development Agreement were negotiated at length with both
sides giving and taking. The things Oakpointe promised were in return for many concessions it
received. Oakpointe should not enjoy the Agreement's benefits while being relieved of its
burdens.

- The Police and Fire Departments oppose the application. We support the Police
and Fire Departments.

1 • Roberts Drive has become an unpleasant experience for those who live along it.
Historically, it could be enjoyed for strolling, walking pets, and bicycling. Now, none of these
2 activities can be safely undertaken. Requiring the Pipeline Road to be built will relieve some of
the traffic along Roberts, making its use more enjoyable by nearby residents.

3 • The City is busy creating a new commercial center where the Safeway Store is
being constructed. Pipeline Road will make access to this commercial center far simpler to most
4 of the City, thus encouraging more commercial development.

5 • Residents needing to rely on 218th Street are finding it difficult to do so due to
increasing traffic. Pipeline Road will absorb some of that traffic and reduce the burdens on
6 218th Street.

7 • SR 169 is ready to receive the new road, so is Lake Sawyer Road. Building the
road should be straightforward especially as the City is only requiring a basic road and no curbs,
8 gutters, landscaping, etc.

9 Shortly before the public hearing the City's Police Chief, Jamey Kiblinger, provided a lengthy
Memorandum in opposition to the requested Amendment (Exhibit 10). While a brief
10 summary follows, Council Members may wish to review the Memo separately. Chief
Kiblinger acknowledges that she is not an engineer and does not have engineering expertise but,
11 nonetheless, has doubts about the modeling relied upon by Oakpointe's experts as well as the
City's experts. She questions whether the correct analysis was undertaken and whether
12 consideration was given to the key points of gridlock in the City's transportation system. The
Chief questions whether "real world" conditions have been fully considered and planned for
13 especially the need to deliver emergency services by police and fire. She observes that
the Developer enjoys a significant and beneficial delay in construction but that the residents gain
14 little if anything in return, while constructing the road has no real downside to the City even if
traffic studies demonstrate that it is not immediately essential. She admits that
15 the Development Agreement ties the Developer's performance to LOS standards along Roberts
Drive but wonders whether sufficient consideration is being given to all other traffic impacts in
16 the area. She concludes by noting that traffic problems are ubiquitous in the region and that all
surrounding communities are aware of this, but yet this and other projects merely worsen the
17 problem. For all of these reasons, Chief Kiblinger opposes the requested amendment.

18 The Police Chief's opposition was soon followed by a similar position taken by the Fire Chief
(Exhibit 11). Dawn Judkins, Fire Chief of Mountain View Fire and Rescue, identifies five areas
19 of concern that result in her opposition to the amendment: (1) delayed emergency response
times for all types of emergency services including fire, police, EMS, etc.; (2) overall increased
20 traffic congestion, and the affects of that congestion upon delivering emergency services; (3)
reduced opportunities for evacuation in the event of a large scale emergency; (4) increased risk
21 to the public from delayed emergency services; and (5) the loss of public trust in the City and its
ability to deliver necessary services.

22 As the hearing time approached on Monday evening large numbers of written statements began
to arrive, all in opposition. A common statement utilized by more than 50 residents reads as
23 follows:

24 "The City of Black Diamond should reject Developer proposals to delay building
the east-west Pipeline Road. We have too much traffic on Roberts Drive, SE
25 288th Street and other City roads already.

1 When the Oakpointe developments were being considered 15 years ago residents
2 were promised that a new Pipeline Road would be built to take traffic off our
small-town streets.

3 Roberts Drive is a residential area, with many historic and affordable
4 homes. Increased traffic brings noise, exhaust, and lower quality of life.

5 Additionally, all of Black Diamond, especially Ten Trails, is
negatively impacted by road constraints as the City grows without Pipeline
Road.

6 There are safety concerns for pedestrians and drivers leaving side roads
7 and driveways to Roberts. Emergency services also face road bottlenecks that
could cost lives.

8 Thank you for considering these comments.

9 Signature"

10 Collectively, nearly 100 written public comments have been presented. Additional public
11 comments express the same concerns expressed in the first round of comments; the concerns of
the Police and Fire Chiefs; and the concerns noted in the common letter.

12 Friends of Black Diamond ("Friends") provided a 26-page Memorandum along with more than
13 40 pages of photographs together with various other attachments in opposition to the requested
amendment. Friends Memo identifies a long list of objections to the amendment:

14 • The application is in violation of the Growth Management Act and
15 its directive that housing strategies should ensure the vitality and character of existing
neighborhoods.

16 • The MPD mandates that traffic calming and speed control devices be employed so
17 that inappropriate speeds are avoided on neighborhood streets. If Pipeline Road is not built
now, Oakpointe should instead be required to provide traffic calming
devices elsewhere, especially on Roberts Drive, SE 288th and Lake Sawyer Road.

18 • There is no question that Section 6.4.3 of the DA requires development
19 of Pipeline Road *at the earlier of* (1) City's approval of a building permit for the 1,746th
dwelling unit . . . , or (2) when the Traffic Monitoring Plan shows that construction is
20 necessary. The Developer and Planning Staff are attempting to reverse these priorities and
require the Pipeline Road "*at the later of*" these two events, not the "*earlier of*" either
event. This is clearly in conflict with the express language of the DA.

21 • As currently proposed, the City receives nothing in return for not receiving its
22 promised road for three more years. At the very minimum, City Staff should condition approval
of the amendment on various concessions so that the City gets at least something from the deal.

23 • The average person would expect the City to want to accelerate construction of
24 roads accessing the City's new commercial area, not defer it.

1 ● If Oakpointe is attempting to use this amendment to "rethink" the intent of the
2 DA, then the City should similarly use it as an opportunity to rethink other provisions in the
agreement.

3 ● Residents are growing tired of traffic delays, speeding and dangerous
4 driving. An additional east-west connector will at least reduce some of these burdens.

5 ● The notice of the public hearing on this application failed to fully describe what
was being sought.

6 ● SEPA review is not adequate as the SEPA official is not truly independent.

7 ● This type of important project should trigger a supplemental EIS.

8 ● 288th Street is experiencing major traffic problems. Pipeline Road will
not eliminate these problems but it will reduce them.

9 ● Other traffic improvements required by Oakpointe remain behind schedule.

10 ● The traffic studies being relied upon for the amendment did not fully consider
11 side streets along either Roberts Drive or Lake Sawyer Road.

12 ● A Safeway, gas station and McDonald's are all under construction. The Pipeline
13 Road would be an obvious route for many would-be customers of these new facilities. Without
the Pipeline Road even more burden will be placed upon Roberts Drive.

14 ● Roberts Drive needs help as it is being overwhelmed by its
15 traffic. Opening Pipeline Road will not eliminate these problems but it will reduce them.

16 ● The City continues to not meet its Levels of Service for on-duty firefighters.

17 ● Not building the Pipeline Road severely endangers the delivery of emergency
18 services throughout the region.

19 ● A Traffic Engineer, Gary Norris, expressed several concerns about the manner in
20 which traffic studies were undertaken for the proposed amendment to the Lawson Hills
connector. These same concerns arguably apply to the traffic studies undertaken for this
21 project. These include the reliance on PM peak hour counts instead of AM counts.

22 ● The City has agreed that Ten Trails will not result in an adverse fiscal
23 impact to the City. This has been a concern for many residents since the development began. A
delay in constructing the Pipeline Road will increase fiscal concerns.

24 ● Oakpointe made a promise to build the Pipeline Road when 1,746 units had been
25 developed. It must live up to that promise.

26 ● The MPD and DA have expired and cannot be amended.

27 ● Given all the concerns associated with the project, it cannot be demonstrated that
the requested amendment satisfies the criteria for approval of a Major Amendment.

1 ● A number of individuals also provided oral testimony in opposition. Most of
2 these commenters had previously provided written testimony, and their oral testimony largely
3 mirrored their written comments. Collectively, the oral testimony generally expressed the same
4 concerns as the written comments discussed above.

5 **Public Comment in Favor of the Amendment:**

6 Only one public comment has been received favorable to the amendment, but it is an important
7 one: Brett Morris, on behalf of Palmer Coking Coal, expresses his company's support for the
8 amendment. As is well known, the path for the proposed road must largely traverse property
9 belonging to Palmer Coking. Its support for the amendment is noteworthy as the company had
10 earlier objected when Oakpointe sought to accomplish the same thing through a Minor
11 Amendment. Later, Palmer sought to have some of its property rezoned to allow residential
12 development only to have that rezone denied due to the Pipeline Road having not yet been
13 constructed. Mr. Morris does not provide any explanation for his company's support but
14 merely indicates that it favors the amendment.

15 **Follow-up Responses from the City and Applicant:**

16 At the conclusion of the public hearing the Hearing Examiner allowed the City and Oakpointe
17 the opportunity to respond in writing to the collective public comments. Both parties were given
18 until December 15 to provide responses to the many public comments received.

19 The City responded by a Memorandum from the City Attorney, David Linehan (Exhibit 21). Mr.
20 Linehan's Memorandum first noted that the concerns expressed by the Police and Fire Chiefs do
21 not represent the official position of the City administration, and that the official position is as set
22 forth in the Staff Report prepared by the Planning Department and supported by the Public
23 Works Department, as these two agencies are responsible for reviewing issues related to Master
24 Planned Developments. Attached to Mr. Linehan's Memo is a more detailed response by Alex
25 Atchison, the City's Traffic Planning Consultant (Exhibit 22). Ms. Atchison begins her
Supplemental Report by first noting that Black Diamond imposes a higher Level of Service
(LOS) than any nearby City or King County. Black Diamond is the only jurisdiction in the
region that requires LOS "C" for the operation of streets, while all other nearby cities and the
county accept LOS "D" or lower. In other words, the City is demanding more of its
transportation system than surrounding cities and, yet, despite this higher standard, Ms. Atchison
concludes that Roberts Drive will continue to operate at LOS C even is the construction of the
Pipeline Road is deferred until the 2,866th dwelling unit in Ten Trails. Ms. Atchison then
undertakes a lengthy and detailed analysis of the various concerns expressed by Chief Kiblinger
regarding the methodology used by the City in determining that construction of the Pipeline
Road could be deferred without impacting LOS. Ms. Atchison's analysis persuasively
demonstrates that the Traffic Analysis supporting the requested amendment is thorough and
properly done. Based upon this analysis, the Planning and Public Works Departments continue to
recommend that the requested amendment be approved by City Council.

Oakpointe responded by Supplemental Memorandum from its attorney, Nancy Bainbridge
Rogers (Exhibit 23). Ms. Rogers reiterates Oakpointe's position that the Pipeline Road is simply
not needed from a concurrency standpoint until the 2,866th dwelling unit as demonstrated in the
various traffic studies. She then challenges many of the arguments made by opponents,
particularly those asserted by Friends of Black Diamond. Among other things, Ms. Rogers
responds that:

1 • Oakpointe is not required to give something in return for the amendment as
2 nothing in the DA requires a quid pro quo and, even if something was required, Oakpointe has
3 already provided other benefit such as the accelerated construction of intersection improvements
4 along Roberts Drive. Further, the City is already planning its own improvements to Roberts
5 Drive which may occur as soon as 2027.

6 • All supporting traffic studies have properly utilized PM peak hour analyses.

7 • The Development Agreement is effective through late December 2026. The
8 proposed amendment therefore falls well within the Agreement's life.

9 • The City's road system has plenty of redundancy even is the Pipeline Road is
10 deferred.

11 • The Public Works Department supports the Planning Department's
12 recommendation that the road's construction be deferred on the basis that its benefits are
13 outweighed by its burdens. The recommendations of the Public Works Department and the
14 Planning Department should be given the highest consideration when deciding whether to amend
15 the Development Agreement

16 Ms. Rogers concludes her Memorandum by again noting that, viewed from the lens of
17 traffic concurrency, the new road is not needed until later, and Oakpointe joins in the
18 recommendation of the Planning and Public Works Departments that the amendment be
19 approved.

20 Ms. Rogers Memorandum attaches two additional Traffic Analyses undertaken by
21 Transpo, both prepared by Mike Swenson. The first of these memos was initially intended to
22 respond to concerns expressed during the public hearing for the proposed amendment to the
23 Lawson Hills MPD Permit and Development Agreement. During that public hearing, challenges
24 had been made to the reliance on PM peak hour analyses rather than AM peak hour traffic peak
25 hour traffic, along with various other challenges. Mr. Swenson's Memo explains why PM peak
hour analyses are more appropriate for all traffic studies, including the Pipeline Road study. Mr.
Swenson's second Memorandum responds to the concerns expressed by the Fire Department
Chief regarding delayed emergency response times; increased traffic congestion; limited
evacuation routes; community safety and risk management; and public trust. Mr. Swenson
asserts that while these concerns are valid, deferring construction of the Pipeline Road:

 • Would have limited impact on roadway redundancy.

 • Is not likely to delay response times by emergency vehicles as the existing road
system is well equipped for emergency response.

 • Would have no measurable impact upon emergency evacuations.

 • Should not affect public trust as any decision to defer construction of the Pipeline
Road would be based upon solid transportation engineering and would demonstrate the City's
sophisticated methods of examining transportation issues.

ANALYSIS

I believe that the traffic studies undertaken by the City's consultants as well as Oakpointe's experts are properly done and demonstrate that deferring construction of the Pipeline Road until the 2,866th dwelling unit would not adversely affect LOS along Roberts Drive. I therefore recommend that the City Council accept the traffic studies as being accurate.

But the accuracy of the traffic studies is only the beginning point, not the ending point. Even if all traffic studies are accurate, the City has no obligation to approve this amendment.

The Development Agreement obligates Oakpointe to construct the Pipeline Road at the *earlier of* the 1,746th dwelling unit or when necessary to maintain LOS along Roberts Drive. As written, the Development Agreement does not require a demonstration that the Pipeline Road is necessary to maintain LOS - it is simply to be built by the time 1,746 dwelling units have been constructed. As opponents have noted, the proposed amendment would spin the provision around and require construction of the road at the "later of" rather than at the "earlier of" the two triggering events.

In other words, at the time the Development Agreement was entered into, the City expected to see the Pipeline Road by the 1,746th dwelling unit even if traffic studies showed that it was not necessary from an LOS standpoint. Therefore, the City is under no obligation to approve the amendment just because the road isn't yet needed. Instead, if it chooses to do so it will be due to the City finding itself better off by deferring the obligation.

The real issue, then, is whether the City finds itself better off by having the road built sooner or later. There appear to be several benefits of requiring it to be built sooner:

- Other major east/west connectors (Roberts Drive; 288th Street) will be relieved of some of their burdens.
- Traffic can more easily flow to the new commercial center along Roberts Drive.
- Emergency services will have an additional access route.
- Even if these benefits are not significant, there is no real harm to having the road available.
- The City will have sent a message that the Development Agreement must be honored as written, even if inconvenient to the developer.

Oakpointe and the Planning Staff assert that the Development Agreement impliedly imposes a requirement for concurrency between construction of the road and its demonstrated need. I respectfully disagree with this assertion. Again, the Development Agreement is quite clear in requiring the road to be constructed by the 1,746th dwelling unit whether or not its need has been demonstrated. Thus, the City Council should approve the amendment *only* if the City sees some other benefit from deferring its construction. The benefit claimed by the Public Works Department is that it will avoid the extra burden of maintaining the road for several additional years. This is an unimpressive reason as the amount of extra maintenance is seemingly quite small relative to the benefits of having the road available to the public. It is possible, however, that there are other benefits that have not been fully discussed:

1 • The road must traverse property owned by Palmer Coking Coal. By imposing the
2 road now, the City may be placing an unintended burden upon that third party that might be
lessened by deferring construction.

3 • If gravel operations are ongoing within the Palmer Coking property, construction
4 of the road may create a troublesome interaction between the site's existing industrial traffic and
City traffic. This could create dangerous and unwanted interactions.

5 • The City may see the Pipeline Road right-of-way as a useful route for future
6 utility lines (water, sewer, etc.). It is possible that constructing the Pipeline Road now may make
the installation of those utilities later to be more difficult, and that a better approach would be to
construct both road and utilities at the same time.

7 • As a practical matter, insisting upon construction of the Pipeline Road now will
8 almost certainly slow the pace of housing development within Ten Trails. The cost to the City of
slowing construction may outweigh the benefits of having the road built sooner.

9 Again, none of these reasons have been stated by Oakpointe or the Planning Department
10 (or Palmer Coking Coal) but may be the more legitimate reasons for approving the amendment.

11 I hope that this analysis might explain my mixed recommendation to the City Council. To
12 summarize, even if the traffic studies are entirely accurate, there is nothing in their findings that
requires an amendment to Section 6.4.3 of the DA, as the DA requires construction of the
13 Pipeline Road by the 1,746th dwelling unit even if its need is not demonstrated. Instead, the City
should approve the amendment only if it sees a greater benefit by deferring its construction. If it
does not see a greater benefit, the amendment should be denied. If the City instead concludes that
there is a greater benefit from its deferral, the amendment should be approved.

14 **FINDINGS OF FACT/CONCLUSIONS OF LAW/RECOMMENDATION**

15 1. The Applicant, Oakpointe, requests a Major Amendment to The Villages Master
16 Planned Development (MPD) Development Agreement (DA) Section 6.4.3. The Applicant
requests that the language of the DA be modified to require construction of the Pipeline Road "to
17 the earlier of: (i) the City's approval of a building permit for the 2,866th dwelling unit of The
Villages MPD; or (ii) when the Traffic Monitoring Plan shows that construction is necessary to
prevent a significantly adverse degradation of Level of Service on Roberts Drive".

18 2. The Village Master Planned Development (MPD) is an approved MPD within the
19 City of Black Diamond. The Master Planned Development Permit for The Villages MPD was
adopted by the City Council Ordinance No. 10-946. The Development Agreement for The
20 Villages MPD was adopted by City Council Ordinance No. 11-970.

21 3. The Villages MPD Development Agreement, including associated Development
22 Agreement Exhibit C (MPD Permit Approval), establishes the review criteria to be applied to an
amendment request for the Development Agreement. Notably, the MPD Permit Conditions of
Approval are contained within Development Agreement Exhibit C.

23 4. A Major Amendment to a Development Agreement is a Type 4 - quasi judicial
24 decision pursuant to Black Diamond Municipal Code (BDMC) Chapter 18.08.070 and The
Villages MPD Development Agreement Section 10.4.2. The decision whether to approve a
25 Major Amendment is to be made by the City Council following a recommendation from the
Hearing Examiner.

Recommendations to City Council - 13

CITY OF BLACK DIAMOND HEARING EXAMINER

299 N.W. CENTER ST. / P.O. BOX 939

CHEHALIS, WASHINGTON 98532

Phone: 360-748-3386/Fax: 748-3387

1 5. This application was deemed complete for processing on March 4, 2025. Public
2 Notice of Application for the proposal was issued pursuant to BDMC 18.08.120 on March 17,
2025.

3 6. The Notice of Application issued for the proposal (Exhibit 2) identified that the
4 City intends on processing the application as a Major Amendment, with an opportunity to appeal
that determination to the Hearing Examiner. No appeal of the City's determination that the
application constitutes a Major Amendment was filed.

5 7. The City issued a Notice of Public Hearing pursuant to BDMC 18.08.180 on
6 December 1, 2025.

7 8. Numerous public comments have been received in response as set forth more
8 fully in the Public Hearing Section. Nearly 100 public comments have been received. All public
comments have been in opposition to the proposed amendment with the exception of the public
comment submitted by Palmer Coking Coal, owner of the property on which the proposed road
is located.

9 9. Environmental review of the application resulted in the adoption of The Villages
10 MPD Final Environmental Impact Statement (FEIS). The adoption of the existing environmental
document was issued December 1, 2025 (Exhibit 4).

11 10. Traffic studies demonstrate that deferring construction of the Pipeline Road until
12 the 2,866th dwelling unit would not impact Level of Service (LOS) along Roberts Drive.

13 11. The DA currently requires construction and dedication of the Pipeline Road by
14 the 1,746th dwelling unit whether or not need for the road is demonstrated. Thus, the City
should approve the requested amendment only if it finds that the City is benefitted by its delayed
construction.

15 12. The Staff Report, at page 2, identifies all applicable plans, codes and standards to
16 be considered as part of the review of this requested amendment.

17 13. The Staff Report, commencing at page 3 and continuing to page 7, undertakes an
analysis of the standards and procedures for reviewing a Major Amendment to a Development
Agreement. The Hearing Examiner has reviewed this analysis and adopts it as his own.

18 14. City Staff finds that the proposed amendment to the DA satisfies all requirements
19 of The Villages MPD, the DA; Chapter 18.08 BDMC; Chapter 18.66 BDMC; and Chapter 18.98
BDMC. City Staff therefore recommends approval of the requested Major Amendment.

20 15. The Hearing Examiner concurs with City Staff that the requested amendment, if
21 approved by City Council, would satisfy the MPD, the DA, and Chapters 18.08, 18.66 and 18.98
BDMC. Nonetheless, the Hearing Examiner does not concur with the City Staff's
22 recommendation that the amendment be approved. To the contrary, the Hearing Examiner
recommends that the requested amendment be denied unless the City determines that the benefits
23 of deferring construction of the Pipeline Road outweigh the benefits of its earlier construction.
This determination is to be left to the discretion of the City Council.

1 Respectfully submitted this 7 day of January, 2026.

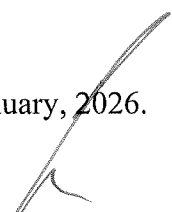
2
3 
4 _____
5 Mark C. Scheibmeir
6 City of Black Diamond Hearing Examiner
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Exhibit 1:

Major
Amendment
Language

PROPOSED AMENDMENT TO SECTION 6.4.3
OF THE VILLAGES MPD DEVELOPMENT AGREEMENT

Amendment of Section 6.4.3. Section 6.4.3 of the Agreement is revised as shown in the blackline below:

The design of Pipeline Road is to extend from Parcel C at the intersection of the Community Connector and Lake Sawyer Rd SE, easterly towards SR-169, intersecting SR-169 in the vicinity of Black Diamond-Ravensdale Rd, or where the future improved intersection of SR-169 and Black Diamond-Ravensdale Road lies, as determined by the City. Pursuant to Condition of Approval No. 31 of the MPD Permit Approval, the preliminary design and alignment of the Pipeline Road shall be completed by the Master Developer prior to the City's approval of a building permit for the 1200th Dwelling Unit of The Villages MPD. The Pipeline Road shall be constructed by the Master Developer and open for traffic, and the right-of-way dedicated to the City, prior to the earlier of: (i) City's approval of a building permit for the ~~2,866th~~^{1746th} Dwelling Unit of The Villages MPD; or (ii) when the Traffic Monitoring Plan (Exhibit "F") shows that construction is necessary to prevent a significantly adverse degradation of Level of Service on Roberts Drive. The Master Developer is required to monitor and, if triggered by the Traffic Monitoring Plan (Exhibit "F"), improve the following intersections along Roberts Drive per Table 11-5-1: (i) Roberts Drive/Morgan Street; (ii) SR 169/Roberts Drive; and (iii) Lake Sawyer Road SE/Roberts Drive. For purposes of this Section 6.4.3, "significantly adverse degradation of Level of Service" shall mean that the Master Developer is unable to make further improvements to these three identified intersections to meet adopted LOS (as defined in the City of Black Diamond's Comprehensive Plan, 2009, or other jurisdiction's standard applicable to the MPD Permit Approval) without widening Roberts Drive to provide an additional eastbound travel lane and/or westbound travel lane.

Exhibit 2:

Notice of Application



CITY OF BLACK DIAMOND

P.O. Box 599
24301 Roberts Drive
Black Diamond, WA 98010

Phone: (360) 851-4500
Fax: (360) 851-4501
www.blackdiamondwa.gov

NOTICE OF APPLICATIONS:

The Villages MPD Development Agreement – Major Amendments to Recreational Facilities and Pipeline Road Construction Timing

Notice Released: March 17, 2025

The City of Black Diamond has received the following development applications that may be of interest to you. The applications and any related documents are available to the public upon request of the Master Development Review Team (MDRT) – see the Staff Contact section below.

Project Names: Major Amendments to The Villages MPD Development Agreement (TV DA) regarding Recreational Facilities and Pipeline Road Construction Timing

Note: The applicant has rebranded The Villages Master Planned Development (MPD) as "Ten Trails." For administrative purposes, Ten Trails and The Villages can be used interchangeably.

Application Date: February 4, 2025

Complete Application Date: March 4, 2025

Application Number(s): PLN25-0004 (TV DA Recreational Facilities) and PLN25-0006 (TV DA Pipeline Road)

Name of Applicant: Oakpointe / CCD Black Diamond Partners LLC

Project Description: The applicant is requesting a major amendment to The Villages Master Planned Development (MPD) Development Agreement Section 9.5.3 to modify the language in this section about Master Developer lump sum payments in lieu of constructing required individual recreational facilities in Table 9-5. This request specifies that the Mayor will have the discretion to make these decisions and that the Mayor's decision about these payments may also be based on the opportunity to fulfill objectives outlined in the City's adopted Parks, Recreation, and Open Space (PROS) Plan. The amendment also adds language specifying that lump sum payment funds can be used to create and support park and recreational opportunities that are consistent with the City's adopted PROS plan and must be deposited to the City when the Dwelling Unit threshold specified in Development Agreement Table 9-5 is triggered.

The applicant is requesting an additional major amendment to The Villages MPD Development Agreement Section 6.4.3 to modify the language in this section regarding the deadline for when Pipeline Road must be constructed. This request proposes modifying the Dwelling Unit trigger for the construction and dedication timing of Pipeline Road from 1,746 Dwelling Units to 2,866 Dwelling Units.

The major amendment requests do not modify the acreage of the overall MPD, increase the number of lots within the MPD, decrease the required amount of open space to be provided, or modify the overall design of the approved MPD.

Location: These major amendment applications impact the Development Agreement for The Villages (a/k/a Ten Trails) Master Planned Development and have no physical location.

Environmental Documents: The City adopted the Final Environmental Impact Study (FEIS) prepared for the Villages Master Planned Development, which these proposals are a part of, in December of 2009. The FEIS addressed probable environmental impacts resulting from the development of the MPD, including the scope of these amendment applications.

Requested Approval: Development Agreement Major Amendment – Type 4, Quasi-Judicial Decision

Notice of Decision Regarding Classification as Major or Minor Amendment: Based on the submitted application materials and the review criteria established by TV DA Section 10.4.2, the Designated Official has determined that the amendments requested by this application qualify as Major Amendments to The Villages Development Agreement. Please note that the determination that the requested amendments qualify as Major Amendments is not a decision on the merits of the application, which will be forthcoming in due course following substantive review of the requested amendments against the applicable approval criteria.

Appeals: The Designated Official's determination that the requested amendments constitute Major Amendments is subject to appeal to the City's Hearing Examiner, as authorized by TV DA 10.4.2. Any appeals of this determination shall be filed within fourteen (14) calendar days of this notice and adhere to the substantive and procedural requirements set forth in BDMC 18.08.210 and 18.08.220. The appeal shall be accomplished by filing a written request with the Community Development Director, together with payment of applicable fees. The notice of appeal shall briefly specify the issues of the appeal. Decisions that are not appealed within the fourteen (14) day appeal period are deemed final and conclusive.

Staff Contact: Alex Campbell, Senior Planner – Master Development Review Team (MDRT) Senior Planner, City of Black Diamond. Phone: 360-851-4544; Email: acampbell@blackdiamondwa.gov
Andy Williamson, Interim Community Development Director – Community Development Department, City of Black Diamond. Phone: 360-851-4447; Email: awilliamson@blackdiamondwa.gov

Public Comment: You are invited to express comments, request to receive notice of the public hearing, participate in any hearing, request a copy of the decision when it becomes available, and be made aware of any appeal rights. Written comments may be submitted during the public comment period, which is 14 days from the date of this notice, to the Master Development Review Team via email to the Staff Contact above or via regular mail to PO Box 599, Black Diamond, WA 98010.

**INITIAL COMMENTS RELATED TO THESE APPLICATIONS ARE REQUESTED BY:
5:00 P.M. ON March 31, 2025.**

There will be additional opportunities to provide comments on this proposal. A Public Hearing to the City's Hearing Examiner is required for Major Amendment applications to a development agreement. Once scheduled, a Notice of Public Hearing will be issued.

Exhibit 3:

Public
Comments



Outlook

Ten Trails revisions (parks, pipeline road, etc)

From D Meek <thekazan@gmail.com>

Date Tue 3/18/2025 2:28 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

The words that come to mind to myself (and many others) about Oakpointes requests here are

"how about no"

they should not get to delay pipeline road

they should pay directly for park facilities rather than filling some slushfund

etc

PLN25-0004 and PLN25-0006

From Christopher DuBois <duboischris10@gmail.com>

Date Tue 3/25/2025 3:45 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

Dear Senior Planner,

I live in Ten Trails. I moved here in 2021. I am in lot #97. I am writing to express my disagreement with both of the plans outlined in the letter I received in the mail: PLN25-0004 and PLN25-0006

PLN25-0004 Section 9.5.3 : As a citizen, I would much rather see the City enforce the Ten Trails Development to develop parks and recreation, rather than the money to be paid to the mayor to use at discretion in alignment with the PROS plan. It was part of the initial agreement. We were sold on the idea that there would be parks and recreation facilities developed by the builders. I hope the city can stick to it's guns here and truly develop them within ten trails and within black diamond. This seems fishy to me, and I know other neighbors have the same concerns.

PLN25-0006 Section 6.4.3 : As a regular commuter, I see that black diamond has grown and has a lot of traffic issues as it is. Delaying the development from 1,746 to 2,866 dwelling units seems absolutely way too late and too far gone. I would be supremely disappointed if the infrastructure in black diamond was not developed as early as possible to support the known growth.

Thanks,
Chris

Major Amendments to Villages MPD Application numbers PLN25-0004 and PLN25-0006

From Craig Birkliid <birkliidc@gmail.com>

Date Fri 3/28/2025 2:34 PM

To Andy Williamson <awilliamson@blackdiamondwa.gov>; Alex Campbell <acampbell@blackdiamondwa.gov>

Greetings, I write in regards to the Public Comments in reference to the Major Amendments to Villages MPD Application numbers PLN25-0004 and PLN25-0006 notice released on March 17th 2025.

Reference PLN25-0004: I am concerned about the request to alter these important steps that were agreed upon in order for the Villages project to be approved within the city of Black Diamond. As I understand it, the applicants have requested to pay the city a sum of money, rather than actually building the required recreational facilities. I am only aware of figures stated in the paper, but given the 1.6 million dollar cost of the new Black Diamond Skate park, the offered \$1.8 million being offered does not appear to come close to what the actual cost of the ballfields and tennis courts would be. I would suggest the city require the developer to build the required facilities or truly compensate the city in a way that would allow recreational facilities to be built out for the community.

Reference PLN25-0006 Delaying the construction of the pipeline road will likely delay needed congestion relief. The developer is again looking to rescind it's agreed upon delivery of improvements to the city, those that were agreed upon in order to approve the development being constructed in the city. Adding an additional 1,120 dwelling units beyond what was agreed. Completion of the Pipeline road should commence as agreed to ensure that traffic flows through the city, especially at peak periods. I would recommend against delaying this requirement.

Thank you,

Craig Birkliid
33565 Abrams Ave
Black Diamond, WA

March 17th notice of application for "MAJOR AMENDMENTS" to recreational facilities

From Casey Sadler <csadler1126@icloud.com>

Date Mon 3/31/2025 2:10 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

Hi Alex,

My name is Casey Sadler, and I am the owner of Home Base Athletics here in Black Diamond. I'm reaching out to gather more information about the proposed "**MAJOR AMENDMENT**" concerning the recreational facilities that Oakpointe is required to build. After reviewing the development agreement, I found the details to be quite vague.

I have heard discussions suggesting that Oakpointe may be attempting to pay the city in lieu of constructing the baseball and softball fields, as well as the park originally planned. As a former professional athlete and owner of a sports training facility in this community, this matter is very close to my heart and raises significant concerns.

I would appreciate any information you can provide regarding this proposal. Additionally, I would love the opportunity to speak on this matter. Could you let me know if there is a hearing or council meeting where questions and concerns can be addressed? If so, I'd greatly appreciate the date and time.

Looking forward to your response.

Best regards,
Casey Sadler
Owner, Home Base Athletics, Inc.



Outlook

Comment on

From Johna Thomson <johna@drdthomson.com>

Date Mon 3/31/2025 4:52 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

Cc Brenda Martinez <bmartinez@blackdiamondwa.gov>

 1 attachment (47 KB)

Statement to city Fee-in-lieu.pdf;

Alex,

Please find attached my Public Comment on Major Amendment to Recreational Facilities.

Thank you,

Johna Thomson

206-406-4728

Date: March 31, 2025

File Number: PLN25-0004 & PLN25-0005 & PLN25-0006 (Recreation Facilities)

Attn: Alex Campbell, Senior Planner, MDRT

Re: Public Comment on Major Amendment to Recreational Facilities

Comment: I'm writing in support of the proposed amendments to allow for a lump sum payment in lieu of the required construction of recreational facilities. Seems to me, approving this amendment will allow the city more flexibility and control over its recreational planning and implementation.

If this fee-in-lieu of recreational facilities is adopted, I would strongly encourage funds be restricted to use in recreational development. Having funds available to implement projects identified in the recent PROS plan, including providing staffing, would be a positive step in meeting the goals of the PROS plan, as identified by citizen involvement. It seems like a strong strategy for the city to hire staff to implement the current plan and to develop a comprehensive plan for the development of Lake Sawyer Regional Park. The LSRP has been under the control of the city for over 25 years and little-to-no work has been done to create a comprehensive plan for the park.

If this amendment is not approved, the developer will have to meet its obligation of building recreation facilities that were identified nearly 20 years ago, which may not be pertinent today. This development will require city staff to coordinate and maintain the facilities, which, would add additional work to current staff.

In summary: I encourage the city to approve this amendment to provide flexibility in the future.

Future Request: Please keep me informed of additional action taken on this issue, including but not limited to public hearings, copy of the decision when it becomes available, and any appeal rights.

Johna

Johna Thomson

Johna@drdthomson.com

206-406-4728 cell



PALMER COKING COAL CO, LLP

31407 Highway 169 • P.O. Box 10 • Black Diamond, Washington 98010
360-886-2841 • 425-432-4700 • www.palmercc.com

November 4, 2025

City of Black Diamond
Master Development Review Team /
Community Development Department
Attn: Andrew Williamson
24301 Roberts Drive
P.O. Box 599
Black Diamond, WA 98010

Re: Support for Major Amendment to the Villages Development Agreement – Pipeline Road

Dear Mr. Williamson,

Palmer Coking Coal Company, LLP hereby affirms that it has no objection to, and fully supports, the submittal by CCD Partners, LLC (d.b.a. Oakpointe) of a Major Amendment to the Villages Development Agreement. The proposed amendment seeks to modify the existing terms to allow an increased number of residential units to be constructed within the Villages (also known as the Ten Trails development) prior to the obligation to construct the Pipeline Road across property owned by Palmer Coking Coal Company, LLP.

Respectfully,

A handwritten signature in blue ink, appearing to read "Brett Morris", is written over a light blue horizontal line.

Brett Morris
Operating Manager
Palmer Coking Coal Company, LLP



Outlook

Pipeline Road Construction

From John Nelson <jnelsonpdx54@gmail.com>

Date Fri 11/28/2025 6:45 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

I received the notice of Oakpoint's request to modify the trigger for Pipeline Road construction from 1747 to 2866 dwelling units. Can you tell me what benefit, if any, Black Diamond would see from approving this change? It would appear that we would simply see more traffic on Roberts for a longer period of time. Unless there is some significant benefit to Black Diamond that I am unaware of, I would like to voice my opposition to approving this amendment.

John Nelson
32208 Sunny Ln, Black Diamond, WA 98010

Re: Black Diamond MPD Public Notices

From Erika Morgan <erikamorganblackdiamond@gmail.com>

Date Mon 12/1/2025 10:11 AM

To Alex Campbell <acampbell@blackdiamondwa.gov>

Cc Erika Morgan <smilemeadow@gmail.com>; Andy Williamson <awilliamson@blackdiamondwa.gov>

 2 attachments (1 MB)

PLN25-0006 Notice of Public Hearing.pdf; PLN25-0006 SEPA Adoption.pdf;

Hello;

I find the google map outlining the water of the city of Black Diamond are no longer what is on the ground.

I have reported that Black Diamond lake has grown significantly since the ground under today's 10 trails had its topsoil scraped off. Currently BD Lake is 2.5 to 3 feet deeper than it was before. I find it an untruth for the city to accept this old rendition for these updates, and especially since the development is up against a need to re-apply as the old agreement has timed out. You will find that since the snow level in Stampede Pass has come down, the water level as it exists here seems to be falling, but I need to remind you that this water in our environment is following the Horseshoe Lake pattern.

This all parallels the knowledge that the Cascade Water Authority shared with me when I was on the City Council, "there is an underground river here which carries 20X as much water as the surface Green River that we see and use". The water courses through rocky deposits left from the numerous glaciations that have formed our landscape, but is actually unknown and unmapped, but that nonetheless is active in the environment of BD in the Cascading Water outflow.

The other thing that has never been properly understood about the hydrology of BD Lake is the fact that this is all moving water rather than impounded water, and that BD Lake itself is not stagnant water but constantly exchanging from the east and to Puget Sound by the various routes.

The Banchero's and the state highway department are also complaining about the expansions of Jones Lake and how they can save the Renton - Enumclaw Highway as it passes through and around BD.

The Bradner's live on the Auburn Highway just past the King County Road yard, they built in about 1980, and since this same topsoil scraping at 10 trails, they have complained that their basement is flooding, a new finding at that same time.

I have been noticing a lot of fly over by various entities so I know that more up to date mapping is being done, it would be useful to all of us to have supper imposed depictions of what is the actuality on the ground so all of us can actually see how the current development is changing our environment and how we now need a current consideration for our now environment.

Erika Morgan

Black Diamond citizen on my land since 1978 February
December 1 2025

- PLN25-0006, Notice of Public Hearing - The Villages (a/k/a Ten Trails) MPD Development Agreement Major Amendment regarding the Pipeline Road Construction Timing
 - The public hearing will be held on Monday, December 15 at 6:00pm in the City Council Chambers (25510 Lawson Street)
- PLN25-0006, Adoption of the Final Environmental Impact Statement (FEIS) - The Villages (a/k/a Ten Trails) MPD Development Agreement Major Amendment regarding the Pipeline Road Construction Timing

Please refer to the attached documents for additional information.

Thank you,

Alex Campbell, AICP

City of Black Diamond

Senior Planner, Master Development Review Team

Amendment for pipeline Road

From RICHARD F COLLINS <vonpies@sbcglobal.net>

Date Mon 12/1/2025 3:08 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

Hello

Even though pretty much everyone who resides in 10 Trails knows that the council bends a knee to Oakpointe. When we speak to each other, the only reason we can possibly come up with is got to be money involved somehow especially when every one of these revisions involve increasing load on black diamond as a city.

Delay pipeline Road so that they can construct another 1200 dwelling units is absolutely absurd, Especially when they just want the money from the 1200 new home so they don't have to take money out of their pockets to finish pipeline Road.

I know this message is gonna fall on deaf ears, especially when we elected a new mayor who supposedly is going to look out for black diamond even though the council refuses to do that.

How about sending us some notices to the black diamond residents and even to us here in 10 trails that there's going to be a revision to police protection, fire protection so that we feel safe!

Richard Collins

[Sent from AT&T Yahoo Mail for iPhone](#)

(No subject)

From W. Coast Duffer <p.vonwalter@gmail.com>

Date Wed 12/3/2025 12:23 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

Oakpointe wants to break their promise? So as residents we endure them, but not benefit?

Very few people stay home 168 hours a week, so most of us are navigating in increasingly slow, crowded traffic. Maple valley has made distinct changes to slow it even more and Oakpointe has invited thousands of new residents to move among us. The only new streets I've seen that Oakpointe has built are directly within its Ten Trails development.

Yet we all are still crawling toward shops and appointments on the antiquated farm-to-market system that hasn't changed appreciably in human memory. But thanks to the huge Oakpointe vision, we're all spending more and more of our precious God-given time in gridlock -- and I'm inclined to resent waiting for the same traffic signal to cycle twice.

Aggravation is added as Oakpointe imports more residents but doesn't contribute to additional public pavement as they promised when under first consideration. (Was that just a scam?) If there was ever a time for local leaders to show some backbone and hold our benefactor to account, the time is now -- and from now on.

Phil VonWalter
Resident/taxpayer/voter
29227 218th Pl. S.E.
Black Diamond, WA 98010

Re:

From W. Coast Duffer <p.vonwalter@gmail.com>

Date Wed 12/3/2025 1:00 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

Hi Alex,

That's a very good question. I'm responding with those comments regarding Lawson Hills in particular, yet I've been hearing about Oakpointe's avoidance of other agreed upon promises for some time. I've lived here for almost 20 years as a constituent of King County and another 25 years as a resident of Black Diamond (in the same house), but ... so far and outside of some increased commercialism and business, I don't see any benefit from Oakpointe's existence in Diamond and since more people need to get somewhere at least as fast as they did formerly, I don't see decreased speed limits (or roundabouts) as any benefit.

Phil

On Wed, Dec 3, 2025 at 12:29 PM Alex Campbell <acampbell@blackdiamondwa.gov> wrote:

Hello Phil – I appreciate you submitting these comments and I will make sure they are included in the project file for both the Hearing Examiner's and City Council's consideration. Are these comments specific to the Lawson Hills MPD Secondary Access application (PLN25-0062) or The Villages (a/k/a Ten Trails) MPD Pipeline Road application (PLN25-0006)? I can also file this comment for both applications, just let me know your preference.

To provide some context on the process, the City is presenting the application to the Hearing Examiner at the public hearing on 12/8 (for the Lawson Hills Secondary Access Amendment) and 12/15 (for the Villages Pipeline Road Amendment). The Hearing Examiner will then issue a recommendation to the City Council approximately 2 weeks after the public hearing. The City Council will hold a Closed Record hearing to be scheduled after the Hearing Examiner's recommendation is made. This is notable since a Closed Record hearing means that the Council can only consider comments made at the public hearing – they do not accept new comments during their review. So it is important to provide any information you wish the Council to consider (like the comments you provided below) before or during this public hearing. I just wanted to outline the upcoming process related to this application.

Thank you,

Alex Campbell, AICP

City of Black Diamond

From: W. Coast Duffer <p.vonwalter@gmail.com>
Sent: Wednesday, December 3, 2025 12:24 PM
To: Alex Campbell <acampbell@blackdiamondwa.gov>
Subject:

Oakpointe wants to break their promise? So as residents we endure them, but not benefit?

Very few people stay home 168 hours a week, so most of us are navigating in increasingly slow, crowded traffic. Maple valley has made distinct changes to slow it even more and Oakpointe has invited thousands of new residents to move among us. The only new streets I've seen that Oakpointe has built are directly within its Ten Trails development.

Yet we all are still crawling toward shops and appointments on the antiquated farm-to-market system that hasn't changed appreciably in human memory. But thanks to the huge Oakpointe vision, we're all spending more and more of our precious God-given time in gridlock -- and I'm inclined to resent waiting for the same traffic signal to cycle twice.

Aggravation is added as Oakpointe imports more residents but doesn't contribute to additional public pavement as they promised when under first consideration. (Was that just a scam?) If there was ever a time for local leaders to show some backbone and hold our benefactor to account, the time is now -- and from now on.

Phil VonWalter
Resident/taxpayer/voter
29227 218th Pl. S.E.
Black Diamond, WA 98010

Fwd: PLN25-006 - NON SUPPORT OF Proposed Amendmanet

From Kris Butt <krisbutt3@gmail.com>

Date Wed 12/3/2025 2:18 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

 1 attachment (15 KB)

City of Black Diamond_ Major Amendment NON SUPPORT 12012025.docx;

I perhaps had an error in your email? I did not receive confirmation of receipt on this one?
Can you confirm received please?
Thank you

Kris Butt
Member, PK Properties LLC
WB- KWB- LLC- Butt Properties
206 409 8134

----- Forwarded message -----

From: **Kris Butt** <krisbutt3@gmail.com>

Date: Wed, Dec 3, 2025 at 9:54 AM

Subject: PLN25-006 - NON SUPPORT OF Proposed Amendmanet

To: <acampbell@blackdimaondwa.gov>

Cc: Carol Benson <cbenson@blackdiamondwa.gov>

Alex,

This one sooo impacts our community! We cannot allow Oakpoint to delay their commitment.

Please share our concerns.

Regards
Kris & Wes Butt

Wes Butt
206 953 9797

Kris Butt
206 409 8134

Charles Wesley Butt
Black Diamond Residence Cell: 206 409 8134
29445 232nd Ave. SE
Black Diamond, Wa 98010

December 1, 2025

City of Black Diamond
PO Box 599
Black Diamond, WA 98010

Attn: Alex Campbel

RE: APPLICATION PLN25—0006 -

City of Black Diamond,

We do not support the major amendment requested.

First, a commitment was made at 1746 dwellings. Why change this when each of us can see the impact the dwellings are having at our roads right now. We understand it does not impact the overall details of the MPD. It does impact our ROADS NOW.

This project is a major thoroughfare. It will relieve the traffic bottleneck at Roberts Drive and our 169 highway. This will provide alternative traffic patterns for the whole community.

The Road will bring additional revenue to the City with the sales tax revenue it will generate. The commercial along the road will be a great opportunity for new business, small businesses and our community to continue to grow and prosper.

Oakpoint is going to be required to do it. Why allow them to do it later? Right now the construction industry is a bit slower with interest rates and the cost will be substantially less. They need to make this investment in our City as COMMITTED. Why allow them to wait when they could be at risk of any sort of bankruptcy or over extension of their funds which could put them in a position to be unable to fund this project.

We do NOT support this Major Amendment. We support our community.

Regards,

Charles Wesley Butt 206 409 8134

Re: Re:

From W. Coast Duffer <p.vonwalter@gmail.com>
Date Wed 12/3/2025 10:45 PM
To Alex Campbell <acampbell@blackdiamondwa.gov>

In the main sense, at least, that is the right course. But having re-read my comments, it seems that, once again, it's time to "revise and extend". The probable impression I've given so far is that nothing positive at all results from large developments, but I have had the pleasure of meeting and conversing with a few people who live.(e.g.) at Ten Trails. They've struck me as personable and understanding, so it wouldn't be completely honest to skip mentioning that enjoyment.

Phil

On Wed, Dec 3, 2025 at 3:46 PM Alex Campbell <acampbell@blackdiamondwa.gov> wrote:

Hi Phil - Thank you for the additional context and information. If it is alright with you, I will include these comments (this recent email and your earlier one) in both application files, so that the City's Hearing Examiner and the City Council can consider them in relation to both proposals.

Thank you,
Alex Campbell, AICP
City of Black Diamond
Senior Planner, Master Development Review Team

From: W. Coast Duffer <p.vonwalter@gmail.com>
Sent: Wednesday, December 3, 2025 1:00 PM
To: Alex Campbell <acampbell@blackdiamondwa.gov>
Subject: Re:

Hi Alex,
That's a very good question. I'm responding with those comments regarding Lawson Hills in particular, yet I've been hearing about Oakpointe's avoidance of other agreed upon promises for some time. I've lived here for almost 20 years as a constituent of King County and another 25 years as a resident of Black Diamond (in the same house), but ... so far and outside of some increased commercialism and business, I don't see any benefit from Oakpointe's existence in Diamond and since more people need to get somewhere at least as fast as they did formerly, I don't see decreased speed limits (or roundabouts) as any benefit.

Phil

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To provide some context on the process, the City is presenting the application to the Hearing Examiner at the public hearing on 12/8 (for the Lawson Hills Secondary Access Amendment) and 12/15 (for the Villages Pipeline Road Amendment). The Hearing Examiner will then issue a recommendation to the City Council approximately 2 weeks after the public hearing. The City Council will hold a Closed Record hearing to be scheduled after the Hearing Examiner's recommendation is made. This is notable since a Closed Record hearing means that the Council can only consider comments made at the public hearing – they do not accept new comments during their review. So it is important to provide any information you wish the Council to consider (like the comments you provided below) before or during this public hearing. I just wanted to outline the upcoming process related to this application.

Thank you,

Alex Campbell, AICP

City of Black Diamond

Senior Planner, Master Development Review Team

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Yet we all are still crawling toward shops and appointments on the antiquated farm-to-market system that hasn't changed appreciably in human memory. But thanks to the huge Oakpointe vision, we're all spending more and more of our precious God-given time in gridlock -- and I'm inclined to resent waiting for the same traffic signal to cycle twice.

Aggravation is added as Oakpointe imports more residents but doesn't contribute to additional public pavement as they promised when under first consideration. (Was that just a scam?) If there was ever a time for local leaders to show some backbone and hold our benefactor to account, the time is now -- and from now on.

Phil VonWalter
Resident/taxpayer/voter
29227 218th Pl. S.E.
Black Diamond, WA 98010

Fw: oakpoint

From DAVID HAGEN <dlhagen1@msn.com>

Date Thu 12/4/2025 1:12 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

From: DAVID HAGEN <dlhagen1@msn.com>

Sent: Thursday, December 4, 2025 1:07 PM

To: acampbell@blackdiamondwa.gov <acampbell@blackdiamondwa.gov>

Subject: oakpoint

I live in Black Diamond, more in the Lake Sawyer area. So the Pipeline Road that Oakpoint promised to put in has little to no effect on me. BUT I have to say 1000 homes and so little access /egress? seems way out of line. They should have to stick to their agreement otherwise when it becomes evident that those 2 roads are needed? It will fall on the taxpayers to correct it and THAT I don't like.

Thank you

David and Linda Hagen

PLN25-0006 Application comment

From Craig Birklid <birklidc@gmail.com>

Date Thu 12/4/2025 1:39 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

Alex, I am sending a comment to be added to Pipeline road requested change.

Re: Comment regarding Application number: PLN25-0006 and amending the Villages Master Planned Development Agreement.

I write to recommend the City of Black Diamond not make the requested modification in this application which would delay the transportation infrastructure that Oakpointe agreed to build, in order to get the initial approval to move forward with the project. A delay will not serve the city well as the city absorbs the additional congestion of more than 1100 families moving into Black Diamond. By moving forward with the Pipeline road as planned and originally agreed to by both the City and Oakpointe, the additional traffic impacts we expect, can be mitigated by building the planned bypass road.

Thank you for allowing public comments on this application.

Craig Birklid

33565 Abrams Ave.

Black Diamond

Re: PLN25-0006 Application comment

From Jim Birklid <mac4norski@gmail.com>
Date Thu 12/4/2025 4:35 PM
To Alex Campbell <acampbell@blackdiamondwa.gov>
Cc Craig Birklid <birklidc@gmail.com>

Hi Alex,

Yes, I would like my comments to be entered into the record relative to this issue.

I, don't fully trust any developer where they are exposed to an impact to their bottom line. My position on this is based on advice given to me by a developer with a 30 year history in the business. "We always try for changes that will make us more money". "That is just the way developers do business".

It just seems that Oakpoint is hoping the pressure on the school district by the increased number of Ten Trails children, will force the taxpayers to agree to funding additional education facilities before Oakpoint runs out of contractual time to fund the construction project (s) themselves. This holds true for all the other projects that they have agreed to do.

Regards,
James A Birklid
33701 Abrams Ave, Black Diamond, WA 98010
Ph. 253 632 6873

On Thu, Dec 4, 2025 at 2:28 PM Alex Campbell <acampbell@blackdiamondwa.gov> wrote:

Hello Jim - Although I was copied on this email that may be for Craig, I do want to provide some information related to this. The requirements associated with the Development Agreement (e.g. recreation, transportation, and/or utility improvements) are incorporated into every preliminary and final plat application filed in association with development activities for both Master Planned Development. This means that even once the Development Agreement expires, those requirements carry on in association with those plats. Preliminary plats have approval periods of approximately seven years. Plats within the MPD that have been submitted to the City prior to December 31, 2026 will still have to meet all the requirements established in the Development Agreement throughout the life of their application, even if the preliminary plat is not fully constructed until after the December 31, 2026 date.

Jim - would you like your comment related to the December 31, 2026 cutoff date to be included in the permit file for this applicaiton, which will add you as a Party of Record to the application and allow the Hearing Examiner and City Council to consider it in association with this proposal?

Thank you,
Alex Campbell, AICP
City of Black Diamond
Senior Planner, Master Development Review Team

From: Jim Birkliid <mac4norski@gmail.com>
Sent: Thursday, December 4, 2025 1:53 PM
To: Craig Birkliid <birkliidc@gmail.com>
Cc: Alex Campbell <acampbell@blackdiamondwa.gov>
Subject: Re: PLN25-0006 Application comment

Well stated!

Is there a reason you did not include the December 31, 2026 cutoff after which Oakpoint walks away from its legal requirement to do any of the infrastructure work?

Dad

On Thu, Dec 4, 2025 at 1:39 PM Craig Birkliid <birkliidc@gmail.com> wrote:
Alex, I am sending a comment to be added to Pipeline road requested change.

Re: Comment regarding Application number: PLN25-0006 and amending the Villages Master Planned Development Agreement.

I write to recommend the City of Black Diamond not make the requested modification in this application which would delay the transportation infrastructure that Oakpointe agreed to build, in order to get the initial approval to move forward with the project. A delay will not serve the city well as the city absorbs the additional congestion of more than 1100 families moving into Black Diamond. By moving forward with the Pipeline road as planned and originally agreed to by both the City and Oakpointe, the additional traffic impacts we expect, can be mitigated by building the planned bypass road.

Thank you for allowing public comments on this application.

Craig Birkliid
[33565 Abrams Ave.](#)
[Black Diamond](#)



Outlook

Public Hearing Villages MPD Major Amendment - Pipeline Road

From Lauren Landis <lasidnal@gmail.com>

Date Fri 12/5/2025 1:57 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

 1 attachment (33 KB)

Public Comment Pipeline Road.pdf;

Hi Alex,

Attached is my comment for the hearing examiner to consider regarding the major amendment to the MPD regarding the timing of the Pipeline Road construction.

Please confirm receipt of this email and my comments.

Lauren

Dear Black Diamond City Staff,

My name is Lauren Landis, and I am a resident of Black Diamond. I would like to provide comments regarding the Major Amendment to the Villages MPD, specifically the proposed change to the timing of the Pipeline Road construction.

I do not support delaying the trigger for the Pipeline Road construction from 1,746 dwelling units to 2,866 dwelling units. With the roundabout completed at Black Diamond Lake Sawyer Road and the roundabout currently under construction on Highway 169, the Pipeline Road is ready for installation and would provide an important connection across town.

The parties involved in coming to an agreement and making a plan have had ample time to resolve the remaining details and have long been aware of this milestone as construction within Ten Trails has progressed.

The Pipeline Road will serve as an efficient and beneficial route for the community, particularly from a traffic and mobility standpoint. Unless there is a clear, well-supported planning rationale to justify this delay, I respectfully request that the amendment to the MPD not be approved.

Thank you for your consideration.

Sincerely,
Lauren Landis

Exhibit 4:

SEPA Adoption



CITY OF BLACK DIAMOND

P.O. Box 599
24301 Roberts Drive
Black Diamond, WA 98010

Phone: (360) 851-4500
Fax: (360) 851-4501
www.blackdiamondwa.gov

ADOPTION OF EXISTING ENVIRONMENTAL DOCUMENT FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS) THE VILLAGES MASTER PLANNED DEVELOPMENT (MPD)

Project Name: Major Amendment to The Villages Master Planned Development (MPD) Development Agreement (TV DA) regarding Pipeline Road Construction Timing

Application Number: PLN25-0006

Name of Applicant/Proponent: Oakpointe / CCD Black Diamond Partners LLC

Project Description: The applicant is requesting a Major Amendment to The Villages Master Planned Development (MPD) Development Agreement Section 6.4.3 to modify the language in this section regarding the deadline for when Pipeline Road must be constructed. This request proposes modifying the Dwelling Unit trigger for the construction and dedication timing of Pipeline Road from 1,746 Dwelling Units to 2,866 Dwelling Units. The Major Amendment request does not modify the acreage of the overall MPD, increase the number of lots within the MPD, decrease the required amount of open space to be provided, or modify the overall design of the approved MPD.

Location: The Major Amendment application impacts the Development Agreement for The Villages Master Planned Development and has no physical location. Pipeline Road will provide an east/west connection from the roundabout at the intersection of Lake Sawyer Road SE / Ten Trails Parkway SE to a future roundabout at State Route 169.

Title of Document Being Adopted: The Villages Master Planned Development Final Environmental Impact Statement (FEIS). Prepared by Parametrix on behalf of the City of Black Diamond and issued December 2009. The City of Black Diamond has identified and adopted this document as being appropriate for this proposal after independent review. The document meets our environmental review needs for the current proposal and will accompany the proposal to the decision maker. The FEIS meets the environmental review needs for the current proposal.

Description of Document Being Adopted: The FEIS for The Villages Master Planned Development identified the impacts of the MPD within the City of Black Diamond. The FEIS reviewed impacts and established required mitigation measures resulting from the development of the MPD.

If the Document Being Adopted Has Been Challenged, Please Describe: The FEIS was administratively appealed with the City's Hearing Examiner issuing a Decision deeming the FEIS adequate in April 2010.

Adopted Document Availability: The Villages MPD FEIS is available for review on the City of Black Diamond's website at this location: <https://www.blackdiamondwa.gov/master-development-review-team/webforms/development-agreement-information>

Name of Agency Adopting Document: The City of Black Diamond

Staff Contact: Alex Campbell, Senior Planner – Master Development Review Team
acampbell@blackdiamondwa.gov, (360) 851-4544

Responsible Official: Andy Williamson, Director – Community Development and Master Development Review Team

Signature:

Date:

12/1/2025

Exhibit 5:

MPD

Transportation
Update

Transportation Model Update – per Hearing Examiner Conditions

Prepared for

City of Black Diamond

24301 Roberts Drive
Black Diamond, WA 98010

Prepared by

Parametrix

1019 39th Avenue SE, Suite 100
Puyallup, WA 98374
T. 253.604.6600 F. 1.855.542.6353
www.parametrix.com

CITATION

Parametrix, 2023. Transportation Model Update – per Hearing Examiner Conditions. Prepared by Parametrix, Puyallup, Washington. October 2023.

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B	Level of Service Description
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ACRONYMS AND ABBREVIATIONS

FEIS	final environmental impact statement
LOS	level of service
MPD	master planned development
PHF	peak hour factor
PSRC	Puget Sound Regional Council
TAZ	traffic analysis zone
TIP	transportation improvement plan
TTR	transportation technical report
WSDOT	Washington State Department of Transportation

1. EXECUTIVE SUMMARY

This report addresses the Hearing Examiner Transportation conditions for The Villages and Lawson Hills Master Planned Developments (MPDs) Responses to Conditions 10 through 17. These conditions pertain to updates of the transportation modeling conducted as part of the Final Environmental Impact Statement (FEIS) conducted for The Villages and Lawson Hills developments. This report addresses Conditions 11 through 17 by documenting the methodology, assumptions, and results of the updated modeling efforts.

The analysis addresses the requirements of the Conditions of Approval and is consistent with the methodology used in The Villages and Lawson Hills transportation technical reports (TTRs)¹ with applicable updates that have occurred since the TTRs were published.

The analysis was conducted for existing 2022 conditions. To be conservative, the 2022 analysis is based on existing traffic counts as well as trip generation estimates for Phase 1A/1B and Phase 2 of Ten Trails forecasted for the year 2022, as documented in the *Mid-Point Traffic Monitoring Report: Ten Trails and Lawson Hills Master Planned Developments: Phase 1A* (Transpo Group 2021). The Mid-Point Traffic Monitoring Report assumed 1,375 dwelling units would be constructed by the year 2022. Actual construction by the end of 2022 included approximately 1,000 dwelling units.

For the next interval of analysis, the full build-out conditions of Ten Trails and Lawson Hills MPDs were analyzed. The year 2032 was selected as it represents the full build-out of the Ten Trails and Lawson Hills developments. The development agreements for these developments end in the year 2025. Pending approval and vesting schedules, the year 2032 is a conservative assumption for full build-out to be complete.

The analysis concluded that under 2022 existing conditions, two intersections do not meet current LOS standards. The intersections of SR 169/SR 516 and SR 169/SE Wax Road in Maple Valley operate at LOS E, below the LOS D standard as defined by WSDOT and the City of Maple Valley. However, as explained in Section 12.10.1 of The Villages Development Agreement, the Master Developer and the City of Maple Valley entered a mitigation agreement which supersedes the MPD Conditions of Approval 10 through 14, and 16 through 34. No additional mitigation is required.

Four intersections in Maple Valley are forecasted to operate at LOS E or LOS F, below the LOS D standard as defined by WSDOT and the City of Maple Valley. As explained in Section 12.10.1 of The Villages Development Agreement, the Master Developer and the City of Maple Valley entered a mitigation agreement which supersedes the MPD Conditions of Approval 10 through 14, and 16 through 34. No additional mitigation is required.

Four intersections in Covington are also forecasted to operate at LOS E or LOS F during the 2032 PM peak hour, below LOS D standards as defined by WSDOT and the City of Covington. Covington's 2016 Comprehensive Plan allows for traffic operations at LOS E or LOS F after SR 516 has been improved to ultimate capacity. No additional mitigation is required.

¹ *The Villages Transportation Technical Report* (Parametrix 2009b) was included in Technical Appendix B of The Villages MPD Final Environmental Impact Statement (FEIS), and the *Lawson Hills Transportation Technical Report* (Parametrix 2009a) was included in Technical Appendix B of the Lawson Hills MPD FEIS.

The intersection of SE Auburn Black Diamond Road/218th Avenue SE is forecast to operate below LOS standards under the 2032 Full Build-out condition. A roundabout is currently proposed at this intersection by the Master Developer. A roundabout, or a signal, at this location would bring the LOS back up to King County standards.

The Kent Kangley Road/Landsburg Road is forecasted to operate at LOS F in the 2032 Full Build-out condition, which is below the King County standard of LOS E. King County has identified the need for a signal at this location, but currently there is no funding identified for this improvement. For mitigation, it is recommended that the Master Developer contribute a proportionate share of the cost of the proposed intersection improvement at the ERU trigger, defined through upcoming traffic monitoring reports. If King County has not designed the improvement at the time the ERU trigger is met, the City would accept a bond or other financial security from the Master Developer.

The development agreements end in the year 2025. Pending approval and vesting schedules, the year 2032 is a conservative assumption for full build-out to be complete. It is recommended that the next validation/calibration/operations analyses take place as part of the City's 2034 Comprehensive Plan Update.

2. INTRODUCTION

This report was prepared to address Conditions 11 through 17 of the Hearing Examiner’s Conditions of Approval for The Villages and Lawson Hills Master Planned Developments (d). These conditions pertain to updates of the transportation modeling conducted as part of the Final Environmental Impact Statement (FEIS) conducted for The Villages and Lawson Hills developments. Figure 2 shows the a flow chart of the steps laid on in the Conditions of Approval related to updated to the transportation modeling

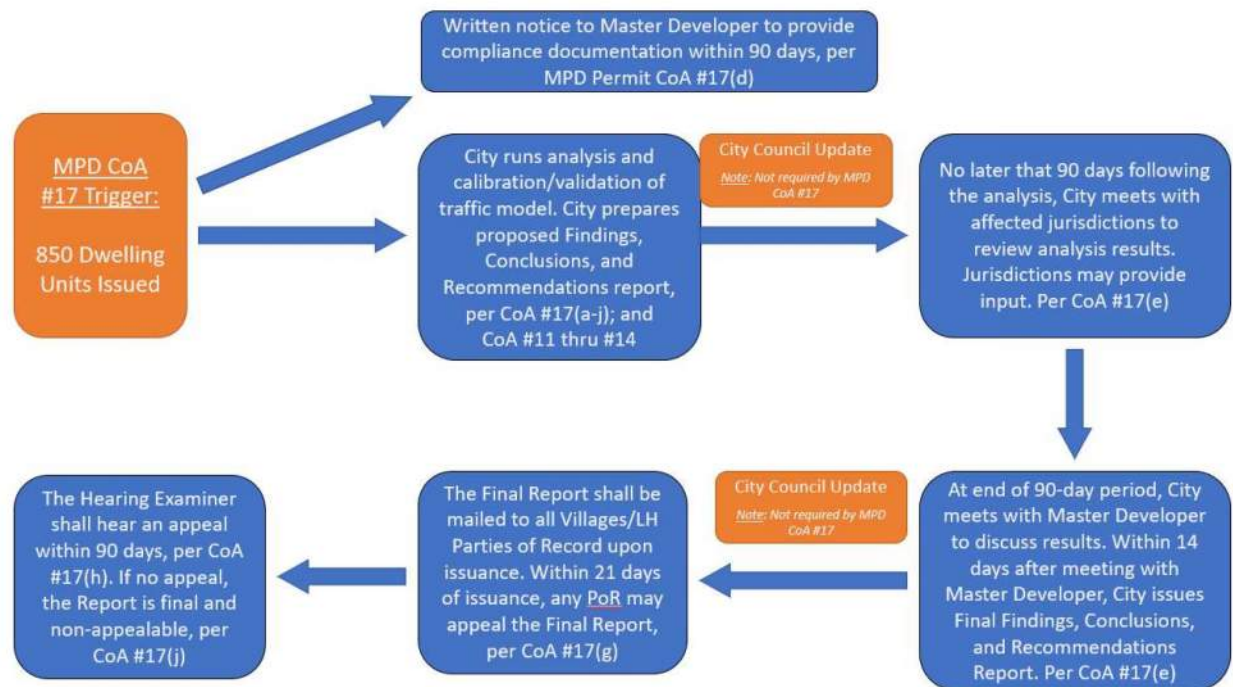


Figure 1. Conditions of Approval – Transportation Modeling Flow Chart

This report addresses Conditions 11 through 17, one by one, and documents the methodology, assumptions, and results of the updated modeling efforts. The Conditions of Approval are included in Appendix A.

The report documents the language from each Condition of Approval the beginning of the chapter, with the text highlighted as shown below.

Language from the Conditions of Approval will appear at the beginning of each section, as shown here.

3. DEFINITIONS

Internal capture rate – The percentage of trips generated by a development that are made between different land uses within a mixed-use development site. These internal trips do not use the major street system. Developments with only one type of land use do not have internal capture rates.

Level of service – The operational characteristics of an intersection are determined by calculating the intersection's LOS. An intersection as a whole and its individual turning movements can be described alphabetically with a range of LOSs (A through F); LOS A indicates free-flow traffic and LOS F indicates congestion and long vehicle delays. LOS is measured in average delay per vehicle and is typically reported for the intersection as a whole at signalized intersections and for the approach or turning movement that experiences the most delay at unsignalized intersections. Appendix B provides a detailed explanation of intersection LOS.

Pass-by rate trip – Pass-by trips are not new to the roadway system. A pass-by trip is made as an intermediate stop on the way from an origin to a primary trip destination without a route diversion. Pass-by trips are attracted from traffic passing the site on an adjacent street or roadway that offers direct access to the generator.

Peak hour factor – The *Highway Capacity Manual 6th Edition* (TRB 2016) recommends evaluating traffic conditions during the worst 15 minutes of a typical weekday peak hour. The PHF is used to convert the hourly volume into the volume representing the busiest 15 minutes of the hour. The PHF is the PM peak hour volume divided by the highest 15-minute volume multiplied by four. A PHF of 1.0 means traffic levels are evenly spread out over the whole hour. A PHF of 0.80 or less means traffic spikes for a short period (usually near a factory, school, or some other use with a surge in traffic).

Traffic operations model – Analytical computer model that predicts capacity, delay, and queuing on a variety of transportation facilities. These models implement procedures of the *Highway Capacity Manual 6th Edition*.

Travel demand model – Mathematical computer model used to forecast long-term future travel demand based on current conditions and future projections of household and employment characteristics. Travel demand models have limited capabilities to accurately estimate changes in operational characteristics (such as speed, delay, and queuing) resulting from implementation of operational strategies.

4. CONDITION 11

“The City shall create, at the expense of the Applicant, a new transportation demand model for this project for use in validating the distribution of the project traffic at intervals specified in Condition No. 17. The new model shall incorporate, at an appropriately fine level of detail, and at a minimum, the transportation network from the northern boundary of the City of Enumclaw on SR 169 through the City of Maple Valley to the northern limits of that city. The new model shall include the intersections studied in the FEIS, with the following additions: all existing and principal and minor arterials in Black Diamond, Covington and Maple Valley and the unincorporated areas between these cities and specifically including the Kent-Black Diamond Road; additional study intersections at SE 231st/SR 18 westbound ramps, SR 169/SE 271st Streets and SR 169/SE 280th Street in Maple Valley. External trips may be captured by any valid methodology including overlaying the new model onto the existing Puget Sound Regional Council transportation model.”

Rather than just the “new transportation demand model” called for in Condition 11, two types of transportation models were used to support this model update: a travel demand model and a traffic operations model. Travel demand models are typically used for systemwide multimodal complex forecasting; Emme, TransCad, and VISUM software platforms were used as the primary tools. For intersection operations analysis, traffic operations models including Synchro, SIDRA, Rodel, and HCS were the primary analytic tools used.

The starting point for transportation demand modeling (known as the DEMAND model for this analysis) work in support of this model update for the City of Black Diamond is the Puget Sound Regional Council (PSRC) 4K Trip-Based Travel Demand Model developed for the current (at the time of the analysis conducted for this report) Regional Transportation Plan 2018. This transportation demand model uses Inro’s Emme software. This version of the model uses a base year of 2014 and includes horizon years of 2025 and 2040. The PSRC is currently updating the Regional Transportation Plan to extend to the year 2050, but that model was not available for use when this work began in early 2022.

The roadway network included in the new DEMAND model includes the requirements above and is documented in the March 4, 2022, technical memorandum (see Appendix C).

To evaluate intersection LOS, per Condition 17B, a separate traffic operations model (known as the OPERATIONS model for this analysis) was created using Synchro software and SIDRA software. The OPERATIONS model included all the intersections studied in the FEIS and the additional intersections listed in Condition 11 above.

“The new model must be validated with existing traffic, based on actual traffic counts no more than two years prior to model creation.”

Existing traffic volumes for the study area were obtained from the Cities of Black Diamond, Covington, and Maple Valley, and the Washington State Department of Transportation (WSDOT). Traffic counts collected in the years 2019, 2020 and 2022 were used in this study.

The COVID pandemic resulted in decreased traffic volumes and travel patterns between March 2020 and July 2021. Traffic counts collected during this time were adjusted to pre-COVID conditions using data from Washington State Department of Transportation (WSDOT) COVID-19 Multimodal Transportation System Performance Dashboard.² The dashboard summarizes daily differences between 2020 volumes and 2019 volumes for select transportation facilities throughout the state of Washington.

Overall, statewide traffic volumes are stabilized and are close to pre-COVID traffic volumes. Therefore, volumes collected in 2022 are not considered as COVID-affected. Additionally, due to the change in travel patterns during COVID, 2019 traffic volumes are still considered valid for use in this study.

Turn movement counts for the PM peak period were collected in November 2019 at 14 locations in Black Diamond and at 3 locations in Maple Valley. The locations of the intersection counts are shown in Figure 4 in Appendix C (see the March 4, 2022, memo). Seventy-two-hour average daily traffic counts were taken at 15 locations in Black Diamond in the fall of 2020 and at 3 locations in Maple Valley. Locations of the average daily traffic counts are shown in Figure 5 in Appendix C (see the March 4, 2022, memo).

PM peak period turning movement counts were also collected in May 2022 at 27 additional intersections in Covington, Maple Valley, and unincorporated King County. Additional discussion about the existing traffic counts used to validate the DEMAND model is documented in the March 4, 2022, technical memorandum in Appendix C.

Key to the success of the new model is a well-coordinated effort and cooperation among the cities of Black Diamond, Maple Valley, and Covington, the Applicant, King County, and the Washington State Department of Transportation. Although specific assumptions ultimately made in the model may be the subject of differences in professional judgement, the City Council's goal is that, notwithstanding these differences in judgement, the model will be comprehensive and therefore acceptable to all parties. The City Council therefore directs staff in preparing the model to work in the spirit of openness and cooperation with these other agencies and the Applicant, and similarly requests that other agencies and the Applicant join with the City of Black Diamond staff in working together in the same spirit for the common good."

The draft report and findings were shared with Maple Valley, Covington, King County and WSDOT. Comments and responses are included in Appendix G.

² WSDOT. COVID-19 Multimodal Transportation System Performance Dashboard, <https://www.wsdot.wa.gov/about/covid-19-transportation-report/>

5. CONDITION 12

“The new demand model must take into account recent traffic counts, current and proposed land uses as defined in the applicable Comprehensive Plans areas covered in the study area, and existing speed limits on all roadway links included in the model’s roadway network.”

Land use assumptions for the DEMAND model are documented in the March 4, 2022, travel demand model technical memorandum and the April 29, 2022, travel demand model technical memorandum; both are included as Appendix C.

“The model must be run with currently funded transportation projects for each affected jurisdiction as shown in the applicable 6-year Transportation Improvement Plans and with transportation projects shown in the applicable 20-year Transportation Improvement Plans which are not funded but are determined to have a reasonable likelihood of obtaining funding based on consultation with each jurisdiction.”

The existing year DEMAND and OPERATIONS models included all capacity projects identified in the applicable 6-year Transportation Improvement Plans (TIPs) for the City of Black Diamond, City of Covington, City of Maple Valley, King County, and WSDOT. The projects are listed in Table 1. Appendix D includes information from the TIPs and Comprehensive Plans.

Table 1. 6-Year Transportation Improvement Projects Included in Analysis

Location	Jurisdiction	Study Intersection	Improvements
Black Diamond	WSDOT	SR 169 and Lawson Road ^a	Signal
Black Diamond	WSDOT	SR 169 and Baker Road ^a	Signal
Black Diamond	WSDOT	SR 169 and Ravensdale ^a	Right-in/right-out
Black Diamond	WSDOT	SR 169 and Roberts Drive ^a	Roundabout
Black Diamond	WSDOT	SR 169 and Pipeline Road ^a	Roundabout
Black Diamond	Black Diamond	Morgan Street/Roberts Drive ^a	Roundabout /Signal
King County	WSDOT	SR 169 and SE 288th Street ^a	Roundabout /Signal
Maple Valley	WSDOT	SR 169 (240th to 244th)	Widen to two lanes in each direction

^a Developer-funded project

The current 6-year TIP identifies a roundabout at the intersection of Morgan Street/Roberts Drive and a signal at the intersection of SR 169/SE 288th Street. Since these improvements have not been designed yet, an analysis was conducted of the functional equivalent (e.g. signal and roundabout) to determine if either type of intersection control would mitigate impacts.

Several projects listed in the City of Black Diamond 2022–2027 TIP were not included in the existing year models. These include the Pipeline Road, North Connector Road, and Lawson Connector/Lawson Parkway. These projects are developer-funded projects that are required as part of mitigation, but they will not be constructed prior to 2026.

Table 2 shows projects listed in the applicable 20-year Transportation Improvement Plan that were included in the future year DEMAND and OPERATIONS models. Similar to projects identified in Table 1, both a signal and roundabout were analyzed for the intersections of SR 169/Jones Lake Road and SR 169/Green Valley Road. Additional turn lanes on SR 169 were assumed at some intersections, but it should be noted that SR 169 was assumed to have only one through lane in each direction within the Black Diamond city limits.

Figure 2 shows the new roadways that were included in both the DEMAND and OPERATIONS models.

Table 2. 20-Year Transportation Improvement Project Included In Analysis

Location	Jurisdiction	Study Intersection	Improvements
Black Diamond	WSDOT	SR 169 and Green Valley Road	Signal or Roundabout
Black Diamond	WSDOT	SR 169 and Jones Lake Road	Signal, add WB LT, NB LT and SB LT turn pockets or Roundabout
Black Diamond	Black Diamond	SE 288th and 232nd Ave SE	Channelization improvements
Black Diamond	Black Diamond	SE 288th and 216th Ave SE	Signal
Black Diamond	Black Diamond	SE Covington and 216th Ave	Rechannelization
Maple Valley	WSDOT	SR 169 and 280th Street	Add second SB and NB lane
Maple Valley	WSDOT	SR 169 and SE 271st (SE Tahoma)	Add second NB lane
Maple Valley	WSDOT	SR 169 and SE 240th	Add second SB lane and second NB lane; Add second WB LT Lane and EB RT lane; NB/SB include LT, TH, TH/RT lanes
Maple Valley	WSDOT	SR 169 and Witte Road	Add second SB and NB lane
Maple Valley	WSDOT	SR 169 and SE Wax Road	Add second SB and NB lane
Maple Valley	WSDOT	SR 169 and SE 231st	Add second WB TH at intersection
Maple Valley	WSDOT	SR 169 and Witte Road	Widen to three lanes, LT lanes where warranted
King County	King County	SE Auburn Black Diamond Road and SE Green Valley Road	Refuge for NB LTs
Covington	WSDOT	SR 516 and 164th Avenue	160th to 164th – signal modifications and turn lanes
Covington	WSDOT	SR 516 and Covington Way SE	160th to 164th – signal modifications and turn lanes
Covington	Covington	Covington Way and SE Wax Road	Add SB LT lane

EB = eastbound; LT = left-turn; NB = northbound; NBLT = northbound left-turn; RT = right-turn; SB = southbound; SBLT = southbound left-turn; TH = through-lane; WB = westbound; WBLT = westbound left-turn



Figure 2. Planned New Roadways Included in the Travel Demand Model

6. CONDITION 13

“The new model must contain a mode split analysis that reflects the transit service plans of Sound Transit, King County Metro and any other transit provider likely to provide service in the study area. This mode split analysis should include an estimate of the number of project residents likely to use the Sounder and to which stations these trips might be attributed. This analysis must be presented to the city, the applicable transit agencies, and the jurisdictions in which trips are likely to use park and ride, Sound Transit parking garages and other facilities.”

As documented in the March 4, 2022, travel demand model technical memorandum, transit mode shares for Black Diamond were calculated using the regional model. Daily transit shares for trips to and from Black Diamond increase slightly in 2025 (1.7%) as compared to the base year model (1.5%). The model estimated approximately 20 boardings on Sounder in the AM peak period and approximately 28 boardings in the PM peak period. The Sounder Station these trips are attributed to the Auburn Station. Approximately 55 transit trips are forecasted from the Ten Trails Master Development and approximately 6 transit trips are forecasted from the Lawson Hills Master Development. As there is limited transit service currently within and also forecasted for Black Diamonds, it is assumed people using transit would need to first drive to the park-and-ride or transit stop outside of town. Therefore, no credits were taken in the trip generation assumptions to offset vehicle traffic.

7. CONDITION 14

“The new model must include a reasonable internal trip capture rate assumption. The assumed internal trip capture rate must be based on and justified by an analysis of the internal trip capture rates suggested by the currently applicable ITE publication as well as information concerning actual trip capture rates in other master planned developments with similar land use mixes in Western Washington. Any subsequent revisions to the model should include the realized trip capture rates for the project, if available.”

For the OPERATIONS model, internal trips were included in the overall trip generation assumptions. Weekday PM peak hour trip generation was estimated based on the size and type of development and assumptions outlined in the *Trip Generation Manual 11th Edition*, (ITE 2021) and the *Trip Generation Handbook, 3rd Edition*, (Hooper 2017). This methodology is consistent with that used in the TTRs³ but incorporates updates to the *Trip Generation Manual* that have occurred since the TTRs were published.

A traffic monitoring study was conducted for the Tahaleh Employment-Based Planned Community (EBPC) in May 2023. The report concludes that the observed traffic volumes are lower than forecasted traffic volumes in the *Tahaleh EBPC PUD Phase II SEIS*. However, the report was not able to determine if the trip rates were lower than forecasted or if the internal trip rates were lower than forecasted.

³ The *Villages Transportation Technical Report* (Parametrix 2009b) was included in Technical Appendix B of The Villages MPD FEIS, and the *Lawson Hills Transportation Technical Report* (Parametrix 2009a) was included in Technical Appendix B of the Lawson Hills MPD FEIS.

More details about trip generation and analysis are included in Chapter 10, Condition 17.

8. CONDITION 15

*“Intersection improvements outside the City limits may be mitigated through measures set forth in the a agreement between the developer and the applicable agency. Where agreement is possible, the developer shall enter into traffic mitigation agreements with impacted agencies outside the city that have projects under their jurisdiction in the list below....**Any agreement so incorporated supersedes all other conditions and processes that may set mitigation measures and that are contained in the MPD Conditions or Development Agreement.**”*

In October 2010, Oakpointe and the City of Maple Valley agreed to and executed a transportation mitigation agreement (“Maple Valley Mitigation Agreement”), which requires Oakpointe to contribute a defined percentage of the costs of a list of various transportation mitigation projects within Maple Valley’s city limits that will be affected by build-out of the MPDs. Exhibit B to the Maple Valley Mitigation Agreement provides the list of projects that Oakpointe is obligated to fund and the cost-sharing percentage assigned to Oakpointe for each project. The timing of Oakpointe’s payment obligations is tied to dwelling-unit triggers listed in the agreement, and the payments are specifically required to be used by Maple Valley for design, ROW acquisition, and construction costs for the projects listed in Exhibit B. The Maple Valley Mitigation Agreement was incorporated into the Villages and Lawson Hills MPD Development Agreements as Exhibit Q thereto and was specifically referenced in Section 11.5(C) of the Development Agreements.

As noted in Condition 15 of the MPD Permit Approval, the Maple Valley Mitigation Agreement supersedes all other conditions and processes that may set mitigation measures for transportation impacts resulting from the MPDs.

In December 2010, Oakpointe and the City of Covington entered into a transportation mitigation settlement agreement (“Covington Mitigation Agreement”) to address the impacts on Covington’s transportation facilities as a result of build-out of the Villages and Lawson Hills MPDs. The Covington Mitigation Agreement provides that Oakpointe shall pay a total of \$800,000 to Covington, with that amount payable in installments upon Oakpointe’s achieving the dwelling-unit triggers specified therein. As stated in Section 7 of the Covington Mitigation Agreement, “the parties acknowledge and agree that [Oakpointe’s] performance of the obligations set forth in this Agreement shall constitute full, sufficient, and complete mitigation of the transportation impacts occurring within Covington as a result of full build-out of the [MPDs].” The Covington Mitigation Agreement was incorporated into the Villages and Lawson Hills MPD Development Agreements as Exhibit R thereto and was specifically referenced in Section 11.5(C) of the Development Agreements.

9. CONDITION 16

“If (a) the City of Maple Valley does not appeal or challenge MPD Approval for the Villages MPD, (b) the City of Maple Valley does not appeal or challenge the MPD Approval for the Lawson Hills MPD, (c) City of Maple Valley does not appeal or challenge the Development Agreement for the Villages MPD, (d) the City of Maple Valley does not appeal or challenge the Development Agreement for the Lawson Hills MPD, the Applicant shall provide the following mitigation for the City of Maple Valley, which as to the identified mitigation supersedes the mitigation projects listed for the City of Maple Valley in Condition 15 above....(see Appendix X for more details).”

See discussion of the Maple Valley Mitigation Agreement referenced under Condition 15, above. Execution of the Maple Valley Mitigation Agreement avoided Maple Valley’s need and desire to appeal the City’s approval of the two MPD Permits and Development Agreements. The Maple Valley Mitigation Agreement supersedes all other conditions and processes that may set mitigation measures for transportation impacts resulting from the MPDs.

The City of Maple Valley’s 2015 Comprehensive Plan (page T-53) states “Developer mitigation associated with the new master planned communities in Black Diamond also has been incorporated, consistent with the negotiated mitigation agreement between Maple Valley and Black Diamond.”

10. CONDITION 17

10.1 Condition 17a

“At the point where building permits have been issued for 850 dwelling units at the Villages and Lawson Hills together, and again at such phase or interval determined by the City Council following completion of the review called for by this condition, the City shall validate and calibrate the new transportation demand model created pursuant to Condition 11 above for then-existing traffic from the Villages and Lawson Hills together. The calibration may include an assumption for internal trip capture rates as set forth in Condition 14 above, rather than actual internal trip capture rates, if an insufficient amount of commercial development has been constructed at the time of the validation/calibration required herein. “The City shall run the model to estimate the trip distribution percentages that will result from the next upcoming phase or interval of MPD development, and to assign the estimated trips from that phase or interval to the intersections identified in Condition 11 above.”

10.1.1 Analysis Years

The “then-existing” year assumed in the analysis is the year 2022. The year 2032 was assumed for the next phase of analysis. The year 2032 was selected as it represents the full build-out of the Ten Trails and Lawson Hills developments. The development agreements for these developments end in the year 2025. Pending approval and vesting schedules, the year 2032 is a conservative assumption for full build-out to be complete.

10.1.2 Existing Year Models

10.1.2.1 DEMAND Model

The DEMAND model for the existing condition was calibrated and validated for the year 2014, and then forecasts were created for the years 2025 and 2032. As noted earlier, the PSRC demand model uses a 2014 base year, and includes horizon years of 2025 and 2040. Details about calibration and validation is documented in the March 4, 2022 travel demand technical memorandum (see Appendix C).

The existing year demand model was used to estimate trip distribution patterns on development to date and as the basis for estimating the expected growth by 2032.

Year 2025 was used to estimate trip distribution in the 2022 existing condition in the updated analysis because 2025 is consistent with one of PSRC's horizon years; the year 2025 is also consistent with the analysis year in the EIS; and finally, the year 2025 incorporates the 6-year TIP projects and is sufficient to cover Phase 1A/1B and Phase 2 of the Ten Trails and Lawson Hills MPDs.

10.1.2.2 OPERATIONS Model

A Synchro model was created for the year 2022; it included all the intersections identified in Condition 11. Intersections and roadways were coded into the model to reflect existing conditions, as of 2022, as well as projects from the appropriate 6-year TIPs (as shown in Table 1). Signal timing information was collected from the City of Black Diamond, the City of Maple Valley, and the City of Covington and included in the OPERATIONS model.

To estimate the PM peak hour traffic volumes for the 2022 OPERATIONS model, the following methodology was used. Existing weekday PM peak hour traffic volumes, collected as part of Condition 11 above, were used as the baseline volumes. Next, trip generation estimates for Phase 1A/1B and Phase 2 of Ten Trails forecast for the year 2022, as documented in the *Mid-Point Traffic Monitoring Report: Ten Trails and Lawson Hills Master Planned Developments: Phase 1A* (Transpo Group 2021), were assigned to study area intersections based on the trip distribution as described below.

Weekday PM peak hour trip generation was estimated based on the size and type of development and assumptions outlined in the *Trip Generation Manual 11th Edition* (ITE 2021) and the *Trip Generation Handbook, 3rd Edition* (Hooper 2017). This methodology is consistent with that used in the TTRs⁴ but incorporates updates to the *Trip Generation Manual* that have occurred since the TTRs were published.

Weekday PM peak hour trip regression equations from the most recent edition of the *Trip Generation Manual* were used for all land uses in estimating vehicle trip generation; this is consistent with the approach and methodology used in the TTRs.

For the year 2022, trips were estimated based on the development forecast to occur by 2022 as documented in the *Phase 1A Mid-Point Traffic Monitoring Report: Ten Trails and Lawson Hills MPDs* (Transpo Group 2021).

⁴ The *Villages Transportation Technical Report* (Parametrix 2009b) was included in Technical Appendix B of The Villages MPD FEIS, and the *Lawson Hills Transportation Technical Report* (Parametrix 2009a) was included in Technical Appendix B of the Lawson Hills MPD FEIS.

Table 3 summarizes weekday PM peak hour trip generation estimates for the Ten Trails development forecast by the year 2022. No internal capture rates were included in the 2022 trip generation calculations, as only residential development is expected to be built. Table 3 summarizes weekday PM peak hour trip generation, which includes development from Phase 1A/1B and Phase 2 of Ten Trails. More detailed trip generation calculations are included in Appendix E.

Table 3. 2022 PM Peak Hour Trip Generation Estimates – Phase 1A/1B and Phase 2

Weekday PM Peak	Ten Trails: 1A/1B/2			Gross Trips		
Land Use	ITE LU	Size	Units	Total	In	Out
Single Family	210	993	units	875	551	324
Senior Adult Housing	251	237	units	37	23	14
Multifamily	221	145	units	119	73	46
				1,031	646	385

PM peak hour trips were assigned to the study area intersection in the OPERATIONS model based on the trip distribution output from the DEMAND model. To calculate existing year 2022 trip distribution, a flag in the DEMAND model was coded in and out of TAZs that include the Ten Trails development, and trips on the network were captured through a select link analysis. This model relied on trip generation rates in the PSRC model as estimated from regional household travel surveys. Separate post-processing using ITE trip generation for the Ten Trails area in 2022 was not developed in this effort. This analysis provides path details for the trips in and out of the study area showing where they travel along the network. The locations where these trips were captured for analysis generally capture movements in and out of Black Diamond, as well as trips that travel between the MPD areas. Figure 3 and Figure 4 show distribution patterns for the PM peak in the year 2022.

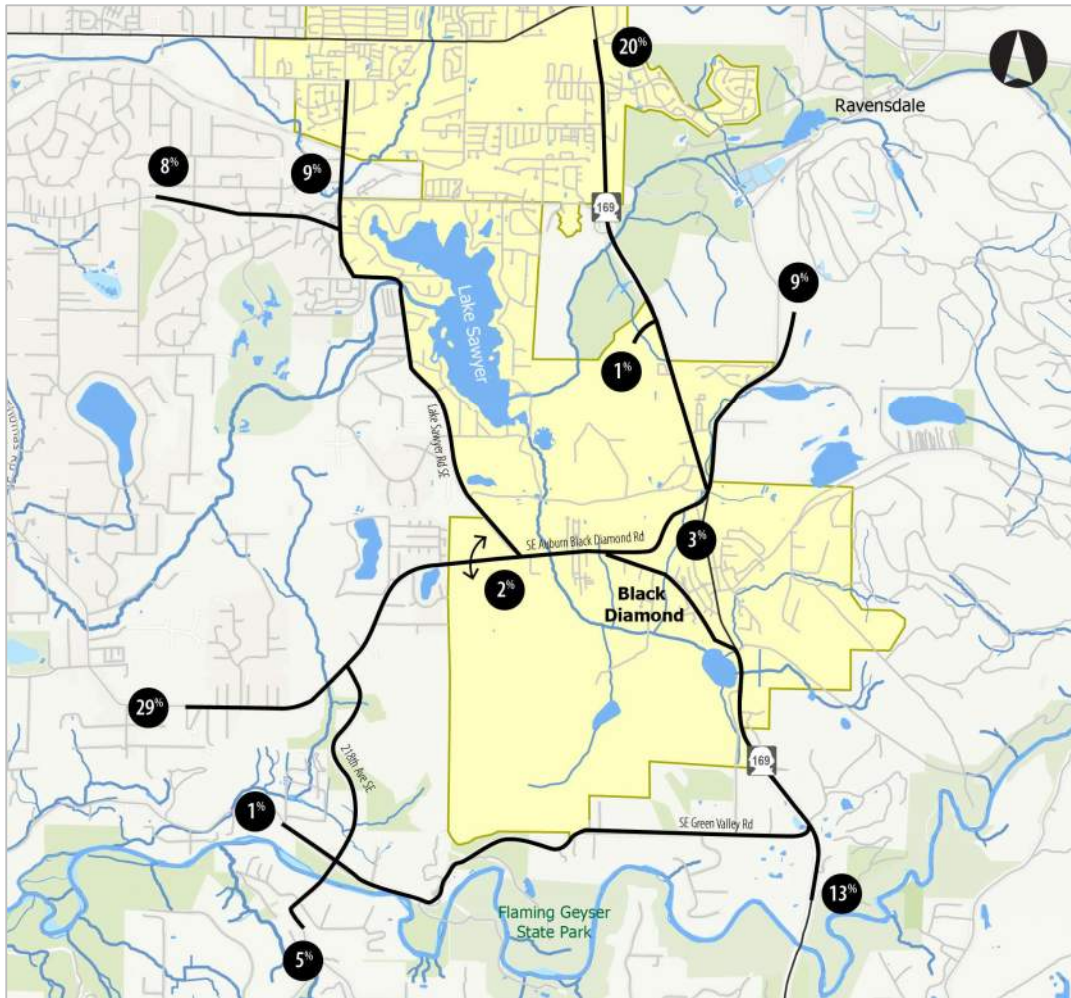


Figure 3. 2022 PM Peak Travel Demand Model MPD Trip Distribution in Black Diamond

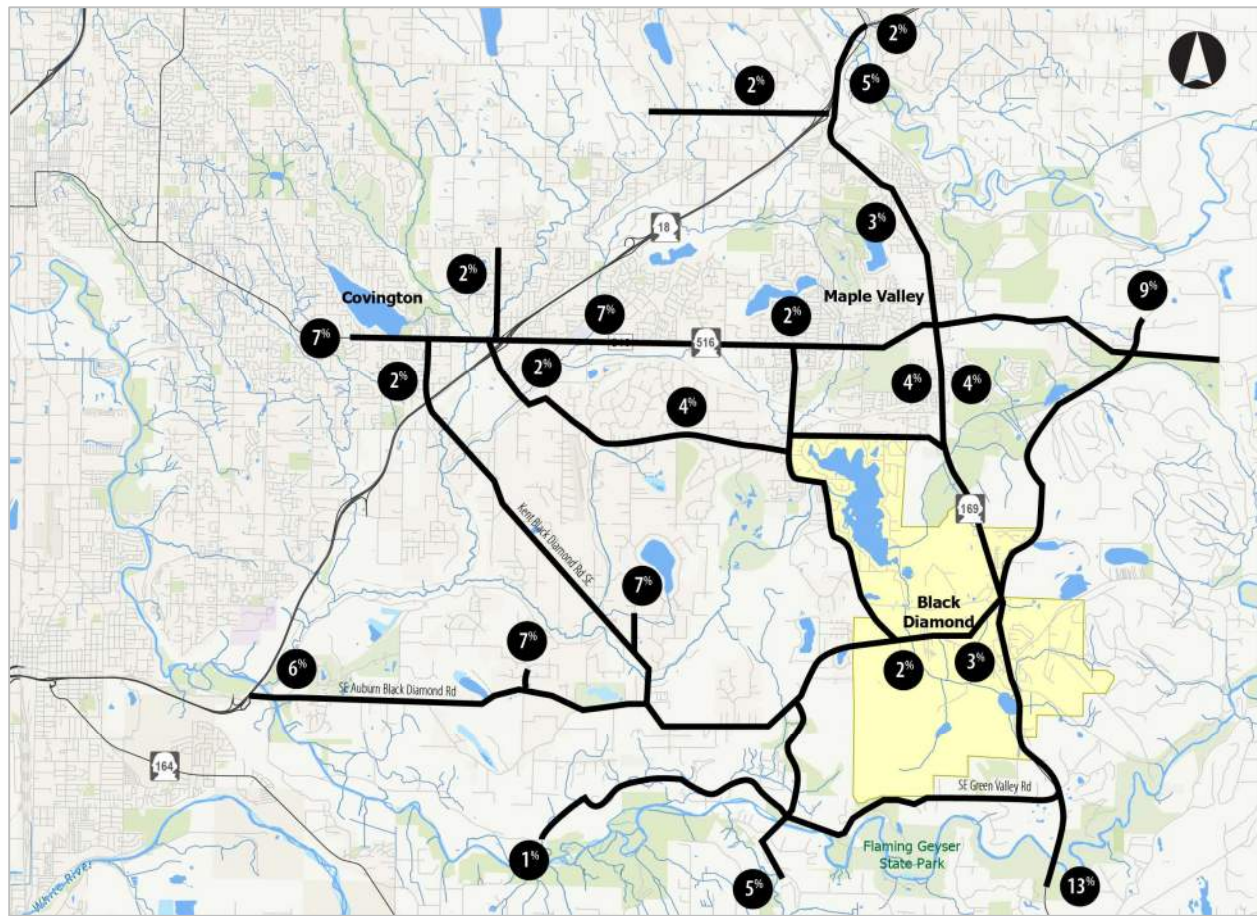


Figure 4. 2022 PM Peak Travel Demand Model MPD Trip Distribution outside Black Diamond

10.1.3 2032 Models

10.1.3.1 DEMAND Model

The DEMAND model for the existing condition was calibrated and validated for the year 2014, and then forecasts were created for the years 2025 and 2032.

Similar to work completed for year 2025, the starting point for 2032 was an established horizon year from the PSRC regional travel demand model. In this case, a 2032 model was not available, so a starting point was taken from a 2030 model that was available and was adjusted to arrive at a 2032 forecast for the Black Diamond area. This approach ensured that the land use associated with a full build-out of the Ten Trails and Lawson Hills developments was accounted for as were anticipated roadway projects in the greater study area (Black Diamond, Covington, Maple Valley). For the remainder of the region outside of the Black Diamond area, which had more detailed information for 2032, the 2030 land use and network were taken directly from the PSRC model.

10.1.3.2 OPERATIONS Model

2032 PM peak hour volumes were estimated by applying an annual growth rate to the 2022 baseline volumes (no development included) at study intersections and adding future trips generated by the full build-out of the Ten Trails and Lawson Hills developments. An annual growth rate of 1.4% was applied to the existing 2022 baseline conditions for 10 years. This growth rate is based on output from the DEMAND model.

Full build-out weekday PM peak hour trip generation was estimated based on the size and type of development, which was provided by the developer, and on assumptions outlined in the *Trip Generation Manual 11th Edition* (ITE 2021) and the *Trip Generation Handbook, 3rd Edition* (Hooper 2017). Table 4 summarizes the weekday PM peak hour trip generation estimates for full build-out. Trip generation calculations are included in Appendix E.

Table 4. 2032 PM Peak Hour Trip Generation Estimates – Full Build Out

Weekday PM Peak	Ten Trails			Gross Trips			Internal Trips			Pass-By Trips			Net New Trips		
Land Use	ITE LU	Size	Units	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Single Family	210	3303	units	2,692	1,696	996	233	136	97	0	0	0	2,460	1,560	899
Senior Adult Housing	251	401	units	131	80	51	8	5	3	0	0	0	123	75	48
Multifamily	221	1096	units	428	261	167	65	41	25	0	0	0	363	221	142
Elementary School	520	600	students	96	46	50	29	15	14	0	0	0	67	31	36
Office	710	450	ksf	644	109	535	133	61	72	0	0	0	511	48	463
Retail	820	325	ksf	1,599	768	831	300	127	173	304	152	152	995	489	507
				5,590	2,960	2,630	768	384	384	304	152	152	4,519	2,424	2,094

Weekday PM Peak	Lawson Hills			Gross Trips			Internal Trips			Pass-By Trips			Net New Trips		
Land Use	ITE LU	Size	Units	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Single Family	210	961	units	834	525	309	25	12	13	0	0	0	809	513	296
Multifamily	221	289	units	113	69	44	4	2	2	0	0	0	109	67	42
Elementary School	520	600	students	96	46	50	29	14	15	0	0	0	67	32	35
Office	710	200	ksf	295	50	245	43	9	34	0	0	0	252	41	211
Retail	820	190	ksf	896	430	466	43	34	9	170	85	85	683	311	372
				2,234	1,121	1,113	144	72	72	170	85	85	1,920	964	956

Ten Trails and Lawson Hills Full Buildout				7,824	4,081	3,743	911	455	456	474	237	237	6,439	3,388	3,050
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PM peak hour trips were assigned to the study area intersection in the OPERATIONS model based on the trip distribution output from the DEMAND model. To calculate the 2032 trip distribution, a flag in the DEMAND model was coded in and out of TAZs that include the Ten Trails development, and trips on the network were captured through a select link analysis. This model relied on trip generation rates in the PSRC model as estimated from regional household travel surveys. Separate post-processing using ITE trip generation for the Ten Trails area in 2022 was not developed in this effort. This analysis provides path details for the trips in and out of the study area showing where they travel along the network. The locations where these trips were captured for analysis generally capture movements in and out of Black Diamond, as well as trips between the MPD areas. Figure 5 and Figure 6 show distribution patterns for the PM peak in the year 2032.

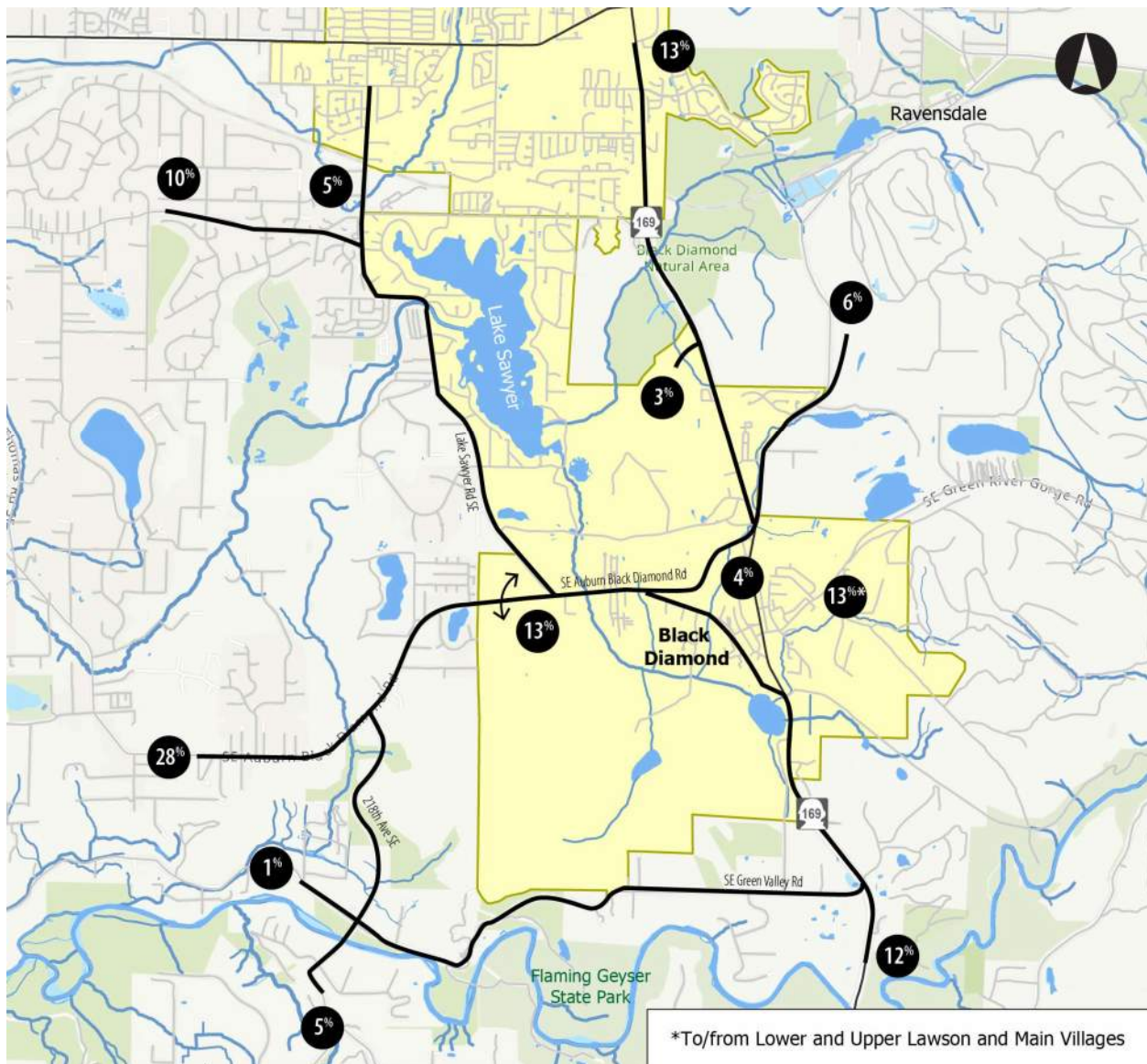


Figure 5. 2032 PM Peak Travel Demand Model MPD Trip Distribution in Black Diamond

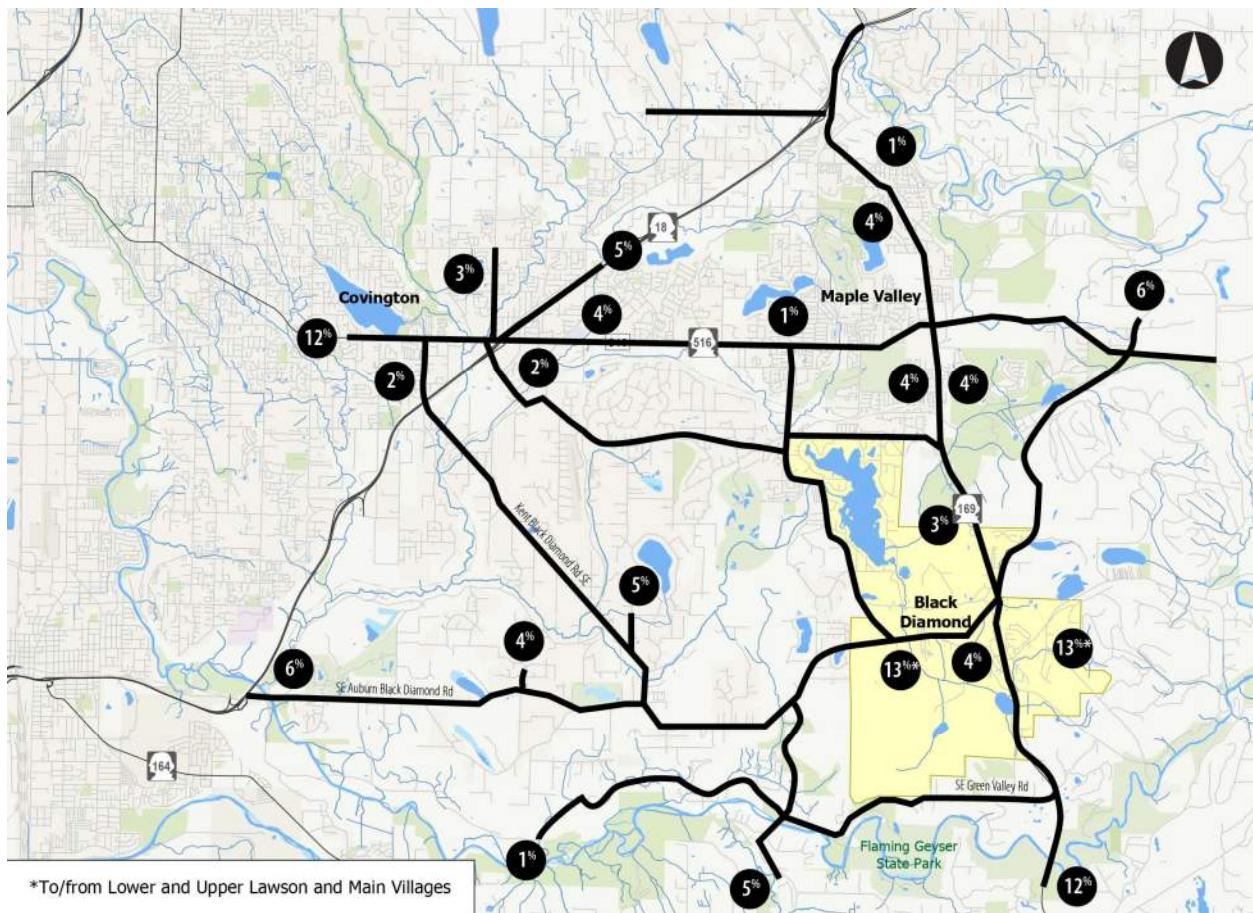


Figure 6. 2032 PM Peak Travel Demand Model MPD Trip Distribution outside Black Diamond

10.2 Condition 17b

"Using the trip distribution and assignment yielded by the transportation demand model validation and calibration required in subsection (a) above, the City shall conduct an intersection operations analysis of the transportation levels of service (LOS) for the intersections identified in Condition 11 above, and shall issue findings, conclusions and a recommendation as provided below. The intersection operations analysis shall determine whether the then-existing, adopted PM peak hour intersection levels of service are met, and whether the then-existing, adopted PM peak hour intersection levels of service are projected to be met by the time of the next validation/calibration/operations analysis identified by the City Council pursuant to subsection (a) above. The intersections operations analysis must take into account the then-existing peak hour factor; the analysis for the next identified phase or interval of development must be based on a reasonable assumption (justified by reasonable traffic engineering practice) as to the future peak hour factor, and contain a sensitivity analysis to identify the effect of such peak hour factor assumptions. If the findings and conclusions determine that the then-existing, adopted PM peak hour LOS will not be met, they shall also determine whether the projects set forth in Conditions 15 and 16 above adequately mitigate the impacts resulting from the failure to meet the adopted LOS. If the findings and conclusions determine that failure to meet adopted transportation LOS will not be adequately mitigation, they shall also recommend such additional measures necessary to adequately mitigation the impacts reasonably attributable to the MPD projects; failure to meet the adopted LOS "

10.2.1 Summary

The following section summarizes the analysis conducted as part of Condition 17B. Subsequent sections describe the analysis in more detail.

- The peak hour factor from traffic counts collected for the analysis was used to model both existing and future conditions.
- 2022 analysis results:
 - The intersections of SR 169/SR 516 and SR 169/SE Wax Road in Maple Valley operate at LOS E, below the LOS D standard as defined by WSDOT and the City of Maple Valley. However, as explained in Section 12.10.1 of The Villages Development Agreement, the Master Developer and the City of Maple Valley entered a mitigation agreement which supersedes the MPD Conditions of Approval 10 through 14, and 16 through 34. No additional mitigation is required.
 - All other intersections operate within LOS standards.
- 2032 analysis results:
 - Four intersections in Maple Valley are forecasted to operate at LOS E or LOS F, below the LOS D standard as defined by WSDOT and the City of Maple Valley. However, as explained in Section 12.10.1 of The Villages Development Agreement, the Master Developer and the City of Maple Valley entered a mitigation agreement which supersedes the MPD Conditions of Approval 10 through 14, and 16 through 34. No additional mitigation is required.
 - Four intersections in Covington are forecasted to operate at LOS E or LOS F during the 2032 PM peak hour, below LOS D standards as defined by WSDOT and the City of Covington. However, Covington's 2016 Comprehensive Plan allows for traffic operations at LOS E or LOS F after SR 516 has been improved to ultimate capacity. No additional mitigation is required.
 - The SE Auburn Black Diamond Road/218th Avenue SE intersection is forecasted to operate at LOS F in the 2032 Full Build-out condition, which is below the King County standard of LOS E. A roundabout is currently proposed at this intersection by the Master Developer. A roundabout, or a signal, at this location would bring the LOS back up to King County standards.
 - At the intersections of SR 169/SE Green Valley Road, SR 169/Jones Lake Road, SR 169/SE 288th Street, SE Auburn Black Diamond Road/218th Ave SE, and Morgan Street/Roberts Drive, both a signal or a roundabout would mitigate impacts and allow the intersection to operate within current LOS standards.
 - The Kent Kangley Road/Landsburg Road is forecasted to operate at LOS F in the 2032 Full Build-out condition, which is below the King County standard of LOS E. King County has identified the need for a signal at this location, but currently there is no funding identified for this improvement. For mitigation, it is recommended that the Master Developer contribute a proportionate share of the cost of the proposed intersection improvement at the ERU trigger, defined through upcoming traffic monitoring reports. In the event that King County has not designed the improvement at the time the ERU trigger is met, the Master Developer is willing to post a bond or provide other financial security.
 - All other intersections operate within LOS standards.

10.2.2 Level of Service Standards

The City of Black Diamond's LOS standard is LOS C or better for intersections not on SR 169. For intersections on SR 169, the City's standard is LOS D or better; this is consistent with the standard set by the WSDOT.

The City of Covington's adopted LOS standard is LOS D or better for signalized, roundabout-controlled, and all-way stop-controlled intersections not on SE 272nd Street (SR 516). For intersections on SE 272nd Street, the LOS standard is LOS D or better, until an ultimate capacity of five lanes (two travel lanes in each direction plus a center left-turn lane) plus sidewalks on both sides is reached for SR 272nd Street. Once ultimate capacity is reached, vehicle operation worse than LOS D is acceptable.

The City of Maple Valley's adopted LOS standard is divided into two parts. The first part is based on the weighted average LOS of key intersections along the two state highways of SR 169 and SR 516. The standard is LOS D, which is based on the weighted average delay per vehicle. LOS standards for all other intersections in the city are as follows:

- LOS D for all signalized, roundabout-controlled, and all-way stop-controlled intersections.
- LOS D or better for all two-way stop-controlled intersections, except for two-way stop-controlled intersections with SR 169, SR 516, or Witte Road, which is LOS E for the side-street approaches.

The LOS standard for intersections in unincorporated King County is LOS E or better.

10.2.3 2022 Level of Service Results

Existing PM peak hour LOS, delays, and as applicable, volume-to-capacity ratios were calculated at study intersections based on existing PHFs and methodologies contained in the *Highway Capacity Manual 6th Edition* (TRB 2016). Existing conditions are summarized in Table 5. Appendix F contains detailed LOS worksheets for all study intersections.

As shown in Table 5, all but two of the study area intersections operates within current level of service standards. The intersections of SR 169/SR 516 and SR 169/SE Wax Road in Maple Valley operate at LOS E, below the LOS D standard as defined by WSDOT and the City of Maple Valley. However, as explained in Section 12.10.1 of The Villages Development Agreement, the Master Developer and the City of Maple Valley entered a mitigation agreement which supersedes the MPD Conditions of Approval 10 through 14, and 16 through 34. No additional mitigation is required.

Table 5. 2022 PM Peak Level of Service Results

ID	Intersection	Location	Jurisdiction	Control Type	2022 Buildout WITH TIP projects		
					Standard	Delay	LOS
1	SE Green Valley Rd & SR 169	King County	WSDOT	Stop	D	34.4	D
2	SE 332nd St & SR 169	King County	WSDOT	Stop	D	-	-
3	Jones Lake Rd & SR 169	Black Diamond	WSDOT	Stop	D	15.8	C
4	Lawson Rd & SR 169	Black Diamond	WSDOT	Signal	D	2.5	A
5	Baker St & SR 169	Black Diamond	WSDOT	Signal	D	5.8	A
6	Newcastle Dr & Lawson Rd	Black Diamond	Black Diamond	Stop	C	8.5	A
7,8	Roberts Dr & SR 169	Black Diamond	WSDOT	Roundabout	D	6.8	A
9	Black Diamond Ravensdale Rd & SR 169	Black Diamond	WSDOT	Stop	D	15.4	C
10	SE 288 St & SR 169	King County	WSDOT	Signal	E	6.3	A
11	SE 280th St & SR 169	Maple Valley	WSDOT	Signal	D	12.2	B
12	SE Tahoma Way (SE 271st) & SR 169	Maple Valley	WSDOT	Signal	D	42.6	D
13	SR 516 & SR 169	Maple Valley	WSDOT	Signal	D	64.2	E
14	SE 240th St & SR 169	Maple Valley	WSDOT	Signal	D	24	C
15	SR 169 & Witte Rd	Maple Valley	WSDOT	Signal	D	47.9	D
16	SE Wax Rd & SR 169	Maple Valley	WSDOT	Signal	D	74	E
17	SE 231st St & SR 169	Maple Valley	WSDOT	Signal	D	41.1	D
18	SE 231st St & SR 18 EB Ramp	Maple Valley	WSDOT	Signal	D	17.3	B
19	SE 231st St & SR 18 WB Ramp	Maple Valley	WSDOT	Signal	D	23.3	C
20	Kent Kangley Rd & Landsburg Rd	King County	King County	AWSC	E	C	15.3
21	SR 516 & Witte Rd	Maple Valley	WSDOT	Signal	D	48.4	D
22	SR 516 & 216th Ave SE	Maple Valley	WSDOT	Signal	D	28.3	C
23	SR 516 & SE Wax Rd	Covington	WSDOT	Signal	D	54.8	D
24	SR 516 & 172nd Ave	Covington	WSDOT	Signal	D	54.1	D
25	SR 516 & 168th Pl	Covington	WSDOT	Signal	D	46.6	D
26	SR 516 & SR 18 EB Ramp	Covington	WSDOT	Signal	D	32	C
27	SR 516 & SR 18 WB Ramp	Covington	WSDOT	Signal	D	24.9	C
28	SR 516 & 164th Ave	Covington	WSDOT	Signal	D	35.5	D
29	SR 516 & Covington Way SE	Covington	WSDOT	Signal	D	44.9	D
30	SR 516 & 156th Pl SE	Covington	WSDOT	Stop*	-	>500	F
31	165th Pl & Covington Way SE	Covington	Covington	Signal	D	22.1	C
32	Covington Way SE & SE Wax Rd	Covington	Covington	Signal	D	27.1	C
33	SE 288 St & 232nd Ave SE	Black Diamond	Black Diamond	Stop	C	10.8	B
34	SE 288 St & 216th Ave SE	Black Diamond	Black Diamond	Signal	C	4.4	A
35	SE Covington & 216th Ave	Black Diamond	Black Diamond	Signal	C	16.8	B
36	SE 296th St & 219th Ave SE	Black Diamond	Black Diamond	Signal	C	10.1	B
37	SE Auburn Black Diamond & 218th Ave SE	King County	King County	Stop	E	24.5	C
38	Ten Trails Pkwy & SE Auburn-Black Diamond Rd	Black Diamond	Black Diamond	Roundabout	C	6.6	A
39	Lake Sawyer Rd & SE Auburn-Black Diamond Rd	Black Diamond	Black Diamond	Roundabout	C	13.5	B
40	Morgan St & Roberts Dr	Black Diamond	Black Diamond	Signal	C	7.5	A
41	Railroad Ave & Baker St	Black Diamond	Black Diamond	Stop	C	10.2	B
42	SE Green Valley Rd & 218th St	King County	King County	Stop	E	9.6	A
43	SE Auburn Black Diamond Rd & SE Green Valley Rd	King County	King County	Stop	E	34.5	D
201	SR 169 & Pipeline Road	Black Diamond	WSDOT	Roundabout	D	7.7	A

* LOS standards do not apply to unsignalized intersections per Covington Comp Plan (2016)

10.2.4 2032 Level of Service Results

2032 PM peak hour LOS, delays, and as applicable, volume-to-capacity ratios were calculated at study intersections based on existing PHFs. 2032 Full Build-out PM peak hour conditions are summarized in Table 6. 2032 No Build PM peak hour conditions are shown side-by-side as a comparison. 2032 No Build conditions assume background growth and only MPD consistent with what is assumed in the 2022 conditions.

All intersection capacity projects identified in the 20-year plans are included in the 2032 No Build, but the new Pipeline Road, North Connector, South Connector, and Lawson Parkway roadways are not included as those are assumed to be driven by needs related to the full build-out of the MPD.

Appendix F contains detailed LOS worksheets for all study intersections.

The new Pipeline Road, North Connector, South Connector, and SE Loop Connector and Lawson Parkway roadways were included in the year 2032 Build analysis. The location of these roadways is based on the current Comprehensive Plan. If the location of these roadways and their connections to existing roadways changes in the future, future traffic monitoring reports would need to accurately reflect the proposed changes and identify any impacts and additional mitigation as necessary.

As shown in Table 6, multiple intersections in the City of Maple Valley are forecast to operate below current LOS D standards in both the 2032 No Build and 2032 Full Build-out conditions. As explained in Section 12.10.1 of The Villages Development Agreement, the Master Developer and the City of Maple Valley entered a mitigation agreement which supersedes the MPD Conditions of Approval 10 through 14, and 16 through 34. No additional mitigation is required.

Four intersections in Covington are forecasted to operate at LOS E or LOS F during the 2032 PM peak hour. However, Covington's 2016 Comprehensive Plan allows for traffic operations at LOS E or LOS F after SR 516 has been improved to ultimate capacity.

All other intersections are forecast to operate with LOS standards under the 2032 Full Build-out condition with the exception of SE Auburn Black Diamond Road/218th Avenue SE and Kent Kangley Road/Landsburg Road.

The SE Auburn Black Diamond Road/218th Avenue SE intersection is forecasted to operate at LOS F in the 2032 Full Build-out condition, which is below the King County standard of LOS E. A roundabout is currently proposed at this intersection by the Master Developer. A roundabout, or a signal, at this location would bring the LOS back up to King County standards.

The Kent Kangley Road/Landsburg Road is forecasted to operate at LOS F in the 2032 Full Build-out condition, which is below the King County standard of LOS E. King County has identified the need for a signal at this location, but currently there is no funding identified for this improvement. To address mitigation, it is recommended that the Master Developer contribute a proportionate share of the cost of the proposed intersection improvement at the ERU trigger, defined through upcoming traffic monitoring reports. If King County has not designed the improvement at the time the ERU trigger is met, the City is willing to accept a bond or other financial security from the Master Developer.

Table 6. 2032 PM Peak Level of Service Results

ID	Intersection	Location	Jurisdiction	Control Type	LOS Standard	2032 No Build		2032 Full Buildout	
						Delay	LOS	Delay	LOS
1	SE Green Valley Rd & SR 169	King County	WSDOT	Signal	D	3.4	A	9.7	A
				Roundabout		-	-	6.1	A
2	SE 333rd St & SR 169	King County	WSDOT	Stop	D	-	-	-	-
3	Jones Lake Rd & SR 169	Black Diamond	WSDOT	Signal	D	5.8	A	29.9	C
				Roundabout		-	-	16.7	B
4	Lawson Rd & SR 169	Black Diamond	WSDOT	Signal	D	2.5	A	3.0	A
5	Baker St & SR 169	Black Diamond	WSDOT	Signal	D	8.6	A	18.3	B
6	Newcastle Dr & Lawson Rd	Black Diamond	Black Diamond	Stop	C	-	-	19.4	C
7,8	Roberts Dr & SR 169	Black Diamond	WSDOT	Roundabout	D	5.5	A	11.7	B
9	Black Diamond Ravensdale Rd & SR 169	Black Diamond	WSDOT	Stop	D	18.5	C	32.9	D
10	SE 288 St & SR 169	King County	WSDOT	Signal	E	7.6	A	7.3	A
				Roundabout		-	-	7.6	A
11	SE 280th St & SR 169	Maple Valley	WSDOT	Signal	D	15.6	B	53.0	D
12	SE Tahoma Way (SE 271st) & SR 169	Maple Valley	WSDOT	Signal ¹	D	49.1	D	69.2	E
13	SR 516 & SR 169	Maple Valley	WSDOT	Signal ¹	D	89.8	F	134	F
14	SE 240th St & SR 169	Maple Valley	WSDOT	Signal	D	25.3	C	29.4	C
15	SR 169 & Witte Rd	Maple Valley	WSDOT	Signal ¹	D	74.8	E	78.6	E
16	SE Wax Rd & SR 169	Maple Valley	WSDOT	Signal ¹	D	108.3	F	112.3	F
17	SE 231st St & SR 169	Maple Valley	WSDOT	Signal ¹	D	49.8	D	56.1	E
18	SE 231st St & SR 18 EB Ramp	Maple Valley	Covington	Signal	D	19.4	B	19.1	B
19	SE 231st St & SR 18 WB Ramp	Maple Valley	Covington	Signal	D	25.9	C	25.9	C
20	Kent Kangley Rd & Landsburg Rd	King County	King County	AWSC	E	23	C	116.0	F
21	SR 516 & Witte Rd	Maple Valley	Black Diamond	Signal ¹	D	57.8	E	50.6	D
22	SR 516 & 216th Ave SE	Maple Valley	Black Diamond	Signal	D	45.2	D	46.6	D
23	SR 516 & SE Wax Rd	Covington	WSDOT	Signal ²	D	86.7	F	46.9	D
24	SR 516 & 172nd Ave	Covington	WSDOT	Signal ²	D	80.4	F	79.6	E
25	SR 516 & 168th Pl	Covington	WSDOT	Signal ²	D	60.5	F	60.8	E
26	SR 516 & SR 18 EB Ramp	Covington	WSDOT	Signal ²	D	36.4	D	38.2	D
27	SR 516 & SR 18 WB Ramp	Covington	WSDOT	Signal ²	D	26.5	C	31.9	C
28	SR 516 & 164th Ave	Covington	WSDOT	Signal ²	D	37.4	D	38.4	D
29	SR 516 & Covington Way SE	Covington	WSDOT	Signal ²	D	57.6	E	95.2	F
30	SR 516 & 156th Pl SE	Covington	WSDOT	Stop ³	-	>500	F	>500	F
31	165th Pl & Covington Way SE	Covington	Covington	Signal	D	29.8	C	31.5	C
32	Covington Way SE & SE Wax Rd	Covington	Covington	Signal	D	29	C	46.0	D
33	SE 288 St & 232nd Ave SE	Black Diamond	Black Diamond	Stop	C	11.6	B	13.4	B
34	SE 288 St & 216th Ave SE	Black Diamond	Black Diamond	Signal	C	4.6	A	6.4	A
35	SE Covington & 216th Ave	Black Diamond	Black Diamond	Signal	C	17	B	24.0	C
36	SE 296th St & 219th Ave SE	Black Diamond	Black Diamond	Signal	C	10.6	B	10.5	B
37	SE Auburn Black Diamond & 218th Ave SE	King County	King County	Stop	E	32.3	D	182.0	F
				Signal		-	-	30.1	C
				Roundabout		-	-	11.0	B
38	Ten Trails Pkwy/SE Auburn-Black Diamond Rd	Black Diamond	Black Diamond	Roundabout	C	5.9	A	21.3	C
39	Lake Sawyer Rd/SE Auburn-Black Diamond Rd	Black Diamond	Black Diamond	Roundabout	C	8.9	A	17.1	B
40	Morgan St & Roberts Dr	Black Diamond	Black Diamond	Signal	C	5.7	A	6	A
				Roundabout		-	-	6.3	A
41	Railroad Ave & Baker St	Black Diamond	Black Diamond	Stop	C	10.3	B	15.3	C
42	SE Green Valley Rd & 218th St	King County	King County	Stop	E	10.4	B	10.4	B
43	SE Auburn Black Diamond Rd & SE Green Valley Rd	King County	King County	Stop	E	38.4	E	48.8	E
44	Ten Trails Place & Roberts Drive	Black Diamond	WSDOT	Signal	C	1.4	A	15.8	B
200	SR 169 / North Connector	Black Diamond	WSDOT	Roundabout	D	-	-	8.5	A
201	SR 169 / Pipeline Road	Black Diamond	WSDOT	Roundabout	D	-	-	16.9	B
202	North Connector / Pipeline Road	Black Diamond	Black Diamond	Roundabout	C	-	-	7.2	A
203	Lake Sawyer Rd / Pipeline Road	Black Diamond	Black Diamond	Roundabout	C	-	-	21.4	C
204	SR 169 / South Connector	Black Diamond	WSDOT	Roundabout	D	-	-	5.6	A

11. CONCLUSIONS AND RECOMMENDATIONS

This analysis concluded that under 2022 existing conditions the intersections of SR 169/SR 516 and SR 169/SE Wax Road in Maple Valley operate at LOS E, below the LOS D standard as defined by WSDOT and the City of Maple Valley. However, as explained in Section 12.10.1 of The Villages Development Agreement, the Master Developer and the City of Maple Valley entered a mitigation agreement which supersedes the MPD Conditions of Approval 10 through 14, and 16 through 34. No additional mitigation is required. All other intersections operate within LOS standards.

Under the 2032 Full Build-out conditions, four intersections in Maple Valley are forecasted to operate at LOS E or LOS F, below the LOS D standard as defined by WSDOT and the City of Maple Valley. As explained in Section 12.10.1 of The Villages Development Agreement, the Master Developer and the City of Maple Valley entered a mitigation agreement which supersedes the MPD Conditions of Approval 10 through 14, and 16 through 34. No additional mitigation is required.

Four intersections in Covington are forecasted to operate at LOS E or LOS F during the 2032 PM peak hour, as defined by WSDOT and the City of Covington. However, Covington's 2016 Comprehensive Plan allows for traffic operations at LOS E or LOS F after SR 516 has been improved to ultimate capacity. No additional mitigation is required.

The intersection of SE Auburn Black Diamond Road/218th Avenue SE is forecast to operate below LOS standards under the 2032 Full Build-out condition. This intersection is forecast to operate at LOS F, which is below the King County standard of LOS E. A roundabout is currently proposed at this intersection by the Master Developer. A roundabout, or signal, at this location would bring the LOS back up to King County standards.

The Kent Kangley Road/Landsburg Road is forecasted to operate at LOS F in the 2032 Full Build-out condition, which is below the King County standard of LOS E. King County has identified the need for a signal at this location, but currently there is no funding identified for this improvement. For mitigation, it is recommended that the Master Developer contribute a proportionate share of the cost of the proposed intersection improvement at the ERU trigger, defined through upcoming traffic monitoring reports. If King County has not designed the improvement at the time the ERU trigger is met, the Master Developer is willing to post a bond or provide other financial security.

All other intersections operate within LOS standards under the year 2032 Build condition.

The development agreements end in the year 2025. Pending approval and vesting schedules, the year 2032 is a conservative assumption for full build-out to be complete. It is recommended that the next validation/calibration/operations analyses take place as part of the City's 2034 Comprehensive Plan Update.

12. REFERENCES

- City of Black Diamond. 2019. City of Black Diamond Comprehensive Plan. Available at:
<https://www.blackdiamondwa.gov/sites/g/files/vyhliif306/f/uploads/2019_comp_plan_adopted_cl_ean.pdf>. Accessed December 15, 2022.
- Hooper, K. G. 2017. Trip Generation Handbook. Institute of Transportation Engineers.
- ITE (Institute of Transportation Engineers). 2021. Trip Generation Manual, 11th Edition. Institute of Transportation Engineers.
- Parametrix. 2009a. Lawson Hills Transportation Technical Report. Technical Appendix B of Lawson Hills Master Planned Development Final Environmental Impact Statement. Prepared for the City of Black Diamond.
- Parametrix. 2009b. Villages Transportation Technical Report. Technical Appendix B of The Villages Master Planned Development Final Environmental Impact Statement. Prepared for the City of Black Diamond.
- Transpo Group. 2021. Mid-Point Traffic Monitoring Report: Ten Trails and Lawson Hills Master Planned Developments: Phase 1A. Prepared for CCD Black Diamond Partners LLC, Kirkland, WA.
- Transpo Group. 2023. Tehaleh Traffic Monitoring Study 13 -Spring 2023.Prepared for Brookfield Partners
- TRB (Transportation Research Board). 2016. Highway Capacity Manual 6th Edition: A Guide for Multimodal Mobility Analysis. Transportation Research Board.

Appendix A

Conditions of Approval



EXHIBIT C
CONDITIONS OF APPROVAL
The Villages MPD

GENERAL

1. Approval of the MPD is limited to the terms and conditions set forth in the City Council's written decision, and does not include approval of any other portion of the MPD set forth in the application.

2. After approval by the City Council at an open public meeting and after a public hearing as required by law, a Development Agreement shall be signed by the Mayor and all property owners and lien holders within the MPD boundaries, and recorded, before the City shall approve any subsequent implementing permits or approvals. Any requirements deferred to the Development Agreement in this decision shall be integrated into the Agreement prior to any approval of subsequent implementing permits or approvals.

3. The Phasing Plan of Chapter 9 of the MPD application is approved, with the exception of the bonding proposal at p. 9-3 and the proposal for off-site trails at p. 9-2 (to the extent not already considered a regional facility) and parks at p. 9-10, and except as otherwise noted in these conditions of approval.

4. The Development Agreement shall specify which infrastructure projects the applicant will build; which projects the City will build; and for which projects the applicant will be eligible for either credits or cost recovery and by what mechanisms this shall occur.

5. The Development Agreement shall specifically describe when the various components of permitting and construction must be approved, completed or terminated (e.g., when must open space be dedicated, plats recorded, and utility improvements be accepted by the City).

6. The Development Agreement shall include language that defines and identifies a "Master Developer." A single Master Developer shall be maintained through the life of the Development Agreement. The duties of the Master Developer shall include at least the following: a) function as a single point of contact for City billing purposes; b) function as a single authority for Development Agreement revisions and modifications; c) provide proof of approval of all permit applications (except building permits) by other parties prior to their submittal to the City; and d) assume responsibility for distributing Development Agreement entitlements and obligations and administering such.

7. The City shall have the ability but not the obligation to administratively approve off-site projects that would otherwise be compromised if they cannot be completed prior to approval and execution of the Development Agreement. In these instances, the applicant shall acknowledge in

writing that the approval of any such applicable projects does not in any way obligate the City to incur obligations other than those specifically identified in the approved permits for the applicable project.

8. The applicant shall submit a construction waste management plan for inclusion in the Development Agreement.

9. Homeowners Association(s) conditions, covenants and restrictions (CCRs) and/or the proposed Architectural Review Committee shall be required to allow the use of green technologies (such as solar panels) in all buildings. In addition, the CCRs shall include provisions, to be enforced by the HOA, prohibiting washing of cars in driveways or other paved surfaces, except for commercial car washes, and limiting the use of phosphorous fertilizers in common areas, so as to limit phosphorous loading in stormwater.

TRANSPORTATION

10. Over the course of project build out, construct any new roadway alignment or intersection improvement that is: (a) depicted in the 2025 Transportation Element of the adopted 2009 City Comprehensive Plan and in the City's reasonable discretion is (i) necessary to maintain the City's then-applicable, adopted levels of service to the extent that project traffic would cause or contribute to any level of service deficiency as determined by the City's adopted level of service standard, or (ii) to provide access to or circulation within the project; (b) functionally equivalent to any said alignment or improvement; or (c) otherwise necessary to maintain the City's then-applicable, adopted levels of service to the extent that project traffic would cause or contribute to any level of service failure as determined by the City's adopted level of service standard, or to provide access to or circulation within the project, as determined by the City in its reasonable discretion based on the monitoring and modeling provided for in Conditions 25 and 20 below. The Development Agreement shall specify for which projects the applicant will be eligible for either credits or cost recovery and by what mechanisms this shall occur. Any "functionally equivalent" realignment that results in a connection of MPD roads to Green Valley Road shall be processed as a major amendment to the MPD.

11. The City shall create, at the expense of the Applicant, a new transportation demand model for this project for use in validating the distribution of project traffic at the intervals specified in Condition No. 17. The new model shall incorporate, at an appropriately fine level of detail, and at a minimum, the transportation network from the northern boundary of the City of Enumclaw on SR 169 through the City of Maple Valley to the northern limits of that city. The new model shall include the intersections studied in the FEIS, together with the following additions: all existing principal and minor arterials in Black Diamond, Covington and Maple Valley and the unincorporated areas between these cities and specifically including the Kent-Black Diamond Road; additional study intersections at SE 231st Street/SR 18 westbound ramps, SR 169/SE 271st Street and SR 169/SE 280th Street in Maple Valley. External trips may be captured by any valid methodology including overlaying the new model onto the existing Puget Sound Regional Council transportation model. The new model must be validated for existing traffic, based on actual traffic counts collected no more than two years prior to model creation. Key to the success of the new model is a well-coordinated effort and cooperation among the

cities of Black Diamond, Maple Valley and Covington, the Applicant, King County and the Washington State Department of Transportation. Although the specific assumptions ultimately made in the model may be the subject of differences in professional judgment, the City Council's goal is that, notwithstanding these differences in judgment, the model will be comprehensive and therefore acceptable to all parties. The City Council therefore directs staff in preparing the model to work within the spirit of openness and cooperation with these other agencies and the Applicant, and similarly requests that other agencies and the Applicant join with the City of Black Diamond staff in working together in the same spirit for the common good.

12. The new demand model must take into account recent traffic counts, current and proposed land uses as defined in the applicable Comprehensive Plans areas covered in the study area, and existing speed limits on all roadway links included in the model's roadway network. The model must be run with currently funded transportation projects for each affected jurisdiction as shown in the applicable 6-year Transportation Improvement Plans and with transportation projects shown in the applicable 20-year Transportation Improvement Plans which projects are not funded but are determined to have a reasonable likelihood of obtaining funding based on consultation with each jurisdiction.

13. The new model must contain a mode split analysis that reflects the transit service plans of Sound Transit, King County Metro and any other transit provider likely to provide service in the study area. This mode split analysis should include an estimate of the number of project residents likely to use the Sounder and to which stations these trips might be attributed. This analysis must be presented to the City, the applicable transit agencies, and the jurisdictions in which trips are likely to use park and ride, Sound Transit parking garages or other facilities.

14. The new model must include a reasonable internal trip capture rate assumption. The assumed internal trip capture rate must be based upon and justified by an analysis of the internal trip capture rates suggested by the currently applicable ITE publication as well as information concerning actual internal trip capture rates in other master planned developments with similar land use mixes in Western Washington. Any subsequent revisions to the model should include the realized trip capture rates for the project, if available.

15. Intersection improvements outside the City limits may be mitigated through measures set forth in an agreement between the developer and the applicable agency. Where agreement is possible, the developer shall enter into traffic mitigation agreements with impacted agencies outside the city that have projects under their jurisdiction in the list below, and the agreement shall be incorporated as part of the Development Agreement, or as an addendum to an adopted Development Agreement. Any agreement so incorporated supersedes all other conditions and processes that may set mitigation measures and that are contained in the MPD Conditions or Development Agreement. If an agreement is not reached, the projects identified below shall be added to the regional project list and included as part of the Development Agreement, and the developer and the City shall agree on reasonable time frames for construction (for projects located within the City of Black Diamond and subject to Condition No. 10), or Applicant payment of its proportional costs toward construction of projects located outside of the City of Black Diamond.

Exhibit 6-1
Intersection Improvements

Study Intersection	Jurisdiction	Mitigation
SE 288th Street/216th Avenue SE	Black Diamond	Signalize. Add NBR turn pocket.
SE 288th Street/232nd Avenue SE	Black Diamond	Add NBR turn pocket and provide a refuge for NBL turning vehicles on EB approach.
SR 169/SE 288th Street	WSDOT	Signalize. Add NBL turn pocket. Add second SBT lane (SBTR).
SE Covington Sawyer Road/ 216th Avenue SE	Black Diamond	Add EBL, NBL and SBR turn pockets.
SE Auburn Black Diamond Road/ 218th Avenue SE	King County	Provide a refuge for NBL turning vehicles on EB approach.
SE Auburn Black Diamond Road/ Lake Sawyer Road SE	Black Diamond	Signalize. Add WBL turn pocket.
SE Auburn Black Diamond Road/ Morgan Street	Black Diamond	Roundabout.
SR 169/Roberts Drive	Black Diamond/WSDOT	Add second SBT and NBT lanes. Add SBL and NBL turn pockets.
SR 169/SE Black Diamond Ravensdale Road (Pipeline Road)	Black Diamond/WSDOT	Add second SBT and NBT lanes. Add SBL turn pocket.
SR 169/Baker Street	Black Diamond/WSDOT	Signalize.
SR 169/Lawson Road	Black Diamond/WSDOT	Signalize. Add SBL turn pocket.
SR 169/Jones Lake Road (SE Loop Connector)	Black Diamond/WSDOT	Signalize. Add WBL, NBL, and SBL turn pockets.
SR 169/SR 516	Maple Valley/WSDOT	Add second NBL turn pocket.
SR 169/SE 240th Street	Maple Valley/WSDOT	Add additional SBT lane on SR 169 from north of 231st Street to Witte Road. Add second NBT lane at SR
SR 169/Witte Road	Maple Valley/WSDOT	

SR 169/SE Wax Road	Maple Valley/WSDOT	169/240th Street.
SR 169/SE 231st Street	Maple Valley/WSDOT	
SR 169/SR 18 EB Ramps	Maple Valley/WSDOT	
SR 516/SE Wax Road	Covington/WSDOT	Add second SBL, WBR, and NBL turn pockets.
SR 516/168th Pl SE	Covington/WSDOT	Add NBL and EBR turn pockets.
SR 516/Covington Way SE	Covington/WSDOT	Optimize signal timings.
SE 272nd Street/160th Avenue SE	Covington/WSDOT	Signalize.
SE Kent Kangley Road/ Landsburg Road SE	Maple Valley/King County	Add SBL turn pocket and provide a refuge on WB approach for SBL turning vehicles.
SR 169/SE Green Valley Road	WSDOT	Signalize.
SE Auburn-Black Diamond Road/ SE Green Valley Road	King County	Provide a refuge on EB approach for NBL turning vehicles.
SR 169/North Connector	Black Diamond/WSDOT	Signalize. Add second SBT and NBT lane. Add EBL, EBR, SBR, and NBL turn pockets. End additional NBT lane 1,000 feet north of intersection.
Lake Sawyer Road/Pipeline Road	Black Diamond	Signalize. Add EBL, WBL, NBL, and SBR turn pockets.
SE Auburn Black Road/Annexation Road	Black Diamond	Signalize. Add EBL, EBR, WBL, NBL, and SBR turn pockets.
SR 169/South Connector	Black Diamond/WSDOT	Signalize. Add SBR and NBL turn pockets.

16. If (a) the City of Maple Valley does not appeal or challenge the MPD Approval for the Villages MPD, (b) the City of Maple Valley does not appeal or challenge the MPD Approval for the Lawson Hills MPD, (c) the City of Maple Valley does not appeal or challenge the Development Agreement for the Villages MPD, (d) the City of Maple Valley does not appeal or challenge the Development Agreement for the Lawson Hills MPD, the Applicant shall provide the following mitigation for the City of Maple Valley, which as to the identified mitigation supercedes the mitigation projects listed for the City of Maple Valley in Condition 15 above.

For purposes of this condition, the percentage of the mitigation project to be contributed by the Applicant to the City of Maple Valley is shown for each project. All references to percentages constitute the combined contribution share of the Villages and Lawson Hills projects.

Project A: Contribute 25.3 percent toward one additional southbound through lane on SR 169 from SE 231st Street to Witte Road. Add a second eastbound to southbound right-turn lane on SE Wax Road (double right turn lanes). Upgrade signal equipment to be able to run the eastbound right turn phase with northbound protected left turn phase at the same time.

Project B: Contribute 26.1 percent toward one additional southbound through lane on SR 169 from SE Wax Road through the intersection at SR 169/Witte Road SE. The curb lane will become a right turn lane. The southbound approach to this intersection will be one right turn lane and two through lanes.

Project C: Contribute 66.6 percent toward a second northbound to westbound left-turn lane (300 ft) on SR 169 and a second westbound to southbound left-turn lane (400 ft) on SE 240th Street. Widen SE 240th Street west of SR 169 to add a second westbound lane (500 ft).

Project E: Contribute 37.2 percent toward a second southbound lane on SR 169 from Witte Road SE to SE 244th Street and a second northbound lane on SR 169 from 1,000 feet south of SE 240th Street to Witte Road SE.

Project F: Contribute 63.2 percent toward installation of a traffic signal at the intersection of SR 169/SE 244th Street.

Project G: Contribute 50.8 percent toward a second southbound lane on SR 169 from SE 244th Street to SE 264th Street. Construct a second northbound lane on SR 169 from SE 264th Street to 1,000 feet north of SE 264th Street.

Project H: Contribute 59 percent toward a second southbound lane on SR 169 from south of SR 516 to SE 271st Street.

Project I: Contribute 54.6 percent toward a signal equipment upgrade at the intersections of SR 169/SE 264th Street, SR 169/SR516, and SR 169/SE 271st Street to be able to coordinate these three signals, and set the signal cycle length at 140 seconds.

Project J: Contribute 61.25 percent toward a second southbound lane on SR 169 from SE 271st Street to SE 280th Street and a second northbound lane on SR 169 from 1,000 feet south of SE 271st Street to SE 271st Street.

Project K: Contribute 58.4 percent toward a second southbound lane on SR 169 from SE 280th Street to Maple Valley's south City limit.

Project L: Contribute 6.8 percent toward a new three-lane road (one eastbound and two westbound lanes) on the SE 271st Street alignment between SR 169 and SR 516. Add a

second northbound to westbound left turn lane (200 ft) on SR 169 and a signal at SR 516/SE 271st intersection.

Project W: Contribute 29.9 percent toward widening SR 516 to 4/5 lanes from 216th Ave SE to the west City limits of Maple Valley. Add a second westbound lane on SR 516 to 1,000 feet east of 216th Ave SE.

Project X: Contribute 29.9 percent toward reconfiguration of the northbound approach to SR 516/216th Ave SE to include one left-turn lane and one left and right-turn share lane. Increase the left turn pocket length to 270 feet. Modify signal to accommodate eastbound right-turn phase overlapping with northbound phase.

Project Y: Contribute 13.5 percent toward a second westbound lane on SE 240th from 500 feet west of SR 169 (see Project C) to Witte Road if and when the City of Maple Valley obtains all the remaining funding necessary for completion of Project Y (except for the contribution of the Applicant).

Project Z: Contribute 13.5 percent toward a 2-to-3 lane extension of SE 240th Street between Wax Road and Witte Road if and when the City of Maple Valley obtains all the remaining funding necessary for completion of Project Z (except for the contribution of the Applicant).

17. a. At the point where building permits have been issued for 850 dwelling units at the Villages and Lawson Hills together, and again at such phase or interval determined by the City Council following completion of the review called for by this condition, the City shall validate and calibrate the new transportation demand model created pursuant to Condition 11 above for the then-existing traffic from the Villages and Lawson Hills together. The calibration may include an assumption for internal trip capture rates as set forth in Condition 14 above, rather than actual internal trip capture rates, if an insufficient amount of commercial development has been constructed at the time of the validation/calibration required herein. The City shall then run the model to estimate the trip distribution percentages that will result from the next upcoming phase or interval of MPD development, and to assign the estimated trips from that phase or interval to the intersections identified in Condition 11 above.

b. Using the trip distribution and trip assignment yielded by the transportation demand model validation and calibration required in subsection (a) above, the City shall conduct an intersection operations analysis of the transportation levels of service (LOS) for the intersections identified in Condition 11 above, and shall issue findings, conclusions and a recommendation as provided below. The intersection operations analysis shall determine whether then-existing, adopted PM peak hour intersection levels of service are met, and whether the then-existing, adopted PM peak hour intersection levels of service are projected to be met by the time of the next validation/calibration/operations analysis identified by the City Council pursuant to subsection (a) above. The intersection operations analysis for existing conditions must take into account the then-existing peak hour factor; the analysis for the next identified phase or interval of development must be based on a reasonable assumption (justified by reasonable traffic engineering practice) as to the future peak hour

factor, and contain a sensitivity analysis to identify the effect of such peak hour factor assumption. If the findings and conclusions determine that the then-existing, adopted PM peak hour LOS will not be met, they shall also determine whether the projects set forth in Conditions 15 and 16 above adequately mitigate the impacts resulting from the failure to meet the adopted LOS. If the findings and conclusions determine that failure to meet adopted transportation LOS will not be adequately mitigated, they shall also recommend such additional measures necessary to adequately mitigate the impacts reasonably attributable to the MPD projects' failure to meet the adopted LOS.

c. The review identified in subsections (a) and (b) above, may be performed concurrent with a preliminary plat application held on either the Villages or Lawson Hills implementing plat, and the City review may incorporate relevant portions of any SEPA documents prepared for the implementing plat which analyze cumulative MPD impacts.

d. When the review thresholds identified in subparagraph a above have been reached, the City shall issue written notice to the Master Developer(s) to each submit within 90 days review documentation summarizing their respective project impacts and compliance with mitigations and conditions to date, as well as any additional information the City deems necessary to perform the transportation demand model validation/calibration and/or intersection operations analysis. In addition, the Master Developer(s) shall each pay a proportionate share of the validation/calibration/operations analysis costs incurred by the City. If a Master Developer fails to submit satisfactory periodic review documentation regarding its project within the 90-day period after notice has been issued as required herein, further permits shall not be approved for that MPD until the required documentation has been submitted.

e. Not later than 90 days following the City's completion of the validation/calibration/operations analysis, the City Director of Community Development shall consult with other affected jurisdictions as to the review analysis results, obtain any input such jurisdictions wish to provide, issue the City's proposed findings, conclusions and recommendation, and at the close of the 90-day period, the City shall meet with the Master Developer(s) to review the proposed findings, conclusions and recommendation and identify what improvements the Master Developer(s) plans to construct. Within 14 days of the City meeting with the Master Developer(s), the City shall finalize its findings, conclusions and recommendation and shall provide mailed notice to all Parties of Record on the Villages MPD and/or the Lawson Hills MPD that the review has been issued.

f. The City's demand model validation and calibration called for by subsection (a) above, and the intersection operations analysis called for by subsection (b) above, (the "periodic review analysis") shall result in written findings and conclusions plus a recommendation for new future permit conditions and mitigations for the Villages and/or Lawson Hills, as required. Proposed conditions and mitigations applicable to future permits and associated mitigation within either or both projects shall be revised if the City finds that the conditions or mitigation measures imposed pursuant to the City's standards in effect at the time of MPD approval have resulted in an unsatisfactory level of mitigation, either because the degree of mitigation is

inadequate or the quantity of impact demonstrated to be attributable to MPD development exceeds levels predicted. New permit conditions and mitigations imposed for cumulative impacts through the periodic review process shall comply with the following standards and limitations:

i. No new standards or requirements shall be imposed upon property in any plat recorded within 60 months of MPD approval to the extent that such standards or requirements would affect infrastructure serving said property also constructed within the 60-month timeframe.

ii. Performance standards more stringent than those contained in the original MPD permit shall not be imposed.

iii. No retrofitting or major modification shall be required for facilities properly installed in accordance with MPD permits unless such is determined necessary to avoid a threat to public health or safety or a new significant adverse environmental impact, and such impact or threat cannot be mitigated by requirements imposed upon or downsizing of MPD development yet to be constructed.

iv. New conditions and mitigations shall be limited to those shown to be necessary as a direct result of the MPD development, and such mitigation must be reasonable and achievable without compromising other MPD permit requirements.

v. Conditions and mitigations applicable to a MPD shall be modified only to the extent that cumulative impacts are demonstrated to be the result of development of such project. If cumulative impacts have been demonstrated to exist but cannot be attributed solely to the MPDs, or allocated between the two MPDs, responsibility for mitigation shall be apportioned equitably in a proportionate or pro-rata share. For purposes of this condition, "proportionate share" shall mean the ratio of the combined Villages and Lawson Hills MPD project PM peak hour trips projected to use the intersection compared to the total number of PM peak hour trips expected to use the intersection. Any mitigations or conditions imposed shall specify clearly which project and which portion thereof to which they apply.

g. The Villages Master Developer, the Lawson Hills Master Developer, or any other party of record may appeal the periodic review analysis within 21 days of the date of its issuance by filing an appeal statement with the Community Development Director, plus a fee in the amount then applicable to an administrative appeal of a SEPA threshold determination. The appeal statement shall specify in detail the errors alleged to exist in the periodic review analysis and any appeal proceedings shall be limited to analysis of such allegations.

h. If one or more timely appeals are filed of the City's periodic review analysis, they shall be heard and decided by the Hearing Examiner within 90 days of the date the appeal is filed. The hearing shall be limited to the issues included within the written appeal statement. Participation in the appeal shall be strictly limited to the City, the Applicant and parties who timely filed complete written appeal statements and paid the appeal fee. The

appellant shall bear the burden of proof in the appeal. The periodic review analysis shall be upheld on appeal unless found to be clearly erroneous based on the record as a whole.

i. The Hearing Examiner's decision on the periodic review analysis shall be a final decision appealable under the Land Use Petition Act, Chapter 36.70C RCW.

j. If no timely appeal of the periodic review analysis is received, its findings, conclusions, and recommendation shall become final and non-appealable 21 days after issuance. If an appeal is filed, the time required for determination of such appeal shall be excluded from the approval period for any MPD permit and preliminary plat in effect on the date of issuance of the periodic review analysis.

18. The responsibilities and pro-rata shares of the cumulative transportation mitigation projects shall be established in the two Development Agreements, which must cover the complete mitigation list and be consistent with one another. (Traffic impacts were studied based on the cumulative impacts of The Villages and the Lawson Hills MPDs. These various projects have a mutual benefit and need crossing over between them.)

19. For each potential signal, first consider and present a conceptual design for a roundabout as the City's preferred method of intersection control. [FEIS Mitigation Measure]

20. A transportation monitoring plan shall be established as part of the Development Agreement using the projects identified in the list included in Condition 15 (and as that list is modified as a result of the periodic review process), and including trigger mechanisms acceptable to the City. The monitoring plan shall ensure that construction of improvements commences before the impacted street or intersection falls below the applicable level of service, provided that for projects within the State right-of-way, the monitoring plan shall establish timing for commencement of only engineering and design of improvement and shall not including deadlines for commencement of construction.

21. Implementing projects shall be designed to foster the development of a street grid system throughout the project.

22. In order to balance the impact of the added street maintenance and the proposed street standards with higher maintenance costs, all auto courts serving 20 units or less, and all alleys shall be private and maintained by the Applicant or future Homeowners' Association(s). The Development Agreement shall provide that, in the event that the Applicant or future Homeowners' Association(s) fails to maintain such auto courts and/or alleys, the City may enter onto the property, repair or maintain the alleys or autocourts as the City determines in its reasonable discretion is necessary, and collect the costs of such repair or maintenance from the Applicant or Homeowners' Association(s), as applicable. The Development Agreement shall also provide that, to secure repayment, the City may lien the individual lots within the subdivision in which the alley or autocourt is located.

23. The applicant or future Homeowners' Association(s) shall be required to maintain all street side landscaping, unless otherwise agreed upon by the City, and the Applicant or future Homeowners' Association(s). The Development Agreement shall provide that, in the event that

the Applicant or future Homeowners' Association(s) fails to maintain such street-side landscaping, the City may enter onto the property, repair or maintain the landscaping as the City determines in its reasonable discretion is necessary, and collect the costs of such maintenance from the Applicant or Homeowners' Association(s), as applicable. The Development Agreement shall also provide that, to secure repayment, the City may lien the individual lots within the subdivision in which the street-side landscaping is located.

24. Traffic calming measures shall be explored with each implementing development action and implemented at the discretion of the Public Works Director.

25. The monitoring plan required by these conditions shall require the applicant to model the traffic impacts of a development phase before submitting land use applications for that phase, in order to determine at what point a street or intersection is likely to drop below the City's adopted level of service. The monitoring plan shall provide for the timing of commencement of construction of projects identified in Condition 15, as well as the amendments to the scope of said projects and/or additions to Condition 15's project list as determined by the City in its reasonable discretion as necessary to maintain the City's adopted levels of service in effect at the time of the modeling, to the extent that project traffic would cause or contribute to any level of service failure as determined by the City's adopted level of service standard. In the event of a disagreement between the applicant and the City about the timing of construction of a transportation project under the monitoring plan, and if the monitoring plan does not already include period modeling, the applicant shall also monitor traffic levels midway through each phase to determine if the traffic generation, trip distribution and assignment patterns are developing as expected.

26. Reserve a site within the commercial area on either the north or south side of Auburn-Black Diamond Road for a future park and ride lot. [FEIS Mitigation Measure] The site shall be of sufficient size to accommodate parking for the number of vehicles identified in the mode-split analysis in the new transportation demand model as set forth in Condition No. 14 above.

27. No more than 150 residential units shall be permitted with a single point of access. 300 units may be allowed on an interim basis, provided that a secondary point of access is provided.

28. The Development Agreement shall define a development parcel(s) beyond which no further development will be allowed without complete construction of the South Connector.

29. Prior to the first implementing project of any one phase being approved, a more detailed implementation schedule of the regional infrastructure projects supporting that phase shall be submitted for approval. The timing of the projects should be tied to the number of residential units and/or square feet of commercial projects.

30. The applicant shall apply road design speed control and traffic calming measures so that inappropriate speeds are avoided on neighborhood streets.

31. The timing of the design and alignment of the Pipeline Road shall be included as part of the Development Agreement.

32. Provided a study confirms engineering feasibility and reasonable and customary construction costs, a connecting sidewalk and safe pedestrian connection to the programmed sidewalk in the Morganville area shall be required along Roberts Drive. Construction timing should be specified in the Development Agreement. The City and applicant shall work in good faith to seek grants and other funding mechanisms to construct the improvement. The applicant shall otherwise be responsible for construction costs to the extent authorized by law.

33. a. The City shall commission a study, at the Applicant's expense, on how to limit MPD traffic from using Green Valley Road, and which shall include an assessment of traffic calming devices within the existing improved right-of-way. The study shall also include an analysis and recommended mitigation ensuring safety and compatibility of the various uses of the road. All reasonable measures identified in the study shall be incorporated into the Development Agreement together with a description of the process and timing required for the Applicant to seek permits from King County should King County allow installation of the improvements, and with a proviso that none of the measures need to be implemented if not agreed to by the Green Valley Road Review committee.

b. A Green Valley Road Review Committee shall be formed. The committee shall consist of two representatives of the Applicant, one representative of the City, and two representatives of the community. If additional community members or representatives of King County desire to participate, they may do so, but only two community members shall have a vote on the committee regarding any matter. The Committee shall meet as needed, and specifically shall meet to review the study required by Condition 33(a) and attempt to reach agreement on whether any suggested traffic calming devices should be provided. If the community members of the Green Valley Road Review Committee decide against the traffic calming measures, then the Applicant need not construct them. The Committee shall also meet to review the plan to prohibit or discourage the use of Plass Road. The Applicant shall be responsible, at its expense, for drafting a report to the City Council regarding the Committee's findings on the traffic calming devices and on Plass Road.

34. a. The Development Agreement shall address which traffic projects will be built by the developer, which projects will be built by the City and what projects will qualify for cost recovery.

b. The Applicant agrees to work in good faith with the City, King County and residents on Plass Road to develop a plan to prohibit or discourage the use of Plass Road as a connection to Green Valley Road. The Applicant will agree to vacate a portion of Plass Road through the Villages property to assure no connectivity to the South Connector roadway towards Green Valley Road, provided the City, King County and Plass Road residents support the road vacation.

NOISE

35. Each implementing development shall include a plan for reducing short term construction noise by employing the best management practices such as minimizing construction noise with properly sized and maintained mufflers, engine intake silencers, engine enclosures, and turning off equipment when not in use. [FEIS Mitigation Measure]

36. Stationary construction equipment shall be located distant from sensitive receiving properties whenever possible. Where this is infeasible, or where noise impacts would still be likely to occur, portable noise barriers shall be placed around the equipment (pumps, compressors, welding machines, etc.) with the opening directed away from the sensitive receiving property. [FEIS Mitigation Measure]

37. Ensure that all equipment required to use backup alarms utilizes ambient-sensing alarms that broadcast a warning sound loud enough to be heard over background noise, but without having to use a preset, maximum volume. Alternatively, use broadband backup alarms instead of typical pure tone alarms. [FEIS Mitigation Measure]

38. Require operators to lift, rather than drag materials wherever feasible. [FEIS Mitigation Measure]

39. Substitute hydraulic or electric models for impact tools such as jackhammers, rock drills and pavement breakers, wherever feasible. [FEIS Mitigation Measure]

40. Electric pumps shall be specified whenever pumps are required. [FEIS Mitigation Measure]

41. The developer shall establish a noise control "hotline" to allow neighbors affected by noise to contact the City and the construction contractor to ask questions or to complain about violations of the noise reduction program. The noise reduction program is established by conditions 35 through 40 and 42-43. Whether the noise reduction program has been violated shall be determined by the City in its reasonable discretion. Failure to comply with the noise reduction program shall result first in a warning and one or more continuing failures may result in cessation of construction activities until the developer provides an acceptable solution to the City that will reasonably achieve the intent of the noise reduction program and allow construction to continue. Nothing in this condition shall be construed as limiting or altering the City's authority to enforce its noise regulations.

42. If pile driving becomes necessary, impact pile-driving shall be minimized in favor of less noisy pile installation methods. If impact pile driving is required, the potential for noise impacts shall be minimized by strict adherence to daytime only. [FEIS Mitigation Measure]

43. Work hours of operation shall be established and made part of the Development Agreement

44. To provide construction noise attenuation for existing residents adjoining the Villages development, the following condition shall apply to Villages development parcels V1, V2, V10, V13, V15, V20, V49, V57, V60, and V71. For each of the designated parcels, the Applicant shall:

a. offer to meet with the affected existing resident(s) to seek a mutual agreement about mitigation to be provided, or if mutual agreement cannot be reached, then,

b. the Applicant shall have the choice to provide either:

i. mitigation consisting of a buffer, trail easement or other separator between the edge of the development parcel and the property boundary that is 100-feet wide, provided that trails, recreational facilities, stormwater facilities and similar uses otherwise permitted for the MPD are allowed inside the 100-foot area, or

ii. mitigation consisting of all of the following:

(A) a construction noise attenuation barrier (i.e., a berm, wall, or combination of the two) on the development parcel, provided that if a buffer or trail easement less than 100-feet wide adjoins the development parcel, the barrier may be placed within that area;

(B) design, sizing and placement of the noise attenuation barrier in a manner intended to reduce noise from long-term construction activities (i.e., activities lasting 6 months or longer, such as construction hauling and including the loading/unloading of dump trucks);

(C) payment to the City for its costs in commissioning a study to evaluate the noise barrier design and placement shall be prepared by the Applicant, at its expense, and submitted for review and approval by the City;

(D) the noise study shall evaluate whether noise from long-term construction activities will comply with the environmental noise limits in WAC 173-060-040, and if the noise study concludes that an on-site noise barrier cannot effectively control long-term construction noise to the degree that it complies with the WAC noise limits outside the adjoining existing homes, additional mitigation measures intended to reduce interior sound levels will be evaluated,

(E) any additional noise mitigation measures determined to be effective at reducing interior sound levels (i.e., providing a reduction of exterior-to-interior noise transmission at least 7 dBA more than provided by the existing building envelope) shall be implemented so long as the adjoining owner provides permission if the mitigation requires work on their property, and

(F) at the Applicant's discretion, the noise barrier may be temporary (i.e., removed after construction on one of the designated parcels is complete) or permanent.

Mitigation under section (b)(ii) shall be installed before construction activities begin on the designated development parcel. In the event that lands adjacent to any of the

designated development parcels are acquired by the developer of the MPD, this condition shall not apply as to the acquired lands.

45. A Noise Review committee shall be formed. The committee shall consist of two representatives of the Applicant, one representative of the City, and two representatives of the community. If additional community members desire to participate, they may do so, but only two members shall have a vote on the committee regarding the annual report. The Committee shall meet at least once a year, and no more than six times per year. The Noise Review committee shall review and evaluate compliance with the noise conditions imposed upon the Villages MPD. The Committee shall endeavor to reach mutual agreement (i.e., a 5-0 vote) on the contents of an annual report to be filed with the City Council. The Applicant shall be responsible, at its expense, for drafting the annual report. The annual report will summarize the Committee's findings regarding compliance, and shall include recommendations, if any, for improved performance. If the Committee is unable to reach mutual agreement, then the Applicant shall prepare the annual report summarizing the matters for which agreement is reached, as well as the matters still under debate, and shall allow the other members of the community to provide comments on the report prior to submittal to the City Council. The City Council shall review the report and respond as appropriate under applicable City Codes, or the provisions of the Development Agreement.

PUBLIC UTILITIES – WATER

46. Comply with the terms of the Water Services Future Funding Agreement (WSFFA).

47. Utilize the Tacoma Intertie, in addition to the Spring Supply per the WSFFA. [FEIS Mitigation Measure]

48. Construct an appropriately sized reservoir in 850 Zone or construct an 850 Zone loop back to the existing system in the vicinity of Railroad Avenue. [FEIS Mitigation Measure]

49. Construct a 750 Zone loop back to the existing system, or propose a functionally equivalent alternative as allowed in the MPD code. [FEIS Mitigation Measure]

50. Complete the 850 loop in the North Property and the 850 loop in Pipeline Road with a pressure reducing station to the 750 Zone water main within the North Property. [FEIS Mitigation Measure]

51. Construct needed water supply and storage improvements in accordance with the City's Comprehensive Plan and necessary to serve the proposed development. Alternatively, a functionally equivalent improvement to the facilities above may be approved by City staff within the MPD. [FEIS Mitigation Measure]

52. Should new water distribution alternatives be desired by the applicant that are not consistent with the recently adopted Water Comprehensive Plan, the applicant shall be responsible for the cost of updating the Plan if needed.

53. The Water Conservation Plan included in the Chapter 8 of the MPD Application is approved. The Development Agreement shall include details about the responsibility for water conservation, the basis and methods for measuring conservation savings, and the impacts if the required savings targets of 10% less than the average water use in the City by residential uses at the time the MPD was submitted are not achieved.

54. The proposed water conservation plan shall be evaluated for its effectiveness in light of the City's available water resources after the first 500 units have been constructed. At that time, additional measures may be required if goals are not being achieved.

PUBLIC UTILITIES – SEWER

55. King County will be constructing a sewer flow equalization storage reservoir in a location to serve the needs of the City. [FEIS Mitigation Measure]

56. Construct trunk lines Nos. 1 and 4. [FEIS Mitigation Measure]

57. Construct pump station 1 and force main 1 to equalization tank. [FEIS Mitigation Measure]

58. Collection of sewage shall occur as presented in City's Comprehensive Plan, consistent with King County sewage storage site selection, and as necessary to serve the proposed development. Alternatively, a functionally equivalent improvement to the facilities above may be approved in the future if determined appropriate by City staff and consistent with King County's sewage storage site selection process. [FEIS Mitigation Measure]

59. An interim sewer pump station is accepted, provided that:

- a. Routing of the gravity sewer mains is consistent with the City's ultimate plan for routing sewage.
- b. No capital facility charge credit will be considered for interim improvements.

PUBLIC UTILITIES – STORMWATER AND WATER QUALITY

60. Stormwater runoff that is collected from impervious surfaces shall be mitigated in accordance with the *2005 Stormwater Management Manual for Western Washington*, and stormwater designs shall include low impact development techniques wherever practical and feasible. [FEIS Mitigation Measure]. Homeowner associations should bear the cost of landscape maintenance associated with the low impact development techniques.

61. Preserve the volume of stormwater for the groundwater area tributary to Black Diamond Lake and associated wetlands. [FEIS Mitigation Measure]

62. Implement the stormwater program described in Appendix D to The Villages FEIS in order to match total runoff volume discharges via surface and subsurface conveyance routes to Horseshoe Lake. [FEIS Mitigation Measure]

63. Provide mitigation facilities within the project limits, expansion parcels or provide an agreement with King County for long term City ownership and/or maintenance of off-site facilities not within City limits. [FEIS Mitigation Measure]

64. Native plants shall be primarily used as part of the planting palette within the MPD. Lawn planting shall be reduced wherever practical. [FEIS Mitigation Measure]

65. Where point discharges to streams must occur, design the outfall to minimize impacts to the stream channel and avoid areas of significant vegetation. [FEIS Mitigation Measure]

66. Construct stormwater treatment and storage improvements as presented in City's Comprehensive Plan and as necessary to serve the proposed development. Alternatively, a functionally equivalent improvement to the facilities above may be approved with the MPD. [FEIS Mitigation Measure]

67. Mechanisms shall be identified to integrate Low Impact Development technologies into the overall design of the MPD and incorporated into the Development Agreement. Future Homeowners' Associations shall bear any increased cost of landscape maintenance.

68. The Development Agreement shall include restrictions on roof types (no galvanized, copper, etc.) and roof treatments (no chemical moss killers, etc) to ensure that stormwater discharged from roof downspouts is suitable for direct entry into wetlands and streams without treatment. This condition does not constitute approval for direct discharge of roof drainage into wetlands, streams or their buffers; any such direct discharge is authorized only if approved by the Public Works Director as in compliance with Black Diamond Municipal Code Ch. 14.04 and the standards adopted therein. The applicant shall develop related public education materials that will be readily available to all homeowners and implement a process that can be enforced by future homeowners associations.

69. Stormwater facilities to be considered as part of required open space shall be designed as an amenity per the Public Works and Natural Resources Directors. Factors to be considered by the Directors in determining whether the facilities are designed as an amenity include, but shall not be limited to, whether the facilities are safe for general public access (*i.e.*, do not have steeply sloped banks requiring fencing), are suitable for active recreational use during at least 3 months per year, are suitable for passive recreational use such as walking, hiking, or bird or other wildlife viewing, and/or provide wildlife habitat. If approved, future Homeowners Association(s) shall be required to provide landscape maintenance of these facilities, unless otherwise agreed upon by the City, and the Applicant or future Homeowners' Association(s).

70. The Development Agreement shall include language that binds future developers and contractors to a requirement to comply with any NPDES permits issued by the Washington State Department of Ecology and acknowledge that although permit conditions imposed by NPDES

permits are not administered by the City, staff reserves the right to enforce the conditions of the NPDES permit. Since the city has a high interest in protecting receiving waters under the city storm water permit, the developer shall fund necessary costs for training related to inspection services.

71. Develop a proactive temporary erosion and sediment control plan to prevent erosion and sediment transport and provide a response plan to protect receiving waters during the construction phase.

72. Construct a storm water system that does not burden the city with excessive maintenance costs; assist the city with maintenance of landscape features in storm water facilities. The City shall have the right to reject higher cost of maintenance facilities when lower cost options may be available.

73. Include a tabular list of stormwater monitoring requirements. The list should include the term of the monitoring, the allowable deviation from design objectives or standards, and the action items necessary as a result of excess deviations.

74. The stormwater plan shall include the ability to adaptively manage detention and discharge rates and redirect stormwater overflows when environmental advantages become apparent.

75. The size of storm ponds for hydraulic purposes shall vest on a phase by phase basis to the extent allowed by the City's DOE discharge permit and state law.

76. In the event that new phosphorus treatment technology is discovered and is either certified by the State Department of Ecology as authorized for use in meeting requirements of the Stormwater Management Manual for Western Washington, or is in use such that it is considered by the stormwater engineering community as constituting part of the set of measures described as "All known available, and reasonable methods of prevention, control, and treatment" ("AKART") as defined in WAC 173-201A-020, then the Applicant shall incorporate that new phosphorus treatment technology in all new ponds and facilities applied for as part of an implementing project, such as a preliminary plat, even if the Applicant's ponds and facilities would otherwise be vested to a lower standard.

77. The Development Agreement shall include language to allow deviations from the stormwater facilities listed in the FEIS when justified by a technical analysis and risk assessment.

78. The applicant shall obtain all necessary permits from King County for both construction, including any necessary approval or agreement providing the City ability to perform maintenance of the large regional storm pond proposed to the west of the project. The Applicant shall submit engineering plans to the City for approval, which shall not be unreasonably withheld or delayed, prior to submitting such plans to the County.

79. The City shall determine whether the Applicant's reasonable proportionate share participation in any watershed-wide implementation measures identified in Exhibit H-9 would be of significant benefit in protecting Lake Sawyer water quality. If so, those measures shall be incorporated into the Development Agreement. The Development Agreement shall also integrate the phosphorous monitoring plan proposed by the Applicant in Ex. NR-TV-7 as well as a temperature monitoring plan identical to the plan proposed for the Lawson Hills project in Exhibit NR-LH-5.

80. Runoff from basins tributary to Lake Sawyer shall provide water quality treatment in accordance with the phosphorous control menu in the 2005 Stormwater Management Manual for Western Washington. [FEIS Mitigation Measure]

81. Prior to approval of the Development Agreement, the Applicant shall identify to the City the estimated maximum annual volume of total phosphorus (Tp) that will be discharged in runoff from the MPD site and that will comply with the TMDL established by the State Department of Ecology for Lake Sawyer. If monitoring conducted pursuant to the phosphorus monitoring plan proposed by the Applicant in Ex. NR-TV-7 and integrated into the Development Agreement pursuant to Condition No. 78 above indicates that the MPD site is discharging more than the identified annual maximum volume of Tp, the Master Developer shall modify existing practices or facilities, modify the design any proposed new stormwater treatment facilities, and/or implement a project within the Lake Sawyer basin that collectively provide an offsetting reduction in Tp so as to bring the discharge below the annual maximum identified pursuant to this Condition.

82. Enhanced water quality treatment shall be provided as required by the 2005 Stormwater Management Manual for Western Washington. [FEIS Mitigation Measure]

83. When the Applicant builds improvements to existing public road right-of-way inside the City of Black Diamond and which road right-of-way drains to Lake Sawyer, the Applicant is required to treat the stormwater from those improvements to the then current and applicable phosphorus treatment standard, and the Applicant shall also treat the existing stormwater that runs off the existing right-of-way in the immediate vicinity of the improvement.

84. The Applicant agrees to work cooperatively with the City to identify opportunities where the City can reduce phosphorus sources or improve phosphorus treatment on existing City lands and for existing City owned or maintained stormwater facilities.

85. A Water Quality Review committee shall be formed. The committee shall consist of two representatives of the Applicant, one representative of the City, and two representatives of the community. If additional community members desire to participate, they may do so, but only two members shall have a vote on the committee regarding the annual report. The Committee shall meet at least once a year, and no more than six times per year. The Water Quality Review committee shall review and evaluate compliance with the stormwater conditions imposed upon the Villages MPD. The Committee shall endeavor to reach mutual agreement (i.e., a 5-0 vote) on the contents of an annual report to be filed with the City Council. The Applicant shall be responsible, at its expense, for drafting the annual report. The annual report will summarize the

Committee's findings regarding compliance, and shall include recommendations, if any, for improved performance. If the Committee is unable to reach mutual agreement, then the Applicant shall prepare the annual report summarizing the matters for which agreement is reached, as well as the matters still under debate, and shall allow the other members of the community to provide comments on the report prior to submittal to the City Council. The City Council shall review the report and respond as appropriate under applicable City Codes, or the provisions of the Development Agreement.

VISUAL AND AESTHETICS

86. The Development Agreement shall include a narrative of the process and basis for selectively removing hazard trees within sensitive areas. The intent of this section will be to leave the majority of the sensitive areas as designated passive open space but to have it appear and function as native forest.

87. The Development Agreement shall define when and under what conditions a development parcel may be logged for timber revenue, how that parcel must be secured to minimize the impacts on the community and how long the parcel may remain undeveloped before it must be reforested.

PUBLIC SERVICES – PARKS AND RECREATION

88. If a school site is developed and the proponent proposes to build a joint-use facility, the proponent shall provide one or more youth/adult baseball/softball fields, soccer fields, tennis courts, or basketball courts in conjunction with the school site(s) or at an alternative location. [FEIS Mitigation Measure]

89. The details of the park and recreation facilities to serve the new demand from the MPD shall be set in the required Development Agreement, including whether such facilities may be constructed on- or off-site. [FEIS Mitigation Measure]

90. The cost of such facilities, including a proportionate share of facilities not fully warranted by the MPD build out, could be provided by payment of fees. [FEIS Mitigation Measure]

91. As part of the Development Agreement, the fee-in-lieu values for park facilities shall be re-evaluated to ensure appropriate levels of funding and to include a mechanism to account for inflationary rises in construction costs and potentially, the costs of maintaining these types of facilities in the future. The City shall maintain discretion concerning when and if a lump sum payment will be accepted in lieu of constructing off-site recreational facilities

92. The details regarding the timing of construction and optional off-site construction or payment of fee in lieu of construction included in Table 5.2 of the MPD application (Recreation Facilities) shall be specified in the Development Agreement.

93. Dependant on the availability of land, the adequacy of funds to construct City-approved recreational facilities and an ability to maintain these facilities, the City shall retain the sole discretion to determine when and if the applicant will be allowed to provide a lump sum payment in lieu of constructing off-site recreational facilities. This condition may be further defined within the Development Agreement.

94. The Development Agreement shall include language authorizing public access to parks and trails facilities.

95. As proposed in the Master Plan Application, on-site trails (i.e. on the site of the implementing project) shall be constructed or bonded prior to occupancy, final site plan or final plat approval, whichever occurs first. Off-site trail connections shall meet the same standard to the extent authorized by law.

96. Parks within each phase of development shall be constructed or bonded prior to occupancy, final site plan or final plat approval of any portion of the phase, whichever occurs first, to the extent necessary to meet park level of service standards for the implementing project.

97. The Development Agreement shall include a tabular list of the characteristics of passive open space and active open space and permitted activities thereon so that future land use applications can accurately track the type and character of open space that is provided.

PUBLIC SERVICES – SCHOOLS

98. The Applicant shall enter into a separate school mitigation agreement, with substantially the same key terms as the agreement in the record as Exhibit 6, so long as such agreement is approved by the City and the Enumclaw School District which approval provides adequate mitigation of impacts to school facilities. If approved, such agreement shall be incorporated into the Development Agreement by reference. Alternatively, school mitigation may be addressed in the Development Agreement, using terms similar to those contained in Exhibit 6, or through a combination of (1) school impact fees under a City-wide school impact fee program for new development or a voluntary mitigation fees agreement and (2) the dedication of land for school facilities (subject to credit under State impact fee laws). The agreed number of school sites and associated minimum acreage, both as set forth in Exhibit 6, shall be used to guide any school mitigation alternative. To the extent reasonable and practical, elementary schools shall be located within a half-mile walk of residential areas. All school sites shall be located either within the MPDs or within one mile of the MPDs.

99. An updated fiscal analysis shall be required for any proposal to locate a high school within any lands designated on Figure 3-1 (Land Use Plan) for commercial/office/retail use.

PUBLIC SERVICES – PUBLIC SAFETY

100. The Development Agreement shall include specific provisions for providing fire mitigation to ensure protection concurrent with project build out. Fire mitigation may include

fire impact fees under a City-wide fire impact fee program for new development, a voluntary fire mitigation agreement, and/or the dedication of land for fire facilities (subject to credit under State impact fee laws).

101. All Fire Department access roads must meet International Fire Code, specifically Section 503 Fire Department Access Roads and Appendix D Fire Department Access Roads, except to the extent modifications or exceptions are approved by the designated official as authorized by applicable regulations

102. Auto courts shall meet the requirements of the International Fire Code 2006 ed. Per IFC Section 503, specifically 503.2.1, except to the extent modifications or exceptions are approved by the designated official as authorized by applicable regulations.

103. Separation of combustible structures and vegetation shall be provided to prevent wildland fires from the east and south from spreading to buildings. This shall be determined at the time of implementing projects.

EROSION HAZARDS

104. Major earth moving and grading may be limited to the “dry season,” between April and September, to avoid water quality impacts from erosion due to wet soils. Construction during the “wet season” may occur as allowed by the Engineering Design and Construction Standards Section 2.2.05. [FEIS Mitigation Measure]

105. In cases where vegetation is an effective means of stabilizing stream banks, stream banks shall be protected from disturbance to reduce the adverse impacts to stream erosion. [FEIS Mitigation Measure]

106. Bridges or appropriately sized box culverts shall be used for roadway crossings of streams to allow peak flow high-water events to pass unimpeded and to preserve some normal stream processes. [FEIS Mitigation Measure]

107. Design stormwater facilities to avoid discharging concentrated stormwater flows on moderate and steep slopes in order to avoid severe land erosion. [FEIS Mitigation Measure]

108. Utilize stormwater detention facilities that avoid increases in peak stream flows. [FEIS Mitigation Measure]

109. The Applicant shall submit a Temporary Erosion and Sedimentation Control (TESC) plan meeting City standards that will mitigate the potential for construction run-off from the site prior to grading or land clearing activities. The best management practices in the TESC plan shall include standby storage of emergency erosion and sediment control materials; a limit to the amount of property that may be disturbed in the winter months; and guaranteed time frames for the establishment of wet weather erosion and site protection measures.

110. Prior to approval of the first implementing plat or site development permit within a phase, the applicant shall submit an overall grading plan that will balance the cut or fill so that the amount of cut or fill does not exceed the other by more than 20%.

LANDSLIDE HAZARDS

111. Development of landslide hazard areas shall be avoided. Sufficient setbacks shall be required to assure or increase the safety of nearby uses, or where feasible grade out the landslide hazard area to eliminate the hazard in compliance with the city's Sensitive Areas Ordinance BDMC 19.10. [FEIS Mitigation Measure]

112. Stormwater and groundwater shall be managed to avoid increases in overland flow or infiltration in areas of potential slope failure to avoid water-induced landslides. [FEIS Mitigation Measure]

113. Geologically hazardous areas shall be designated as open space and roads and utilities routed to avoid such areas. Where avoidance is impossible, utilize the process in the Sensitive Areas Ordinance (supplied with adequate information as defined in code) and Engineering Design and Construction Standards (ED&CS) to build roads and utilities through these areas.

MINE HAZARDS

114. Development within the moderate mine hazard area may require additional mitigation measures, which shall be evaluated with future implementing development proposals.

115. All proposed development within mine hazard areas shall occur in conformance with BDMC 19.10.

116. All houses that are sold in classified or declassified coal mine hazard areas shall require a liability release from the homeowner to the City. The release must recognize that the City is not liable for actual or perceived damage or impact from the coal mine hazard area. The release form shall be developed and included in the Development Agreement.

VEGETATION AND WETLANDS

117. Structural measures such as silt fences and temporary sediment ponds shall be used to avoid discharging sediment into wetlands and other critical areas. [FEIS Mitigation Measure]

118. Implementing projects shall provide "on the ground" protection measures such as wetland buffers or root protection zones for significant trees. [FEIS Mitigation Measure]

119. New stormwater outfalls shall be located to avoid impacts to any stream and adjacent wetlands, riparian buffers, unstable slopes, significant trees, and instream habitat. Where all

practical and feasible avoidance measures have been employed, provide mitigation in the form of outfall energy dissipaters and/or vegetation restoration and slope stabilization as necessary. [FEIS Mitigation Measure]

120. A tree inventory shall be required prior to the development of implementing projects so that other opportunities to preserve trees may be realized.

121. The Development Agreement shall include text that defines when and under what conditions a parcel may be logged for timber revenue, how that parcel must be secured to minimize the impacts on the community and how long the parcel may remain un-worked before it must be reforested.

122. The use of native vegetation in street landscaping and in parks shall be required.

FISH AND WILDLIFE

123. Wildlife forage preferences shall be of primary consideration in plant species selection for enhancement areas. [FEIS Mitigation Measure]

124. Mast-producing species (such as hazelnut) and such other native, preferred vegetation as may be specified by the Development Agreement shall be used to mitigate for reduced food sources resulting from habitat reductions when designing landscape plans for development parcels adjoining wetland buffers, or for wetland buffer enhancement plantings. [FEIS Mitigation Measure] The Development Agreement shall specify a process by which such landscape plans are to be reviewed and approved by the Director of Natural Resources and Parks for compliance with the mitigation requirement herein.

125. Provide a 300-foot-wide wildlife corridor from the western edge of the Core Complex to the City's western boundary. The corridor should be located within areas of contiguous open space that form a network. [FEIS Mitigation Measure]

CLIMATE CHANGE

126. Building design guidelines shall allow the use of solar, wind, and other renewable sources. [FEIS Mitigation Measure]

127. Should a large employer (100+ employees) or a group of similar employers locate in the commercial areas of the MPD, a Transportation Management Association shall be implemented to reduce vehicle trips. [FEIS Mitigation Measure]

LAND USE

128. Approval of the design concept and land use plan (Chapter 3) shall be limited to the Land Use plan map (Figure 3-1, as updated July 8, 2010); description of categories (beginning

on page 3-18); a maximum of 4,800 total residential units and 775,000 square feet of commercial space; and target densities (Table 3.2), except as modified herein. Corner store-style neighborhood commercial uses within residential land use categories shall be defined in the Development Agreement and shall only be allowed through minor amendment of the MPD. All other specifics shall be resolved through the Development Agreement process.

129. The project shall provide a mix of housing types in conformance with the MPD Design Guidelines. The Development agreement shall set targets for various types of housing for each phase of development.

130. Identification of specific areas where live/work units can be permitted shall be done as part of the Development Agreement or through an MPD minor amendment.

131. A minimum density of 4 du/per net acre for residential development shall be required for implementing projects, and shall be calculated for each development parcel using the boundaries of that parcel (or the portion thereof to be developed) as shown on the Land Use plan map (Figure 3-1, as updated July 8, 2010).

132. If the applicant requests to increase a residential category that abuts the perimeter of the MPD, it shall be processed as a Major Amendment to the MPD. Residential land use categories can otherwise be adjusted one category up or down through an administrative approval process provided they also otherwise meet the requirements for minor amendments outlined in BDMC 18.98.100.

133. The Development Agreement shall limit the frequency of proposed reclassification of development parcels to no more frequently than once per calendar year.

134. The Expansion Area process shall be clarified in the Development Agreement.

135. Project specific design standards shall be incorporated into the Development Agreement. These design guidelines must comply with the Master Planned Development Framework Design Standards and Guidelines. All MPD construction shall comply with the Master Planned Development Framework Design Standards and Guidelines, whether or not required by the Development Agreement.

136. A unit split (percentages of single family and multifamily) and commercial use split (commercial, office and industrial) shall be incorporated into the Development Agreement.

137. All commercial/office uses (other than home occupations and identified live/work areas) shall only occur on lands so designated. Additional commercial areas shall be identified on the Land Use Plan through future amendment to the MPD.

138. The project shall include a mix of housing types that contribute to the affordable housing goals of the City. The Development Agreement shall provide for a phase-by-phase analysis of affordable housing Citywide to ensure that housing is being provided at affordable

prices. Specifications for affordable housing needs within the project shall be determined as a result of the phase-by-phase analysis.

139. Exact specifications for the housing described in paragraph 122 shall be included within the Development Agreement.

140. A distinct land use category shall be created to recognize potential light industrial uses or the “office” category shall be renamed to properly indicate the range of potential uses. Areas intended to have light industrial type uses shall be identified on the Land Use Map that is made part of the Development Agreement.

141. The high density residential (18-30 du/ac) supplemental design standards and guidelines (MPD application Appendix E) shall become part of the Development Agreement.

142. Detached single family dwelling units shall be alley loaded, except where site conditions prevent alley loading or cause alleys to be impractical as determined by the City, in its reasonable discretion.

143. Homeowners Association conditions, covenants and restrictions (CCRs) or the Architectural Review Committee shall review, but shall not preclude, the use of green technologies such as solar panels.

144. Front yard setbacks and other specific lot standards shall be determined as part of the Development Agreement.

145. A FAR standard shall be established through the Development Agreement process.

146. No more than two floors of residential uses above ground floor commercial/office uses shall be allowed.

147. The orientation of public building sites and parks shall preserve and enhance views of Mt. Rainier and other views identified in the comprehensive plan. There are tailing piles located on property near Parcel B. The Applicant is not responsible for removal of those tailing piles, but future site and building design for Parcel B should consider the nature of the views to Mt. Rainier that may be possible if those piles are later removed.

148. The Applicant’s requests for reduced parking standards in the Mixed Use Town Center as identified at p. 13-4 of the MPD application is granted. All other requests for deviation in the Chapter 13 of the MPD application are denied except for those deviations, mostly utility and street standards, that are identified in the recommendation as amenable to further review in the development agreement process. Any MPD deviations to the Sensitive Areas Ordinance are denied, because BDMC 18.98.155(A) provides that the Sensitive Areas Ordinance shall be the minimum standards for protection of sensitive areas within MPDs.

SENSITIVE AREAS/OPEN SPACE

149. The use of sensitive areas including but not limited to wetlands, landslide and mine hazard areas and their associated buffers for development including trails, stormwater management, etc. shall be regulated by BDMC Chapter 19.10. Appropriate mitigation, if required, for impacts as well as other required measures shall be evaluated on a case-by-case basis at the time of implementing project application.

150. Areas shown as natural open space in the figure on Page 5-7 of the application are required to remain natural with the possibility for vegetation enhancement. Modifications to these areas may be approved by the City in its reasonable discretion, on a case-by-case basis, only if necessary for construction of required infrastructure such as roads, trails or stormwater facilities. Any areas disturbed pursuant to such approval shall be replanted with native plants. Nothing in this condition shall allow grading or modifications in the sensitive areas and buffers, except as provided in the Sensitive Areas Ordinance.

151. The Development Agreement shall include a tabular list of the types of activities and the characteristics of passive open space and active open space so that future land applications can accurately track the type and character of open space that is provided.

152. The Development Agreement shall include language that specifically defines when the various components of permitting and construction must be approved, completed or terminated. For example; when must open space be dedicated, plats recorded, and utility improvements be accepted by the City.

153. Specific details on which open space shall be dedicated to the city, protected by conservation easements or protected and maintained by other mechanisms shall be established as part of the Development Agreement.

154. Once acreages have been finalized, phasing of open space (which includes parks and is identified within the MPD application) shall be defined and articulated for timing of final designation within the Development Agreement.

155. Once the mapped boundaries of sensitive areas have been agreed to, the Development Agreement shall include text that identifies that these areas are fixed. If during construction it is discovered that the actual boundary is smaller or larger than what was mapped, the mapped boundary shall prevail. The applicant shall neither benefit nor be penalized by errors or changes in the sensitive area boundaries as the projects are developed.

ADMINISTRATION

156. The proposed project shall have no adverse financial impact upon the city, as determined after each phase of development and at full build-out. The required fiscal analysis shall include the costs to the city for operating, maintaining and replacing public facilities required to be constructed as a condition of MPD approval or any implementing approvals related thereto. The fiscal analysis shall ensure that revenues from the project are sufficient to

maintain the project's proportionate share of adopted City staffing levels of service. The fiscal analysis shall be updated to show continued compliance with this criterion, in accordance with the following schedule:

- a. Within five years, a new fiscal analysis shall be completed to determine the long-term fiscal impact to the City. If necessary, additional project conditions may be required.
- b. Prior to commencing a new phase, including the first phase of construction.

The exact terms and process for performing the fiscal analysis and evaluating fiscal impacts shall be outlined in the Development Agreement, and shall include a specific "MPD Funding Agreement," which shall replace the existing City of Black Diamond Staff and Facilities Funding Agreement. The applicant shall be responsible for addressing any projected city fiscal shortfall that is identified in the fiscal projections required by this condition. This shall include provisions for interim funding of necessary service and maintenance costs (staff and equipment) between the time of individual project entitlements and off-setting tax revenues; provided, however, that in the event that the fiscal projection prepared prior to the commencement of Phase III indicates a likelihood of significant ongoing deficits in the city's general fund associated with operations or maintenance for properties within the MPD, the applicant must address the projected shortfalls by means other than interim funding..

157. The Applicant and other property owners may petition for the formation of a Community Facilities District to provide a mechanism for funding the costs of "facilities" as defined in Section 501 of SSB 6241. The City Council will review the petition as provided in SSB 6241 and, as set forth in Section 205, determine in its sole discretion whether the petitioners will benefit from the proposed district and whether the formation of a district will be in the best interest of the City and comply with the requirements of the Growth Management Act, Ch. 36.70A RCW.

The Development Agreement shall include language that specifically defines when the various components of permitting and construction must be approved, completed or terminated. For example: when must open space be dedicated, plats recorded, and utility improvements be accepted by the City.

158. The Development Agreement shall document a collaborative design/review/permitting process that allows City staff to participate in the conceptual stage of project planning in order to provide input on designs and choices that benefit the City as well as the applicant.

159. The Development Agreement shall specifically identify which rights and entitlements are vested with each level of permitting, including but not limited to the MPD Application approval, the Development Agreement approval, and Utility Permit approvals.

160. Reclassification of development parcels shall occur no more frequently than once per calendar year.

161. Proposed reclassification of development parcels located at the project perimeter to a higher density shall only occur through a Major Amendment to the MPD.

162. A process for including lands identified as “Expansion Areas” in the application shall be defined in the Development Agreement.

163. The Development Agreement shall define the proposed phasing plan for the various matters (utility and street infrastructure, parks, transferred development rights, etc.) subject to phasing standards.

164. Prior to the approval of the first implementing project of a defined phase, a detailed implementation schedule of the regional projects supporting that phase shall be submitted to the City for approval. The timing of the projects shall be tied to the number of residential units and/or square feet of commercial projects.

Appendix B

Level of Service Description



Highway Capacity Manual 2010/6th Edition

Signalized intersection level of service (LOS) is defined in terms of a weighted average control delay for the entire intersection. Control delay quantifies the increase in travel time that a vehicle experiences due to the traffic signal control as well as provides a surrogate measure for driver discomfort and fuel consumption. Signalized intersection LOS is stated in terms of average control delay per vehicle (in seconds) during a specified time period (e.g., weekday PM peak hour). Control delay is a complex measure based on many variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection capacity and resulting queues. Table 1 summarizes the LOS criteria for signalized intersections, as described in the *Highway Capacity Manual 2010* and 6th Edition (Transportation Research Board, 2010 and 2016, respectively).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)	General Description
A	≤10	Free Flow
B	>10 – 20	Stable Flow (slight delays)
C	>20 – 35	Stable flow (acceptable delays)
D	>35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 – 80	Unstable flow (intolerable delay)
F ¹	>80	Forced flow (congested and queues fail to clear)

Source: *Highway Capacity Manual 2010 and 6th Edition*, Transportation Research Board, 2010 and 2016, respectively.

1. If the volume-to-capacity (v/c) ratio for a lane group exceeds 1.0 LOS F is assigned to the individual lane group. LOS for overall approach or intersection is determined solely by the control delay.

Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop and two-way stop control. All-way stop control intersection LOS is expressed in terms of the weighted average control delay of the overall intersection or by approach. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns. This approach is because major-street through vehicles are assumed to experience zero delay, a weighted average of all movements results in very low overall average delay, and this calculated low delay could mask deficiencies of minor movements. Table 2 shows LOS criteria for unsignalized intersections.

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	0 – 10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F ¹	>50

Source: *Highway Capacity Manual 2010 and 6th Edition*, Transportation Research Board, 2010 and 2016, respectively.

1. If the volume-to-capacity (v/c) ratio exceeds 1.0, LOS F is assigned an individual lane group for all unsignalized intersections, or minor street approach at two-way stop-controlled intersections. Overall intersection LOS is determined solely by control delay.

Appendix C

Technical Memoranda



TECHNICAL MEMORANDUM

DATE: March 4, 2022
TO: Andy Williamson, City of Black Diamond
FROM: Jennifer John
SUBJECT: Task 40 – Build and Calibrate Model UPDATE
CC: Austin Fisher, PE
John Perlic, PE
PROJECT NUMBER: 214-3043-028
PROJECT NAME: Transportation Model Update

SUMMARY

This Technical Memorandum addresses Hearing Examiner conditions for The Villages and Lawson Hills MPDs.

- I. The accuracy of the PM peak hour forecasts have been verified through the demand model calibration and trip distribution verification process. Current volumes are generally lower than forecasted year 2025 volumes in the EIS's.
- II. Levels of PM peak hour traffic generated from the 2 MPD's has been verified through the demand model calibration and trip distribution verification process.
- III. Accuracy of regional trip distribution forecasts were also verified.
- IV. The identification of any intersections not meeting the applicable LOS standard is addressed through the phased development review process requiring updated traffic impact studies for approval of each phase.

As a result of our review, there is no reason to consider new permit requirements or conditions. Based on this evaluation, the EIS analysis for the Ten Trails (formerly The Villages) and Lawson Hills MPD's continues to provide a valid basis for determining future transportation impacts and mitigation.

The following summarizes the technical work tasks and information contained in the report.

TASK 3 – EXISTING TRAFFIC VOLUMES— Existing Counts section and Tables 2 and 3 (pp 5-9).

TASK 4 – BUILD AND CALIBRATE MODEL — Demand Model Calibration section (pp 9-10)

TASK 5 –TRIP DISTRIBUTION AND ASSIGNMENT EVALUATION — Trip Distribution and Assignment evaluation section (pp.10-14)

TASK 6 – DRAFT AND FINAL REPORTS — This document is the final report.

TASK 7 – PUBLIC HEARING/MEETING SUPPORT— Task is ongoing.

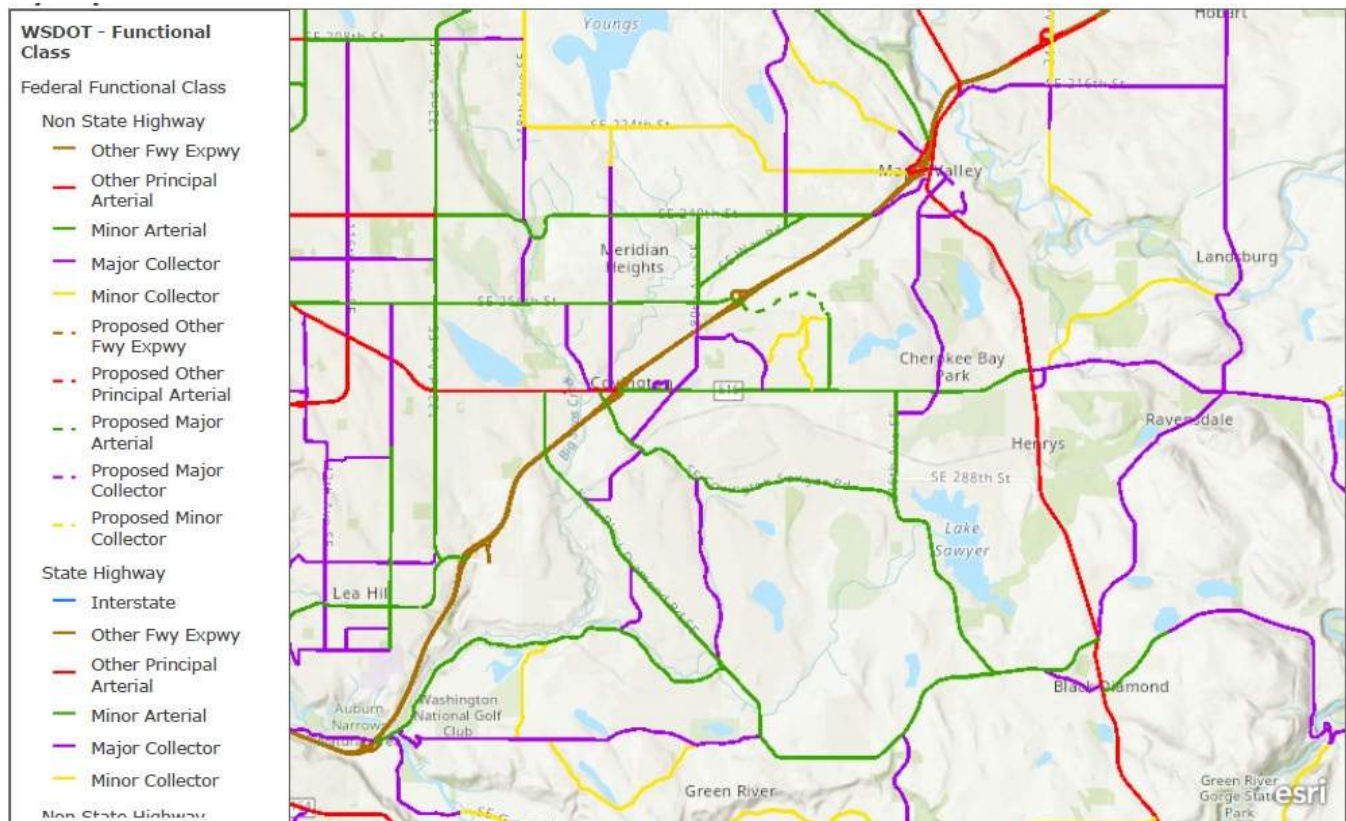
TRAVEL DEMAND MODEL

The starting point for demand modeling work in support of this model update for the City of Black Diamond is the Puget Sound Regional Council (PSRC) 4K Trip-Based Travel Demand Model developed for the current Regional Transportation Plan 2018 (RTP). This version of the model uses a base year of 2014 and includes horizon years to the year 2040. The Puget Sound Regional Council (PSRC) is currently updating the RTP to extend out to the year 2050 but that model was not available in for use in this work.

Highway Network

The base highway network used for this model is from the PSRC regional model which in addition to all existing and planned principal and minor arterials within Black Diamond, Covington, and Maple Valley as shown in Figure 1 includes extents that cover the required study boundaries south to the City of Enumclaw and west to SR 167 in Auburn. Because the regional model is being used, external trips to this area are captured as part of the regional modeling process.

The only planned connection included in the future model is a new east-west connection between 204th Avenue SE and 256th Street at SR 18. In addition to including all principal and minor arterials, additional detail was added within Black Diamond to reflect new arterials and collector roads that support the added development in the future-year networks. These additions include the North Connector, Pipeline Road, Lake Sawyer Connection, Annexation Road, South Connector, SE Loop Connector, and the Lawson Connector. A representation of the model network is shown below with these new roadways highlighted in Figure 2.



Esri, NASA, NGA, USGS | King County, WA State Parks GIS, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA | Washington State Department of Transportation

Figure 1. Functional Classification of Roads Included in Travel Demand Model



Figure 2. Planned New Roadways Included in the Travel Demand Model

To reflect additional detail in and around Black Diamond, several transportation analysis zones (TAZs) were split to better capture travel movements and land use information at a more precise level than the original TAZs in the model were able to do. Figure 3 shows the original and new TAZ structure. In total 19, TAZs were added to the Black Diamond area to better reflect development areas and loadings based on existing and planned land use.



Figure 3. Puget Sound Regional Council Transportation Analysis Zones and Splits in the Black Diamond Area

Land Use

The land use assumptions that were the starting point for this model development were from the PSRC Land Use Vision used in the RTP. The land use allocation by TAZ was reviewed with the City of Black Diamond and refined to account for both base year adjustments and planned growth related to the approved master plan developments (Lawson Hills and Ten Trails) that were not captured in the PSRC assumptions. In addition, because the PSRC land use totals were provided at the aggregate TAZ level, adjustments were made to allocate those totals down to the split TAZ level using development and zoning information available from the City. Table 1 shows the original and revised land use that was used in the modeling work for the area in and around Black Diamond. The land use is summarized by a larger area as shown above in Figure 3 as well as for the Master Development Plan area zones only.

Table 1. Land Use Assumptions

	PRSC Forecasts				PSRC Forecasts + MDP ¹			
	2014	2025	Growth	Percent Change	2014	2025	Growth	Percent Change
Larger Study Area								
Households	6,103	7,418	1,315	22%	6,917	8,825	1,908	28%
Employment	2,114	3,065	951	45%	2,449	4,173	1,724	70%
MDP Zones Only								
Households	524	549	25	5%	1,301	1,850	550	42%
Employment	121	150	29	24%	585	1,155	571	98%

¹ Assumes the following major development: Ten Trails Phase 1A & Phase 2, Ten Trails/Plat A (Phase 1B), Lawson Hills (Phase 2), Black Diamond Mixed Use, Black Diamond Retail South

MDP = Master Development Plan

EXISTING COUNTS

Existing traffic volumes for the study area were obtained from the City of Black Diamond, Covington, Maple Valley and the Washington State Department of Transportation (WSDOT). Turn movement counts for the PM peak period were collected in November 2019 at 14 locations in the City of Black Diamond and at 3 locations in Maple Valley as shown below in Figure 4 and Table 2. In addition, 72-hour average daily traffic (ADT) counts were taken at 15 locations in Black Diamond in the fall of 2020 and at 3 locations in Maple Valley as shown below in Figure 5 and Table 3.

In response to the COVID-19 pandemic, WSDOT created the COVID-19 Multimodal Transportation System Performance Dashboard.¹ The dashboard summarizes daily differences between 2020 volumes and 2019 volumes for select transportation facilities throughout the state of Washington.

Data for SR 169 is not provided in the COVID-19 Multimodal Transportation System Performance Dashboard, so daily volumes for 2019 and 2020 were downloaded from the dashboard for the count station located along SR 410 in Sumner, Washington. SR 410 and SR 169 are both urban principal arterials and traverse rural zones within King County, Washington. A comparison of weekday (*Tuesday, Wednesday, and Thursday*) 2019 volumes to 2020 volumes for dates corresponding to traffic count collection reveals that daily 2020 volumes are approximately 20 percent lower than 2019 volumes. In addition to this information, a comparison of locations within the study area that counts were available for both 2019 and 2020 confirmed the use of this adjustment factor to arrive at 2019 volumes for other locations as well. To approximate a common 2019 base for all locations in the study, daily traffic volumes from 2020 were adjusted by a daily COVID-19 factor of 1.20. Locations that used this factor are denoted by an asterisk (*) in Table 3.

¹ WSDOT. COVID-19 Multimodal Transportation System Performance Dashboard, <https://www.wsdot.wa.gov/about/covid-19-transportation-report/>

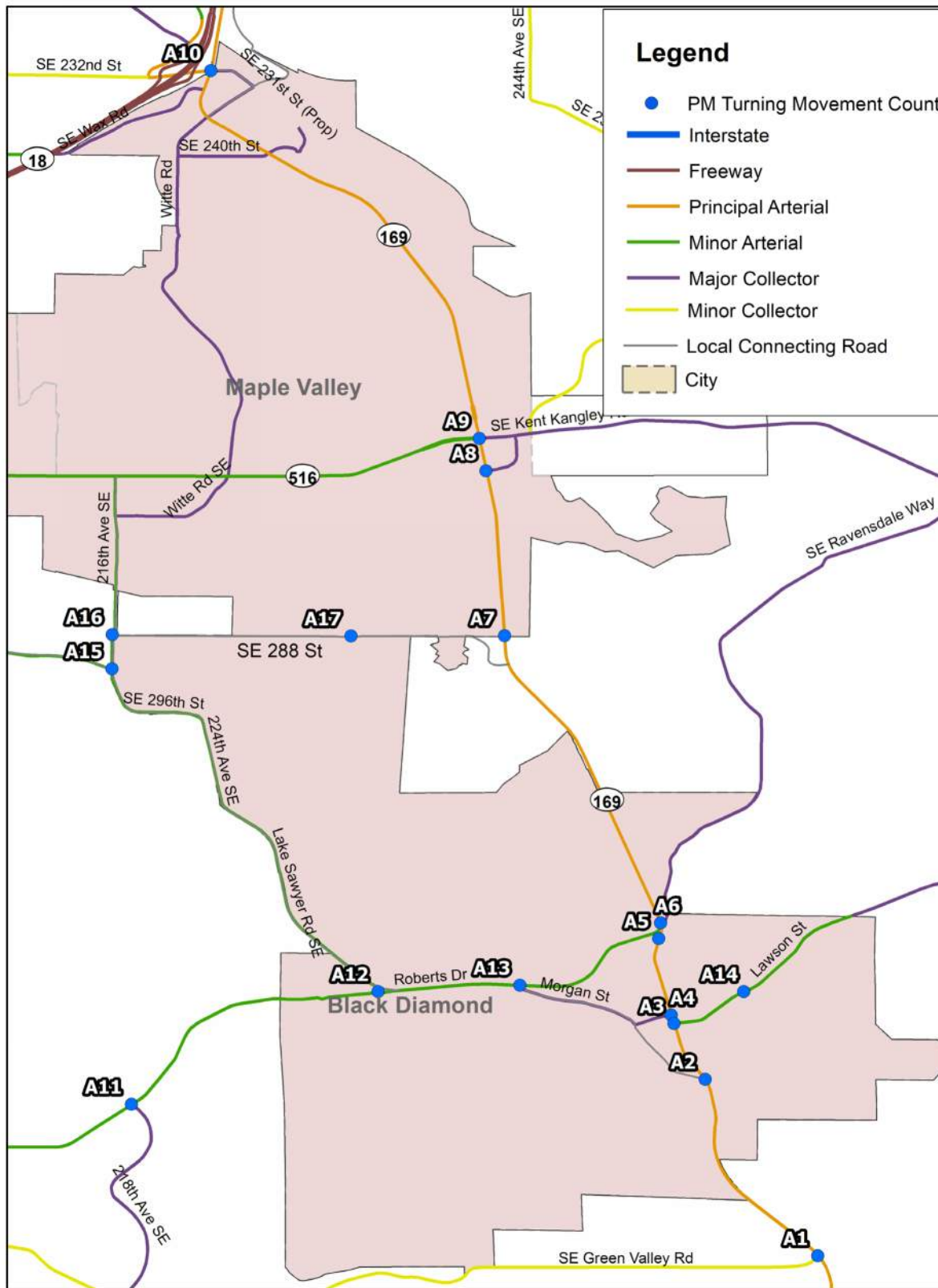


Figure 4. 2019 PM Peak Turning Movement Count Locations

Table 2. 2019 PM Peak Turning Movement Counts Entering Intersection

ID	Study Intersection	Count
A1	SR 169 and SE Green Valley Road	1,028
A2	SR 169 and Jones Lake Road	997
A3	SR 169 and Lawson Road	1,088
A4	SR 169 and Baker Street	1,295
A5	SR 169 and Roberts Drive	1,307
A6	SR 169 and SE Black Diamond-Ravensdale Road	1,319
A7	SR 169 and SE 288th Street	1,322
A8	SR 169 and SE 271st Pl	1,913
A9	SR 169 and SR 516	2,831
A10	SR 169 and SE 231st Avenue	2,299
A11	SE Auburn-Black Diamond Road and 218th Avenue SE	778
A12	SE Auburn-Black Diamond Road and Lake Sawyer Road SE	658
A13	Roberts Drive and Morgan Street	458
A14	Lawson Road and Newcastle Drive	123
A15	SE Covington-Sawyer Road and 216th Avenue SE	1,199
A16	SE 288th Street and 216th Avenue SE	1,049
A17	SE 288th Street and 232nd Avenue SE	451

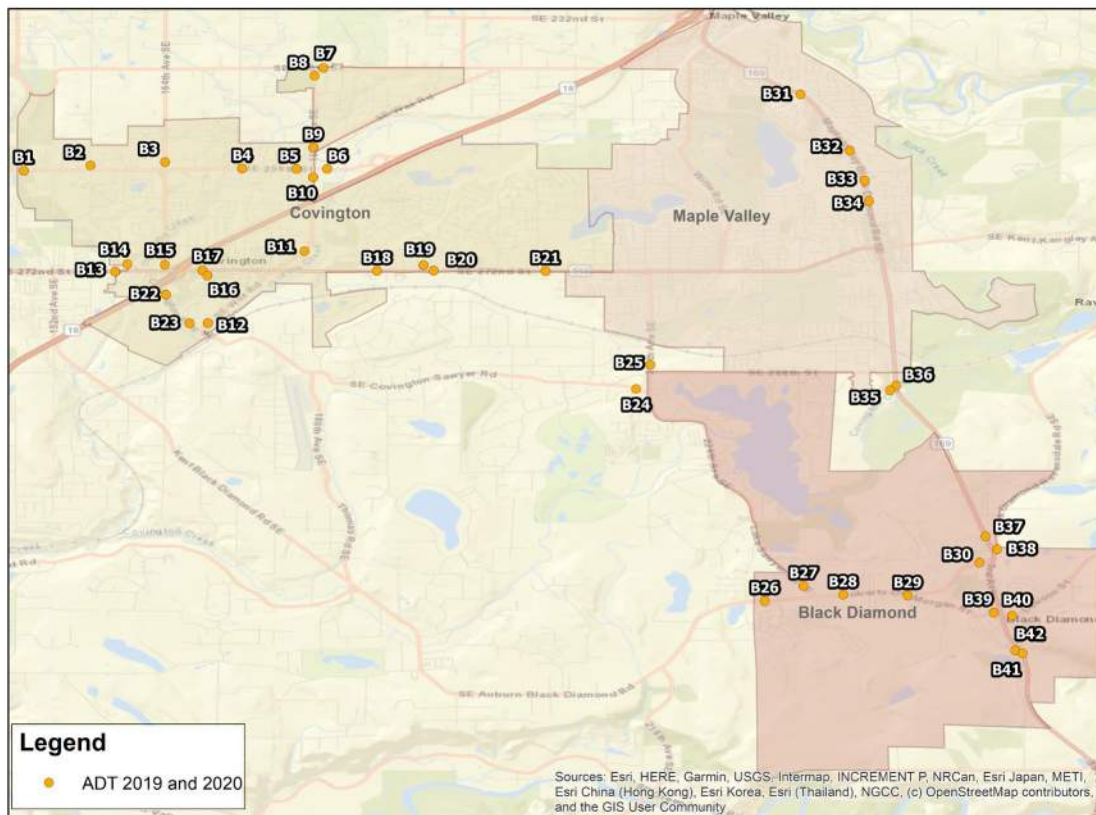


Figure 5. ADT Count Locations

Table 3. Existing ADT Counts

ID	Location	2019	2020	City
B1	On SE 256th St east of intersection 148th Ave SE	15,108	11,372	Covington
B2	On 156th Ave SE north of intersection SE 256th St	3,669	N/A	Covington
B3	On 164th Ave SE north of intersection SE 256th St	7,017	N/A	Covington
B4	On SE 256th St west of 173rd Ave SE	12,539	9,022	Covington
B5	On SE 256th St west of intersection 180th Ave SE	11,836	8,798	Covington
B6	On SE 256th St east of intersection 180th Ave SE	9,130	7,010	Covington
B7	On SE 240th St between 180th Ave SE & Tahoma H.S. D/W	5,029	3,366	Covington
B8	On 180th Ave SE south of SE 240th St	4,083	N/A	Covington
B9	On 180th Ave SE north of intersection SE 256th St	9,816	7,481	Covington
B10	On 180th Ave SE south of intersection SE 256th St	18,073	13,798	Covington
B11	On SE Wax Road south of intersection SE 267th Pl	13,210	N/A	Covington
B12	On SE Wax Road northeast of Covington Way SE	7,263	6,529	Covington
B13	On SR 516 west of intersection 156th Pl SE	30,373	26,382	Covington
B14	On 156th Ave SE north of SE 272nd St	5,251	N/A	Covington
B15	On 164th Ave SE north of SE 272nd St	8,921	N/A	Covington
B16	On SR 516 east of SR-18 EB on & off ramps	38,854	35,090	Covington
B17	On 168th Pl SE north leg of roundabout south of SE 272nd St	9,641	9,454	Covington
B18	On SR 516 east of Jenkins Creek	27,882	25,502	Covington
B19	On 192nd Ave SE north of SR 516	5,675	4,440	Covington
B20	On SR 516 east of 192nd Ave SE	25,406	21,435	Covington
B21	On SR 516 east of 204th Ave SE	23,883	19,993	Covington
B22	On Covington Way SE south of SR-18	15,596	13,249	Covington
B23	On Covington Way SE northwest of SE Wax Rd	12,887	10,637	Covington
B24	On SE Covington Sawyer Rd west of 216th Ave SE	8,039*	6,699	Black Diamond
B25	On 216th Ave SE north of SE 288th St	9,988*	8,323	Black Diamond
B26	On SE Auburn Black Diamond Rd west of Lake Sawyer Rd SE	5,840*	4,867	Black Diamond
B27	On Lake Sawyer Rd SE north of Roberts Dr	3,752*	3,127	Black Diamond
B28	On Roberts Dr west of Buckners Way	6,562*	5,468	Black Diamond
B29	On Morgan St south of Roberts Dr	2,777*	2,314	Black Diamond
B30	On Roberts Dr west of SR 169	4,445*	3,704	Black Diamond
B31	On SR 169 between 231st Ave and SE 244th St	23,400	N/A	Maple Valley
B32	On SR 169 north of SE 253rd Pl	25,403	N/A	Maple Valley
B33	On SR 169 between Rock Creek Elementary Driveway and SE 260th St	25,509	N/A	Maple Valley
B34	On SR 169 south of SE 260th St	25,363	N/A	Maple Valley
B35	On SR 169 north of SE 288th St	17,912*	14,927	Black Diamond
B36	On SE 288th St west of SR 169	5,771*	4,809	Black Diamond
B37	On 3rd Ave north of summit Dr	14,761*	12,301	Black Diamond
B38	On Black Diamond Ravensdale Rd east of SR 169	4,347*	3,618	Black Diamond
B39	On Baker St west of SR 169	2,071*	1,726	Black Diamond
B40	On Lawson St west of 5th Ave	2,843*	2,369	Black Diamond

ID	Location	2019	2020	City
B41	On Jones Lake Rd west of SR 169	1,154*	962	Black Diamond
B42	On SR 169 south of JonesLake Rd	13,122*	10,935	Black Diamond

* The volume is calculated using the COVID-19 factor. See the beginning of this section for more information.

DEMAND MODEL CALIBRATION

As noted, the demand model uses a 2014 base year. While existing traffic counts were collected for 2019 and 2020, in order to compare against the base year model, counts that were not available were estimated by factoring back to 2014 based on growth for other available counts in the area. Figure 6 below shows the screenlines used to compare against the demand model to validate the general distribution of travel in the study area. Comparisons to the model for each screenline are shown in Table 4. The differences between the model and counts fall within acceptable ranges based on FHWA literature. Several connectors were adjusted in the areas to the north of Black Diamond in the model to better reflect loading onto the highway network as part of this calibration effort. In addition, zone splits to better reflect loadings and development areas were also included in this model.

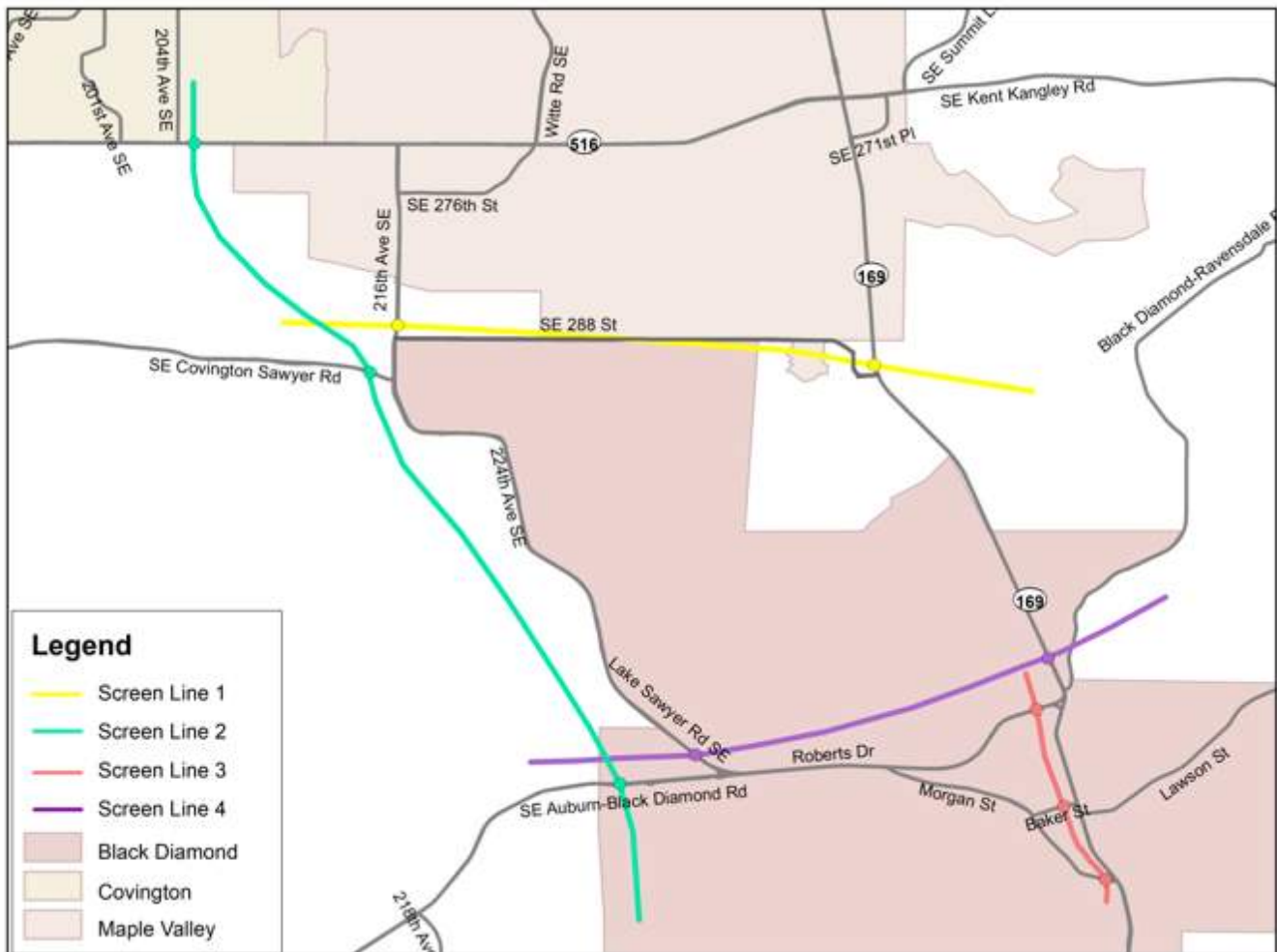


Figure 6. Screenline Locations for Model and Count Comparisons

Table 4. Screenline Model vs. Count Comparison

Screenline ID	Count Location	2014 Model Daily	2014 Count	2019 Count	2014 Model vs. 2014 Count	2019 Count vs. 2014 Model
1	On 216th Ave SE north of SE 288th St	9,828	8,589	9,988		
	On SR 169 north of SE 288th St	15,648	17,375	17,912		
	Total	25,477	25,964	27,900	98%	110%
2	On SR 516 east of 204th Ave SE	20,250	22,557	23,992		
	On SE Covington Sawyer Rd west of 216th Ave SE	6,529	6,913	8,039		
	On SE Auburn Black Diamond Rd west of Lake Sawyer Rd SE	4,250	5,023	5,840		
	Total	31,029	34,493	37,871	90%	122%
3	On Roberts Dr west of SR 169	4,628	3,823	4,445		
	On Baker St west of SR 169	536	1,781	2,071		
	On Jones Lake Rd west of SR 169	1,226	993	1,154		
	Total	6,390	6,597	7,670	97%	120%
4	On Lake Sawyer Rd SE north of Roberts Dr	4,619	3,227	3,752		
	On 3rd Ave north of summit Dr	13,527	14,318	14,761		
	Total	18,145	17,545	18,514	103%	102%

Growth Rates

Growth rates for vehicle volumes in the demand model were calculated using links on facilities in and out of Black Diamond at locations generally corresponding to those being summarized in the distribution and assignment evaluation. These growth rates are shown below in Table 5.

Table 5. Growth Rates for Study Area Corridor Facilities

Location	2014 Model	2025 Model	Annual Growth
SR 169 south of Green Valley Rd	3,273	3,447	0.5%
Black Diamond Ravensdale Rd. north of Roberts	1,715	1,840	0.6%
Auburn Black Diamond Rd. east of 218th	1,645	1,989	1.7%
SR 169 north of 288th	3,268	3,454	0.5%
Lake Sawyer Rd. north of Roberts	1,480	1,740	1.5%

Trip Distribution and Assignment Evaluation

The following section provides details on how the travel demand model performs at the regional distribution of trips related to the MDP areas. Final model assignments for both the PM peak and AM peak were used as the starting point for this analysis. The PSRC model includes calculations that estimate the number of trips that travel in different time periods throughout the day as part of its time of day model procedures. These time of day results for the AM and PM Peak periods were used for this analysis without additional adjustments outside of the model. Results presented as part of this evaluation include the full peak period. Sensitivity testing around more

specific peak hour factor impacts would need to be completed as part of more detailed traffic analysis separate from the work done using the model to estimate trip distributions and would not be expected to change the distribution results.

In addition to estimating auto trips, transit mode shares for Black Diamond were calculated using the regional model. Daily transit shares for trips to and from Black Diamond increase slightly in 2025 (1.7%) as compared to the base year model (1.5%). The model estimated approximately 20 boardings on Sounder in the AM Peak period and approximately 28 boardings in the PM Peak period.

To calculate trip distribution a flag was coded on links in and out of TAZs that include the MDP areas, and trips on the network were captured through a select link analysis. This model relied on trip generation rates in the PSRC model as estimated from regional household travel surveys. Separate post-processing using ITE trip generation for the MDP area was not developed in this effort. This analysis provides path details for the trips in and out of the study area showing where they travel along the network. The locations where these trips were captured for analysis generally capture movements in and out of Black Diamond, as well as trips that travel between the MDP areas. These locations include travel to/from the following:

1. Covington along SR 516 and 216th Avenue SE
2. Maple Valley along SR 169
3. SE Covington Sawyer Rd.
4. Areas north of Lake Sawyer along 232nd Avenue SE
5. Ravensdale along Black Diamond Ravensdale Road
6. North Triangle/Parcel B
7. Main Villages
8. Black Diamond west of SR169 and south of Roberts Drive
9. Auburn Black Diamond Road
10. SE Green Valley Road
11. 216th Ave SE
12. SR 169 south of Black Diamond

Figure 7 and Figure 8 show these distribution patterns for the PM peak and AM peak for the year 2025. In addition, comparisons to previous analysis are included in Table 6 for the same locations that were analyzed.

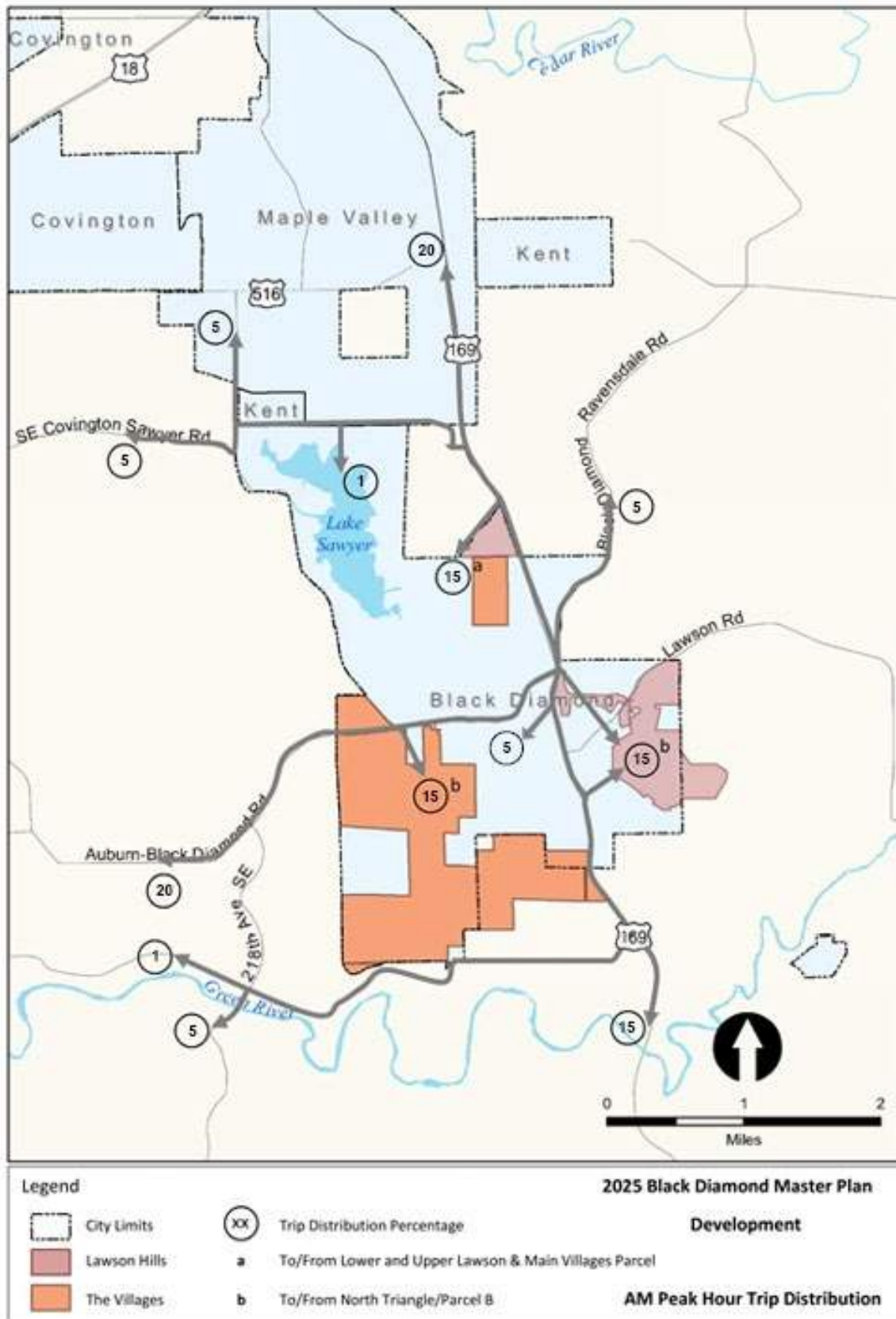


Figure 7. AM Peak Travel Demand Model MDP Trip Distribution

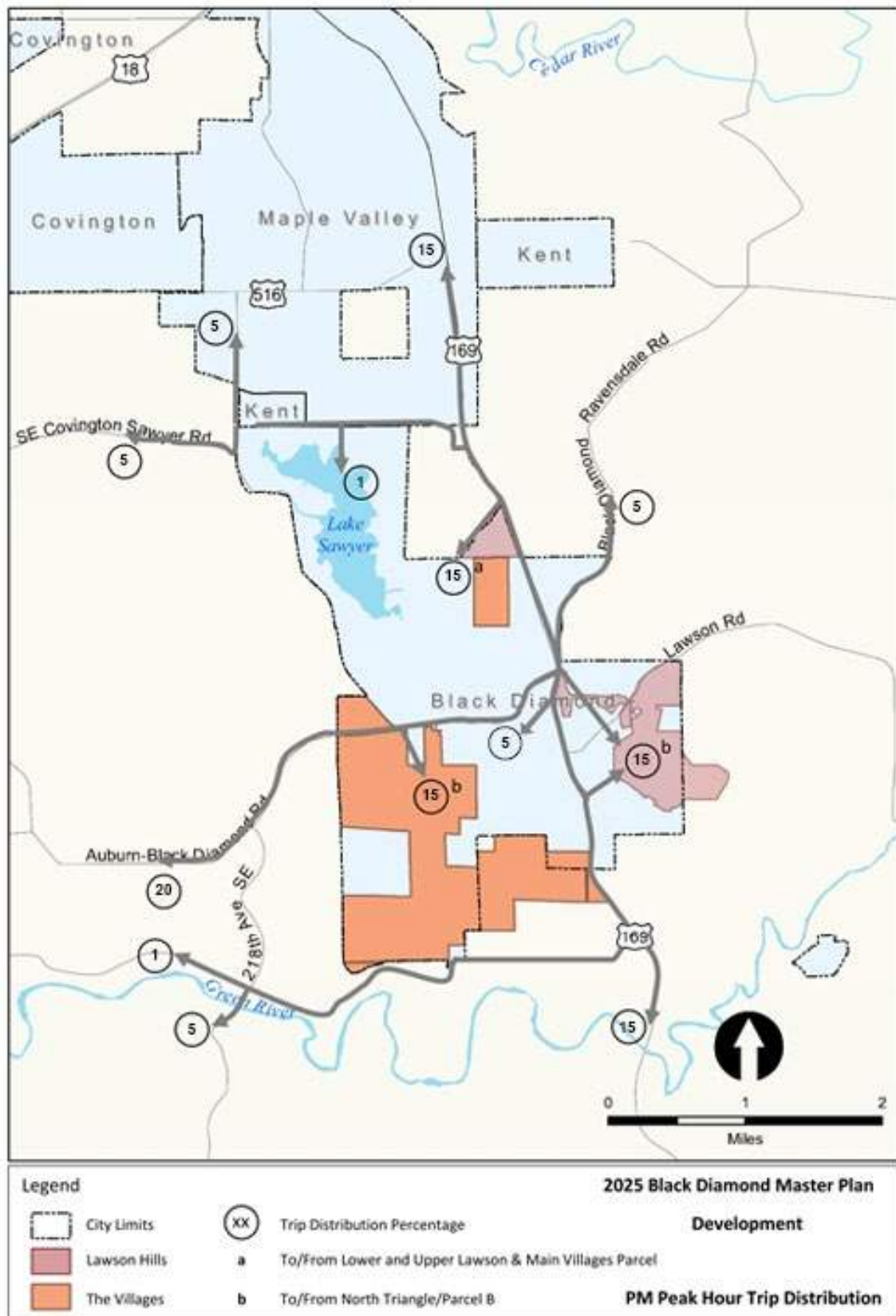


Figure 8. PM Peak Travel Demand Model MDP Trip Distribution

Table 6. AM/PM Peak Travel Demand Model MDP Trip Distribution with Comparison to Previous EIS Estimates

ID Number	To/From Location	2009 EIS 2025 Distribution		2025 Demand Model Update	
		AM Peak Hour ¹	PM Peak Hour ²	AM Peak Hour	PM Peak Hour
1	Covington along SR 516 and 216th Ave SE	15%	15%	5%	5%
2	To/from Maple Valley along SR169	20%	20%	20%	15%
3	SE Covington Sawyer Rd	5%	5%	5%	5%
4	Area north of Lake Sawyer along 232nd Ave SE	5%	5%	1%	1%
5	Ravensdale along Black Diamond Ravensdale Rd	5%	5%	5%	5%
6	North Triangle	10%	10%	15%	15%
7	Lower/Upper Lawson/The Villages	10%	10%	15%	15%
8	Black Diamond west of SR169 and south of Roberts Drive	5%	5%	5%	5%
9	Auburn-Black Diamond Rd	10%	10%	20%	20%
10	SE Green Valley Rd	3%	3%	1%	1%
11	216th Ave SE	2%	2%	5%	5%
12	SR169 south of Black Diamond	10%	10%	15%	15%
To/From Lower and Upper Lawson & Main Villages Parcel					
To/From North Triangle Parcel B					

¹ Figure 10 Final Villages Transportation Technical Report November 2009, for Cumulative Alternative 2.

² Figure 11 Final Villages Transportation Technical Report November 2009, for Cumulative Alternative 2.

EIS = environmental impact statement

The trip distribution in the current model is consistent with the distribution of trips to/from locations outside of the Black Diamond area from The Villages and Lawson Hills Environmental Impact Statements. Some of the main differences in the distribution of trips between the original environmental impact statement work and the current travel demand model run include small increases in the share of trips to/from both the west and south from the MPD locations and a reduction in overall trips to the north into Covington and Maple Valley. This reflects the continued growth and traffic congestion increases in areas north of Black Diamond compared to the west and south. Based on this evaluation, the EIS analysis for the Ten Trails (formerly The Villages) and Lawson Hills MPD's continues to provide a valid basis for determining future transportation impacts and mitigation.

MEMORANDUM

DATE: April 29, 2022
TO: Andy Williamson, City of Black Diamond
FROM: Jennifer John
SUBJECT: Task 40 – Build and Calibrate Model Response to Comments
CC: Austin Fisher, PE
John Perlic, PE
PROJECT NUMBER: 214-3043-028
PROJECT NAME: Transportation Model Update

RESPONSE TO COMMENTS

This Memorandum provides responses to the summary of concerns and recommendations outlined in the March 28, 2022, dated letter from Peter Rimbos and Mike Birdsall commenting on the Transportation Model Update Technical Memorandum. The goal of the Transportation Model Update work was to utilize the PSRC regional travel model as a starting point with updates in the City of Black Diamond area (network and land use) to evaluate trip distribution and assignment of project trips from The Villages (Ten Trails) and Lawson Hills Master Plan Developments (MPDs). This information was compared to the EIS work in 2009. The updated travel demand model responds to Conditions of Approval 11, 12, 13, 14 and 17a for The Villages (Ten Trails) MPD and was not intended to be a detailed traffic operational analysis as many of the comments suggest should have been done to make the analysis complete.

Detailed traffic operations analyses have been completed for every phase of Ten Trails to monitor transportation mitigation needs. Required updates to traffic operations analysis will be conducted as part of Conditions of Approval 17b and 17d.

Comment: Interagency Coordination—King County was not contacted.

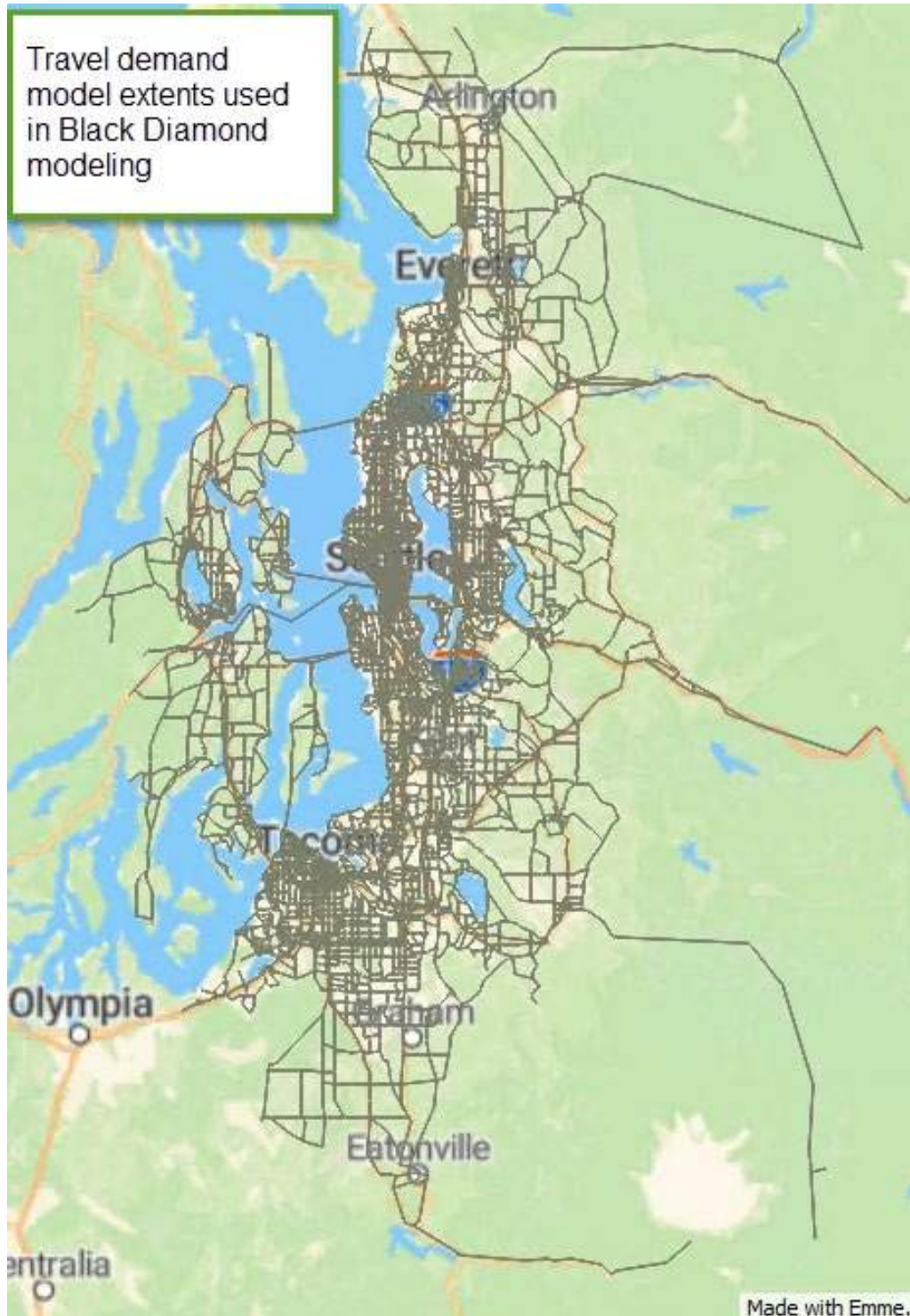
Response: We are working with City of Black Diamond staff to determine the need and timing of contacting King County

Comment: Traffic Analysis Zones (TAZ)—The 19 additional traffic zones are not sufficient to produce accurate turning movements at monitored intersections. More zone-splitting is necessary.

Response: The intent of this work was not detailed traffic or operations analysis. The TAZ splits were developed in a manner to capture development areas and allow for the more accurate loading of trips onto the network for analyzing regional traffic distribution patterns for traffic generated from Ten Trails.

Comment: External Trips—How “external trips ... are captured” needs more explanation.

Response: Noted. The PSRC model was used for this work with updates to the Black Diamond area. The figure in the report zoomed in to the area where adjustments were made but the model included the full PSRC modeling area for developing travel demand as shown in the figure on the next page. Land use and network assumptions for areas outside of Black Diamond for the remainder of the region were not changed from what was provided by PSRC for the forecast year.

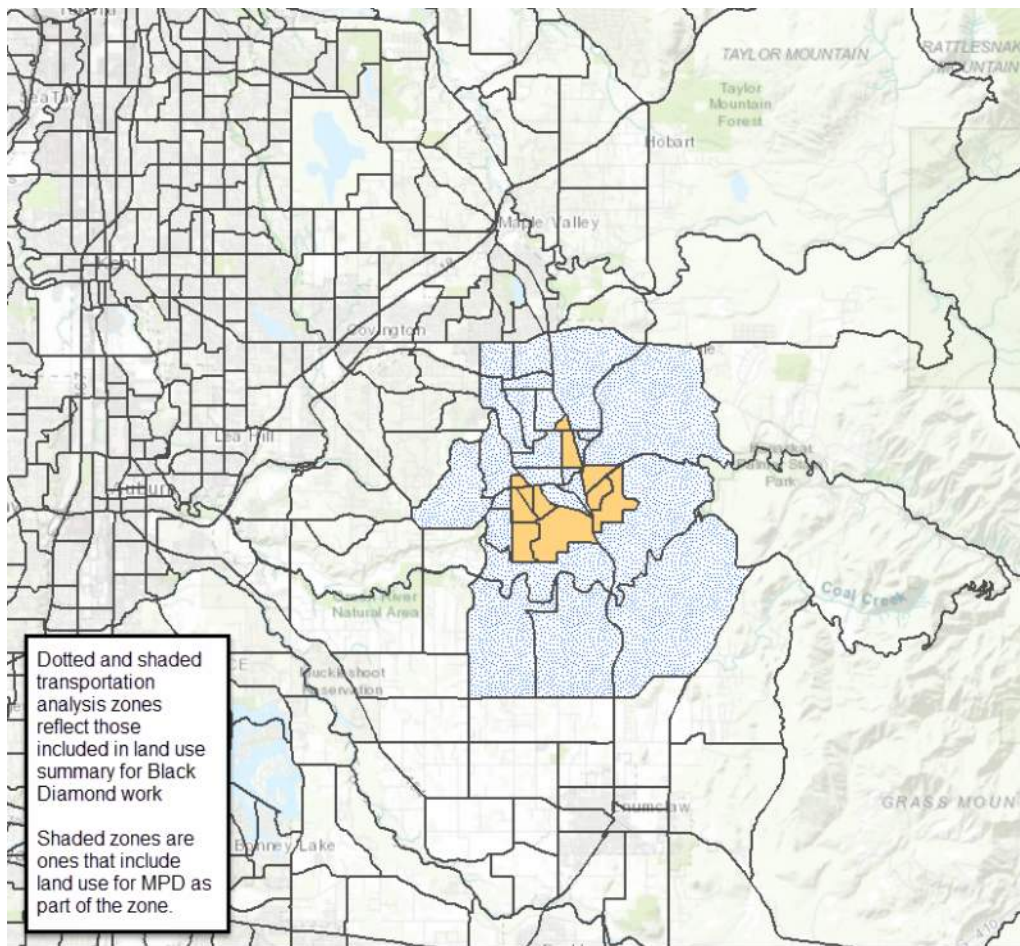


Comment: Calibration Accuracy—Calibration is not established by the limited data provided.

Response: For evaluating the distribution of trips related to the MPD, we have used the calibrated PSRC regional model with a review of overall trips in/out of the Black Diamond area at a screenline level to assess reasonableness of these movements. Detailed traffic calibration as described in the comments was not required for this distribution analysis since we started with the calibrated regional model.

Comment: Land Use Assumptions—Table 1 does not make sense and should be reconstructed.

Response: Land use assumptions were developed in coordination with City staff. The zones summarized in the table for the PSRC Forecasts “Larger Study Area” are shown in the image below with blue dot background. The zones that include MPD development land use have solid fill in the image below. Within the larger zones that capture the MPD areas there was other development besides the MPD that would be reflected in the original numbers from PSRC is shown in the right side of Table 1. Trip distribution was evaluated for both MPDs combined to provide direct comparison with the 2009 EIS information.



Comment: 2040 Forecasts —“Year 2040 ... traffic volume forecasts...,” are not presented.

Response: Because comparisons were primarily needed to compare to the EIS work which reflected a 2025 forecast year, this was the focus of the work to date. The 2025 forecast year is sufficient to cover Phase 1A/1B and Phase 2 of Ten Trails and Lawson Hills.

Comment: Trip-Generation Rates—The difference between trip rates in the PSRC TDM and those published by the Institute of Transportation Engineers (ITE) needs reconciliation.

Response: We reviewed the trip generation rates in the PSRC model based on the household numbers for the TAZs in the study area and the rate is approximately 10 trips per household. This falls within the range of ITE trip generation rates for single family/multi-family households in the Trip Generation Manual, 11th Edition.

Comment: Trip Distributions—Figures 7 and 8 and Table 6 have serious numerical errors.

Response: The method for calculation of internal trips between North Triangle and Lower/Upper Lawson/The Villages were separate from the regional external trips outside of Black Diamond and resulted in values that totaled more than 100% in the original table. These calculations have been revised to reflect all travel to/from the development areas in a consistent manner. Numbers in the table below have not been rounded to provide added detail but for the purpose of our analysis the rounded numbers would not result in a different conclusion.

ID Number	To/From Location	2009 EIS 2025 Distribution		2025 Demand Model Update 4/26/2022	
		Cumulative Alternative 2 AM Peak Hour Trip Distribution ¹	Cumulative Alternative 2 PM Peak Hour Trip Distribution ²	Cumulative Master Plan Development AM Peak Hour Trip Distribution	Cumulative Master Plan Development PM Peak Hour Trip Distribution
1	Covington along SR 516 and 216th Ave SE	15%	15%	4%	4%
2	to/from Maple Valley along SR169	20%	20%	16%	13%
3	SE Covington Sawyer Rd	5%	5%	3%	5%
4	area north of Lake Sawyer along 232nd Ave SE	5%	5%	0%	0%
5	Ravensdale along Black Diamond Ravensdale Rd	5%	5%	5%	7%
6	North Triangle	10%	10%	11%	11%
7	Lower/Upper Lawson/The Villages	10%	10%	14%	14%
8	Black Diamond west of SR169 and south of Roberts Drive	5%	5%	5%	6%
9	Auburn-Black Diamond Rd	10%	10%	21%	19%
10	SE Green Valley Rd	3%	3%	1%	1%
11	216th Ave SE	2%	2%	7%	7%
12	SR169 south of Black Diamond	10%	10%	12%	13%

To/From Lower and Upper Lawson & Main Villages Parcel

To/From North Triangle Parcel B

¹ Figure 10 Final Villages Transportation Technical Report November 2009

² Figure 11 Final Villages Transportation Technical Report November 2009

Concern/Recommendation: Final Conclusion—This is plainly contradicted by the facts presented.

Response: We disagree that the information presented is contradictory. The intent is to show trip distribution within and to other areas outside of Black Diamond for the MPD. While some of the individual locations do not align exactly with the previous analysis, the overall trip distribution to areas outside of Black Diamond is consistent in terms of travel movements to the west/east/north and south as well as for trips that travel between the development areas within Black Diamond. Trip distribution to areas in Covington and Maple Valley are lower in the current model. Trip distribution increases are primarily to the west on Auburn-Black Diamond Rd.

Appendix D

Transportation Improvement Projects and Comprehensive Plan Project



RESOLUTION NO. 22-1489

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF
BLACK DIAMOND, KING COUNTY, WASHINGTON
APPROVING THE 2023-2028 SIX YEAR
TRANSPORTATION IMPROVEMENT PROGRAM**

WHEREAS, per RCW 35.77.010, the City is required to annually update its Six Year Transportation Improvement Program (TIP) before July 1st of each year and file the updated Transportation Improvement Program with the Washington State Department of Transportation within thirty days of adoption; and

WHEREAS, per RCW 35.77.010, the purpose of the requirement for annual updates is to assure that each city and town shall perpetually have available advanced plans looking to the future for not less than six years as a guide in carrying out a coordinated transportation program; and

WHEREAS, it is an eligibility requirement of many grant programs that the City update its Transportation Improvement Program as required by RCW 35.77.010; and

WHEREAS, in accordance with RCW 35.77.010, a public hearing was held on the proposed updates to the Transportation Improvement Program;

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF BLACK DIAMOND, WASHINGTON, DOES RESOLVE AS FOLLOWS:

Section 1. The City Council does hereby approve the 2023-2028 Six Year Transportation Improvement Program, a copy of which is attached at Exhibit "A" and incorporated herein by reference.

PASSED BY THE CITY COUNCIL OF THE CITY OF BLACK DIAMOND, WASHINGTON, AT A REGULAR MEETING THEREOF, THIS 16TH DAY OF JUNE, 2022.

CITY OF BLACK DIAMOND:



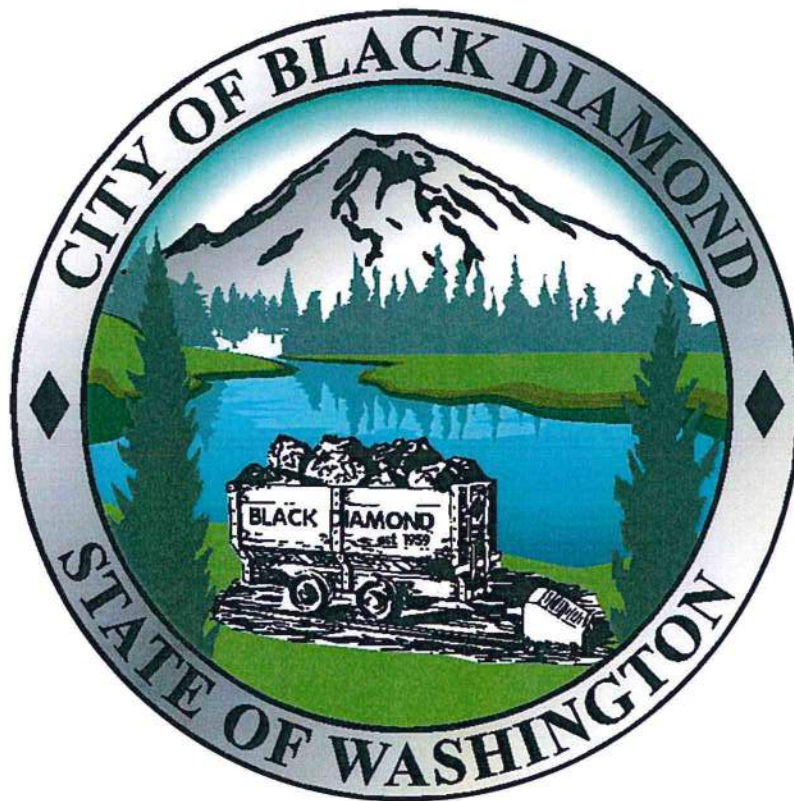
Tamie Deady, Mayor Pro-Tem

Attest:



Brenda L. Martinez, City Clerk

City of Black Diamond 6 Year
Transportation Improvement Plan
2023 - 2028



SUMMARY OF PROJECTS

Project Name	Location	Cost	Year
1. General Street Improvements	N/A	\$35,000/year; \$210,000 total	2023
2. Grant Matching for Street Projects	N/A	\$40,000/year; \$240,000 total	2023
3. Covington Creek Bridge	224 th Ave SE, South of SE 297 th St.	\$2,293,500	2023
*4. SR 169 Roundabouts	Roberts Dr./SR 169/BD Ravensdale Rd./Pipeline Rd.	\$10,000,000	2023
5. Downtown Public Parking	Railroad Ave.	\$145,000	2023
6. Rock Creek Bridge Rehab	Roberts Dr.	\$75,000	2023
7. Morgan Creek Neighborhood Roads Preservation	Morgan Creek Neighborhood	\$75,000	2023
8. Roberts Drive Reconstruction, City Hall to SR 169	City Hall to SR 169	\$4,500,000	2024
9. Sawyer Woods Sidewalk, Ph. I	228 th Ave. SE from SE 312 th St. to SE 307 th Pl.	\$2,300,000	2024
10. SR 169 & Park Street Crossing	SR 169 & Park St.	\$160,000	2024
11. Lawson Street Overlay	SR 169 to Newcastle Dr.	\$300,000	2024
12. 5th Avenue Overlay	Lawson St. to Baker St.	\$ 150,000	2024
13. SR 169 Sidewalk, Roberts Drive to James Street	Roberts Dr. to James St.	\$750,000	2026
14. Sawyer Woods Sidewalk, Ph. II	224 th Ave. SE from SE 307 th Pl. to SE 304 th St.	\$2,100,000	2025
15. 232nd Avenue/Place SE Overlay	Pavement change at 29615 to End of Public Road (302 nd)	\$150,000	2025
16. Downtown Pedestrian & Bicycle Link Study	James St. to Jones Lake Rd.	\$30,000	2025
17. Diamond Glen Neighborhood Improvements	Diamond Glen Neighborhood	\$150,000	2025
*18. Morgan Street & Roberts Drive Roundabout	Morgan St./Roberts Dr.	\$400,000	2026
*19. Pipeline Road	New east/west road between Lake Sawyer Rd. SE & SR 169	\$11,600,000	2026
20. Baker Street Sidewalk	Railroad Ave. to Lawson St.	\$700,000	2026

*21. Lawson Street Sidewalk, Ph. II	6 th Ave. to Newcastle Dr.	\$600,000	2026
22. 216 th Avenue SE Overlay	SE 288 th St. to SE 296 th St.	\$165,000	2026
23. Northeast Lake Sawyer Road Improvements	228 th Ave. SE to 232 nd Ave. SE	\$200,000	2026
*24. North Connector	SR 169 in north triangle south to Pipeline Rd. and Roberts Dr.	\$4,500,000	2027
25. Rainer View Roadway Improvements	Baker St. to SR 169	\$150,000	2027
26. SE 288 th Street Sidewalk, Ph. I	216 th Ave. SE to 224 th Ave. SE	\$1,550,000	2027
*27. Lawson Street & SR 169 Intersection Improvements	Lawson St./SR 169	\$1,000,000	2028
*28. Baker Street & SR 169 Intersection	Baker St./SR 169	\$700,000	2028
*29. Lawson Connector/Lawson Parkway	SR 169 to Lawson St.	\$10,000,000	2028
*30. Lawson Street/Botts Drive Intersection Improvements	Lawson St./Botts Dr.	\$500,000	2028
31. 216 th Avenue SE Pedestrian Improvements	SE 288 th St. to SE 292 nd St.	\$750,000	2028
	TOTAL	\$56,443,500	

**Developer-funded project*

General Street Improvement (#1)

Projected Year: 2023

Location: N/A

Distance: N/A

Type of Improvement: Use for opportunities to leverage private funds, short overlays, chip sealing, crack sealing, patch work, addressing minor safety problems.

Estimated Cost: \$35,000/year; \$210,000 total

Fund Source: Local City Funds



Grant Matching for Street Projects (#2)

Projected Year: 2023

Location: N/A

Distance: N/A

Type of Improvement: Use for grant applications to provide the required match.

Estimated Cost: \$40,000/year; \$240,000 total

Fund Source: Local City Funds

What is a matching grant?



A matching grant is a contingent grant awarded only if the receiving entity is able to put up (or independently raise) a sum equal to the amount provided by the granting entity.



Covington Creek Bridge (#3)

Projected Year: 2023

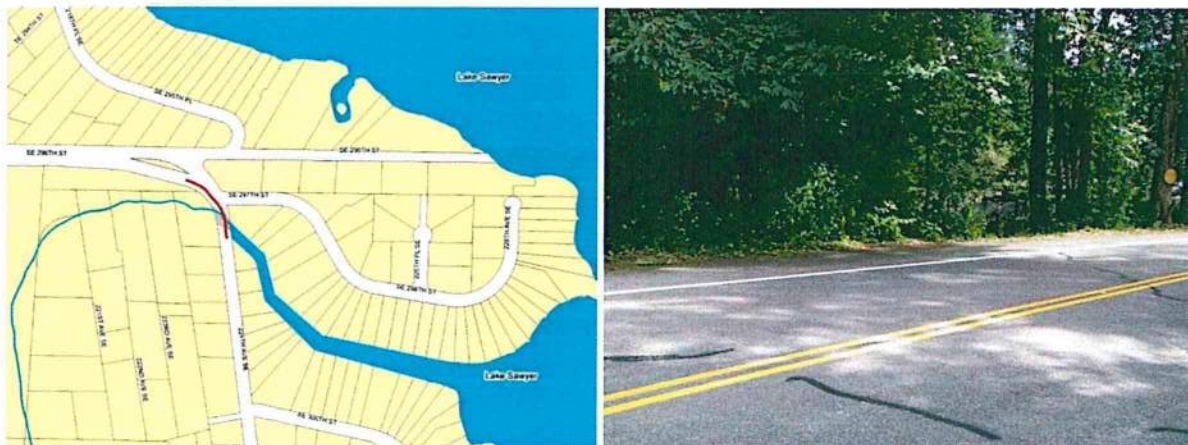
Location: 228th Ave. SE from approximately 225' south of SE 297th St. to SE 296th St.

Distance: 0.07 miles

Type of Improvement: Replaces three failing culverts at Covington Creek with a prestressed girder bridge, along with associated grading and road improvements to match up roadways on the north and south.

Estimated Cost: \$2,293,500

Fund Source: King County Flood Control District Funds



SR 169 Roundabouts (#4)

Projected Year: 2023

Location: intersections of SR 169/Roberts Dr. and SR 169/Black Diamond-Ravensdale Rd. for one roundabout, intersection of SR 169/Pipeline Rd. for the second.

Distance: N/A

Type of Improvement: Roundabout[s] addressing the intersections of SR 169/Roberts Dr. and SR 169/Black Diamond-Ravensdale Rd.

Estimated Cost: \$10,000,000

Fund Source: Developer Mitigation



Roberts Dr. & BD-Ravensdale



Pipeline Rd.

Downtown Public Parking (#5)

Projected Year: 2023

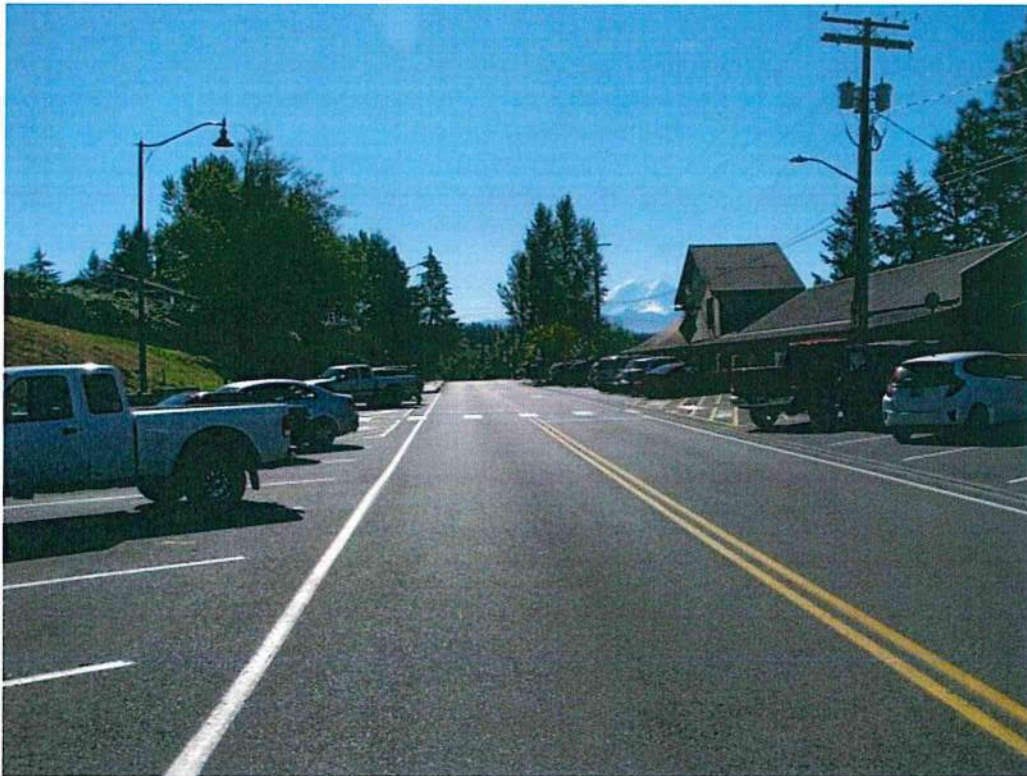
Location: Railroad Ave. and Baker St., and nearby streets

Distance: N/A

Type of Improvement: Explore parking options for the historic downtown area of Black Diamond.

Estimated Cost: \$145,000

Fund Source: Local City Funds/Grants



Rock Creek Bridge Rehab (#6)

Projected Year: 2023

Location: Roberts Dr. Rock Creek Bridge (between 236th Ave. SE & Bruckners Way)

Distance: 20'

Type of Improvement: Sealing and painting underside of the Rock Creek Bridge.

Estimated Cost: \$75,000

Fund Source: Local City Funds



Morgan Creek Neighborhood Roads Preservation (#7)

Projected Year: 2023

Location: Morgan Creek neighborhood streets off of the Black Diamond-Ravensdale Rd.

Distance: 1.19 miles

Type of Improvement: Seal Coat, chip seal, or crack seal

Estimated Cost: \$75,000

Fund Source: Local City Funds



Roberts Drive Reconstruction, City Hall to SR 169 (#8)

Projected Year: 2024

Location: City Hall to SR 169

Distance: .77 miles

Type of Improvement: Widening and overlay to accommodate shared bicycle path, sidewalk from library to SR 169, street lighting, and stormwater improvements.

Estimated Cost: \$4,500,000

Fund Source: TIB Grant, Local City Funds



Sawyer Woods Sidewalk, Ph. I (#9)

Projected Year: 2024

Location: 228th Ave. SE from SE 312th St. to SE 307th Pl.

Distance: 0.30 miles

Type of Improvement: New sidewalk on the east side of 228th Ave. SE along with stormwater facilities, pedestrian lighting, and block walls.

Estimated Cost: \$2,300,000

Fund Source: Safe Routes to School Grant; local city funds



SR 169 & Park Street Crossing (#10)

Projected Year: 2024

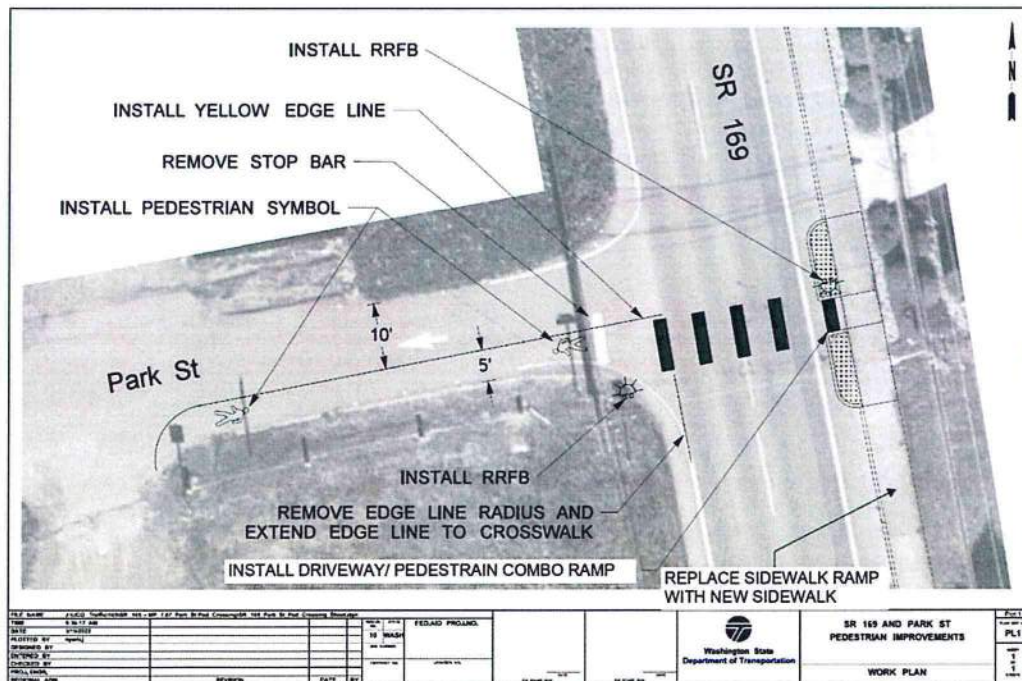
Location: SR 169 & Park St.

Distance: N/A

Type of Improvement: Crosswalk, Designated pedestrian path on Park St., and Rectangular Rapid-Flashing Beacons (RRFBs)

Estimated Cost: \$160,000

Fund Source: WSDOT Pedestrian & Bicycle Program Grant



Lawson Street Overlay (#11)

Projected Year: 2024

Location: SR 169 to Newcastle Dr

Distance: .19 miles

Type of Improvement: Surface grinding, select panel replacement, shoulder widening, asphalt overlay.

Estimated Cost: \$300,000

Fund Source: Local City Funds



5th Avenue Overlay (#12)

Projected Year: 2024

Location: Lawson St. to Baker St

Distance: 0.15 miles

Type of Improvement: Overlay and potential widening of 5th Ave. from Lawson St. to Baker St.

Estimated Cost: \$ 150,000

Fund Source: Local City Funds



SR 169 Sidewalk, Roberts Drive to James Street (#13)

Projected Year: 2024

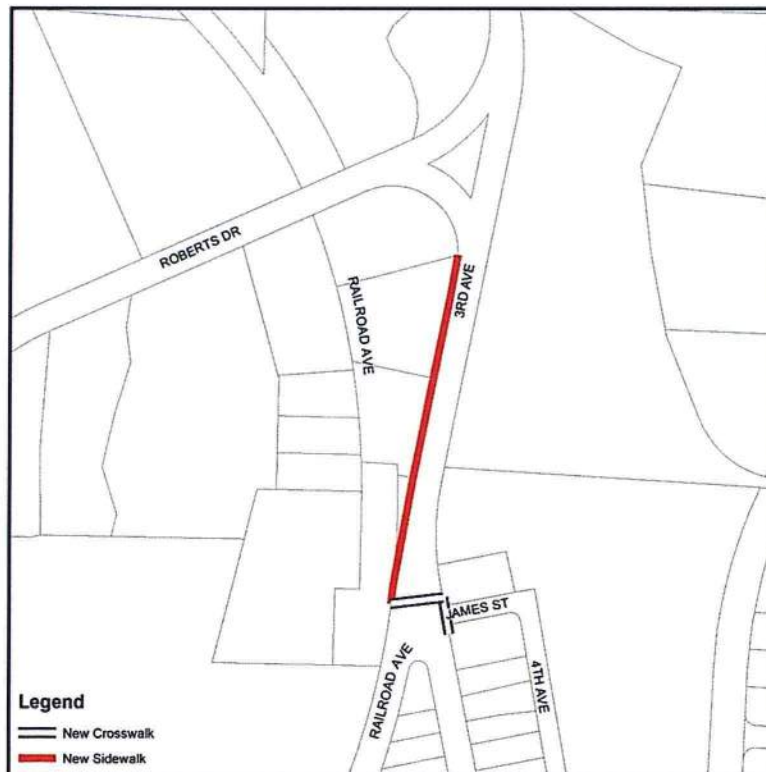
Location: SR 169 from Roberts Dr. to James St.

Distance: .20 miles

Type of Improvement: 6-foot wide sidewalk on the west side of SR 169 between the future roundabout and James St.

Estimated Cost: \$750,000

Fund Source: TIB Grant, Local City Funds



Sawyer Woods Sidewalk, Ph. II (#14)

Projected Year: 2025

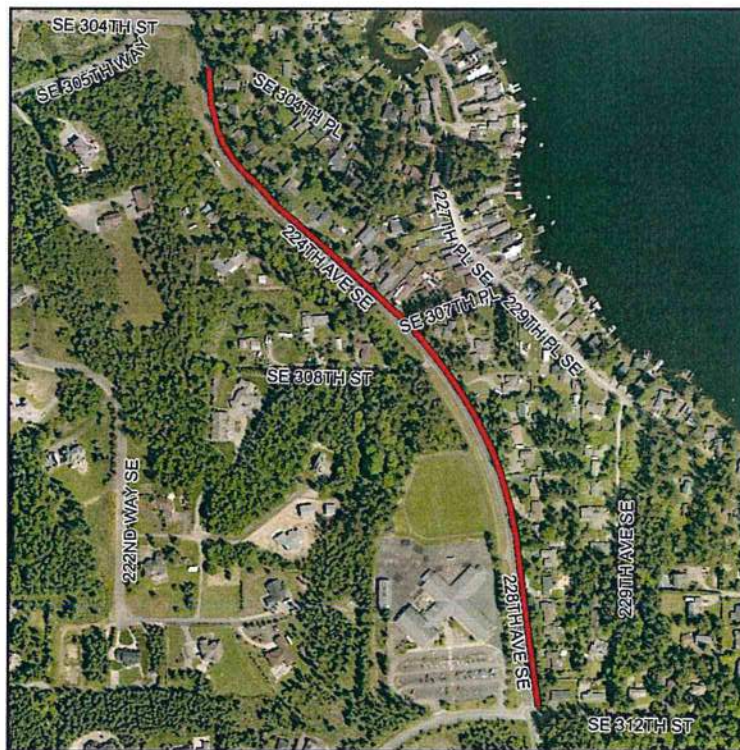
Location: 224th Ave. SE from SE 307th Pl. to SE 304th St.

Distance: 0.27 miles

Type of Improvement: New sidewalk on the east side of 224th Ave. SE along with stormwater facilities, block walls, and regrading portions of 224th to accommodate steep slopes on driveways.

Estimated Cost: \$2,100,000

Fund Source: Safe Routes to School Grant; TIB Grant; local city funds



232nd Avenue/Place SE Overlay (#15)

Projected Year: 2025

Location: Pavement change at 29615 to End of Public Road (302nd)

Distance: .44 miles

Type of Improvement: Asphalt patching and overlay

Estimated Cost: \$200,000

Fund Source: Local City Funds



Downtown Pedestrian & Bicycle Link Study (#16)

Projected Year: 2025

Location: James St. to Jones Lake Rd.

Distance: 0.88 miles

Type of Improvement: Study to identify best routes for pedestrians to bypass SR 169 through the downtown area

Estimated Cost: \$30,000

Fund Source: Grant/Local City Funds



Diamond Glen Neighborhood Improvements (#17)

Projected Year: 2025

Location: Diamond Glen neighborhood off of SR 169

Distance: .25 miles

Type of Improvement: Patching, crack sealing, and overlay

Estimated Cost: \$150,000

Fund Source: Local City Funds



Morgan Street & Roberts Drive Intersection Improvements (#18)

Projected Year: 2026

Location: Intersection of Roberts Dr. & Morgan St.

Distance: N/A

Type of Improvement: New roundabout, potentially completed as part of the Roberts Drive Reconstruction, City Hall to SR 169 project (#8)

Estimated Cost: \$400,000

Fund Source: Developer Mitigation, TIB grant



Pipeline Road (#19)

Projected Year: 2026

Location: Construction of new Pipeline Rd. between Lake Sawyer Rd. & SR 169

Distance: 1.5 miles

Type of Improvement: Construction of a new roadway with pedestrian facilities between SR 169 and Lake Sawyer Rd. SE.

Estimated Cost: \$11,600,000

Fund Source: Developer Mitigation



Baker Street Sidewalk (#20)

Projected Year: 2026

Location: Railroad Ave. to Lawson St.

Distance: .21 mi

Type of Improvement: Sidewalk on the south side of Baker St. between Railroad and SR 169, then on the west side of SR 169 between Baker and Lawson

Estimated Cost: \$700,000

Fund Source: Grant, Local City Funds, Developer frontage improvements



Lawson Street Sidewalk, Ph. II (#21)

Projected Year: 2026

Location: 6th Ave. to Newcastle Dr.

Distance: .19 miles

Type of Improvement: 6-foot wide sidewalk on the south side of Lawson St. along with crosswalks at 6th Ave. and Newcastle Dr.

Estimated Cost: \$600,000

Fund Source: Developer Mitigation; Grant funds



216th Avenue SE Overlay (#22)

Projected Year: 2026

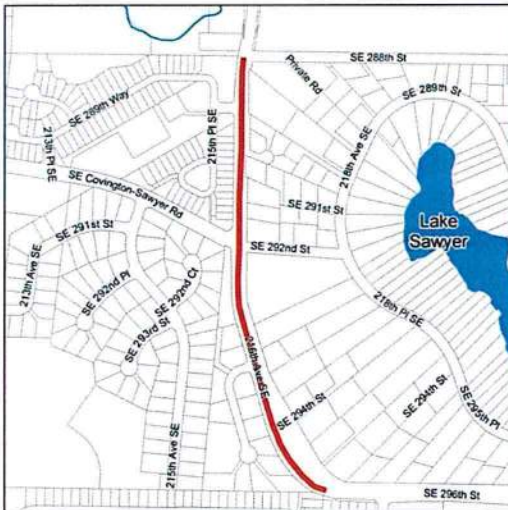
Location: SE 288th St. to SE 296th St.

Distance: 0.50 miles

Type of Improvement: Patch and overlay

Estimated Cost: \$165,000

Fund Source: Local City Funds



Northeast Lake Sawyer Roadway Improvements (#23)

Projected Year: 2026

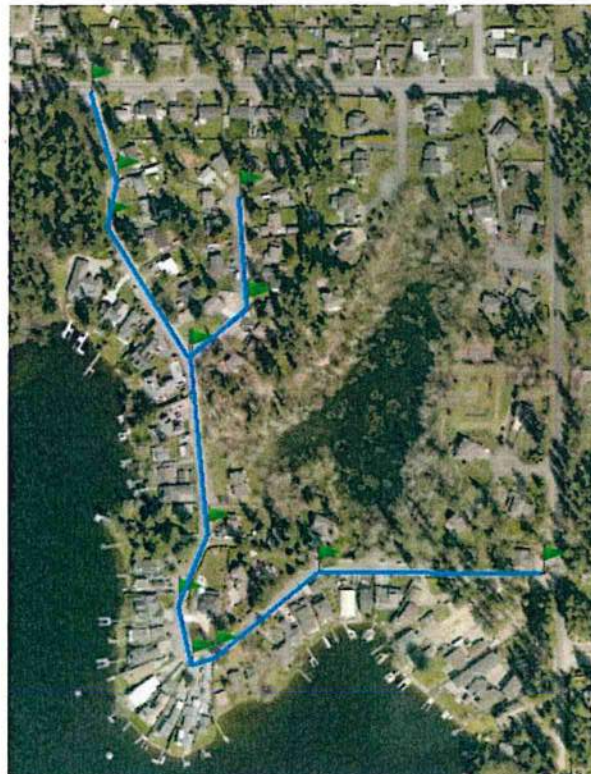
Location: 228th Ave SE/229th Ave. SE/229th Pl. SE/SE 292nd Pl.

Distance: .62 mi

Type of Improvement: Grind and overlay

Estimated Cost: \$200,000

Fund Source: Local City Funds



North Connector (#24)

Projected Year: 2027

Location: SR 169 connection in the north triangle south to Roberts Dr.

Distance: .25 miles

Type of Improvement: New minor arterial connection to SR 169 with potential roundabout

Estimated Cost: \$4,500,000

Fund Source: Developer Funded



Rainier View Roadway Improvements (#25)

Projected Year: 2027

Location: Baker St to SR 169 (1st Ave. & 2nd Ave.)

Distance: .41 miles

Type of Improvement: Patch and overlay in the Rainier View Senior Housing Neighborhood

Estimated Cost: \$200,000

Fund Source: CDBG Grant; Developer Mitigation; Local City Funds



SE 288th Street Sidewalk, Ph. I (#26)

Projected Year: 2027

Location: SE 288th St. from 216th Ave. SE to 224th Ave. SE

Distance: 0.49 miles

Type of Improvement: New concrete sidewalk on the south side of the road.

Estimated Cost: \$1,550,000

Fund Source: Local City Funds



Lawson Street & SR 169 Intersection Improvements (#27)

Projected Year: 2028

Location: Intersection of Lawson St. & SR 169

Distance: N/A

Type of Improvement: New signal to facilitate turning movements and pedestrian crossing.

Estimated Cost: \$1,000,000

Fund Source: Developer Mitigation



Baker Street & SR 169 Intersection Improvements (#28)

Projected Year: 2027

Location: Intersection of Baker St. & SR 169

Distance: N/A

Type of Improvement: New signal and turn lane(s) to facilitate turning movements and pedestrian crossing

Estimated Cost: \$700,000

Fund Source: Developer Mitigation



Lawson Connector/Lawson Parkway (#29)

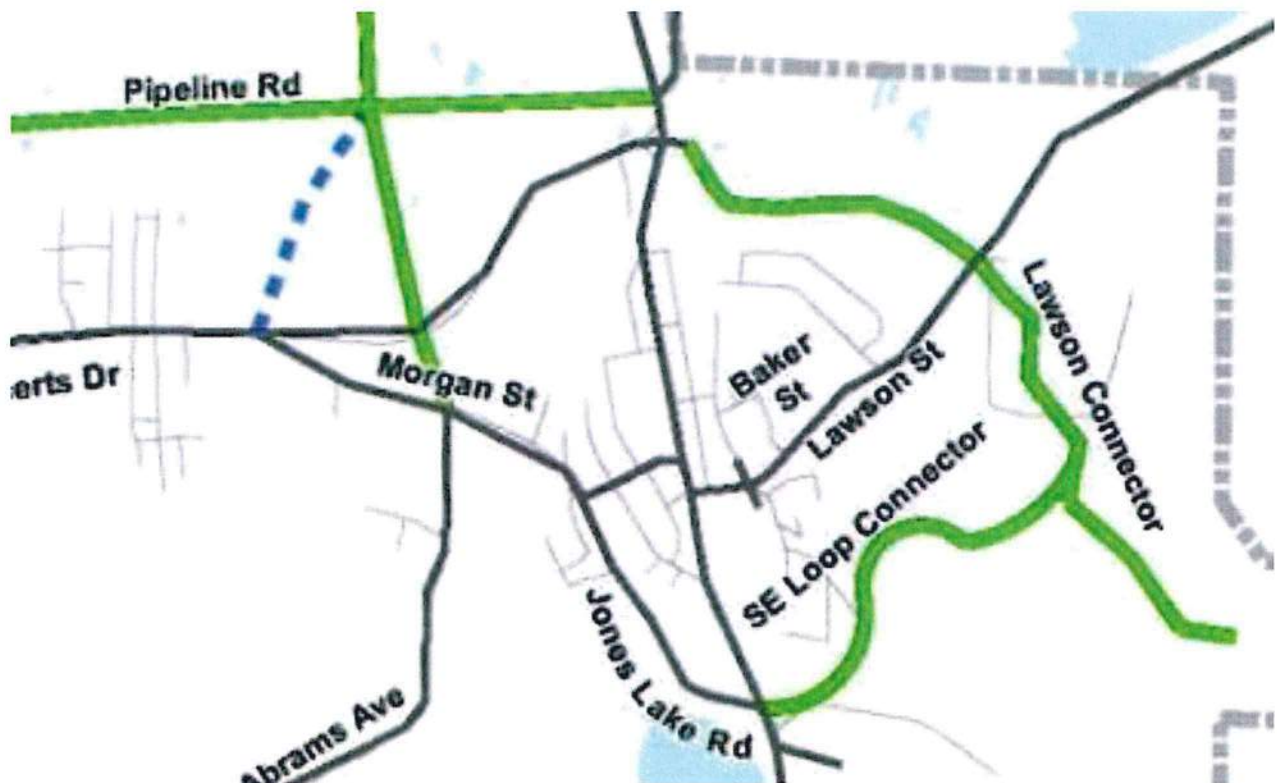
Projected Year: 2028

Location: SR 169 to Lawson St.

Type of Improvement: New 36' wide minor arterial connection to SR 169 with pedestrian facilities, bike lanes, and street lighting.

Estimated Cost: \$10,000,000

Fund Source: Developer Funded



Lawson Street/Botts Drive Intersection Improvements (#30)

Projected Year: 2028

Location: Intersection of Lawson St. & Botts Dr.

Type of Improvement: Intersection controls for new intersection, including stop controls.

Estimated Cost: \$500,000

Fund Source: Grant Funds/Developer Mitigation



216th Avenue SE Pedestrian Improvements (#31)

Projected Year: 2028

Location: SE 288th St. to SE 292nd St.

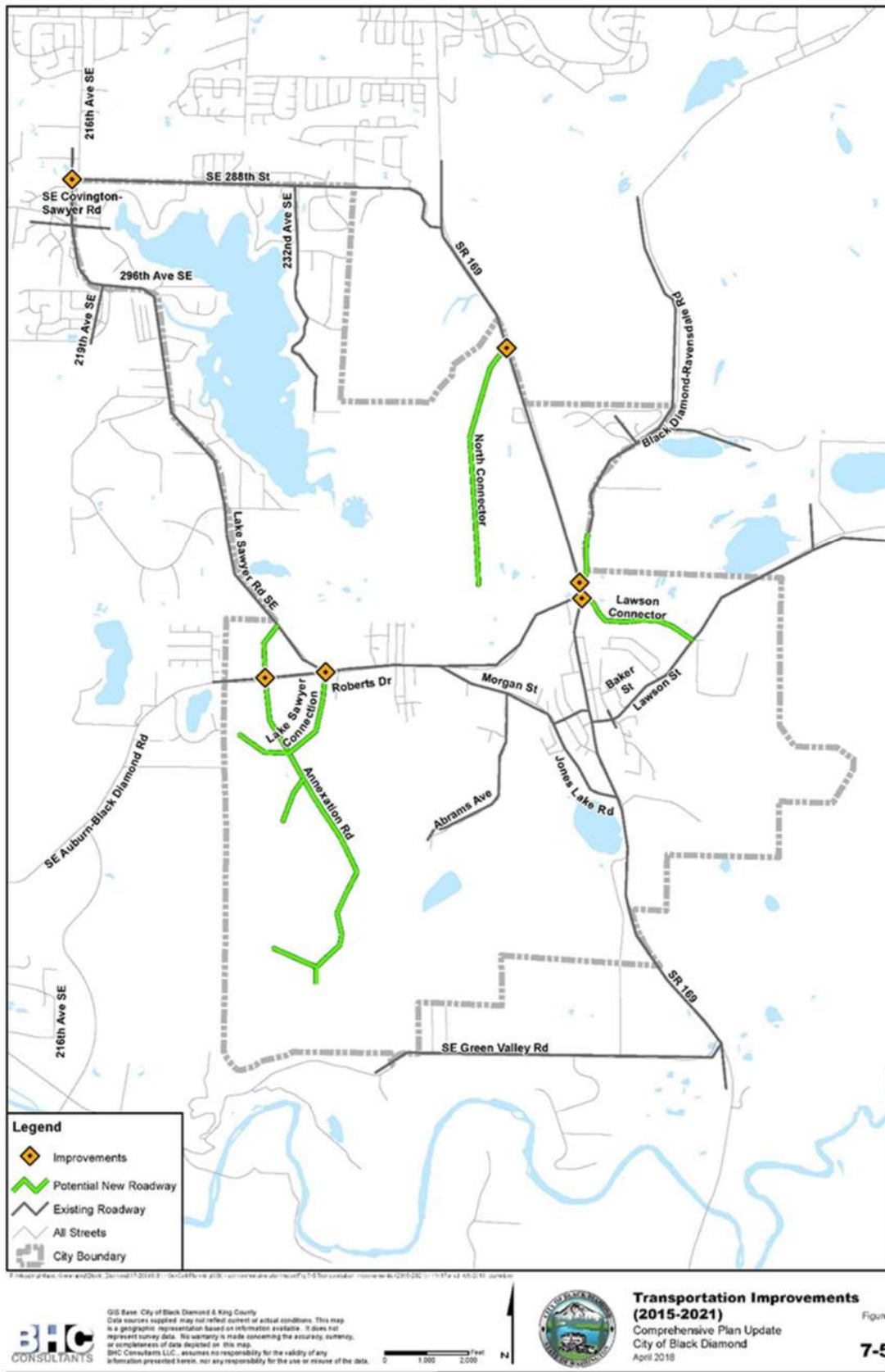
Distance: 0.20 miles

Type of Improvement: Sidewalk, curb, gutter, stormwater, and striping to designate pedestrian facilities and preserve parking at businesses.

Estimated Cost: \$750,000

Fund Source: Local City Funds, TIB Grant





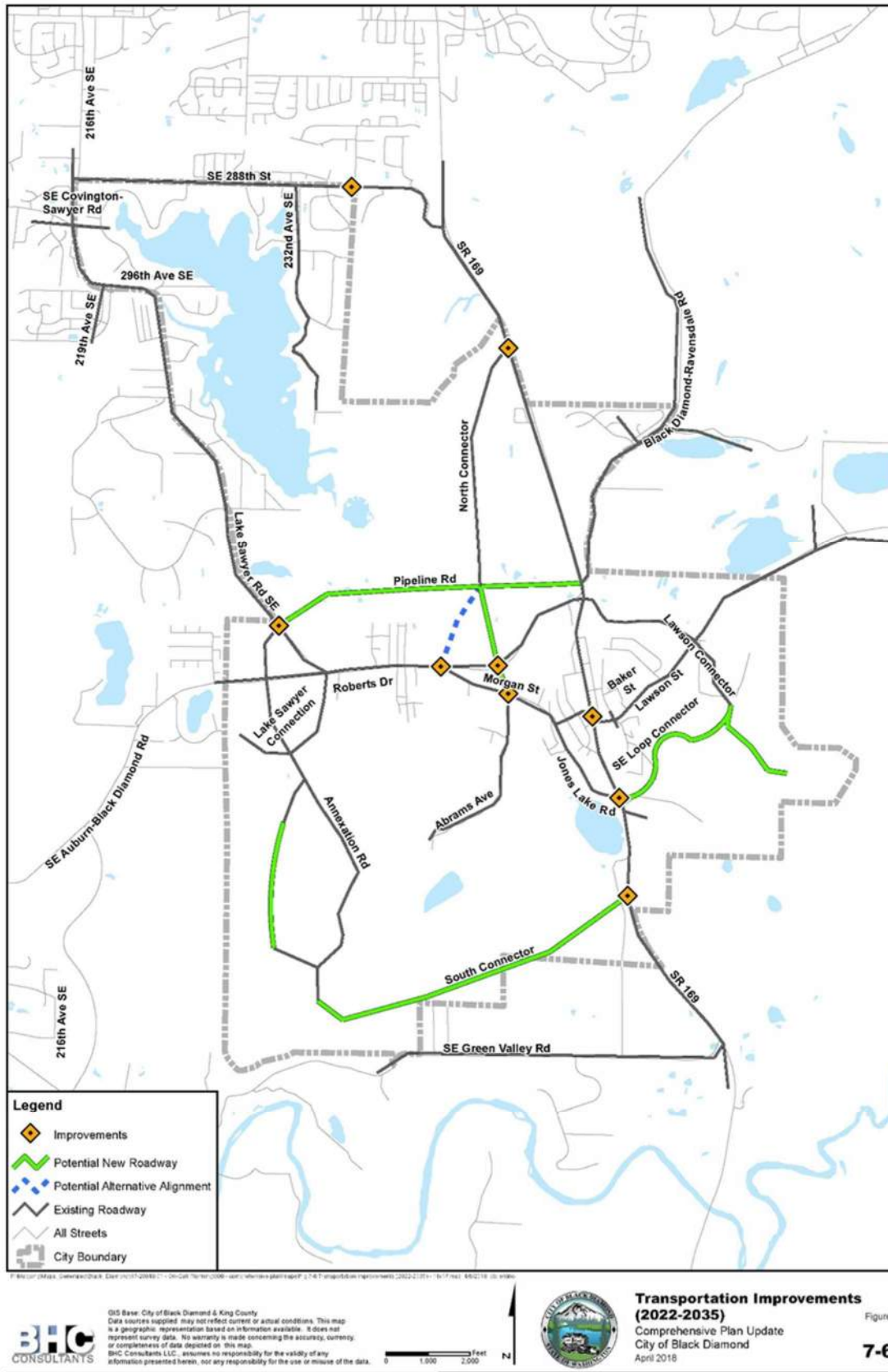
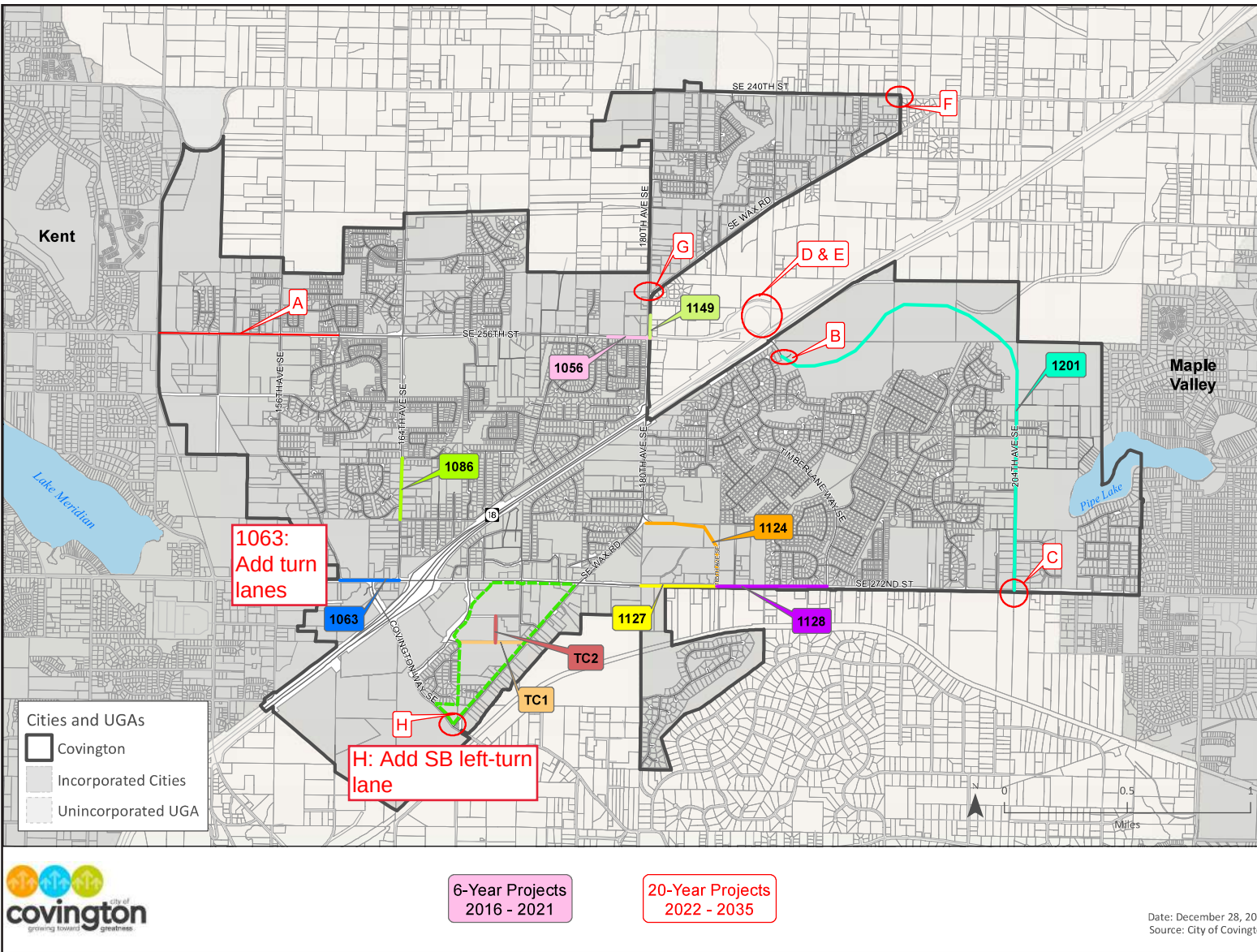


Exhibit T-10. Six and 20-Year Street Improvement Projects



**City of Maple Valley
6 Year
Transportation Improvement Program
2022 – 2027**





Project: T-23 Annual Asphalt Overlay Program

Beginning Termini: City Wide

Ending Termini:

Project Length: Varies

TIP Ranking: 1

Potential Funding Sources:

City: \$ 300,000 (Annual)

Other:

Est Project Timeline:

PE:

ROW:

CONS: 2022-2027

Existing Conditions:

Traffic Count: Varies

No. of Lanes Varies

Lane Widths: 10-12 feet

Sidewalk: Varies

Sidewalk Width:

Bike Lanes: Varies

Shoulder Widths:

Basis for Project: This project provides annual funding for the City's pavement management program. Based on an annual review of the condition of the City's roadways, a road segment or segments are selected for repair or overlay to maintain the integrity of the City's street system. In 2012, the City adopted a Transportation Benefit District (TBD) to fund various transportation improvements; funded by a \$20 vehicle license fee. The City started collecting the fee mid 2013 monthly with a distribution from the State of Washington. The annual collection amounts are typically \$400,000.

For 2022-2023, the overlay program is planned for streets in the Forest At Springhaven neighborhood.

For 2024-2027, the overlay program is planned for streets in Cedar Down neighborhood.



Project: T-24 Miscellaneous Street Improvements

Beginning Termini: City Wide

Ending Termini:

Project Length: Varies

TIP Ranking: 2

Potential Funding Sources:

City: \$200,000 (2022)

\$100,000 (23-27 Annual)

Grant:

Est Project Timeline:

PE:

ROW:

CONS: 2022-2027

Existing Conditions:

Traffic Count: Varies

No. of Lanes Varies

Lane Widths: 10-12 feet

Sidewalk: Varies

Sidewalk Width:

Bike Lanes: Varies

Shoulder Widths:

Basis for Project: This project provides annual funding for small projects. The focus of the project for the last few years has been neighborhood traffic enhancements, intersection improvements, school zone safety enhancements. The program, based on an annual review of near-term needs and opportunities, may fund improvements to sidewalks, street connections, crosswalk flashing beacons, and minor reconstruction. Given the limited funding available, priority will be given to improvement projects that are supported through partnerships or where the investment can be combined with other City projects.

The City has been actively applied for WSDOT funding to implement projects identified in the Local Roads Safety Plan. Funding to construct these projects is identified every other year based on grant awards.

The City applied and was successfully awarded 2020 Highway Safety Improvement Program grant for \$484,200 for the High Reflectivity Roadway Delineation Project, identifies as T27d project in the TIP.



Project: T-27 Non-Motorized Plan Implementation

Beginning Termini: City Wide

Ending Termini:

Project Length: Varies

TIP Ranking: 3

Potential Funding Sources:

City: \$100,000 (Annual)

Other:

Est Project Timeline:

PE:

ROW:

CONS: 2022-2027

Existing Conditions:

Traffic Count: Varies

No. of Lanes Varies

Lane Widths: 10-12 feet

Sidewalk: Varies

Sidewalk Width:

Bike Lanes: Varies

Shoulder Widths:

Basis for Project: This line item provides funding to implement the projects identified in the non-motorized transportation plan adopted in 2012. Projects include improvements to short sections of sidewalks, trails, bikeways, and wayfinding signage. Funds may also be used as the local match for grants.

The City continues to apply for WSDOT funding to implement non-motorized projects identified in the Local Roads Safety Plan, T27a, T27b, and T27c.



Project: T-28b Witte Road Improvements – Phase 3 South Corridor -254th Roundabout

Beginning Termini: SE 256th Street

Ending Termini: North of 254th Pl

Project Length: 1000 feet

TIP Ranking: 4

Potential Funding Sources:

City: \$ 700K
Grants: \$ 4.61M
Other: \$175K

Est Project Timeline:

PE: 2020-2021
ROW: 2021-2022
CONS: 2022

Existing Conditions:

Traffic Count: 14,700 ADT
No. of Lanes: 2
Lane Widths: 11 feet
Sidewalk: None
Sidewalk Width:
Bike Lanes: None
Shoulder Widths: 2 feet

3 Yr Collision History:

Property: 2
Injuries: 5
Fatalities: 0

Basis for Project: Extending improvements on Witte Road south of the 248th roundabout, Phase 3 project rehabilitates the road surface and adds pedestrian and bicycle facilities to the corridor serving the neighborhoods north of Pipe Lake and Lake Lucerne. Improvements include roadway widening to provide sidewalks on west side and bike lanes for both directions to a complete streets level of service. The Witte Rd Phase 3 South corridor project includes a roundabout at the intersection of SE 254th Pl, intersection improvements at 256th intersection, and installation of fish passage culvert at 254th.

Undergrounding of overhead utilities and relocated watermain was completed in Phase 2 in 2020, and Phase 3 North Corridor Improvement project will be completed in 2021.

Project Budget

Design:	\$0 (Completed in 2021)
ROW Acquisition	\$100K
Construction Management	\$673K
Construction	\$4.712M
TOTAL PROJECT COST:	\$5.485M



Project: T-48 SE 231st Street Extension

Beginning Termini: East end of SE 231st St

Ending Termini: North of 228th PI SE

Project Length: 700 feet

TIP Ranking: 5

Potential Funding Sources:

City: \$ 200K

Developer:

Grants: \$ 1.8M

Est Project Timeline:

PE: 2021

ROW: 2021

CONS: 2022

Existing Conditions:

Traffic Count: N/A

No. of Lanes: N/A

Lane Widths: N/A

Sidewalk: N/A

Sidewalk Width: N/A

Bike Lanes: N/A

Shoulder Widths: N/A

3 Yr Collision History:

Property: N/A

Injuries: N/A

Fatalities: N/A

Basis for Project: This project completes an urban collector arterial connection through the former Hayes Gravel pit, slated for development of Amazon fulfillment center, providing a direct access to the SR 18 interchange. This arterial connection will provide one lane in each direction with a center lane in the industrial area, include sidewalk and bicycle lanes, and street lighting.

The Amazon Fulfillment Center is currently under construction and will construct the new segment of 231st along development frontage. The City will be completing the gap segment from east end of 231st St to 228th PI SE.

This project will also evaluate the feasibility of providing an option for future project to provide for nonnotarized connection to Cedar River Pipeline Trail from the new 231st Street.

Project Budget

Design: \$250K (2021)

ROW Acquisition \$600K (2021)

Construction Management \$250K

Construction \$1.750M

TOTAL PROJECT COST: \$2.850M



Project: T-57 SR 169 Pedestrian Bridge

Beginning Termini: Rock Creek Elementary School

Ending Termini: Legacy Site

Project Length: 290 ft

TIP Ranking: 6

Potential Funding Sources:

City: \$0 M
Grants: \$7.6 M

Est Project Timeline:

PE: 2022
ROW: N/A
CONS: 2023

Existing Conditions:

Traffic Count: 21,000 ADT
No. of Lanes: 2-3
Lane Widths: 12 feet
Sidewalk: None
Sidewalk Width:
Bike Lanes: None
Shoulder Widths: 4-8 feet

3 Yr Collision History:

Property: 7
Injuries: 3
Fatalities: 2

Basis for Project:

The T-57 project includes the design and construction of a pedestrian bridge on SR 169 in the vicinity of SE 258th Street. SR 169, a classified State Highway of Significance, has developed from a rural highway to a freight and commuter highway, serving 21,000 vehicles per day. The pedestrian bridge would be designed to connect communities east and west of SR 169. It would serve as a gateway into the City's future downtown development and Legacy Site public amenities, the King County Regional Cedar to Green River Trail, and the Maple Valley Farmers' Market. It would connect parking lots on the Legacy Site and Rock Creek Elementary School as well as reduce the SR 169 traffic flow during event days by encouraging non-motorized access from adjacent neighborhoods.

Project Budget

Design	\$1.02M
ROW Acquisition	
Construction Management	\$ 760K
Construction	\$ 5.84M
TOTAL PROJECT COST:	\$ 7.62M



Project: T-45 SR 169 Widening- 4

Beginning Termini: SE 253rd Place

Ending Termini: SE 260th Street

Project Length: 2300 feet

TIP Ranking: 7

Potential Funding Sources:

City: \$1.8M

Grants: \$9.9M -TIB/CERB

Est Project Timeline:

PE: 2021-2022

ROW: 2022

CONS: 2023-2024

Existing Conditions:

Traffic Count: 21,000 ADT

No. of Lanes 2-3

Lane Widths: 12 feet

Sidewalk: None

Sidewalk Width:

Bike Lanes: None

Shoulder Widths: 4-8 feet

3 Yr Collision History:

Property: 7

Injuries: 3

Fatalities: 2

Basis for Project: This SR 169 corridor project will improve traffic operation, safety, access management, and non-motorized amenities in the vicinity of the Legacy Site between SE 260th Street and SE 253rd Place. Proposed improvements include widening SR 169, sidewalks and bicycle lanes on both sides of the highway, street lighting, surface water enhancements, and intersection improvements at SR 169/SE 260th St and SR 169/SE 253rd Place. Access improvements at Rock Creek Elementary school and the Legacy Site will also be evaluated.

Project Budget

Design: \$900K

ROW Acquisition \$100K

Construction Management \$1.375M

Construction \$9.635M

TOTAL PROJECT COST: \$12M



Project: T-36 SR 169 Widening - 2

Beginning Termini: SE 240th Street

Ending Termini: SE 244th Street

Project Length: 2700 feet

TIP Ranking: 8

Potential Funding Sources:

City \$1.885M
Grants: \$9.540M -TIB

Est Project Timeline:

PE: 2022
ROW: 2023
CONS: 2025-2026

Existing Conditions:

Traffic Count: 24,000 ADT
No. of Lanes 3+
Lane Widths: 12 feet
Sidewalk: One side Partial
Sidewalk Width: 5 feet
Bike Lanes: None
Shoulder Widths: 4 feet +

3 Yr Collision History:

Property: 18
Injuries: 3
Fatalities: 0

Basis for Project: The second segment in the series of capacity improvements on the SR 169 corridor; this project adds an additional lane in both directions to include center turn lanes, sidewalks, bicycle lanes, improved transit stops, street lighting, and enhanced storm drainage. This eliminates a bottleneck for traffic traveling to and from SR 18 and Wilderness Village shopping area.

Project Budget

Design:	\$800K
ROW Acquisition	\$125K
Construction Management	\$1.325M
Construction	\$9.275M
TOTAL PROJECT COST:	\$11.525M



Project: T-33c SE 283rd Street Gap Improvement

Beginning Termini: 228th Avenue SE

Ending Termini: 350 feet west of 228th Avenue

Project Length: 350 feet

TIP Ranking: 9

Potential Funding Sources:

City: \$ 100K

Est Project Timeline:

PE:

ROW: 2021

CONS: 2023

Existing Conditions:

Traffic Count: > 1,000 ADT

No. of Lanes 2

Lane Widths: 10 feet

Sidewalk: None

Sidewalk Width:

Bike Lanes: None

Shoulder Widths: None

3 Yr Collision History:

Property: 0

Injuries: 0

Fatalities:0

Basis for Project: The southern portion of right of way (ROW) on this section of SE 283rd is in private ownership and was not completed as part of past development. It is a gap in the full width street section. Potential development on north side will be required to install frontage and roadway improvements on this section of 283rd. The City is acquiring the existing 30 ft easement for public usage after development frontage improvements are completed, and complete the remaining improvements for roadway connection.

Project Budget

Design:

ROW Acquisition	\$150K (2021)
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Construction	\$100K
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TOTAL PROJECT COST: \$250K



Project: T-27d High Reflectivity Roadway Delineation Project

Beginning Termini: Various

Ending Termini:

Project Length: Varies

TIP Ranking: 10

Potential Funding Sources:

City: \$50,800

Grant: \$484,200 (HSIP)

Est Project Timeline:

PE: 2021

ROW:

CONS: 2021-2022

Existing Conditions:

Traffic Count: Varies

No. of Lanes: Varies

Lane Widths: 10-12 feet

Sidewalk: Varies

Sidewalk Width:

Bike Lanes: Varies

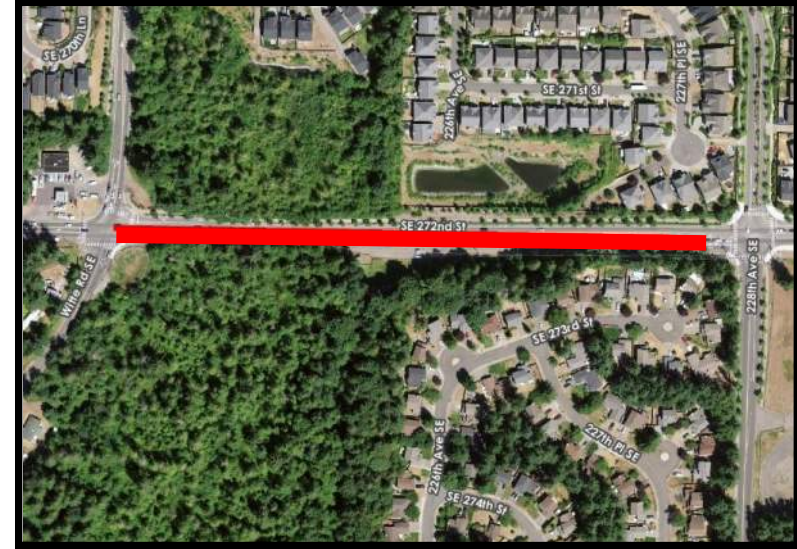
Shoulder Widths:

Basis for Project: This line item provides funding to implement the projects identified in the Local Roads Safety Plan. Projects receiving state funds must be included in the local TIP.

This project provides For installation of high reflectivity pavement marking and signage in areas without streetlights where fixed objects are present and could present a future risk of crashes. Work elements include:

- Install 8" profiled retroreflective edge striping on both sides of the street, replacing existing striping, if present.
- Install reflective raised pavement markers at utility poles and large trees. Install RPMs on center medians and roundabout/traffic circle curbing at the top of curb.
- Install MUTCD Type OM2 reflective signage on utility poles and large trees
- Install reflective signpost wraps on existing stop signs, speed limit signs and warning signs.

The City applied for 2020 Highway Safety Improvement Program (HSIP) for this project and was successfully awarded \$484,200. The City will start design in 2021 and plan for construction in 2021 and 2022.



Project: T-53 SR 516 Multi-Modal Improvements - 1
(south side)

Beginning Termini: Witte Road

Ending Termini: 228th Avenue SE

Project Length: 1300 feet

TIP Ranking: 11

Potential Funding Sources:

City: \$ 1.467M

Grants: \$

Est Project Timeline:

PE: 2025

ROW:

CONS: 2027

Existing Conditions:

Traffic Count: 19,500 ADT

No. of Lanes 2-3

Lane Widths: 12 feet

Sidewalk: One side

Sidewalk Width: 5 feet

Bike Lanes:

Shoulder Widths: 3-10 feet

3 Yr Collision History:

Property: 0

Injuries: 0

Fatalities: 0

Basis for Project: This project completes a gap in the sidewalk on the south side of Kent-Kangley Road (SR 516) between Witte Road and 228th Ave SE. This project, coupled with a phase 2 multi-modal project, will provide continuous sidewalk facilities, both sides, on SR 516 from Witte Road to SR 169 and the east City Limits.

Project Budget

Design: \$250K

ROW

Construction \$1.217M

TOTAL PROJECT COST: \$1.467M



Project: T-54 SR 516 Multi-Modal Improvements - 2

Beginning Termini: 850 feet East of 228th Avenue SE

Ending Termini: 238th Ave SE/236th Place SE

Project Length: 3000

TIP Ranking: 12

Potential Funding Sources:

City: \$2.143M

Grants: \$

Est Project Timeline:

PE: 2026

ROW:

CONS: 2027

Existing Conditions:

Traffic Count: 18,800 ADT

No. of Lanes 2-3

Lane Widths: 12 feet

Sidewalk: None

Sidewalk Width:

Bike Lanes: none

Shoulder Widths: 3-5 feet

3 Yr Collision History:

Property: 4

Injuries: 1

Fatalities: 0

(No Ped collisions)

Basis for Project: A significant gap in the sidewalk alignment exists on both sides of the road (5,850 feet of sidewalk length). Since the recreational amenities provided by the high school, and now Summit Park, were constructed, pedestrian activity on these marginally improved shoulders has increased. This project would complete the gap in bicycle and pedestrian facilities in this corridor. Pedestrian crossing facilities are not included at this time.

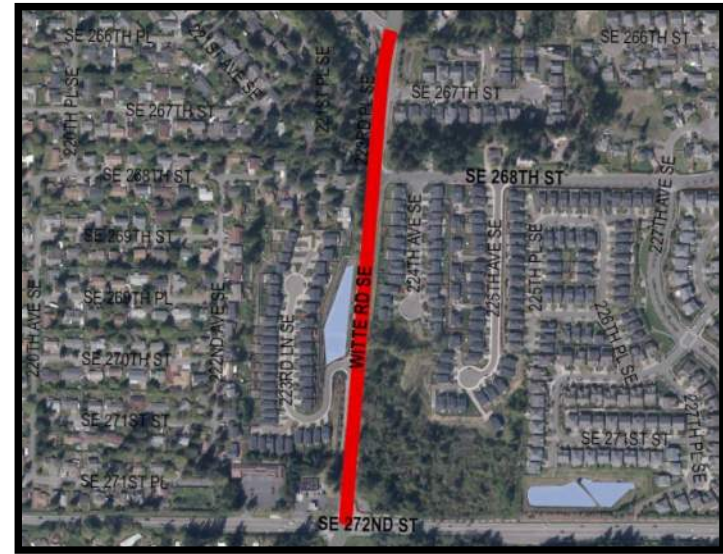
Project Budget

Design: \$400K

ROW

Construction \$1.743M

TOTAL PROJECT COST: \$2.143M



Project: T-28c Witte Road Improvements - 5

Beginning Termini: 222nd Avenue SE

Ending Termini: SR 516 (Kent-Kangley Road)

Project Length: 1870 feet

TIP Ranking: 13

Potential Funding Sources:

City: \$600K

Grants:

Est Project Timeline:

PE: 2027

ROW:

CONS: TBD

Existing Conditions:

Traffic Count: 12,000 ADT

No. of Lanes 2-3

Lane Widths: 12 feet

Sidewalk: Partial – One side

Sidewalk Width: 5 feet

Bike Lanes: None

Shoulder Widths:3-8 feet

3 Yr Collision History:

Property: 6

Injuries: 2

Fatalities: 0

Basis for Project: This improvement to the southern portion of the Witte Road corridor between SR 169 and SR 516 serves several large neighborhood access points. Project will improve sight distance, add sidewalks and bicycle lanes, enhanced stormwater facilities, and provide improved channelization to SR 516.

Project Budget

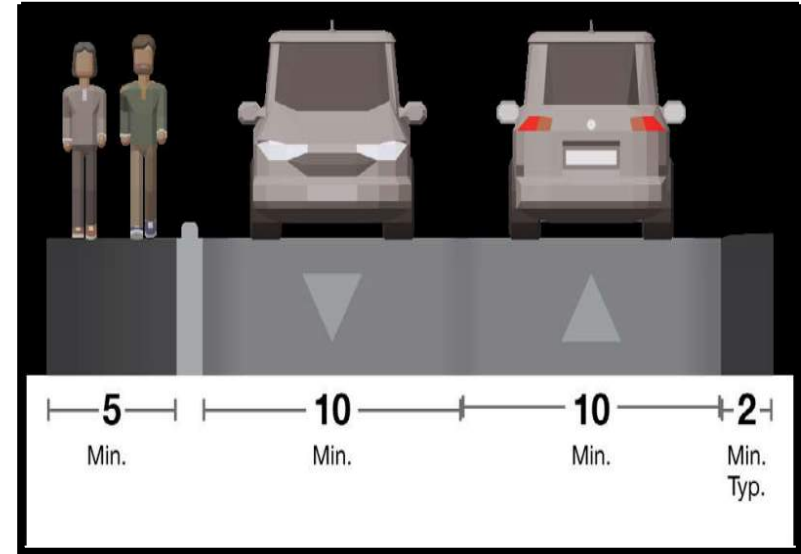
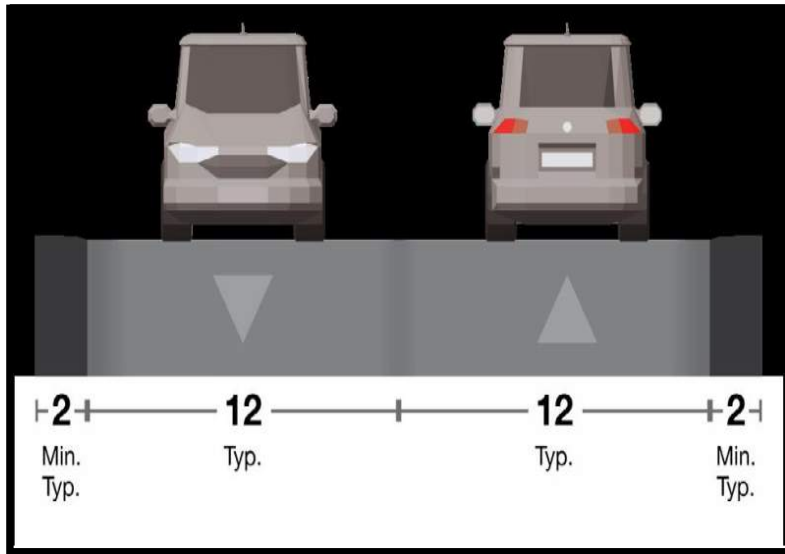
Design: \$600K

ROW Acquisition	\$100K
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Construction Management \$500K

Construction	\$5M
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TOTAL PROJECT COST: \$6.2M



Project: T-27a Curbed Walkway Improvements

Beginning Termini: Various, see TIP Location Map

Ending Termini:

Project Length: Varies

TIP Ranking: 15

Potential Funding Sources:

City: \$115K

Grant: \$450K

Est Project Timeline:

PE: 2022

ROW:

CONS: 2022-2027

Existing Conditions:

Traffic Count: Varies

No. of Lanes: Varies

Lane Widths: 10-12 feet

Sidewalk: Varies

Sidewalk Width:

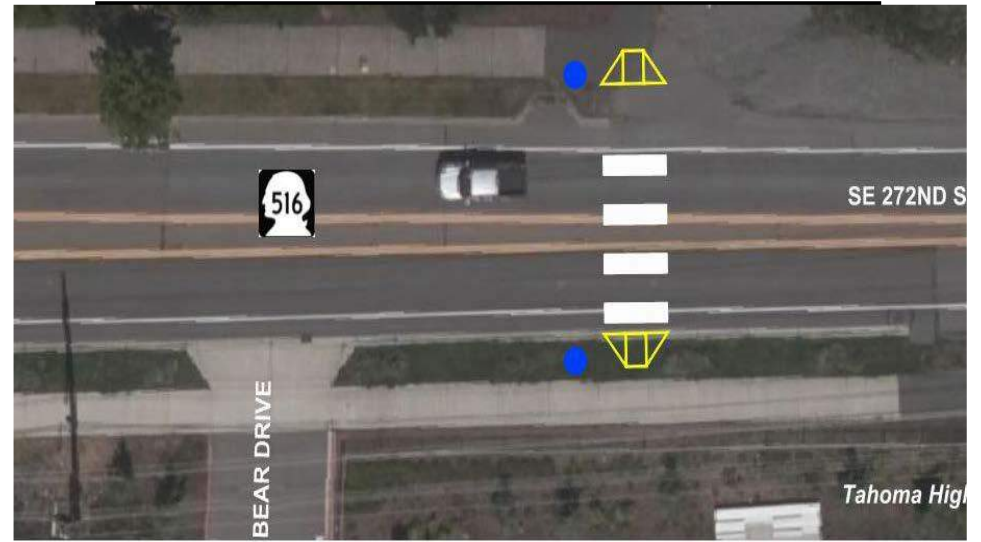
Bike Lanes: Varies

Shoulder Widths:

Basis for Project: This line item provides funding to implement the projects identified in the Local Roads Safety Plan. Projects receiving state funds must be included in the local TIP.

To bridge gaps between existing pedestrian facilities and limit the locations where pedestrians must use the roadway, asphalt pathways will be constructed within the existing right of way. In some of these locations, an existing wide roadway shoulder will be repurposed as the walkway, narrowing vehicle lanes, with concrete curbing, painted white and enhanced with vertical markers for visibility, will provide a physical barrier between the walkway and travel lanes. Some locations may require widening of the shoulder or paving of currently unpaved paths to provide the pedestrian connection. This project provides for separated walkways in various locations in the City.

Design and construction would be completed as grant funding becomes available.



Project: T-27b Crossing Enhancements

Beginning Termini: Various, see TIP Location Map

Ending Termini:

Project Length: Varies

TIP Ranking: 16

Potential Funding Sources:

City: \$53,000

Grant: \$402,000

Est Project Timeline:

PE:

ROW:

CONS: 2024-2027

Existing Conditions:

Traffic Count: Varies

No. of Lanes: Varies

Lane Widths: 10-12 feet

Sidewalk: Varies

Sidewalk Width:

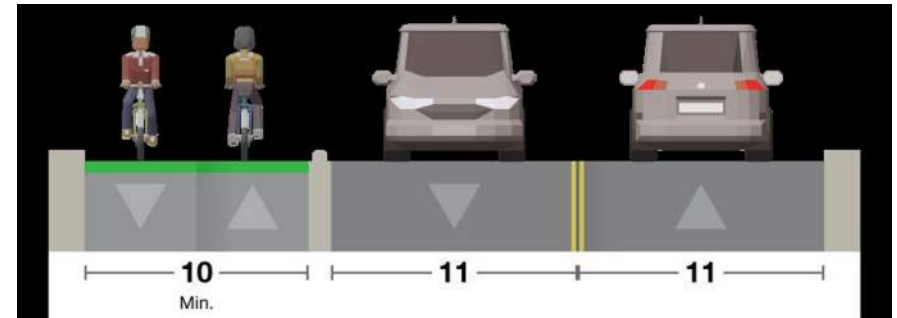
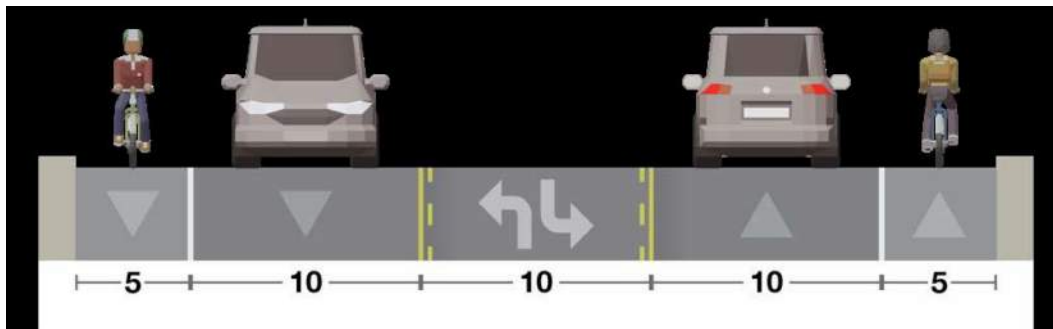
Bike Lanes: Varies

Shoulder Widths:

Basis for Project: This line item provides funding to implement the projects identified in the Local Roads Safety Plan. Projects receiving state funds must be included in the local TIP. This project provides for crossing enhancements in various locations in the City.

The project improves several crossings in the southern part of the City, including some identified in the 2013 Non-motorized Transportation Plan. The crossing enhancements create pedestrian network connections and help to limit the use of unprotected roadway facilities by pedestrians. The crossing improvements will include, as necessary, crosswalk markings, signage, curb ramp replacements and RRFBs.

Design and construction would be completed as grant funding becomes available.



Project: T-27c Cedar to Green River Trail Access

Beginning Termini: SE 264th Street

Ending Termini:

Project Length: Varies

TIP Ranking: 17

Potential Funding Sources:

City: \$26,000

Grant: \$196,000

Est Project Timeline:

PE:

ROW:

CONS: 2026-2027

Existing Conditions:

Traffic Count: Varies

No. of Lanes: Varies

Lane Widths: 10-12 feet

Sidewalk: Varies

Sidewalk Width:

Bike Lanes: Varies

Shoulder Widths:

Basis for Project: This line item provides funding to implement the projects identified in the Local Roads Safety Plan. Projects receiving state funds must be included in the local TIP.

This project would extend existing bike lanes at the intersection of SE 264th Street and SR-169 to the intersection with 238th Ave SE. On the west side of 238th Ave SE, an RRFB protected crossing, marked for cyclists and pedestrians, would cross all active transportation traffic to the south side of the road. A crosswalk at the west side of the 238th Ave SE intersection will align with an access point for an under construction multifamily residential neighborhood north of SE 264th Street. From the crossing point, a two-way active transportation facility, separated by a physical barrier will provide bicycle and pedestrian connections to the trail access point, 400 feet west of 238th Ave SE.

Design and construction would be completed as grant funding becomes available.



Project: T-27e Wax Road Shoulder Widening and Utility Undergrounding

Beginning Termini: SE 237th Street

Ending Termini: City Limits

Project Length: 1,350 feet

TIP Ranking: 14

Potential Funding Sources:

City: \$ 125,000

Grants: \$ 495,000

Est Project Timeline:

PE: 2026

ROW: N/A

CONS: 2027

Existing Conditions:

Traffic Count: 25,900 ADT

No. of Lanes 2

Lane Widths: 11 feet

Sidewalk: None

Sidewalk Width:

Bike Lanes: None

Shoulder Widths: 2 feet

3 Yr Collision History:

Property: 1

Injuries: 1

Fatalities:

Basis for Project: Roadway shoulder significantly narrows from SE 237th street to the City Limits on both sides of the road and sight distance is limited. Pedestrians and bicyclists routinely traverse this section from the end of the City sidewalks to the widened paved shoulder at the City limits. Undergrounding utilities and widening paved shoulder to five feet on both sides will help provide a higher level of safety.

Item No	Description	Item Cost
1	Mobilization & Site Prep	\$34,000
2	Earthwork & Subgrade	\$185,000
3	Road way Surfacing	\$72,000
4	Sidewalk Elements	\$30,000
5	Storm Drainage	\$30,000
6	Bridge/Walls/Structures	\$0
7	Environmental Mitigation	\$0
8	Street Lights	\$0
9	Traffic Elements	\$35,000
10	Misc. Construction Elements	\$71,000
	Construction SUBTOTAL	\$457,000
	Contingency	\$68,000
	Construction Management	\$25,000
	Project SUBTOTAL	\$550,000
	Design Engineering	\$70,000
	ROW Acquisition	\$0
	Project Total Cost	\$620,000



Element 4

TRANSPORTATION

Support Analysis

114	SR 169 Widening (from SE 280th St to South City Limit) <i>Phase J</i>	Construct second SB lane on SR 169 from SE 280th St to south city limit. This will convert SB approach at SE 280th St intersection to through lane and through/right-turn shared lane. Provide curb, gutter, bike lane, and sidewalk on the west side.	\$3,210
115	SR 169 Intelligent Transportation System Implementation (SE 231st St to SE 280th St)	Upgrade signal controllers, install fiber, and ITS equipment along the SR 169 corridor between SE 231st St and SE 280th St. Equipment includes new controllers and closed circuit video cameras.	\$0 (funded by WSDOT)
SR 516 Improvements (SE Kent-Kangley Road)			
117	SR 516 (207th Ave SE to 216th Ave SE) <i>Phase B</i>	Construct second EB lane on SR 516 from west city limit to 216th Ave SE. Construct second WB lane on SR 516 from 1,000 ft east of 216th Ave SE to west city limit. Include curb, gutter, bike lanes, and sidewalks. Provide center left turn lane/pockets where warranted. Improve 216th Ave SE intersection.	\$4,320
118	SR 516 (218th Ave SE to 228th Ave SE) <i>Phase C</i>	Widen to 3 lanes. Install new curb, gutter, bike lane, and sidewalk on the south side for the entire length and the north side west of Witte Road. Construct center left turn lane/pockets, where warranted. Construct NB right-turn lane. Left-turn signal pockets and signal phasing provided at each approach.	\$4,860
119	SR 516 (228th Ave SE to 236th PI SE) <i>Phase D</i>	Widen to 3 lanes. Install new curb, gutter, bike lane, and sidewalk on both sides. Construct center left-turn lane/pockets, where warranted.	\$3,870
Local Arterial Improvements			
120	Witte Rd SE (SE 254th PI to SE 256th PI)	Construct 3 lane roadway (center median/turn lane) from north of SE 254th PI to the south of SE 256th PI. Close direct access from 220th Ave SE to Witte Rd. Realign SE 256th St for improved intersection angle. Install traffic signal at SE 254th PI/Witte Rd SE, when warranted.	\$1,520
121	Witte Rd/SE 268th St Intersection	Construct center turn/merge lane along with curb, gutter, and sidewalks.	\$480
122	216th Ave SE (SR 516 to South City Limit)	Widen to 3 lanes. Install new curb, gutter, bike lane, and sidewalk on both sides. Construct center left turn lane/pockets where warranted.	\$2,250
123	SE 240th St (Witte Rd to 224th Ave SE)	Widen to 3 lanes through frontage improvements on north side of street. Install new curb, gutter, bike lane and sidewalks. Construct center left turn lane.	\$1,940
124	Witte Rd SE (SR 169 to SE 240th St)	Reconstruct roadways to 3 lanes. Install new curb, gutter, bike lanes, street lights, and sidewalk on the east side. May include retaining wall to the west.	\$2,720
125	SE 276th St (SE 216th St to SR 516)	Reconstruct roadway. Install new curb, gutter, bike lanes, street lights, and sidewalks.	\$9,610



Element 4

TRANSPORTATION

Support Analysis

126	SE 231st St (SR 169 to Witte Rd) <i>Phase A</i>	Reconstruct roadway to 3 lanes (one NB lane, one SB lane, and center median/turn lane) between SR 169/SE 231st St intersection and SE Witte Rd. At SR 169 intersection: construct second WB through lane on east leg; WB approach would have left-turn lane, through lane, and through/right-turn shared lane. Provide curb, gutter, bike lanes, and sidewalks.	\$1,480
New Local Roadway Projects			
127	SE 231st St Connection (Witte Rd to SE 240th St) <i>Phase B</i>	Construct 3 lane roadway (one NB lane, one SB lane, and center median/turn lane) between SE Witte Road and SR 169/SE 240th Street intersection vicinity. Provide curb, gutter, bike lanes, and sidewalks.	\$10,140
128	SE 240th St Extension (Witte Rd to Wax Rd)	Construct 2/3 lane extension of SE 240th St between SE Wax Road and Witte Rd SE. Provide center left turn lane/pocket where left turns are likely. Install signal or roundabout at new SE Wax Rd intersection. Reconfigure Witte Rd SE intersection: On EB approach, add right-turn lane, through-lane, and left-turn lane. Provide left-turn pockets on all approaches. Provide curb, gutter, bike lanes, and sidewalks.	\$10,910
129	SE 264th St Extension (SE 242nd Ave to Summit-Landsburg Rd)	Construct 2 lane roadway with curb, gutter and sidewalks between 242nd Ave SE to SE Summit-Landsburg Rd to promote improved circulation in the Four Corners subarea.	\$2,880
130	SE 271st St Extension (SR 169 to 236th PI SE)	Construct new 3 lane road with curb, gutter, bike lanes, and sidewalks (one EB lane, one WB lane and center turn lane) on the new alignment between SE 271st PI/SR 169 intersection and 236th PI SE/SR 516 intersection. Future development would provide a connection between the Extension and the Summit Place development area. At 236th PI SE/SR 516 intersection, install traffic signal or roundabout and provide turn lanes.	\$6,420
131	240th Ave SE Connection (SE 277th PI to SE 279th St)	Connect 240th Ave SE together to provide a local access connection between SE 276th St and SE 280th St.	\$790
132	228th Ave SE Connection (SE 283rd St to SE 286th St)	Construct 2-lane roadway across the railroad corridor. Railroad crossing will be at-grade with signals. Provide curb, gutter, bike lanes, and sidewalks.	\$2,220
133	SE Kent-Kangley Rd/ 242nd Ave SE	Install traffic signal or roundabout to provide for improved operations and better local circulation.	\$470

1. Costs in \$1,000s of dollars (2011\$).

2. EB=eastbound; WB=westbound; NB=northbound; SB=southbound.

Figure 4.20 - Transportation Improvement Projects



Element 4

TRANSPORTATION

Support Analysis

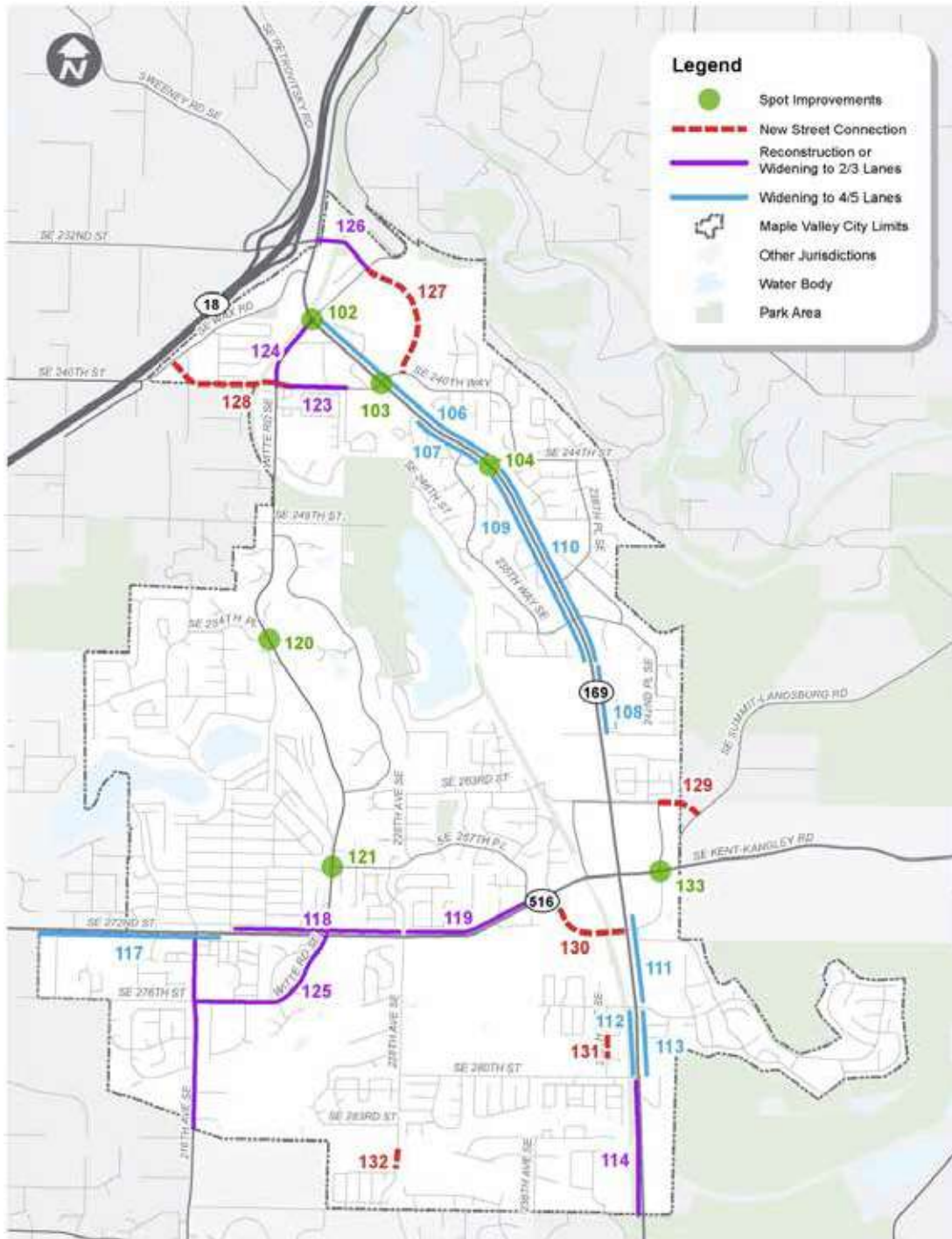


Figure 4.21 - Transportation Improvement Projects

**TRANSPORTATION****Support Analysis****SR 169 Improvements (Maple Valley – Black Diamond Road SE)**

SR 169 is a critical highway for the region and for each local community along the corridor. It is the primary route for Cities such as Maple Valley and Black Diamond. Improvements are needed within the City of Maple Valley to increase capacity, improve safety, enhance peak hour traffic operations, and to upgrade the facilities to urban design standards. The future analysis indicates that SR 169 should be widened to four or five lane cross-sections to accommodate the anticipated land use growth in the City and the surrounding communities. The improvements are consistent with the needs identified in WSDOT's SR 169 Route Development Plan completed in 2007. The widening will be accomplished in phases with separate projects listed along SR 169 in Figure 4.21 and shown in Figure 4.22. Since SR 169 is designated a Highway of Statewide Significance, implementation of the improvements will depend on funding by WSDOT or other outside sources as the City does not have the financial means to implement projects along this important regional highway.

Projects 102 through 104 focus on improving traffic operations at key intersections in the northern section of the City. Traffic volumes at these intersections are sensitive to major new roadway projects in the area, and the specific improvements will be confirmed based on results of a recommended Wilderness Village circulation and feasibility study that will need to be conducted at the outset of any of these new roadway improvements. Intersection improvements at SR 169/SE 260th Street (added traffic signal) are included as Project 108.

Projects 106 through 113 reflect widening only along one side of the highway at a time due to funding and timing constraints. Project 115 is intended to improve traffic signal operations, coordination, and management from SE 231st Street to SE 280th Street. WSDOT is leading and funding the signal and Intelligent Transportation System project. The widening projects would add curb, gutter, and sidewalk.

SR 516 Improvements (SE Kent-Kangley Road)

Anticipated future development in the southern areas of Maple Valley and in the City of Black Diamond will require additional capacity improvements along SR 516 between the west city limits and SR 169 to support forecast travel demand. A total of three projects have been identified Figure 4.20 and are shown in Figure 4.21. Implementation of the improvements will depend on funding by WSDOT or other outside sources as the City does not have the financial means to implement projects along this important regional highway.

West of 218th Avenue SE, SR 516 would be widened to five lanes (Project 117). This includes providing additional lanes to the SR 516/216th Avenue SE intersection. It was assumed that SR 516 would be widened to five lanes through the City of Covington before five lanes are needed in this section of Maple Valley. The City should evaluate interim improvement options along the segment of SR 516 between 216th Avenue SE and 218th Avenue SE to address existing safety and operational issues related to access into and out of the Cherokee Bay neighborhood.

East of 218th Avenue SE, SR 516 would be widened to three lanes (Projects 118 and 119). With additional local circulation roadways within the southern parts of the City, this section of SR 516 operated acceptably at three lanes. However, improvements to intersection of SR 516 and Witte



TRANSPORTATION

Support Analysis

Road SE would be needed (See Project 118). The SE 271st Street Extension (Project 130) plays a key role in reducing traffic volumes along SR 516.

Local Arterial Improvements

This category of projects includes capacity, safety, and road standard improvements along other City arterials and streets. A total of seven projects have been identified along City roadways and are listed in Figure 4.21 and shown in Figure 4.22.

Projects 120 and 121 would better manage access between Witte Road SE and side streets. This would improve safety in the area, and improve capacity along Witte Road SE. The addition of traffic signals would likely not be warranted due to lower side street volumes.

Projects 122 and 123 would widen roadways to three lanes reflecting their transition from rural to urban arterials. The widening projects would add curb, gutter, and sidewalk.

Street preservation and rehabilitation projects along Witte Road, Projects 124 and 125, would add curb, gutter, and sidewalk. SE 231st Street would also be upgraded to a three lane roadway between SR 169 and Witte Road as the roadway is extended south to SE 240th Street (Project 126).

New Local Roadway Projects

Seven new arterial roadways were identified to support future development within the City. The SE 231st Street Connection (Project 127) is a new roadway that will serve future commercial development east of SR 169 in the Wilderness Village Subarea. Another project will extend SE 240th Street west from Witte Road to Wax Road. The new SE 240th Street Extension (Project 128) is estimated to reduce delays along SR 169 within Wilderness Village and provide better access for vehicles headed to/from areas west of the City.

In order to improve circulation in the southern part of the City and the SR 169/SR 516 intersection in the Four Corners Subarea, the SE 271st Street Extension (Project 130) is to be built between SR 516 and SR 169. The new roadway, along with extension of SE 264th Street (Project 129) and a new signal or roundabout at SE Kent-Kangley Road/242nd Avenue SE (Project 133), will provide improved operations and better circulation within Four Corners and reduce the need to widen the SR 169/SR 516 intersection beyond the five lane cross-section. The SE 271st Street Extension allows SR 516 to remain at three lanes by providing an internal connection to the Summit Place area. Project 132 will allow City residents south of the railroad corridor to connect to the City of Maple Valley without using (and without contributing to) the congested corridors of SR 169 and 216th Avenue SE. To reduce construction costs, the crossing is anticipated to be at-grade with signals. However, approval of a new at-grade railroad crossing may be difficult.

Local Streets

Improvement to or construction of new local streets are not explicitly defined in the long-range plan and are assumed to be built through developer mitigation requirements or Local Improvement Districts (LIDs) based on community support. Local street system plans may be prepared as part of future neighborhood or subarea studies. For example, increased commercial and residential

Most King County offices will be closed on January 2 for New Year's Day. >



SE Kent-Kangley Intersection Improvement Project

Construction is underway and will continue through October



One of two stop signs with flashing, LED lights installed in spring 2021 to address safety concerns at SE Kent-Kangley Road and Landsburg Road SE/SE Ravensdale Way.

Status update

October 6, 2022

Crews continue to work to grind and pave the new right-turn "slip lane" through Friday, October 7. Flaggers will direct traffic through the work area.

Fall 2022 traffic safety improvements



Changes coming to SE Kent-Kangley Road/SE Ravensdale Way intersection in fall 2022. [Larger view](#) [JPG 3MB](#)

- Installation of a right-turn “slip lane” for eastbound drivers on SE Kent-Kangley Road to turn south onto SE Ravensdale Way. A traffic island will help separate vehicles that are turning right from vehicles headed in the east direction.
- Realigning SE Ravensdale Way to give northbound vehicles an additional 9 feet to turn left onto westbound SE Kent-Kangley Road.
- Adding a new crosswalk and improving existing crosswalks. This will allow residents to park and safely access Ravensdale Park and other natural areas, the Ravensdale Market, etc.

These improvements will not affect the memorial for the Ravensdale Mine Explosion, nor will they affect access to the Ravensdale Market.

On this page

- [Status update](#)
- [Fall 2022 traffic safety improvements](#)
- [Overview](#)
- [What has King County done so far?](#)
- [Stop signs installed in spring 2021](#)

Contact us

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Overview

In fall 2022, King County will make additional temporary improvements to SE Kent-Kangley Road at the intersection of Landsburg Road SE/SE Ravensdale Way. These temporary improvements are intended to improve the turning ability of large vehicles on SE Kent-Kangley Road onto southbound SE Ravensdale Way, as well as for large vehicles traveling on SE Ravensdale Way turning west onto SE Kent-Kangley Road.

The fall 2022 improvements are scheduled nearly 1.5 years after King County turned this high-collision location into a four-way stop. This approach of making safety upgrades in stages is necessary until the county secures funding to install a permanent traffic calming

safety improvement, such as a roundabout or traffic signal, at this intersection.

What has King County done so far?

In 2019, our Road Services Division conducted a study to improve traffic flow and reduce the high number of collisions at this intersection. The study identified two options to improve safety at this high-traffic intersection - installation of a roundabout or a traffic signal.

The study revealed the cost estimates for the two options are significantly higher than anticipated. Due to budget constraints, the county cannot afford either of these long-term options (roundabout or traffic signal) at this time.

In spring 2021, Road Services added two new stop signs with flashing, LED lights as a temporary measure to address safety concerns. LED lights were not installed at the two existing stop signs at SE Ravensdale Way and Landsburg Road SE because our study indicated those signs are effective in getting drivers to stop at the intersection.

In fall 2022, we will add additional improvements including a "slip lane" to allow eastbound drivers on SE Kent-Kangley Road to turn south onto SE Ravensdale Way, a traffic island and a new crosswalk.

This approach of making safety upgrades in stages is necessary until the county secures funding to install a permanent traffic calming safety improvement, such as a roundabout or traffic signals, at this intersection.

Stop signs installed in spring 2021



SE Kent-Kangley Road at Landsburg Road SE/SE Ravensdale Way, westbound

[Larger view](#)  JPG 4MB



SE Kent-Kangley Road, eastbound, in front of the store
[Larger view](#)  JPG 4MB



SE Kent-Kangley Road, westbound
[Larger view](#)  JPG 2MB



Road Services Division

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Contact us



Email: Maint.roads@kingcounty.gov



24/7 Road Helpline: [206-477-8100](tel:206-477-8100) or [1-800-527-6237](tel:1-800-527-6237)



TTY Relay: 711



Twitter: [@KCRoads](https://twitter.com/KCRoads)

Last Updated October 6, 2022

Appendix E

Trip Generation Calculations



From: Transpogroup. 2021. Mid-Point Traffic Monitoring Report: Ten Trails and Lawson Hills Master Planned Developments: Phase 1A. Prepared for CCD Black Diamond Partners LLC, Kirkland, WA.

2022 PM Peak Hour Trip Generation – Phase 1A/1B/2 Summary

Land Use	Unit	Size	Gross Trips			Internal Trips			Pass-by Trips			Net New Trips		
			In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Ten Trails														
Single-Family Residential	DUs	993	580	340	920	0	0	0	0	0	0	580	340	920
Multi-Family Residential	DUs	302	78	50	128	0	0	0	0	0	0	78	50	128
Age-Qualified Residential	DUs	80	24	16	40	0	0	0	0	0	0	24	16	40
Elementary School	Students	0	0	0	0	0	0	0	0	0	0	0	0	0
Office	KSF	0	0	0	0	0	0	0	0	0	0	0	0	0
Retail	KSF	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			682	406	1088	0	0	0	0	0	0	682	406	1088

2022 PM Peak Hour Trip Generation Calculations – Ten Trails (Phase 1A/2)

Weekday PM Peak Hour - Cumulative Phase 1A and 2							Gross Trips ¹			Internal Trips ²			Pass-By Trips ¹			Net Trips ¹		
Land Use	ITE LU ³	Size ⁴	Ave or Eqn	Trip Rate ⁵	Total Trips	Inbound ⁶	In	Out	In	Out	Total	Rate	Total	In	Out	Total	In	Out
Single Family	210	918 DUs	Eqn	0.93	853	63%	537	316	0	0	0	0%	0	0	0	853	537	316
Multifamily	221	237 DUs	Eqn	0.43	101	61%	62	39	0	0	0	0%	0	0	0	101	62	39
Senior Adult Housing	251	80 DUs	Eqn	0.50	40	61%	24	16	0	0	0	0%	0	0	0	40	24	16
Elementary School	520	Students	Ave	0.17	0	48%	0	0	0	0	0	0%	0	0	0	0	0	0
Office	710	SF	Eqn	0.00	0	16%	0	0	0	0	0	0%	0	0	0	0	0	0
Retail	820	SF	Eqn	0.00	0	48%	0	0	0	0	0	20%	0	0	0	0	0	0
Total					994		623	371	0	0	0		0	0	0	994	623	371

2022 PM Peak Hour Trip Generation Calculations – Ten Trails (Phase 1B)

Weekday PM Peak Hour - Phase 1B			Gross Trips ¹				Internal Trips ²				Pass-By Trips ³				Net Trips ⁴			
Land Use	ITE LU ⁵	Size ⁶	Total Trips	Inbound ⁷	In	Out	In	Out	Total	Rate	Total	In	Out	Total	In	Out		
Single Family	210	75 DUs	67	63%	42	25	0	0	0	0%	0	0	0	67	42	25		
Multifamily	221	65 DUs	27	61%	16	11	0	0	0	0%	0	0	0	27	16	11		
Senior Adult Housing	251	DUs	0	61%	0	0	0	0	0	0%	0	0	0	0	0	0		
Elementary School	520	Students	0	48%	0	0	0	0	0	0%	0	0	0	0	0	0		
Office	710	SF	0	16%	0	0	0	0	0	0%	0	0	0	0	0	0		
Retail	820	SF	0	48%	0	0	0	0	0	20%	0	0	0	0	0	0		
Total			94		58	36	0	0	0		0	0	0	94	58	36		

Year 2022 PM Peak Hour Trips - Rates Based on ITE 11th edition

Phase 1A

Land Use	ITE LU	Size	Avg or Equ	Trip Rate	Total Trips	In	Out
Singe Fam	210	463	Equ	0.91	420	265	155
Multifamil	221	237	Equ	0.39	93	57	36
					513	321	192

1) ITE Trip Generation 11th edition

Phase 2

Land Use	ITE LU	Size	Avg or Equ	Trip Rate	Total Trips	In	Out
Singe Family	210	455	Equ	0.91	413	260	153
Multifamily	221	0	Equ	0.00	0	0	0
Senior Adult Housing	251	80	Equ	0.46	37	23	14
					450	283	167

Phase 1A/2

Land Use	ITE LU	Size	Avg or Equ	Trip Rate	Total Trips	In	Out
Singe Family	210	918	Equ	0.87	799	503	296
Multifamily	221	237	Equ	0.39	93	57	36
Senior Adult Housing	251	80	Equ	0.46	37	23	14
					929	583	346

Phase 1B

Land Use	ITE LU	Size	Avg or Equ	Trip Rate	Total Trips	In	Out
Singe Fam	210	75	Equ	1.01	76	48	28
Multifamil	221	65	Equ	0.40	26	16	10
					102	64	38

TOTAL TRIPS in 2022		
Total	In	Out
1031	646	385

Year 2032

Weekday PM Peak	Ten Trail Phase 1B					Gross Trips ²				Internal Trips ³			Pass-By Trips ⁴				Net New Trips ⁵		
Land Use	ITE LU	Size	Units	Avg or Eqn ¹	Trip Rate	Total Trips	% Inbound	In	Out	Total	In	Out	Rate	Total	In	Out	Total	In	Out
Single Family	210	150	units	eqn	0.97	145	63%	91	54	51	33	19	0%	0	0	0	94	59	35
Senior Adult Housing	251	0	units	-	0	0	0%	0	0	0	0	0	0%	0	0	0	0	0	0
Multifamily	221	125	units	eqn	0.39	49	61%	30	19	43	27	15	0%	0	0	0	6	3	4
Elementary School	520	0	students	-	0	0	0%	0	0	0	0	0	0%	0	0	0	0	0	0
Office	710	143	ksf	eqn	1.56	223	17%	38	185	49	12	37	0%	0	0	0	174	26	148
Retail	820	180	ksf	eqn	4.79	862	48%	414	448	129	64	65	19%	164	82	82	569	268	301
						1279		573	706	272	136	136		164	82	82	843	355	488

1) Regression equations used, consistent with approach used in the TTR

2) Total vehicle trips based on rates/equations from ITE Trip Generation Manual (11th edition)

3) Trips that would remain internal to the project site and would not use external roads, based on rates from Trip Generation Handbook and NCHRP report 685

4) Trips already on the adjacent street system that make a stop at the project site before continuing to final destination; rate based on ITE Trip Generation Manual (2021 rates); included as turning movements at project access points

5) Overall new trips that would travel externally to the proposed project

Year 2032

Weekday PM Peak	Ten Trail Phase 1A/Phase 2/Phase 3					Gross Trips ²				Internal Trips ³			Pass-By Trips ⁴				Net New Trips		
Land Use	ITE LU	Size	Units	Avg or Eqn ¹	Trip Rate	Total Trips	% Inbound	In	Out	Total	In	Out	Rate	Total	In	Out	Total	In	Out
Single Family	210	3153	units	eqn	0.81	2547	63%	1605	942	181	103	78	0%	0	0	0	2366	1502	864
Senior Adult Housing	251	401	units	eqn	0.33	131	61%	80	51	8	5	3	0%	0	0	0	123	75	48
Multifamily	221	971	units	eqn	0.39	379	61%	231	148	23	13	9	0%	0	0	0	356	218	138
Elementary School	520	600	students	avg	0.16	96	48%	46	50	29	15	14	0%	0	0	0	67	31	36
Office	710	307	ksf	eqn	1.37	421	17%	72	349	84	49	35	0%	0	0	0	337	23	314
Retail	820	145	ksf	eqn	5.08	737	48%	354	383	171	63	108	19%	140	70	70	426	221	205
						4311		2387	1924	496	248	248		140	70	70	3676	2069	1606

1) Regression equations used, consistent with approach used in the TTR

2) Total vehicle trips based on rates/equations from ITE Trip Generation Manual (11th edition)

3) Trips that would remain internal to the project site and would not use external roads, based on rates from Trip Generation Handbook and NCHRP report 685; 30% for schools consistent with The Villages TTR

4) Trips already on the adjacent street system that make a stop at the project site before continuing to final destination; rate based on ITE Trip Generation Manual (2021 rates); included as turning movements at project access points

5) Overall new trips that would travel externally to the proposed project

Year 2032

Weekday PM Peak	Lawson Hills Phase 1B (North Triangle)					Gross Trips ²				Internal Trips ³			Pass-By Trips ⁴				Net New Trips ⁵		
Land Use	ITE LU	Size	Units	Avg or Eqn ¹	Trip Rate	Total Trips	% Inbound	In	Out	Total	In	Out	Rate	Total	In	Out	Total	In	Out
Single Family	210	0	units	-	0	0	0%	0	0	0	0	0	0%	0	0	0	0	0	0
Senior Adult Housing	251	0	units	-	0	0	0%	0	0	0	0	0	0%	0	0	0	0	0	0
Multifamily	221	0	units	-	0	0	0%	0	0	0	0	0	0%	0	0	0	0	0	0
Elementary School	520	0	students	-	0	0	0%	0	0	0	0	0	0%	0	0	0	0	0	0
Office	710	200	ksf	eqn	1.48	295	17%	50	245	43	9	34	0%	0	0	0	252	41	211
Retail	820	190	ksf	eqn	4.72	896	48%	430	466	43	34	9	19%	170	85	85	683	311	372
						1191		480	711	86	43	43		170	85	85	935	352	583

1) Regression equations used, consistent with approach used in the TTR

2) Total vehicle trips based on rates/equations from ITE Trip Generation Manual (11th edition)

3) Trips that would remain internal to the project site and would not use external roads, based on rates from Trip Generation Handbook and NCHRP report 685

4) Trips already on the adjacent street system that make a stop at the project site before continuing to final destination; rate based on ITE Trip Generation Manual (2021 rates); included as turning movements at project access points

5) Overall new trips that would travel externally to the proposed project

Year 2032

Weekday PM Peak	Lawson Hills Phase 2					Gross Trips ²				Internal Trips ³			Pass-By Trips ⁴				Net New Trips ⁵		
Land Use	ITE LU	Size	Units	Avg or Eqn ¹	Trip Rate	Total Trips	% Inbound	In	Out	Total	In	Out	Rate	Total	In	Out	Total	In	Out
Single Family	210	961	units	eqn	0.87	834	63%	525	309	25	12	13	0%	0	0	0	809	513	296
Senior Adult Housing	251	0	units	-	0	0	0%	0	0	0	0	0	0%	0	0	0	0	0	0
Multifamily	221	289	units	eqn	0.39	113	61%	69	44	4	2	2	0%	0	0	0	109	67	42
Elementary School	520	600	students	-	0	96	48%	46	50	29	14	15	0%	0	0	0	67	32	35
Office	710	0	ksf	-	0	0	0%	0	0	0	0	0	0%	0	0	0	0	0	0
Retail	820	0	ksf	-	0	0	0%	0	0	0	0	0	19%	0	0	0	0	0	0
						1043		640	403	58	29	29		0	0	0	985	612	373

1) Regression equations used, consistent with approach used in the TTR

2) Total vehicle trips based on rates/equations from ITE Trip Generation Manual (11th edition)

3) Trips that would remain internal to the project site and would not use external roads, based on rates from Trip Generation Handbook and NCHRP report 685; 30% for schools consistent with The Villages TTR

4) Trips already on the adjacent street system that make a stop at the project site before continuing to final destination; rate based on ITE Trip Generation Manual (2021 rates); included as turning movements at project access points

5) Overall new trips that would travel externally to the proposed project

NCHRP 8-51 Internal Trip Capture Estimation Tool					
Project Name:	MDRT Modeling Update			Organization:	City of Black Diamond
Project Location:	Black Diamond			Performed By:	Parametrix
Scenario Description:	Ten Trails Phase 1 B			Date:	7/14/2022
Analysis Year:	2032			Checked By:	
Analysis Period:	PM Street Peak Hour			Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				223	38	185
Retail				862	414	448
Restaurant				0		
Cinema/Entertainment				0		
Residential				194	121	73
Hotel				0		
All Other Land Uses ²				0		
Total				1279	573	706

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses ²	1.00	0%	0%	1.00	0%	0%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		33	0	0	4	0
Retail	9		0	0	56	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	3	31	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	1,279	573	706
Internal Capture Percentage	21%	24%	19%
External Vehicle-Trips ³	1,007	437	570
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	32%	20%
Retail	15%	15%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	50%	47%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

⁴Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Project Name:	MDRT Modeling Update
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	38	38	1.00	185	185
Retail	1.00	414	414	1.00	448	448
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	121	121	1.00	73	73
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		37	7	0	4	0
Retail	9		130	18	116	22
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	3	31	15	0		2
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		33	0	0	5	0
Retail	12		0	0	56	0
Restaurant	11	207		0	19	0
Cinema/Entertainment	2	17	0		5	0
Residential	22	41	0	0		0
Hotel	0	8	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	12	26	38	26	0	0
Retail	64	350	414	350	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	60	61	121	61	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	37	148	185	148	0	0
Retail	65	383	448	383	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	34	39	73	39	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool					
Project Name:	MDRT Modeling Update			Organization:	City of Black Diamond
Project Location:	Black Diamond			Performed By:	Parametrix
Scenario Description:	Ten Trails Phase 1A, 2 and 3			Date:	7/14/2022
Analysis Year:	2032			Checked By:	
Analysis Period:	PM Street Peak Hour			Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				421	72	349
Retail				737	354	383
Restaurant				0		
Cinema/Entertainment				0		
Residential				3057	1916	1141
Hotel				0		
All Other Land Uses ²				0		
Total				4215	2342	1873

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses ²	1.00	0%	0%	1.00	0%	0%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		28	0	0	7	0
Retail	8		0	0	100	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	41	35	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	4,215	2,342	1,873
Internal Capture Percentage	10%	9%	12%
External Vehicle-Trips ³	3,777	2,123	1,654
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	68%	10%
Retail	18%	28%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	6%	7%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

⁴Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Project Name:	MDRT Modeling Update
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	72	72	1.00	349	349
Retail	1.00	354	354	1.00	383	383
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	1916	1916	1.00	1141	1141
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		70	14	0	7	0
Retail	8		111	15	100	19
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	46	479	240	0		34
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		28	0	0	77	0
Retail	22		0	0	881	0
Restaurant	22	177		0	307	0
Cinema/Entertainment	4	14	0		77	0
Residential	41	35	0	0		0
Hotel	0	7	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	49	23	72	23	0	0
Retail	63	291	354	291	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	107	1809	1916	1809	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	35	314	349	314	0	0
Retail	108	275	383	275	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	76	1065	1141	1065	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool					
Project Name:	MDRT Modeling Update			Organization:	City of Black Diamond
Project Location:	Black Diamond			Performed By:	Parametrix
Scenario Description:	Lawson Hills Phase 1 B			Date:	7/14/2022
Analysis Year:	2032			Checked By:	
Analysis Period:	PM Street Peak Hour			Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				295	50	245
Retail				896	430	466
Restaurant				0		
Cinema/Entertainment				0		
Residential				0		
Hotel				0		
All Other Land Uses ²				0		
Total				1191	480	711

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses ²	1.00	0%	0%	1.00	0%	0%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		34	0	0	0	0
Retail	9		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	1,191	480	711
Internal Capture Percentage	7%	9%	6%
External Vehicle-Trips ³	1,105	437	668
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	18%	14%
Retail	8%	2%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

⁴Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Project Name:	MDRT Modeling Update
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	50	50	1.00	245	245
Retail	1.00	430	430	1.00	466	466
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	0	0	1.00	0	0
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		49	10	0	5	0
Retail	9		135	19	121	23
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		34	0	0	0	0
Retail	16		0	0	0	0
Restaurant	15	215		0	0	0
Cinema/Entertainment	3	17	0		0	0
Residential	29	43	0	0		0
Hotel	0	9	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	9	41	50	41	0	0
Retail	34	396	430	396	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	34	211	245	211	0	0
Retail	9	457	466	457	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Appendix F

Level of Service Worksheets



HCM 6th TWSC
1: SR 169 & SE Green Valley Rd

10/02/2023

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	14	0	14	3	0	0	10	380	5	5	705	25
Future Vol, veh/h	14	0	14	3	0	0	10	380	5	5	705	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	1	1	1	0	0	0	1	1	1	1	1	1
Mvmt Flow	16	0	16	4	0	0	12	447	6	6	829	29

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1315	1318	829	1323	1315	450	829	0	0	453	0	0
Stage 1	841	841	-	474	474	-	-	-	-	-	-	-
Stage 2	474	477	-	849	841	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.1	6.5	6.2	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.5	4	3.3	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	136	158	372	135	159	613	807	-	-	1113	-	0
Stage 1	361	382	-	575	561	-	-	-	-	-	-	0
Stage 2	573	558	-	358	383	-	-	-	-	-	-	0
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	133	153	372	126	154	613	807	-	-	1113	-	-
Mov Cap-2 Maneuver	133	153	-	126	154	-	-	-	-	-	-	-
Stage 1	354	378	-	564	550	-	-	-	-	-	-	-
Stage 2	562	547	-	339	379	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	27	34.4	0.2	0.1
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT
Capacity (veh/h)	807	-	-	196	126	1113
HCM Lane V/C Ratio	0.015	-	-	0.168	0.028	0.005
HCM Control Delay (s)	9.5	0	-	27	34.4	8.3
HCM Lane LOS	A	A	-	D	D	A
HCM 95th %tile Q(veh)	0	-	-	0.6	0.1	0

HCM 6th TWSC
3: SR 169 & Jones Lake Rd

10/02/2023

Intersection

Int Delay, s/veh 2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	110	145	290	645	0
Future Vol, veh/h	0	110	145	290	645	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	2	2	3	3
Mvmt Flow	0	116	153	305	679	0

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1290	679	679
Stage 1	679	-	-
Stage 2	611	-	-
Critical Hdwy	6.6	6.3	4.12
Critical Hdwy Stg 1	5.6	-	-
Critical Hdwy Stg 2	5.6	-	-
Follow-up Hdwy	3.5	3.3	2.218
Pot Cap-1 Maneuver	170	447	913
Stage 1	489	-	-
Stage 2	527	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	136	447	913
Mov Cap-2 Maneuver	136	-	-
Stage 1	390	-	-
Stage 2	527	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.8	3.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	913	-	447	-	-
HCM Lane V/C Ratio	0.167	-	0.259	-	-
HCM Control Delay (s)	9.7	0	15.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.6	-	1	-	-

HCM 6th Signalized Intersection Summary

4: SR 169 & Lawson Rd

10/02/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	5	15	0	55	10	295	10	105	750	5
Future Volume (veh/h)	0	0	5	15	0	55	10	295	10	105	750	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	0	0	5	16	0	58	11	311	11	111	789	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	3	3	3	2	2	2
Cap, veh/h	0	0	117	132	2	89	104	1264	44	990	1348	9
Arrive On Green	0.00	0.00	0.07	0.07	0.00	0.07	0.73	0.73	0.73	1.00	1.00	1.00
Sat Flow, veh/h	0	0	1586	307	25	1206	16	1741	60	1056	1856	12
Grp Volume(v), veh/h	0	0	5	74	0	0	333	0	0	111	0	794
Grp Sat Flow(s),veh/h/ln	0	0	1586	1538	0	0	1817	0	0	1056	0	1868
Q Serve(g_s), s	0.0	0.0	0.1	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.1	1.9	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.00		1.00	0.22		0.78	0.03		0.03	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	117	223	0	0	1412	0	0	990	0	1356
V/C Ratio(X)	0.00	0.00	0.04	0.33	0.00	0.00	0.24	0.00	0.00	0.11	0.00	0.59
Avail Cap(c_a), veh/h	0	0	634	722	0	0	1412	0	0	990	0	1356
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	0.73	0.00	0.73
Uniform Delay (d), s/veh	0.0	0.0	17.2	18.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.9	0.0	0.0	0.4	0.0	0.0	0.2	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.6	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	17.4	18.9	0.0	0.0	2.2	0.0	0.0	0.2	0.0	1.4
LnGrp LOS	A	A	B	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h	5			74			333			905		
Approach Delay, s/veh	17.4			18.9			2.2			1.2		
Approach LOS	B			B			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	33.0			7.0			33.0			7.0		
Change Period (Y+Rc), s	4.0			4.0			4.0			4.0		
Max Green Setting (Gmax), s	16.0			16.0			16.0			16.0		
Max Q Clear Time (g_c+I1), s	4.4			2.1			2.0			3.9		
Green Ext Time (p_c), s	1.1			0.0			4.2			0.2		
Intersection Summary												
HCM 6th Ctrl Delay	2.5											
HCM 6th LOS	A											

HCM 6th Signalized Intersection Summary

5: SR 169 & Baker St

10/02/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑	↑	W
Traffic Volume (veh/h)	30	60	30	320	800	40
Future Volume (veh/h)	30	60	30	320	800	40
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.99	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1811	1856	1856	1870	1870
Adj Flow Rate, veh/h	32	64	32	340	851	43
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	6	6	3	3	2	2
Cap, veh/h	43	85	461	1332	1267	64
Arrive On Green	0.08	0.08	1.00	1.00	0.72	0.72
Sat Flow, veh/h	521	1042	617	1856	1765	89
Grp Volume(v), veh/h	97	0	32	340	0	894
Grp Sat Flow(s),veh/h/ln	1579	0	617	1856	0	1854
Q Serve(g_s), s	2.4	0.0	0.8	0.0	0.0	10.5
Cycle Q Clear(g_c), s	2.4	0.0	11.3	0.0	0.0	10.5
Prop In Lane	0.33	0.66	1.00			0.05
Lane Grp Cap(c), veh/h	129	0	461	1332	0	1331
V/C Ratio(X)	0.75	0.00	0.07	0.26	0.00	0.67
Avail Cap(c_a), veh/h	632	0	461	1332	0	1331
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.98	0.98	0.00	1.00
Uniform Delay (d), s/veh	18.0	0.0	2.1	0.0	0.0	3.1
Incr Delay (d2), s/veh	8.4	0.0	0.3	0.5	0.0	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	0.2	0.0	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.4	0.0	2.4	0.5	0.0	5.8
LnGrp LOS	C	A	A	A	A	A
Approach Vol, veh/h	97			372	894	
Approach Delay, s/veh	26.4			0.6	5.8	
Approach LOS	C			A	A	
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	32.7		7.3		32.7	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	16.0		16.0		16.0	
Max Q Clear Time (g_c+l1), s	13.3		4.4		12.5	
Green Ext Time (p_c), s	0.5		0.2		1.7	

Intersection Summary

HCM 6th Ctrl Delay	5.8
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	55	30	0	0	10
Future Vol, veh/h	30	55	30	0	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	60	33	0	0	11
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	33	0	-	0	159	33
Stage 1	-	-	-	-	33	-
Stage 2	-	-	-	-	126	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1579	-	-	-	832	1041
Stage 1	-	-	-	-	989	-
Stage 2	-	-	-	-	900	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1579	-	-	-	814	1041
Mov Cap-2 Maneuver	-	-	-	-	814	-
Stage 1	-	-	-	-	967	-
Stage 2	-	-	-	-	900	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.6	0		8.5		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1579	-	-	-	-	1041
HCM Lane V/C Ratio	0.021	-	-	-	-	0.01
HCM Control Delay (s)	7.3	0	-	-	-	8.5
HCM Lane LOS	A	A	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0

HCM 6th TWSC
9: SR 169 & Black Diamond-Ravensdale Rd

10/02/2023

Intersection

Int Delay, s/veh 2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	230	410	95	0	1080
Future Vol, veh/h	0	230	410	95	0	1080
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	Free	-	Free
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	2	2	1	1
Mvmt Flow	0	258	461	107	0	1213

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	461	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.21	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.309	-
Pot Cap-1 Maneuver	0	603	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	603	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.4	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 603	-
HCM Lane V/C Ratio	- 0.429	-
HCM Control Delay (s)	- 15.4	-
HCM Lane LOS	- C	-
HCM 95th %tile Q(veh)	- 2.1	-

HCM 6th Signalized Intersection Summary

10: SR 169 & SE 288th St

01/11/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	75	30	10	385	875	140
Future Volume (veh/h)	75	30	10	385	875	140
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1841	1856	1856	1841	1841
Adj Flow Rate, veh/h	84	34	11	433	983	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	4	4	3	3	4	4
Cap, veh/h	127	113	72	1440	1462	
Arrive On Green	0.07	0.07	0.79	0.79	0.79	0.00
Sat Flow, veh/h	1753	1560	13	1813	1841	1560
Grp Volume(v), veh/h	84	34	444	0	983	0
Grp Sat Flow(s),veh/h/ln	1753	1560	1826	0	1841	1560
Q Serve(g_s), s	2.8	1.2	0.0	0.0	14.2	0.0
Cycle Q Clear(g_c), s	2.8	1.2	3.9	0.0	14.2	0.0
Prop In Lane	1.00	1.00	0.02			1.00
Lane Grp Cap(c), veh/h	127	113	1511	0	1462	
V/C Ratio(X)	0.66	0.30	0.29	0.00	0.67	
Avail Cap(c_a), veh/h	467	416	1511	0	1462	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	27.1	26.4	1.7	0.0	2.7	0.0
Incr Delay (d2), s/veh	5.7	1.5	0.5	0.0	2.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.5	0.2	0.0	1.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.8	27.8	2.2	0.0	5.2	0.0
LnGrp LOS	C	C	A	A	A	
Approach Vol, veh/h	118			444	983	A
Approach Delay, s/veh	31.4			2.2	5.2	
Approach LOS	C			A	A	
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	51.6		8.4		51.6	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	36.0		16.0		36.0	
Max Q Clear Time (g_c+I1), s	5.9		4.8		16.2	
Green Ext Time (p_c), s	1.8		0.3		5.0	

Intersection Summary

HCM 6th Ctrl Delay	6.3
HCM 6th LOS	A

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis

11: SR 169 & 280th St

01/11/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	45	30	510	950	115
Future Volume (vph)	60	45	30	510	950	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.5	6.7	6.7	6.7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1568	1805	1863	1881	1599
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1568	1805	1863	1881	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	47	32	537	1000	121
RTOR Reduction (vph)	0	44	0	0	0	9
Lane Group Flow (vph)	63	3	32	537	1000	112
Heavy Vehicles (%)	2%	3%	0%	2%	1%	1%
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	9.1	9.1	5.5	119.1	108.1	108.1
Effective Green, g (s)	9.1	9.1	5.5	119.1	108.1	108.1
Actuated g/C Ratio	0.06	0.06	0.04	0.85	0.77	0.77
Clearance Time (s)	5.1	5.1	5.5	6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	115	101	70	1584	1452	1234
v/s Ratio Prot	c0.04		0.02	c0.29	c0.53	
v/s Ratio Perm		0.00				0.07
v/c Ratio	0.55	0.03	0.46	0.34	0.69	0.09
Uniform Delay, d1	63.5	61.3	65.8	2.2	7.8	3.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.3	0.1	4.7	0.6	2.7	0.1
Delay (s)	68.7	61.4	70.5	2.8	10.5	4.1
Level of Service	E	E	E	A	B	A
Approach Delay (s)	65.6			6.6	9.8	
Approach LOS	E			A	A	
Intersection Summary						
HCM 2000 Control Delay			12.2		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.67			
Actuated Cycle Length (s)			140.0		Sum of lost time (s)	17.3
Intersection Capacity Utilization			63.2%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th Signalized Intersection Summary

12: SR 169 & SE Tahoma Way/SE 271st PI

01/11/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	35	15	25	230	15	55	20	655	105	5	105	990
Future Volume (veh/h)	35	15	25	230	15	55	20	655	105	5	105	990
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1870	1900		1900	1870
Adj Flow Rate, veh/h	37	16	26	242	16	58	21	689	111		111	1042
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	2	0		0	2
Cap, veh/h	48	49	79	193	55	200	26	1100	946		135	2220
Arrive On Green	0.03	0.08	0.08	0.11	0.16	0.16	0.01	0.59	0.59		0.07	0.65
Sat Flow, veh/h	1810	641	1042	1810	354	1285	1810	1870	1609		1810	3422
Grp Volume(v), veh/h	37	0	42	242	0	74	21	689	111		111	541
Grp Sat Flow(s),veh/h/ln	1810	0	1683	1810	0	1639	1810	1870	1609		1810	1777
Q Serve(g_s), s	2.8	0.0	3.3	14.9	0.0	5.6	1.6	33.6	4.3		8.5	21.5
Cycle Q Clear(g_c), s	2.8	0.0	3.3	14.9	0.0	5.6	1.6	33.6	4.3		8.5	21.5
Prop In Lane	1.00		0.62	1.00		0.78	1.00		1.00		1.00	
Lane Grp Cap(c), veh/h	48	0	128	193	0	256	26	1100	946		135	1152
V/C Ratio(X)	0.77	0.00	0.33	1.26	0.00	0.29	0.80	0.63	0.12		0.82	0.47
Avail Cap(c_a), veh/h	167	0	371	193	0	385	252	1100	946		252	1152
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	67.7	0.0	61.3	62.6	0.0	52.2	68.8	18.8	12.7		63.8	12.4
Incr Delay (d2), s/veh	22.3	0.0	1.5	150.6	0.0	0.6	40.8	2.7	0.3		11.5	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	1.5	15.0	0.0	2.4	1.0	14.6	1.7		4.3	8.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.0	0.0	62.7	213.1	0.0	52.8	109.6	21.5	13.0		75.3	13.8
LnGrp LOS	F	A	E	F	A	D	F	C	B		E	B
Approach Vol, veh/h	79			316			821			1211		
Approach Delay, s/veh	75.5			175.6			22.6			19.4		
Approach LOS	E			F			C			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.0	88.3	20.0	15.8	7.5	96.7	8.8	26.9				
Change Period (Y+Rc), s	5.5	5.9	5.1	5.1	5.5	5.9	5.1	5.1				
Max Green Setting (Gmax), s	19.5	53.1	14.9	30.9	19.5	53.1	12.9	32.9				
Max Q Clear Time (g_c+I1), s	10.5	35.6	16.9	5.3	3.6	23.5	4.8	7.6				
Green Ext Time (p_c), s	0.2	4.6	0.0	0.2	0.0	7.9	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay 42.6

HCM 6th LOS D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary 12: SR 169 & SE Tahoma Way/SE 271st PI

01/11/2023

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	55
Future Volume (veh/h)	55
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	58
Peak Hour Factor	0.95
Percent Heavy Veh, %	0
Cap, veh/h	124
Arrive On Green	0.65
Sat Flow, veh/h	190
Grp Volume(v), veh/h	559
Grp Sat Flow(s),veh/h/ln	1836
Q Serve(g_s), s	21.5
Cycle Q Clear(g_c), s	21.5
Prop In Lane	0.10
Lane Grp Cap(c), veh/h	1191
V/C Ratio(X)	0.47
Avail Cap(c_a), veh/h	1191
HCM Platoon Ratio	1.00
Upstream Filter(l)	1.00
Uniform Delay (d), s/veh	12.4
Incr Delay (d2), s/veh	1.3
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	8.7
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	13.8
LnGrp LOS	B
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	

HCM 6th Signalized Intersection Summary

13: SR 169 & SR 516

01/11/2023

												
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	5	175	335	125	175	335	140	275	485	40	255	790
Future Volume (veh/h)	5	175	335	125	175	335	140	275	485	40	255	790
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99	1.00		0.99	1.00		1.00	1.00	
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No				No
Adj Sat Flow, veh/h/ln		1870	1885	1885	1885	1870	1841	1885	1856	1826	1841	1870
Adj Flow Rate, veh/h		182	349	130	182	349	146	286	505	42	266	823
Peak Hour Factor		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		2	1	1	1	2	4	1	3	5	4	2
Cap, veh/h		207	524	192	208	381	316	410	1136	94	292	900
Arrive On Green		0.12	0.20	0.20	0.12	0.20	0.20	0.23	0.34	0.34	0.17	0.28
Sat Flow, veh/h		1781	2561	938	1795	1870	1548	1795	3295	273	1753	3212
Grp Volume(v), veh/h		182	242	237	182	349	146	286	270	277	266	455
Grp Sat Flow(s),veh/h/ln		1781	1791	1708	1795	1870	1548	1795	1763	1805	1753	1777
Q Serve(g_s), s		14.1	17.4	17.9	14.0	25.6	11.6	20.5	16.6	16.7	20.9	34.7
Cycle Q Clear(g_c), s		14.1	17.4	17.9	14.0	25.6	11.6	20.5	16.6	16.7	20.9	34.7
Prop In Lane		1.00		0.55	1.00		1.00	1.00		0.15	1.00	
Lane Grp Cap(c), veh/h		207	366	349	208	381	316	410	608	623	292	498
V/C Ratio(X)		0.88	0.66	0.68	0.88	0.91	0.46	0.70	0.44	0.45	0.91	0.91
Avail Cap(c_a), veh/h		274	375	357	289	405	335	410	608	623	369	534
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		60.9	51.2	51.4	60.9	54.5	49.0	49.6	35.5	35.5	57.3	48.8
Incr Delay (d2), s/veh		21.5	4.2	4.9	19.2	24.3	1.1	5.2	2.3	2.3	22.8	23.8
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		7.5	8.1	8.0	7.4	14.3	4.5	9.7	7.4	7.7	11.0	18.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		82.4	55.4	56.3	80.2	78.9	50.0	54.8	37.8	37.8	80.1	72.6
LnGrp LOS		F	E	E	F	E	D	D	D	D	F	E
Approach Vol, veh/h			661			677			833			1183
Approach Delay, s/veh			63.2			73.0			43.6			74.2
Approach LOS			E			E			D			E
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	28.8	54.2	21.7	35.3	37.8	45.1	21.8	35.3				
Change Period (Y+Rc), s	5.5	5.9	5.5	6.7	5.9	* 5.9	5.5	6.7				
Max Green Setting (Gmax), s	29.5	35.1	22.5	29.3	22.5	* 42	21.5	30.3				
Max Q Clear Time (g_c+I1), s	22.9	18.7	16.0	19.9	22.5	36.7	16.1	27.6				
Green Ext Time (p_c), s	0.4	2.8	0.2	1.8	0.0	2.5	0.2	0.7				
Intersection Summary												
HCM 6th Ctrl Delay			64.2									
HCM 6th LOS			E									
Notes												
User approved ignoring U-Turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary

13: SR 169 & SR 516

01/11/2023

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	90
Future Volume (veh/h)	90
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1885
Adj Flow Rate, veh/h	94
Peak Hour Factor	0.96
Percent Heavy Veh, %	1
Cap, veh/h	103
Arrive On Green	0.28
Sat Flow, veh/h	367
Grp Volume(v), veh/h	462
Grp Sat Flow(s),veh/h/ln	1802
Q Serve(g_s), s	34.7
Cycle Q Clear(g_c), s	34.7
Prop In Lane	0.20
Lane Grp Cap(c), veh/h	505
V/C Ratio(X)	0.91
Avail Cap(c_a), veh/h	542
HCM Platoon Ratio	1.00
Upstream Filter(l)	1.00
Uniform Delay (d), s/veh	48.8
Incr Delay (d2), s/veh	23.6
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	18.6
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	72.3
LnGrp LOS	E
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	

HCM Signalized Intersection Capacity Analysis

14: SR 169 & SE 240th Blvd

01/11/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	50	30	140	50	30	80	125	725	20	10	100	1285
Future Volume (vph)	50	30	140	50	30	80	125	725	20	10	100	1285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		5.1	5.1		5.5	5.9	4.0		5.5	5.9
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00		1.00	0.95
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.88		1.00	0.89		1.00	1.00	0.85		1.00	0.99
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1621		1805	1681		1805	3471	1615		1805	3486
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1621		1805	1681		1805	3471	1615		1805	3486
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	32	147	53	32	84	132	763	21	11	105	1353
RTOR Reduction (vph)	0	137	0	0	78	0	0	0	21	0	0	1
Lane Group Flow (vph)	53	42	0	53	38	0	132	763	0	0	116	1405
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	2%	0%	2%	0%	0%	1%	0%	4%	0%	0%	0%	3%
Turn Type	Prot	NA		Prot	NA		Prot	NA	NA	Prot	Prot	NA
Protected Phases	7	4		3	8		5	2		1	1	6
Permitted Phases												
Actuated Green, G (s)	8.4	9.6		8.3	9.5		15.8	86.3	0.0		14.2	84.7
Effective Green, g (s)	8.4	9.6		8.3	9.5		15.8	86.3	0.0		14.2	84.7
Actuated g/C Ratio	0.06	0.07		0.06	0.07		0.11	0.62	0.00		0.10	0.61
Clearance Time (s)	5.1	5.1		5.1	5.1		5.5	5.9			5.5	5.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	106	111		107	114		203	2139	0		183	2109
v/s Ratio Prot	c0.03	c0.03		0.03	0.02		c0.07	0.22			0.06	c0.40
v/s Ratio Perm												
v/c Ratio	0.50	0.38		0.50	0.33		0.65	0.36	0.00		0.63	0.67
Uniform Delay, d1	63.8	62.3		63.8	62.2		59.5	13.2	70.0		60.4	18.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.30	0.43
Incremental Delay, d2	3.7	2.2		3.6	1.7		7.2	0.5	0.0		2.3	0.5
Delay (s)	67.4	64.5		67.4	63.9		66.7	13.7	70.0		81.1	8.5
Level of Service	E	E		E	E		E	B	E		F	A
Approach Delay (s)		65.2			65.0			22.6				14.0
Approach LOS		E			E			C				B
Intersection Summary												
HCM 2000 Control Delay			24.0				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)		21.6			
Intersection Capacity Utilization			76.8%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: SR 169 & SE 240th Blvd

01/11/2023

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	50
Future Volume (vph)	50
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	53
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th Signalized Intersection Summary

15: SR 169 & Witte Rd SE

01/11/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							 			 	
Traffic Volume (veh/h)	395	40	15	65	40	10	15	795	20	5	1405	690
Future Volume (veh/h)	395	40	15	65	40	10	15	795	20	5	1405	690
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1796	1900	1826	1900	1900	1900	1870	1737	1900	1870	1885
Adj Flow Rate, veh/h	407	41	15	67	41	10	15	820	21	5	1448	711
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	7	0	5	0	0	0	2	11	0	2	1
Cap, veh/h	464	169	62	85	73	18	29	2277	58	11	1506	682
Arrive On Green	0.13	0.13	0.13	0.05	0.05	0.05	0.02	0.64	0.64	0.00	0.42	0.42
Sat Flow, veh/h	3456	1254	459	1739	1473	359	1810	3540	91	1810	2376	1076
Grp Volume(v), veh/h	407	0	56	67	0	51	15	412	429	5	1052	1107
Grp Sat Flow(s),veh/h/ln	1728	0	1712	1739	0	1833	1810	1777	1854	1810	1777	1676
Q Serve(g_s), s	16.2	0.0	4.1	5.3	0.0	3.8	1.2	15.1	15.1	0.4	79.0	88.7
Cycle Q Clear(g_c), s	16.2	0.0	4.1	5.3	0.0	3.8	1.2	15.1	15.1	0.4	79.0	88.7
Prop In Lane	1.00		0.27	1.00		0.20	1.00		0.05	1.00		0.64
Lane Grp Cap(c), veh/h	464	0	231	85	0	91	29	1143	1193	11	1126	1062
V/C Ratio(X)	0.88	0.00	0.24	0.78	0.00	0.56	0.53	0.36	0.36	0.44	0.93	1.04
Avail Cap(c_a), veh/h	555	0	416	242	0	406	123	1143	1193	123	1126	1062
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.26	0.26	0.26
Uniform Delay (d), s/veh	59.5	0.0	54.2	65.8	0.0	65.0	68.4	11.6	11.6	69.5	37.5	40.3
Incr Delay (d2), s/veh	13.0	0.0	0.5	14.4	0.0	5.3	14.1	0.9	0.8	6.7	5.0	26.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	0.0	1.8	2.7	0.0	1.9	0.6	5.9	6.2	0.2	36.7	45.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.5	0.0	54.7	80.2	0.0	70.3	82.5	12.5	12.4	76.2	42.5	67.1
LnGrp LOS	E	A	D	F	A	E	F	B	B	E	D	F
Approach Vol, veh/h	463			118			856			2164		
Approach Delay, s/veh	70.3			75.9			13.7			55.2		
Approach LOS	E			E			B			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.4	96.4	12.4	24.9	7.7	95.0	24.3	13.0				
Change Period (Y+Rc), s	5.5	6.3	5.5	6.0	5.5	6.3	5.5	6.0				
Max Green Setting (Gmax), s	9.5	53.7	19.5	34.0	9.5	53.7	22.5	31.0				
Max Q Clear Time (g_c+I1), s	2.4	17.1	7.3	6.1	3.2	90.7	18.2	5.8				
Green Ext Time (p_c), s	0.0	5.6	0.1	0.2	0.0	0.0	0.6	0.2				
Intersection Summary												
HCM 6th Ctrl Delay	47.9											
HCM 6th LOS	D											

HCM 6th Signalized Intersection Summary 16: SR 169 & SE Wax Rd

01/11/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	10	360	45	20	45	240	925	25	40	1680	115
Future Volume (veh/h)	100	10	360	45	20	45	240	925	25	40	1680	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1737	1885	1900	1900	1900	1885	1870	1900	1900	1885	1885
Adj Flow Rate, veh/h	103	10	371	46	21	46	247	954	26	41	1732	119
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	11	1	0	0	0	1	2	0	0	1	1
Cap, veh/h	127	364	332	60	91	198	270	1976	54	54	1570	700
Arrive On Green	0.07	0.21	0.21	0.03	0.17	0.17	0.15	0.56	0.56	0.03	0.44	0.44
Sat Flow, veh/h	1795	1737	1586	1810	527	1154	1795	3534	96	1810	3582	1598
Grp Volume(v), veh/h	103	10	371	46	0	67	247	480	500	41	1732	119
Grp Sat Flow(s),veh/h/ln	1795	1737	1586	1810	0	1680	1795	1777	1853	1810	1791	1598
Q Serve(g_s), s	7.9	0.6	29.3	3.5	0.0	4.8	19.0	22.8	22.8	3.1	61.4	6.3
Cycle Q Clear(g_c), s	7.9	0.6	29.3	3.5	0.0	4.8	19.0	22.8	22.8	3.1	61.4	6.3
Prop In Lane	1.00		1.00	1.00		0.69	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	127	364	332	60	0	289	270	994	1036	54	1570	700
V/C Ratio(X)	0.81	0.03	1.12	0.76	0.00	0.23	0.91	0.48	0.48	0.76	1.10	0.17
Avail Cap(c_a), veh/h	276	364	332	291	0	364	289	994	1036	381	1570	700
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.85	0.85	0.85	0.64	0.64	0.64
Uniform Delay (d), s/veh	64.1	44.0	55.3	67.1	0.0	50.0	58.6	18.6	18.6	67.4	39.3	23.9
Incr Delay (d2), s/veh	11.6	0.0	85.0	17.8	0.0	0.4	27.2	1.4	1.4	13.3	53.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.3	19.5	1.9	0.0	2.1	10.5	9.5	9.9	1.6	37.5	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.7	44.0	140.4	85.0	0.0	50.4	85.8	20.1	20.0	80.7	92.6	24.2
LnGrp LOS	E	D	F	F	A	D	F	C	C	F	F	C
Approach Vol, veh/h	484			113			1227			1892		
Approach Delay, s/veh	124.6			64.5			33.3			88.1		
Approach LOS	F			E			C			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	84.2	10.2	36.0	26.6	67.3	15.4	30.8				
Change Period (Y+Rc), s	5.5	5.9	5.5	6.7	5.5	5.9	5.5	6.7				
Max Green Setting (Gmax), s	29.5	35.1	22.5	29.3	22.5	42.1	21.5	30.3				
Max Q Clear Time (g_c+l1), s	5.1	24.8	5.5	31.3	21.0	63.4	9.9	6.8				
Green Ext Time (p_c), s	0.1	4.2	0.1	0.0	0.1	0.0	0.2	0.3				
Intersection Summary												
HCM 6th Ctrl Delay	74.0											
HCM 6th LOS	E											

HCM 6th Signalized Intersection Summary

17: SR 169 & SE 231st St

01/11/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	45	845	10	55	15	510	525	25	15	1010	140
Future Volume (veh/h)	150	45	845	10	55	15	510	525	25	15	1010	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1707	1885	1574	1767	1811	1870	1885	1841	1678	1870	1870
Adj Flow Rate, veh/h	156	47	880	10	57	16	531	547	26	16	1052	146
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	13	1	22	9	6	2	1	4	15	2	2
Cap, veh/h	162	497	1254	14	279	78	534	1733	82	22	1270	566
Arrive On Green	0.09	0.29	0.29	0.01	0.21	0.21	0.15	0.50	0.50	0.01	0.36	0.36
Sat Flow, veh/h	1781	1707	2812	1499	1327	373	3456	3481	165	1598	3554	1585
Grp Volume(v), veh/h	156	47	880	10	0	73	531	281	292	16	1052	146
Grp Sat Flow(s),veh/h/ln	1781	1707	1406	1499	0	1700	1728	1791	1855	1598	1777	1585
Q Serve(g_s), s	9.6	2.2	27.8	0.7	0.0	3.9	16.9	10.3	10.3	1.1	29.7	7.2
Cycle Q Clear(g_c), s	9.6	2.2	27.8	0.7	0.0	3.9	16.9	10.3	10.3	1.1	29.7	7.2
Prop In Lane	1.00		1.00	1.00		0.22	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	162	497	1254	14	0	357	534	891	924	22	1270	566
V/C Ratio(X)	0.96	0.09	0.70	0.70	0.00	0.20	0.99	0.32	0.32	0.71	0.83	0.26
Avail Cap(c_a), veh/h	162	559	1355	55	0	464	534	891	924	58	1270	566
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	0.87	1.00	0.00	1.00	0.89	0.89	0.89	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.8	28.4	24.6	54.3	0.0	35.9	46.5	16.5	16.5	54.0	32.3	25.0
Incr Delay (d2), s/veh	55.2	0.1	1.3	46.5	0.0	0.3	35.2	0.8	0.8	33.9	6.3	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.9	8.9	0.5	0.0	1.6	9.7	4.2	4.4	0.6	13.3	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	105.0	28.5	25.9	100.8	0.0	36.1	81.7	17.3	17.3	87.9	38.6	26.1
LnGrp LOS	F	C	C	F	A	D	F	B	B	F	D	C
Approach Vol, veh/h	1083			83			1104			1214		
Approach Delay, s/veh	37.4			43.9			48.2			37.8		
Approach LOS	D			D			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.5	60.7	5.1	38.7	21.0	45.2	14.0	29.8				
Change Period (Y+Rc), s	4.0	5.9	4.0	6.7	4.0	5.9	4.0	6.7				
Max Green Setting (Gmax), s	4.0	45.4	4.0	36.0	17.0	32.4	10.0	30.0				
Max Q Clear Time (g_c+l1), s	3.1	12.3	2.7	29.8	18.9	31.7	11.6	5.9				
Green Ext Time (p_c), s	0.0	3.4	0.0	2.3	0.0	0.5	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay	41.1											
HCM 6th LOS	D											

HCM Signalized Intersection Capacity Analysis

18: SE 231st St & SR 18 EB Ramps

01/11/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (vph)	95	690	0	0	635	100	90	0	370	0	0	0
Future Volume (vph)	95	690	0	0	635	100	90	0	370	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3			6.3	6.3		5.9	5.9			
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		0.95	1.00			
Satd. Flow (prot)	1787	3539			3505	1599		1770	1583			
Flt Permitted	0.95	1.00			1.00	1.00		0.95	1.00			
Satd. Flow (perm)	1787	3539			3505	1599		1770	1583			
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	96	697	0	0	641	101	91	0	374	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	58	0	0	123	0	0	0
Lane Group Flow (vph)	96	697	0	0	641	43	0	91	251	0	0	0
Heavy Vehicles (%)	1%	2%	0%	0%	3%	1%	2%	0%	2%	0%	0%	0%
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases						6	8		8			
Actuated Green, G (s)	7.6	45.9			32.0	32.0		16.9	16.9			
Effective Green, g (s)	7.6	45.9			32.0	32.0		16.9	16.9			
Actuated g/C Ratio	0.10	0.61			0.43	0.43		0.23	0.23			
Clearance Time (s)	6.3	6.3			6.3	6.3		5.9	5.9			
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)	181	2165			1495	682		398	356			
v/s Ratio Prot	c0.05	0.20			c0.18							
v/s Ratio Perm						0.03		0.05	c0.16			
v/c Ratio	0.53	0.32			0.43	0.06		0.23	0.70			
Uniform Delay, d1	32.0	7.0			15.1	12.7		23.7	26.8			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	3.0	0.4			0.9	0.2		0.3	6.2			
Delay (s)	35.0	7.4			16.0	12.8		24.0	33.0			
Level of Service	C	A			B	B		C	C			
Approach Delay (s)		10.8			15.6			31.2			0.0	
Approach LOS		B			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			17.3				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			75.0				Sum of lost time (s)			18.5		
Intersection Capacity Utilization			62.2%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

19: SE 231st St & SR 18 WB Ramps

01/11/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↑	↑
Traffic Volume (vph)	0	535	200	365	390	0	0	0	0	225	0	105
Future Volume (vph)	0	535	200	365	390	0	0	0	0	225	0	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3	5.5	6.3						5.9	5.9
Lane Util. Factor		0.95	1.00	1.00	0.95						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		3574	1568	1752	3312						1736	1455
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		3574	1568	1752	3312						1736	1455
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	546	204	372	398	0	0	0	0	230	0	107
RTOR Reduction (vph)	0	0	114	0	0	0	0	0	0	0	0	86
Lane Group Flow (vph)	0	546	90	372	398	0	0	0	0	0	230	21
Heavy Vehicles (%)	0%	1%	3%	3%	9%	0%	0%	0%	0%	4%	0%	11%
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		23.9	23.9	22.4	51.8						16.0	16.0
Effective Green, g (s)		23.9	23.9	22.4	51.8						16.0	16.0
Actuated g/C Ratio		0.30	0.30	0.28	0.65						0.20	0.20
Clearance Time (s)		6.3	6.3	5.5	6.3						5.9	5.9
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		1067	468	490	2144						347	291
v/s Ratio Prot		c0.15		c0.21	0.12							
v/s Ratio Perm			0.06								0.13	0.01
v/c Ratio		0.51	0.19	0.76	0.19						0.66	0.07
Uniform Delay, d1		23.2	20.9	26.3	5.6						29.5	26.0
Progression Factor		1.00	1.00	1.00	1.00						1.00	1.00
Incremental Delay, d2		1.8	0.9	6.7	0.2						4.7	0.1
Delay (s)		25.0	21.8	33.0	5.8						34.2	26.1
Level of Service		C	C	C	A						C	C
Approach Delay (s)		24.1			19.0			0.0			31.6	
Approach LOS		C			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			23.3			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.7		
Intersection Capacity Utilization			62.2%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Intersection Delay, s/veh 15.3

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	235	5	10	160	35	0	80	20	105	260	40
Future Vol, veh/h	25	235	5	10	160	35	0	80	20	105	260	40
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	2	2	2	1	1	1	3	3	3
Mvmt Flow	26	247	5	11	168	37	0	84	21	111	274	42
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	13.8	12.3	10.5	19
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	9%	5%	26%
Vol Thru, %	80%	89%	78%	64%
Vol Right, %	20%	2%	17%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	100	265	205	405
LT Vol	0	25	10	105
Through Vol	80	235	160	260
RT Vol	20	5	35	40
Lane Flow Rate	105	279	216	426
Geometry Grp	1	1	1	1
Degree of Util (X)	0.177	0.455	0.354	0.662
Departure Headway (Hd)	6.059	5.874	5.914	5.59
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	586	608	604	644
Service Time	4.156	3.953	4	3.656
HCM Lane V/C Ratio	0.179	0.459	0.358	0.661
HCM Control Delay	10.5	13.8	12.3	19
HCM Lane LOS	B	B	B	C
HCM 95th-tile Q	0.6	2.4	1.6	5

HCM Signalized Intersection Capacity Analysis

21: Witte Rd SE & SR 516

01/11/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	200	635	0	65	610	110	5	40	85	145	85	290
Future Volume (vph)	200	635	0	65	610	110	5	40	85	145	85	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	6.8		5.5	6.8	6.8		5.1			5.9	5.9
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		0.91			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00			0.97	1.00
Satd. Flow (prot)	1805	1863		1805	1863	1615		1713			1831	1599
Flt Permitted	0.95	1.00		0.95	1.00	1.00		1.00			0.97	1.00
Satd. Flow (perm)	1805	1863		1805	1863	1615		1713			1831	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	208	661	0	68	635	115	5	42	89	151	89	302
RTOR Reduction (vph)	0	0	0	0	0	63	0	58	0	0	0	195
Lane Group Flow (vph)	208	661	0	68	635	52	0	78	0	0	240	107
Confl. Peds. (#/hr)			3	3			1					1
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	3%	0%	1%	0%	1%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3		4	4	4 5
Permitted Phases						6						
Actuated Green, G (s)	15.8	61.3		15.4	60.5	60.5		11.4			23.6	39.4
Effective Green, g (s)	15.8	61.3		15.4	60.5	60.5		11.4			23.6	39.4
Actuated g/C Ratio	0.12	0.45		0.11	0.45	0.45		0.08			0.17	0.29
Clearance Time (s)	5.9	6.8		5.5	6.8	6.8		5.1			5.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	211	845		205	834	723		144			320	466
v/s Ratio Prot	c0.12	c0.35		0.04	0.34			c0.05			c0.13	0.07
v/s Ratio Perm						0.03						
v/c Ratio	0.99	0.78		0.33	0.76	0.07		0.54			0.75	0.23
Uniform Delay, d1	59.5	31.2		55.1	31.2	21.2		59.3			52.9	36.3
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	57.4	7.1		1.0	6.5	0.2		4.1			9.5	0.3
Delay (s)	116.9	38.3		56.0	37.7	21.4		63.5			62.4	36.5
Level of Service	F	D		E	D	C		E			E	D
Approach Delay (s)		57.1			36.9			63.5			48.0	
Approach LOS		E			D			E			D	
Intersection Summary												
HCM 2000 Control Delay			48.4				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			135.0				Sum of lost time (s)			23.7		
Intersection Capacity Utilization			83.3%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

22: 216th Ave SE & SR 516

01/11/2023

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	695	210	255	630	240	205
Future Volume (vph)	695	210	255	630	240	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	4.0	7.0	5.5	5.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1881	1540	1805	1845	1787	1599
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1881	1540	1805	1845	1787	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	724	219	266	656	250	214
RTOR Reduction (vph)	0	125	0	0	0	172
Lane Group Flow (vph)	724	94	266	656	250	42
Confl. Peds. (#/hr)		4	4			3
Heavy Vehicles (%)	1%	2%	0%	3%	1%	1%
Turn Type	NA	Perm	Prot	NA	Prot	Prot
Protected Phases	2		1	6	8	8
Permitted Phases	2	2				8
Actuated Green, G (s)	38.8	38.8	17.1	59.9	17.6	17.6
Effective Green, g (s)	38.8	38.8	17.1	59.9	17.6	17.6
Actuated g/C Ratio	0.43	0.43	0.19	0.67	0.20	0.20
Clearance Time (s)	7.0	7.0	4.0	7.0	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	810	663	342	1227	349	312
v/s Ratio Prot	c0.38		c0.15	0.36	c0.14	0.03
v/s Ratio Perm		0.06				
v/c Ratio	0.89	0.14	0.78	0.53	0.72	0.13
Uniform Delay, d1	23.7	15.5	34.6	7.8	33.9	29.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.4	0.5	10.6	1.7	6.8	0.2
Delay (s)	38.1	16.0	45.3	9.5	40.7	30.1
Level of Service	D	B	D	A	D	C
Approach Delay (s)	32.9			19.8	35.8	
Approach LOS	C			B	D	
Intersection Summary						
HCM 2000 Control Delay			28.3		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.82			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	16.5
Intersection Capacity Utilization			78.3%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

23: SE Wax Rd & SR 516

01/11/2023

												
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	40	185	880	40	20	95	730	85	130	110	90	195
Future Volume (vph)	40	185	880	40	20	95	730	85	130	110	90	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9	5.9			5.9	5.9		5.5	5.9		5.5
Lane Util. Factor		1.00	0.95			1.00	0.95		1.00	1.00		1.00
Frt		1.00	0.99			1.00	0.98		1.00	0.93		1.00
Flt Protected		0.95	1.00			0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1761	3548			1790	3487		1770	1763		1805
Flt Permitted		0.95	1.00			0.95	1.00		0.95	1.00		0.95
Satd. Flow (perm)		1761	3548			1790	3487		1770	1763		1805
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	41	191	907	41	21	98	753	88	134	113	93	201
RTOR Reduction (vph)	0	0	2	0	0	0	6	0	0	26	0	0
Lane Group Flow (vph)	0	232	946	0	0	119	835	0	134	180	0	201
Heavy Vehicles (%)	0%	3%	1%	3%	0%	1%	2%	1%	2%	0%	1%	0%
Turn Type	Prot	Prot	NA		Prot	Prot	NA		Prot	NA		Prot
Protected Phases	7	7	4		3	3	8		5	2		1
Permitted Phases												
Actuated Green, G (s)		33.1	60.1			15.5	42.5		16.7	35.7		15.5
Effective Green, g (s)		33.1	60.1			15.5	42.5		16.7	35.7		15.5
Actuated g/C Ratio		0.22	0.40			0.10	0.28		0.11	0.24		0.10
Clearance Time (s)		5.9	5.9			5.9	5.9		5.5	5.9		5.5
Vehicle Extension (s)		3.0	3.0			3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		388	1421			184	987		197	419		186
v/s Ratio Prot		c0.13	c0.27			0.07	c0.24		0.08	0.10		c0.11
v/s Ratio Perm												
v/c Ratio		0.60	0.67			0.65	0.85		0.68	0.43		1.08
Uniform Delay, d1		52.5	36.7			64.6	50.7		64.1	48.5		67.2
Progression Factor		1.64	0.54			1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		1.8	0.9			7.6	6.8		9.3	3.2		89.1
Delay (s)		87.7	20.7			72.2	57.5		73.4	51.7		156.4
Level of Service		F	C			E	E		E	D		F
Approach Delay (s)			33.8				59.3			60.2		
Approach LOS			C				E			E		
Intersection Summary												
HCM 2000 Control Delay			54.8				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)			23.2		
Intersection Capacity Utilization			76.8%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

23: SE Wax Rd & SR 516

01/11/2023



Movement	SBT	SBR
Lane Configurations	↑	↑
Traffic Volume (vph)	215	235
Future Volume (vph)	215	235
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.9	5.9
Lane Util. Factor	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1900	1568
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1900	1568
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	222	242
RTOR Reduction (vph)	0	186
Lane Group Flow (vph)	222	56
Heavy Vehicles (%)	0%	3%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	34.5	34.5
Effective Green, g (s)	34.5	34.5
Actuated g/C Ratio	0.23	0.23
Clearance Time (s)	5.9	5.9
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	437	360
v/s Ratio Prot	c0.12	
v/s Ratio Perm		0.04
v/c Ratio	0.51	0.15
Uniform Delay, d1	50.4	46.1
Progression Factor	1.00	1.00
Incremental Delay, d2	4.2	0.9
Delay (s)	54.5	47.0
Level of Service	D	D
Approach Delay (s)	82.6	
Approach LOS	F	
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

24: 172nd Ave SE & SR 516

01/11/2023

												
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	5	235	960	100	10	175	890	45	120	65	120	90
Future Volume (vph)	5	235	960	100	10	175	890	45	120	65	120	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	5.1			5.1	5.1		5.9	5.9		5.9
Lane Util. Factor		1.00	0.95			1.00	0.95		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00			1.00	1.00		1.00	0.98		1.00
Flpb, ped/bikes		1.00	1.00			1.00	1.00		1.00	1.00		1.00
Frt		1.00	0.99			1.00	0.99		1.00	0.90		1.00
Flt Protected		0.95	1.00			0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1805	3524			1788	3513		1805	1668		1805
Flt Permitted		0.95	1.00			0.95	1.00		0.95	1.00		0.95
Satd. Flow (perm)		1805	3524			1788	3513		1805	1668		1805
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	247	1011	105	11	184	937	47	126	68	126	95
RTOR Reduction (vph)	0	0	4	0	0	0	2	0	0	69	0	0
Lane Group Flow (vph)	0	252	1112	0	0	195	982	0	126	125	0	95
Confl. Peds. (#/hr)	3	2			10			2	3		10	10
Heavy Vehicles (%)	0%	0%	1%	1%	0%	1%	2%	0%	0%	0%	1%	0%
Turn Type	Prot	Prot	NA		Prot	Prot	NA		Prot	NA		Prot
Protected Phases	7	7	4		3	3	8		5	2		1
Permitted Phases												
Actuated Green, G (s)		42.2	64.0			29.3	51.1		15.1	21.5		13.2
Effective Green, g (s)		42.2	64.0			29.3	51.1		15.1	21.5		13.2
Actuated g/C Ratio		0.28	0.43			0.20	0.34		0.10	0.14		0.09
Clearance Time (s)		5.1	5.1			5.1	5.1		5.9	5.9		5.9
Vehicle Extension (s)		3.0	3.0			3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		507	1503			349	1196		181	239		158
v/s Ratio Prot		0.14	c0.32			c0.11	c0.28		c0.07	c0.08		0.05
v/s Ratio Perm												
v/c Ratio		0.50	0.74			0.56	0.82		0.70	0.52		0.60
Uniform Delay, d1		45.0	36.0			54.5	45.3		65.2	59.5		65.9
Progression Factor		0.43	1.34			0.98	1.21		1.00	1.00		1.00
Incremental Delay, d2		0.4	1.1			1.4	3.4		11.0	8.0		6.3
Delay (s)		19.9	49.4			54.6	58.0		76.3	67.5		72.2
Level of Service		B	D			D	E		E	E		E
Approach Delay (s)			43.9				57.5			71.0		
Approach LOS			D				E			E		
Intersection Summary												
HCM 2000 Control Delay			54.1				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)			22.0		
Intersection Capacity Utilization			81.6%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

24: 172nd Ave SE & SR 516

01/11/2023



Movement	SBT	SBR
Lane Configurations	P	
Traffic Volume (vph)	75	85
Future Volume (vph)	75	85
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.9	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.92	
Flt Protected	1.00	
Satd. Flow (prot)	1730	
Flt Permitted	1.00	
Satd. Flow (perm)	1730	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	79	89
RTOR Reduction (vph)	43	0
Lane Group Flow (vph)	125	0
Confl. Peds. (#/hr)		3
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	19.6	
Effective Green, g (s)	19.6	
Actuated g/C Ratio	0.13	
Clearance Time (s)	5.9	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	226	
v/s Ratio Prot	0.07	
v/s Ratio Perm		
v/c Ratio	0.55	
Uniform Delay, d1	61.1	
Progression Factor	1.00	
Incremental Delay, d2	9.5	
Delay (s)	70.6	
Level of Service	E	
Approach Delay (s)	71.2	
Approach LOS	E	
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

25: 168th PI & SR 516

01/11/2023

												
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	10	210	1180	240	5	185	965	15	320	45	150	35
Future Volume (vph)	10	210	1180	240	5	185	965	15	320	45	150	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9	5.9	5.9		5.9	5.9		5.1	5.1		5.1
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95		0.97	1.00		1.00
Frpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	0.99		1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00		1.00
Frt		1.00	1.00	0.85		1.00	1.00		1.00	0.88		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1788	3574	1615		1788	3531		3502	1649		1805
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (perm)		1788	3574	1615		1788	3531		3502	1649		1805
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	11	241	1356	276	6	213	1109	17	368	52	172	40
RTOR Reduction (vph)	0	0	0	97	0	0	1	0	0	85	0	0
Lane Group Flow (vph)	0	252	1356	179	0	219	1125	0	368	139	0	40
Confl. Peds. (#/hr)	1	2		3	2	3		2	1		2	2
Heavy Vehicles (%)	0%	1%	1%	0%	0%	1%	2%	0%	0%	0%	1%	0%
Turn Type	Prot	Prot	NA	custom	Prot	Prot	NA		Prot	NA		Prot
Protected Phases	5	5	2		1	1	6		3	8		7
Permitted Phases				2								
Actuated Green, G (s)		29.6	63.3	63.3		27.3	61.0		22.6	30.0		7.4
Effective Green, g (s)		29.6	63.3	63.3		27.3	61.0		22.6	30.0		7.4
Actuated g/C Ratio		0.20	0.42	0.42		0.18	0.41		0.15	0.20		0.05
Clearance Time (s)		5.9	5.9	5.9		5.9	5.9		5.1	5.1		5.1
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		352	1508	681		325	1435		527	329		89
v/s Ratio Prot		c0.14	c0.38	0.11		0.12	0.32		c0.11	0.08		0.02
v/s Ratio Perm												
v/c Ratio		0.72	0.90	0.26		0.67	0.78		0.70	0.42		0.45
Uniform Delay, d1		56.3	40.4	28.2		57.2	38.8		60.5	52.4		69.3
Progression Factor		0.88	0.96	1.12		1.00	0.79		1.00	1.00		1.00
Incremental Delay, d2		6.0	7.9	0.8		4.2	3.4		4.0	0.9		3.6
Delay (s)		55.3	46.5	32.3		61.1	34.2		64.5	53.3		72.9
Level of Service		E	D	C		E	C		E	D		E
Approach Delay (s)			45.6				38.6			60.3		
Approach LOS			D				D			E		
Intersection Summary												
HCM 2000 Control Delay			46.6				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)			22.0		
Intersection Capacity Utilization			78.1%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

25: 168th PI & SR 516

01/11/2023



Movement	SBT	SBR
Lane Configurations	P	
Traffic Volume (vph)	60	60
Future Volume (vph)	60	60
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.1	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.93	
Flt Protected	1.00	
Satd. Flow (prot)	1746	
Flt Permitted	1.00	
Satd. Flow (perm)	1746	
Peak-hour factor, PHF	0.87	0.87
Adj. Flow (vph)	69	69
RTOR Reduction (vph)	27	0
Lane Group Flow (vph)	111	0
Confl. Peds. (#/hr)		1
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	14.8	
Effective Green, g (s)	14.8	
Actuated g/C Ratio	0.10	
Clearance Time (s)	5.1	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	172	
v/s Ratio Prot	c0.06	
v/s Ratio Perm		
v/c Ratio	0.65	
Uniform Delay, d1	65.1	
Progression Factor	1.00	
Incremental Delay, d2	8.0	
Delay (s)	73.1	
Level of Service	E	
Approach Delay (s)	73.1	
Approach LOS	E	
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

26: SR 516 & SR 18 EB Ramps

01/11/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	1140	0	0	1235	170	200	0	715	0	0	0
Future Volume (vph)	105	1140	0	0	1235	170	200	0	715	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.9			5.9		5.9	5.9	5.9			
Lane Util. Factor	0.97	0.95			0.95		1.00	0.95	0.95			
Frpb, ped/bikes	1.00	1.00			1.00		1.00	0.99	0.99			
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	1.00			
Frt	1.00	1.00			0.98		1.00	0.85	0.85			
Flt Protected	0.95	1.00			1.00		0.95	1.00	1.00			
Satd. Flow (prot)	3303	3574			3507		1787	1498	1498			
Flt Permitted	0.95	1.00			1.00		0.95	1.00	1.00			
Satd. Flow (perm)	3303	3574			3507		1787	1498	1498			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	109	1188	0	0	1286	177	208	0	745	0	0	0
RTOR Reduction (vph)	0	0	0	0	4	0	0	308	307	0	0	0
Lane Group Flow (vph)	109	1188	0	0	1459	0	208	65	65	0	0	0
Confl. Peds. (#/hr)	2		4	4		2			1	1		
Heavy Vehicles (%)	6%	1%	0%	0%	1%	0%	1%	0%	1%	0%	0%	0%
Turn Type	Prot	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			3				
Permitted Phases							3		3			
Actuated Green, G (s)	10.3	111.9			96.1		26.3	26.3	26.3			
Effective Green, g (s)	10.3	111.9			96.1		26.3	26.3	26.3			
Actuated g/C Ratio	0.07	0.75			0.64		0.18	0.18	0.18			
Clearance Time (s)	5.5	5.9			5.9		5.9	5.9	5.9			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	226	2666			2246		313	262	262			
v/s Ratio Prot	0.03	c0.33			c0.42			0.04				
v/s Ratio Perm							c0.12		0.04			
v/c Ratio	0.48	0.45			0.65		0.66	0.25	0.25			
Uniform Delay, d1	67.3	7.2			16.6		57.7	53.3	53.3			
Progression Factor	1.16	1.86			1.61		1.00	1.00	1.00			
Incremental Delay, d2	1.3	0.4			1.0		5.2	0.5	0.5			
Delay (s)	79.2	14.0			27.7		63.0	53.8	53.8			
Level of Service	E	B			C		E	D	D			
Approach Delay (s)		19.4			27.7			55.8			0.0	
Approach LOS		B			C			E			A	
Intersection Summary												
HCM 2000 Control Delay			32.0				HCM 2000 Level of Service		C			
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)		22.8			
Intersection Capacity Utilization			72.2%				ICU Level of Service		C			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

27: SR 516 & SR 18 WB Ramps

01/11/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑↑						↑↓	↑
Traffic Volume (vph)	0	1090	360	395	995	0	0	0	0	140	5	245
Future Volume (vph)	0	1090	360	395	995	0	0	0	0	140	5	245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9	5.9	5.5	5.9						5.9	5.9
Lane Util. Factor		0.95	1.00	0.97	0.91						0.95	0.95
Frpb, ped/bikes		1.00	0.98	1.00	1.00						1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	1.00
Frt		1.00	0.85	1.00	1.00						0.96	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.97	1.00
Satd. Flow (prot)		3539	1543	3467	5136						1627	1475
Flt Permitted		1.00	1.00	0.95	1.00						0.97	1.00
Satd. Flow (perm)		3539	1543	3467	5136						1627	1475
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1147	379	416	1047	0	0	0	0	147	5	258
RTOR Reduction (vph)	0	0	66	0	0	0	0	0	0	0	11	127
Lane Group Flow (vph)	0	1147	313	416	1047	0	0	0	0	0	203	69
Confl. Peds. (#/hr)	3		2	2		3						
Heavy Vehicles (%)	0%	2%	3%	1%	1%	0%	0%	0%	0%	1%	33%	4%
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						3	
Permitted Phases			2							3		3
Actuated Green, G (s)		85.3	85.3	23.2	114.0						24.2	24.2
Effective Green, g (s)		85.3	85.3	23.2	114.0						24.2	24.2
Actuated g/C Ratio		0.57	0.57	0.15	0.76						0.16	0.16
Clearance Time (s)		5.9	5.9	5.5	5.9						5.9	5.9
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		2012	877	536	3903						262	237
v/s Ratio Prot		c0.32		c0.12	0.20							
v/s Ratio Perm			0.20								0.12	0.05
v/c Ratio		0.57	0.36	0.78	0.27						0.78	0.29
Uniform Delay, d1		20.6	17.5	60.9	5.4						60.3	55.4
Progression Factor		0.73	0.66	0.75	2.35						1.00	1.00
Incremental Delay, d2		1.0	1.0	5.4	0.1						13.4	0.7
Delay (s)		16.1	12.6	51.4	12.9						73.6	56.1
Level of Service		B	B	D	B						E	E
Approach Delay (s)		15.2			23.8			0.0			65.2	
Approach LOS		B			C			A			E	
Intersection Summary												
HCM 2000 Control Delay			24.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				17.3		
Intersection Capacity Utilization			72.2%			ICU Level of Service				C		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: SR 516 & 164th Ave SE

01/11/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	1020	10	15	900	320	5	5	5	425	10	185
Future Volume (vph)	100	1020	10	15	900	320	5	5	5	425	10	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.9		5.5	5.9	5.9		5.5		5.9	5.9	5.9
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00		0.95	0.95	1.00
Frt	1.00	1.00		1.00	1.00	0.85		0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98		0.95	0.95	1.00
Satd. Flow (prot)	1752	3535		1703	3539	1615		1785		1698	1706	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.70		0.75	0.72	1.00
Satd. Flow (perm)	1752	3535		1703	3539	1615		1273		1336	1296	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	104	1062	10	16	938	333	5	5	5	443	10	193
RTOR Reduction (vph)	0	0	0	0	0	131	0	5	0	0	0	110
Lane Group Flow (vph)	104	1073	0	16	938	202	0	10	0	226	227	83
Heavy Vehicles (%)	3%	2%	0%	6%	2%	0%	0%	0%	0%	1%	0%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		9	6			7			4	
Permitted Phases						6	7	7		4		4
Actuated Green, G (s)	14.2	87.3		3.3	76.4	76.4		3.8		32.8	32.8	32.8
Effective Green, g (s)	14.2	87.3		3.3	76.4	76.4		3.8		32.8	32.8	32.8
Actuated g/C Ratio	0.09	0.58		0.02	0.51	0.51		0.03		0.22	0.22	0.22
Clearance Time (s)	5.5	5.9		5.5	5.9	5.9		5.5		5.9	5.9	5.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	165	2057		37	1802	822		32		292	283	346
v/s Ratio Prot	c0.06	c0.30		0.01	0.27							
v/s Ratio Perm						0.13		c0.01		0.17	c0.18	0.05
v/c Ratio	0.63	0.52		0.43	0.52	0.25		0.32		0.77	0.80	0.24
Uniform Delay, d1	65.4	18.8		72.4	24.6	20.6		71.8		55.1	55.5	48.3
Progression Factor	1.23	0.48		0.62	1.35	2.43		1.00		1.00	1.00	1.00
Incremental Delay, d2	5.9	0.7		7.7	1.0	0.7		5.6		12.0	15.0	0.4
Delay (s)	86.5	9.7		52.8	34.2	50.9		77.5		67.2	70.5	48.7
Level of Service	F	A		D	C	D		E		E	E	D
Approach Delay (s)		16.5			38.8			77.5			62.8	
Approach LOS		B			D			E			E	
Intersection Summary												
HCM 2000 Control Delay			35.5				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)			22.8		
Intersection Capacity Utilization			65.0%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

29: Covington Way SE & SR 516

01/11/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	760	405	220	810	25	430	5	310	15	5	30
Future Volume (vph)	20	760	405	220	810	25	430	5	310	15	5	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.9		5.5	5.9		6.0	6.0	6.0		5.9	5.9
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.95		1.00	1.00		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.95	1.00		0.96	1.00
Satd. Flow (prot)	1805	3347		1770	3523		1681	1688	1583		1830	1615
Flt Permitted	0.95	1.00		0.95	1.00		0.74	0.72	1.00		0.41	1.00
Satd. Flow (perm)	1805	3347		1770	3523		1316	1267	1583		788	1615
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	21	792	422	229	844	26	448	5	323	16	5	31
RTOR Reduction (vph)	0	52	0	0	1	0	0	0	251	0	0	29
Lane Group Flow (vph)	21	1162	0	229	869	0	228	225	72	0	21	2
Confl. Peds. (#/hr)	1		2	2		1						
Heavy Vehicles (%)	0%	1%	2%	2%	2%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			4			3	
Permitted Phases							4		4	3	3	3
Actuated Green, G (s)	5.0	64.4		20.5	79.9		33.3	33.3	33.3		8.5	8.5
Effective Green, g (s)	5.0	64.4		20.5	79.9		33.3	33.3	33.3		8.5	8.5
Actuated g/C Ratio	0.03	0.43		0.14	0.53		0.22	0.22	0.22		0.06	0.06
Clearance Time (s)	5.5	5.9		5.5	5.9		6.0	6.0	6.0		5.9	5.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	60	1436		241	1876		292	281	351		44	91
v/s Ratio Prot	0.01	c0.35		c0.13	0.25							
v/s Ratio Perm							0.17	c0.18	0.05		c0.03	0.00
v/c Ratio	0.35	0.81		0.95	0.46		0.78	0.80	0.20		0.48	0.02
Uniform Delay, d1	70.9	37.4		64.2	21.7		54.9	55.2	47.6		68.6	66.8
Progression Factor	1.00	1.00		1.24	0.54		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.5	5.0		41.2	0.7		12.7	15.0	0.3		7.9	0.1
Delay (s)	74.4	42.5		121.1	12.5		67.6	70.2	47.8		76.5	66.9
Level of Service	E	D		F	B		E	E	D		E	E
Approach Delay (s)		43.0			35.1			60.1			70.8	
Approach LOS		D			D			E			E	
Intersection Summary												
HCM 2000 Control Delay			44.9			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			23.3			
Intersection Capacity Utilization			88.2%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group

Intersection												
Int Delay, s/veh	69.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	55	1100	0	0	995	185	0	0	0	100	0	80
Future Vol, veh/h	55	1100	0	0	995	185	0	0	0	100	0	80
Conflicting Peds, #/hr	1	0	3	3	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	1	0	0	3	2	0	0	0	3	0	1
Mvmt Flow	59	1170	0	0	1059	197	0	0	0	106	0	85

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1257	0	0	1173	0	0	1821	2548	588	1862	2450	629
Stage 1	-	-	-	-	-	-	1291	1291	-	1159	1159	-
Stage 2	-	-	-	-	-	-	530	1257	-	703	1291	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.56	6.5	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.56	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.56	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.53	4	3.31
Pot Cap-1 Maneuver	560	-	-	603	-	-	49	27	457	~ 44	31	427
Stage 1	-	-	-	-	-	-	176	236	-	207	272	-
Stage 2	-	-	-	-	-	-	506	245	-	392	236	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	560	-	-	601	-	-	36	24	456	~ 40	28	427
Mov Cap-2 Maneuver	-	-	-	-	-	-	36	24	-	~ 40	28	-
Stage 1	-	-	-	-	-	-	157	211	-	185	272	-
Stage 2	-	-	-	-	-	-	405	245	-	351	211	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0	0	\$ 970.6
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	560	-	-	601	-	-	67
HCM Lane V/C Ratio	-	0.104	-	-	-	-	-	2.858
HCM Control Delay (s)	0	12.2	-	-	0	-	-	\$ 970.6
HCM Lane LOS	A	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	-	0.3	-	-	0	-	-	19.3

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

31: Covington Way SE & 165th PI SE

01/11/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	20	5	15	290	0	165	5	380	110	105	10	325
Future Volume (vph)	20	5	15	290	0	165	5	380	110	105	10	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0		5.0	4.0	5.0			4.0	5.0
Lane Util. Factor	1.00	1.00		1.00		1.00	1.00	0.95			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00		1.00	1.00	0.99			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00		1.00	1.00	1.00			1.00	1.00
Frt	1.00	0.89		1.00		0.85	1.00	0.97			1.00	1.00
Flt Protected	0.95	1.00		0.95		1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	1388	1510		1787		1599	1357	3390			1805	1881
Flt Permitted	0.76	1.00		0.74		1.00	0.95	1.00			0.95	1.00
Satd. Flow (perm)	1107	1510		1399		1599	1357	3390			1805	1881
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	21	5	16	309	0	176	5	404	117	112	11	346
RTOR Reduction (vph)	0	12	0	0	0	127	0	25	0	0	0	0
Lane Group Flow (vph)	21	9	0	309	0	49	5	496	0	0	123	346
Confl. Peds. (#/hr)									3		3	
Heavy Vehicles (%)	30%	0%	15%	1%	0%	1%	33%	3%	0%	0%	0%	1%
Turn Type	Perm	NA		Perm		Perm	Prot	NA		Prot	Prot	NA
Protected Phases		4			8		5	2		1	1	6
Permitted Phases	4			8		8						
Actuated Green, G (s)	25.3	25.3		25.3		25.3	1.4	39.3			11.4	49.3
Effective Green, g (s)	25.3	25.3		25.3		25.3	1.4	39.3			11.4	49.3
Actuated g/C Ratio	0.28	0.28		0.28		0.28	0.02	0.44			0.13	0.55
Clearance Time (s)	5.0	5.0		5.0		5.0	4.0	5.0			4.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0		3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	311	424		393		449	21	1480			228	1030
v/s Ratio Prot		0.01					0.00	0.15			c0.07	c0.18
v/s Ratio Perm	0.02			c0.22		0.03						
v/c Ratio	0.07	0.02		0.79		0.11	0.24	0.33			0.54	0.34
Uniform Delay, d1	23.7	23.4		29.9		24.0	43.8	16.7			36.8	11.3
Progression Factor	1.00	1.00		1.00		1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2	0.1	0.0		10.0		0.1	5.8	0.6			2.4	0.9
Delay (s)	23.8	23.4		39.8		24.1	49.6	17.3			39.3	12.2
Level of Service	C	C		D		C	D	B			D	B
Approach Delay (s)		23.6			34.1			17.6				16.8
Approach LOS		C			C			B				B
Intersection Summary												
HCM 2000 Control Delay			22.1									
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			90.0									
Intersection Capacity Utilization			65.8%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

31: Covington Way SE & 165th PI SE

01/11/2023

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	190
Future Volume (vph)	190
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1077
Flt Permitted	1.00
Satd. Flow (perm)	1077
Peak-hour factor, PHF	0.94
Adj. Flow (vph)	202
RTOR Reduction (vph)	91
Lane Group Flow (vph)	111
Confl. Peds. (#/hr)	
Heavy Vehicles (%)	50%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	49.3
Effective Green, g (s)	49.3
Actuated g/C Ratio	0.55
Clearance Time (s)	5.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	589
v/s Ratio Prot	
v/s Ratio Perm	0.10
v/c Ratio	0.19
Uniform Delay, d1	10.3
Progression Factor	1.00
Incremental Delay, d2	0.7
Delay (s)	11.0
Level of Service	B
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th Signalized Intersection Summary

32: Covington Way SE & SE Wax Rd

01/11/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	365	0	95	0	380	215	60	585	0
Future Volume (veh/h)	0	0	0	365	0	95	0	380	215	60	585	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1885	1900	1870	1900	1870	1900	1870	1885	1900
Adj Flow Rate, veh/h	0	0	0	388	0	101	0	404	229	64	622	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	1	0	2	0	2	0	2	1	0
Cap, veh/h	0	989	0	679	0	158	0	689	592	234	695	0
Arrive On Green	0.00	0.00	0.00	0.52	0.00	0.52	0.00	0.37	0.37	0.37	0.37	0.00
Sat Flow, veh/h	0	1900	0	1168	0	304	0	1870	1606	794	1885	0
Grp Volume(v), veh/h	0	0	0	489	0	0	0	404	229	64	622	0
Grp Sat Flow(s),veh/h/ln	0	1900	0	1472	0	0	0	1870	1606	794	1885	0
Q Serve(g_s), s	0.0	0.0	0.0	21.5	0.0	0.0	0.0	15.7	9.5	6.4	28.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	21.5	0.0	0.0	0.0	15.7	9.5	22.0	28.0	0.0
Prop In Lane	0.00		0.00	0.79		0.21	0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	989	0	838	0	0	0	689	592	234	695	0
V/C Ratio(X)	0.00	0.00	0.00	0.58	0.00	0.00	0.00	0.59	0.39	0.27	0.90	0.00
Avail Cap(c_a), veh/h	0	989	0	838	0	0	0	831	714	295	838	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	15.5	0.0	0.0	0.0	22.9	20.9	31.8	26.8	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.8	0.4	0.6	10.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	7.2	0.0	0.0	0.0	6.7	3.5	1.2	13.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	18.5	0.0	0.0	0.0	23.7	21.3	32.4	37.5	0.0
LnGrp LOS	A	A	A	B	A	A	A	C	C	C	D	A
Approach Vol, veh/h	0			489			633			686		
Approach Delay, s/veh	0.0			18.5			22.8			37.1		
Approach LOS				B			C			D		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	51.8			38.2			51.8			38.2		
Change Period (Y+Rc), s	5.0			5.0			5.0			5.0		
Max Green Setting (Gmax), s	40.0			40.0			40.0			40.0		
Max Q Clear Time (g_c+I1), s	0.0			17.7			23.5			30.0		
Green Ext Time (p_c), s	0.0			3.2			2.8			3.2		
Intersection Summary												
HCM 6th Ctrl Delay	27.1											
HCM 6th LOS	C											

Intersection

Int Delay, s/veh 1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	170	30	30	190	15	15
Future Vol, veh/h	170	30	30	190	15	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	185	33	33	207	16	16

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	218
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1352
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1352
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	10.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	652	-	-	1352	-
HCM Lane V/C Ratio	0.05	-	-	0.024	-
HCM Control Delay (s)	10.8	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

HCM 6th Signalized Intersection Summary

34: 216th Ave SE & SE 288th St

01/12/2023

																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Traffic Volume (veh/h)	5	0	0	110	0	85	0	325	115	120	375	0				
Future Volume (veh/h)	5	0	0	110	0	85	0	325	115	120	375	0				
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0				
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00				
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Work Zone On Approach	No			No			No			No						
Adj Sat Flow, veh/h/ln	1900	1900	1900	1856	1856	1856	1900	1900	1900	1885	1885	1885				
Adj Flow Rate, veh/h	5	0	0	115	0	0	0	339	0	125	391	0				
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96				
Percent Heavy Veh, %	0	0	0	3	3	3	0	0	0	1	1	1				
Cap, veh/h	596	0	0	564	0	0	0	820	0	744	814	0				
Arrive On Green	0.10	0.00	0.00	0.10	0.00	0.00	0.00	0.43	0.00	0.43	0.43	0.00				
Sat Flow, veh/h	1729	0	0	1415	0	1572	0	1900	0	1050	1885	0				
Grp Volume(v), veh/h	5	0	0	115	0	0	0	339	0	125	391	0				
Grp Sat Flow(s),veh/h/ln	1729	0	0	1415	0	1572	0	1900	0	1050	1885	0				
Q Serve(g_s), s	0.0	0.0	0.0	1.3	0.0	0.0	0.0	2.1	0.0	1.6	2.5	0.0				
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.4	0.0	0.0	0.0	2.1	0.0	3.7	2.5	0.0				
Prop In Lane	1.00		0.00	1.00		1.00	0.00		0.00	1.00		0.00				
Lane Grp Cap(c), veh/h	596	0	0	564	0	0	0	820	0	744	814	0				
V/C Ratio(X)	0.01	0.00	0.00	0.20	0.00	0.00	0.00	0.41	0.00	0.17	0.48	0.00				
Avail Cap(c_a), veh/h	1794	0	0	1734	0	0	0	1774	0	1270	1760	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00				
Uniform Delay (d), s/veh	6.9	0.0	0.0	7.5	0.0	0.0	0.0	3.4	0.0	4.7	3.5	0.0				
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.3	0.0	0.1	0.4	0.0				
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0				
Unsig. Movement Delay, s/veh																
LnGrp Delay(d),s/veh	6.9	0.0	0.0	7.7	0.0	0.0	0.0	3.7	0.0	4.8	3.9	0.0				
LnGrp LOS	A	A	A	A	A		A	A		A	A	A				
Approach Vol, veh/h	5				115		A		339		A					
Approach Delay, s/veh	6.9				7.7				3.7		4.1					
Approach LOS	A				A				A		A					
Timer - Assigned Phs	2			4			6			8						
Phs Duration (G+Y+Rc), s	11.4			5.7			11.4			5.7						
Change Period (Y+Rc), s	4.0			4.0			4.0			4.0						
Max Green Setting (Gmax), s	16.0			16.0			16.0			16.0						
Max Q Clear Time (g_c+I1), s	4.1			2.0			5.7			3.4						
Green Ext Time (p_c), s	1.0			0.0			1.7			0.3						

Intersection Summary

HCM 6th Ctrl Delay 4.4

HCM 6th LOS A

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis

35: SE 296th St/216th Ave SE & SE Covington-Sawyer Rd/292nd St

01/11/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	215	15	190	10	15	20	155	205	10	20	255	215
Future Volume (vph)	215	15	190	10	15	20	155	205	10	20	255	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	5.0		4.0		5.0	4.0			4.0	5.0
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00			1.00	1.00
Frt		1.00	0.85		0.94		1.00	0.99			1.00	0.85
Flt Protected		0.96	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1798	1568		1726		1752	1851			1859	1615
Flt Permitted		0.70	1.00		0.92		0.45	1.00			0.97	1.00
Satd. Flow (perm)		1325	1568		1607		825	1851			1812	1615
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	236	16	209	11	16	22	170	225	11	22	280	236
RTOR Reduction (vph)	0	0	157	0	16	0	0	2	0	0	0	126
Lane Group Flow (vph)	0	252	52	0	33	0	170	234	0	0	302	110
Heavy Vehicles (%)	1%	0%	3%	0%	0%	5%	3%	2%	0%	0%	2%	0%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		8			4		5	2			6	
Permitted Phases	8		8	4			2			6		6
Actuated Green, G (s)		19.8	19.8		19.8		50.2	50.2			37.2	37.2
Effective Green, g (s)		20.8	19.8		20.8		50.2	51.2			38.2	37.2
Actuated g/C Ratio		0.26	0.25		0.26		0.63	0.64			0.48	0.47
Clearance Time (s)		5.0	5.0		5.0		5.0	5.0			5.0	5.0
Vehicle Extension (s)		2.0	2.0		2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)		344	388		417		610	1184			865	750
v/s Ratio Prot							c0.03	0.13				
v/s Ratio Perm		c0.19	0.03		0.02		0.15				c0.17	0.07
v/c Ratio		0.73	0.13		0.08		0.28	0.20			0.35	0.15
Uniform Delay, d1		27.1	23.4		22.4		6.8	5.9			13.1	12.3
Progression Factor		1.00	1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2		6.8	0.1		0.0		0.1	0.4			1.1	0.4
Delay (s)		33.8	23.5		22.4		6.9	6.3			14.2	12.7
Level of Service		C	C		C		A	A			B	B
Approach Delay (s)		29.1			22.4			6.6			13.5	
Approach LOS		C			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			16.8				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			13.0		
Intersection Capacity Utilization			55.3%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

36: 219th Ave SE & SE 296th St

01/11/2023

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	265	140	10	250	170	20
Future Volume (veh/h)	265	140	10	250	170	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1870	1900	1885	1870	1900
Adj Flow Rate, veh/h	331	175	12	312	212	25
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	1	2	0	1	2	0
Cap, veh/h	1230	1034	641	1365	288	260
Arrive On Green	0.65	0.65	0.01	0.72	0.16	0.16
Sat Flow, veh/h	1885	1585	1810	1885	1781	1610
Grp Volume(v), veh/h	331	175	12	312	212	25
Grp Sat Flow(s),veh/h/ln	1885	1585	1810	1885	1781	1610
Q Serve(g_s), s	5.2	3.0	0.1	3.8	7.9	0.9
Cycle Q Clear(g_c), s	5.2	3.0	0.1	3.8	7.9	0.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1230	1034	641	1365	288	260
V/C Ratio(X)	0.27	0.17	0.02	0.23	0.74	0.10
Avail Cap(c_a), veh/h	1230	1034	770	1365	662	598
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.1	4.8	3.9	3.2	27.9	25.0
Incr Delay (d2), s/veh	0.5	0.3	0.0	0.4	1.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.8	0.0	1.0	3.4	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.6	5.1	4.0	3.6	29.3	25.1
LnGrp LOS	A	A	A	A	C	C
Approach Vol, veh/h	506			324	237	
Approach Delay, s/veh	5.4			3.6	28.9	
Approach LOS	A			A	C	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	5.0	49.7		15.3		54.7
Change Period (Y+Rc), s	4.0	5.0		5.0		5.0
Max Green Setting (Gmax), s	6.0	25.0		25.0		35.0
Max Q Clear Time (g_c+I1), s	2.1	7.2		9.9		5.8
Green Ext Time (p_c), s	0.0	1.1		0.5		0.6
Intersection Summary						
HCM 6th Ctrl Delay			10.1			
HCM 6th LOS			B			

HCM 6th TWSC
37: 218th Ave SE & SE Auburn-Black Diamond Rd

10/02/2023

Intersection

Int Delay, s/veh 3.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	425	230	60	265	80	80
Future Vol, veh/h	425	230	60	265	80	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	443	240	63	276	83	83

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	683
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	910
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	910
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	24.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	348	-	-	910	-
HCM Lane V/C Ratio	0.479	-	-	0.069	-
HCM Control Delay (s)	24.5	-	-	9.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2.5	-	-	0.2	-

MOVEMENT SUMMARY

 **Site: 101 [38.Ten Trails Pkwy (Site Folder: 2022)]**

Ten Trails Pkwy and SE Auburn Black Diamond Rd

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Ten Trails Pkwy														
0	L2	50	4.1	55	4.1	0.167	13.6	LOS B	1.0	26.0	0.70	0.75	0.70	34.4
325	T1	40	4.1	44	4.1	0.167	7.7	LOS A	1.0	26.0	0.70	0.75	0.70	34.4
115	R2	25	4.1	27	4.1	0.167	7.7	LOS A	1.0	26.0	0.70	0.75	0.70	33.4
Approach		115	4.1	126	4.1	0.167	10.3	LOS B	1.0	26.0	0.70	0.75	0.70	34.2
East: SE Auburn Black Diamond Rd														
110	L2	30	1.2	36	1.2	0.388	10.9	LOS B	2.7	69.0	0.46	0.52	0.46	36.5
0	T1	290	1.2	349	1.2	0.388	5.0	LOS A	2.7	69.0	0.46	0.52	0.46	36.4
85	R2	55	1.2	66	1.2	0.388	5.0	LOS A	2.7	69.0	0.46	0.52	0.46	35.3
Approach		375	1.2	452	1.2	0.388	5.4	LOS A	2.7	69.0	0.46	0.52	0.46	36.2
North: Ten Trails Pkwy														
120	L2	60	0.7	81	0.7	0.225	12.3	LOS B	1.4	34.0	0.61	0.70	0.61	35.3
375	T1	35	0.7	47	0.7	0.225	6.4	LOS A	1.4	34.0	0.61	0.70	0.61	35.2
0	R2	60	0.7	81	0.7	0.225	6.4	LOS A	1.4	34.0	0.61	0.70	0.61	34.2
Approach		155	0.7	209	0.7	0.225	8.7	LOS A	1.4	34.0	0.61	0.70	0.61	34.8
West: SE Auburn Black Diamond Rd														
5	L2	55	2.7	61	2.7	0.506	11.2	LOS B	4.1	105.0	0.53	0.54	0.53	36.1
0	T1	415	2.7	461	2.7	0.506	5.2	LOS A	4.1	105.0	0.53	0.54	0.53	36.0
0	R2	50	2.7	56	2.7	0.506	5.2	LOS A	4.1	105.0	0.53	0.54	0.53	34.9
Approach		520	2.7	578	2.7	0.506	5.8	LOS A	4.1	105.0	0.53	0.54	0.53	35.9
All Vehicles		1165	2.1	1365	2.0	0.506	6.6	LOS A	4.1	105.0	0.54	0.58	0.54	35.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 101 [39.Lake Sawyer Rd (Site Folder: 2022)]**

Lake Sawyer Rd and SE Auburn Black Diamond Rd

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Lake Sawyer Rd														
0	L2	170	6.1	221	6.1	0.645	15.2	LOS B	6.8	177.9	0.84	0.88	0.99	33.8
325	T1	75	6.1	97	6.1	0.645	9.2	LOS A	6.8	177.9	0.84	0.88	0.99	33.8
115	R2	195	6.1	253	6.1	0.645	9.2	LOS A	6.8	177.9	0.84	0.88	0.99	32.8
Approach		440	6.1	571	6.1	0.645	11.5	LOS B	6.8	177.9	0.84	0.88	0.99	33.4
East: SE Auburn-Black Diamond Rd														
110	L2	295	1.5	369	1.5	0.705	16.8	LOS B	8.5	215.9	0.91	0.97	1.15	32.6
0	T1	115	1.5	144	1.5	0.705	10.8	LOS B	8.5	215.9	0.91	0.97	1.15	32.6
85	R2	95	1.5	119	1.5	0.705	10.9	LOS B	8.5	215.9	0.91	0.97	1.15	31.7
Approach		505	1.5	631	1.5	0.705	14.3	LOS B	8.5	215.9	0.91	0.97	1.15	32.4
North: Lake Sawyer Rd														
120	L2	70	0.9	101	0.9	0.540	18.1	LOS B	4.9	123.6	0.93	1.02	1.13	32.8
375	T1	110	0.9	159	0.9	0.540	12.2	LOS B	4.9	123.6	0.93	1.02	1.13	32.7
0	R2	65	0.9	94	0.9	0.540	12.2	LOS B	4.9	123.6	0.93	1.02	1.13	31.8
Approach		245	0.9	355	0.9	0.540	13.9	LOS B	4.9	123.6	0.93	1.02	1.13	32.5
West: SE Auburn-Black Diamond Rd														
5	L2	95	0.8	104	0.8	0.676	19.3	LOS B	7.7	192.8	0.95	1.07	1.29	32.4
0	T1	160	0.8	176	0.8	0.676	13.4	LOS B	7.7	192.8	0.95	1.07	1.29	32.3
0	R2	215	0.8	236	0.8	0.676	13.4	LOS B	7.7	192.8	0.95	1.07	1.29	31.5
Approach		470	0.8	516	0.8	0.676	14.6	LOS B	7.7	192.8	0.95	1.07	1.29	32.0
All Vehicles		1660	2.4	2074	2.5	0.705	13.5	LOS B	8.5	215.9	0.90	0.98	1.14	32.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 40 [40.Roberts Dr Morgan St (Site Folder: Existing Volumes)]

Roberts Dr and Morgan St
Site Category: Existing Conditions-Build
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [Total HV] veh/h %		DEMAND FLOWS [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. Dist] veh ft		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Morgan St														
3	L2	210	2.0	228	2.0	0.187	10.8	LOS B	0.9	22.9	0.38	0.66	0.38	34.0
Approach		210	2.0	228	2.0	0.187	10.8	LOS B	0.9	22.9	0.38	0.66	0.38	34.0
East: Roberts Dr														
1	L2	5	2.0	5	2.0	0.293	10.8	LOS B	1.7	42.8	0.43	0.48	0.43	36.6
6	T1	325	2.0	353	2.0	0.293	4.9	LOS A	1.7	42.8	0.43	0.48	0.43	36.6
Approach		330	2.0	359	2.0	0.293	4.9	LOS A	1.7	42.8	0.43	0.48	0.43	36.6
West: Roberts Dr														
2	T1	240	2.0	261	2.0	0.343	3.8	LOS A	2.2	56.2	0.06	0.40	0.06	38.0
12	R2	215	2.0	234	2.0	0.343	3.9	LOS A	2.2	56.2	0.06	0.40	0.06	36.8
Approach		455	2.0	495	2.0	0.343	3.9	LOS A	2.2	56.2	0.06	0.40	0.06	37.4
All Vehicles		995	2.0	1082	2.0	0.343	5.7	LOS A	2.2	56.2	0.25	0.49	0.25	36.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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HCM Signalized Intersection Capacity Analysis

40: Morgan St & SE Auburn-Black Diamond Rd/Roberts Dr

10/02/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	EB	EB	WB	WB	NB	NB
Traffic Volume (vph)	240	215	5	325	210	0
Future Volume (vph)	240	215	5	325	210	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00	
Frpb, ped/bikes	0.99			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.94			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	1744			1861	1805	
Flt Permitted	1.00			0.99	0.95	
Satd. Flow (perm)	1744			1847	1805	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	250	224	5	339	219	0
RTOR Reduction (vph)	82	0	0	0	0	0
Lane Group Flow (vph)	392	0	0	344	219	0
Confl. Peds. (#/hr)		1			1	
Heavy Vehicles (%)	1%	1%	2%	2%	0%	0%
Turn Type	NA		Perm	NA	Prot	
Protected Phases	4			8	2	
Permitted Phases			8			
Actuated Green, G (s)	10.8			10.8	8.9	
Effective Green, g (s)	10.8			10.8	8.9	
Actuated g/C Ratio	0.39			0.39	0.32	
Clearance Time (s)	4.0			4.0	4.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	679			720	579	
v/s Ratio Prot	c0.22				c0.12	
v/s Ratio Perm				0.19		
v/c Ratio	0.58			0.48	0.38	
Uniform Delay, d1	6.7			6.3	7.3	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	1.2			0.5	0.4	
Delay (s)	7.9			6.8	7.7	
Level of Service	A			A	A	
Approach Delay (s)	7.9			6.8	7.7	
Approach LOS	A			A	A	
Intersection Summary						
HCM 2000 Control Delay			7.5		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.49			
Actuated Cycle Length (s)			27.7		Sum of lost time (s)	8.0
Intersection Capacity Utilization			44.1%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th TWSC
41: Railroad Ave/Morgan St & Baker St

10/02/2023

Intersection

Int Delay, s/veh 2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	55	165	10	80	120
Future Vol, veh/h	10	55	165	10	80	120
Conflicting Peds, #/hr	0	1	0	10	10	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	1	2
Mvmt Flow	11	60	179	11	87	130

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	499	196	0
Stage 1	195	-	-
Stage 2	304	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	535	850	-
Stage 1	843	-	-
Stage 2	753	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	494	842	-
Mov Cap-2 Maneuver	494	-	-
Stage 1	836	-	-
Stage 2	701	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	3.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	760	1367
HCM Lane V/C Ratio	-	-	0.093	0.064
HCM Control Delay (s)	-	-	10.2	7.8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.3	0.2

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	15	105	10	10	25	30	115	10	20	255	10
Future Vol, veh/h	10	15	105	10	10	25	30	115	10	20	255	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	13	33	0	0	2	0	0	1	0
Mvmt Flow	11	16	114	11	11	27	33	125	11	22	277	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.7	8.6	9.1	10.5
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	19%	8%	22%	7%
Vol Thru, %	74%	12%	22%	89%
Vol Right, %	6%	81%	56%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	155	130	45	285
LT Vol	30	10	10	20
Through Vol	115	15	10	255
RT Vol	10	105	25	10
Lane Flow Rate	168	141	49	310
Geometry Grp	1	1	1	1
Degree of Util (X)	0.22	0.18	0.07	0.391
Departure Headway (Hd)	4.703	4.594	5.119	4.54
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	760	777	696	790
Service Time	2.754	2.646	3.182	2.584
HCM Lane V/C Ratio	0.221	0.181	0.07	0.392
HCM Control Delay	9.1	8.7	8.6	10.5
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.8	0.7	0.2	1.9

Intersection

Int Delay, s/veh 2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	530	230	5	380	90	0
Future Vol, veh/h	530	230	5	380	90	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	None
Storage Length	-	-	90	-	0	110
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	3	3	1	1
Mvmt Flow	589	256	6	422	100	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	589
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.13
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.227
Pot Cap-1 Maneuver	-	-	981
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	981
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	34.5
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	219	-	-	-	981	-
HCM Lane V/C Ratio	0.457	-	-	-	0.006	-
HCM Control Delay (s)	34.5	0	-	-	8.7	-
HCM Lane LOS	D	A	-	-	A	-
HCM 95th %tile Q(veh)	2.2	-	-	-	0	-

MOVEMENT SUMMARY

Site: 101 [201.Pipeline Rd (Site Folder: Existing Volumes)]

SR 169 and Pipeline Rd
Site Category: Existing Conditions-Build
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: SR 169														
3u	U	210	2.0	228	2.0	0.309	12.7	LOS B	2.3	59.4	0.37	0.62	0.37	34.3
3	L2	225	2.0	245	2.0	0.309	10.2	LOS B	2.3	59.4	0.37	0.62	0.37	33.6
8	T1	430	2.0	467	2.0	0.354	4.4	LOS A	2.7	68.4	0.40	0.44	0.40	36.7
Approach		865	2.0	940	2.0	0.354	7.9	LOS A	2.7	68.4	0.39	0.53	0.39	35.2
North: SR 169														
4	T1	775	2.0	842	2.0	0.673	8.3	LOS A	7.7	195.0	0.82	0.82	0.97	35.2
14	R2	25	2.0	27	2.0	0.032	6.4	LOS A	0.2	4.0	0.55	0.59	0.55	35.3
Approach		800	2.0	870	2.0	0.673	8.2	LOS A	7.7	195.0	0.81	0.81	0.95	35.2
West: Pipeline Rd														
5	L2	110	2.0	120	2.0	0.472	21.5	LOS C	4.1	105.4	1.00	1.06	1.18	30.7
12	R2	105	2.0	114	2.0	0.472	15.7	LOS B	4.1	105.4	1.00	1.06	1.18	29.8
Approach		215	2.0	234	2.0	0.472	18.7	LOS B	4.1	105.4	1.00	1.06	1.18	30.3
All Vehicles		1880	2.0	2043	2.0	0.673	9.3	LOS A	7.7	195.0	0.64	0.71	0.72	34.6

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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HCM 6th Signalized Intersection Summary

1: SR 169 & SE Green Valley Rd

10/02/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	0	15	5	0	0	10	420	5	5	795	55
Future Volume (veh/h)	15	0	15	5	0	0	10	420	5	5	795	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1900	1900	1900	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	18	0	18	6	0	0	12	494	6	6	935	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	0	0	0	2	2	2	2	2	2
Cap, veh/h	228	0	30	329	0	0	143	1207	14	134	1245	
Arrive On Green	0.04	0.00	0.04	0.04	0.00	0.00	0.67	0.67	0.67	0.67	0.67	0.00
Sat Flow, veh/h	761	0	761	1642	0	0	12	1808	22	3	1865	0
Grp Volume(v), veh/h	36	0	0	6	0	0	512	0	0	941	0	0
Grp Sat Flow(s),veh/h/ln	1523	0	0	1642	0	0	1841	0	0	1867	0	0
Q Serve(g_s), s	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.6	0.0	0.0	0.1	0.0	0.0	3.4	0.0	0.0	9.2	0.0	0.0
Prop In Lane	0.50		0.50	1.00		0.00	0.02		0.01	0.01		0.00
Lane Grp Cap(c), veh/h	258	0	0	329	0	0	1364	0	0	1379	0	
V/C Ratio(X)	0.14	0.00	0.00	0.02	0.00	0.00	0.38	0.00	0.00	0.68	0.00	
Avail Cap(c_a), veh/h	1073	0	0	1100	0	0	2516	0	0	2583	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.9	0.0	0.0	12.7	0.0	0.0	2.1	0.0	0.0	3.0	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.1	0.0	0.0	12.7	0.0	0.0	2.3	0.0	0.0	3.6	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	
Approach Vol, veh/h	36			6			512			941		
Approach Delay, s/veh	13.1			12.7			2.3			3.6		
Approach LOS	B			B			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.3			5.1			22.3			5.1		
Change Period (Y+Rc), s	4.0			4.0			4.0			4.0		
Max Green Setting (Gmax), s	36.0			16.0			36.0			16.0		
Max Q Clear Time (g_c+I1), s	5.4			2.6			11.2			2.1		
Green Ext Time (p_c), s	3.1			0.1			7.1			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	3.4											
HCM 6th LOS	A											

HCM 6th TWSC
2: SR 169 & SE 332nd St

01/12/2023

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	480	0	0	790
Future Vol, veh/h	0	0	480	0	0	790
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	2	0	0	3
Mvmt Flow	0	0	527	0	0	868
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1395	527	0	0	527	0
Stage 1	527	-	-	-	-	-
Stage 2	868	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	157	555	-	-	1050	-
Stage 1	596	-	-	-	-	-
Stage 2	414	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	157	555	-	-	1050	-
Mov Cap-2 Maneuver	157	-	-	-	-	-
Stage 1	596	-	-	-	-	-
Stage 2	414	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	-	1050	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	-	-	0	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	

HCM 6th Signalized Intersection Summary

3: SR 169 & Jones Lake Rd

10/02/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	120	125	290	735	0
Future Volume (veh/h)	0	120	125	290	735	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1894	1894	1870	1870	1856	1856
Adj Flow Rate, veh/h	0	126	132	305	774	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	2	2	3	3
Cap, veh/h	0	160	291	554	1059	0
Arrive On Green	0.00	0.10	0.57	0.57	0.57	0.00
Sat Flow, veh/h	0	1594	173	970	1856	0
Grp Volume(v), veh/h	0	127	437	0	774	0
Grp Sat Flow(s),veh/h/ln	0	1607	1143	0	1856	0
Q Serve(g_s), s	0.0	1.9	1.8	0.0	7.5	0.0
Cycle Q Clear(g_c), s	0.0	1.9	9.2	0.0	7.5	0.0
Prop In Lane	0.00	0.99	0.30			0.00
Lane Grp Cap(c), veh/h	0	161	845	0	1059	0
V/C Ratio(X)	0.00	0.79	0.52	0.00	0.73	0.00
Avail Cap(c_a), veh/h	0	1057	2227	0	3128	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	10.7	3.3	0.0	3.8	0.0
Incr Delay (d2), s/veh	0.0	8.3	0.5	0.0	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.8	0.1	0.0	0.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	19.0	3.7	0.0	4.8	0.0
LnGrp LOS	A	B	A	A	A	A
Approach Vol, veh/h	127			437	774	
Approach Delay, s/veh	19.0			3.7	4.8	
Approach LOS	B			A	A	
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	17.9		6.4		17.9	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	41.0		16.0		41.0	
Max Q Clear Time (g_c+I1), s	11.2		3.9		9.5	
Green Ext Time (p_c), s	2.7		0.4		3.6	
Intersection Summary						
HCM 6th Ctrl Delay			5.8			
HCM 6th LOS			A			

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

4: SR 169 & Lawson Rd

10/02/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	5	15	0	60	10	320	10	115	875	5
Future Volume (veh/h)	0	0	5	15	0	60	10	320	10	115	875	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	0	0	5	16	0	63	11	337	11	121	921	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	3	3	3	2	2	2
Cap, veh/h	0	0	124	130	3	96	103	1260	40	975	1342	7
Arrive On Green	0.00	0.00	0.08	0.08	0.00	0.08	0.72	0.72	0.72	1.00	1.00	1.00
Sat Flow, veh/h	0	0	1586	277	35	1231	15	1745	56	1031	1858	10
Grp Volume(v), veh/h	0	0	5	79	0	0	359	0	0	121	0	926
Grp Sat Flow(s),veh/h/ln	0	0	1586	1544	0	0	1815	0	0	1031	0	1869
Q Serve(g_s), s	0.0	0.0	0.1	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.1	2.0	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.00		1.00	0.20		0.80	0.03		0.03	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	124	229	0	0	1403	0	0	975	0	1349
V/C Ratio(X)	0.00	0.00	0.04	0.35	0.00	0.00	0.26	0.00	0.00	0.12	0.00	0.69
Avail Cap(c_a), veh/h	0	0	634	723	0	0	1403	0	0	975	0	1349
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.91	0.00	0.00	0.48	0.00	0.48
Uniform Delay (d), s/veh	0.0	0.0	17.1	17.9	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.9	0.0	0.0	0.4	0.0	0.0	0.1	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.7	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	17.2	18.8	0.0	0.0	2.3	0.0	0.0	0.1	0.0	1.4
LnGrp LOS	A	A	B	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h	5			79			359			1047		
Approach Delay, s/veh	17.2			18.8			2.3			1.2		
Approach LOS	B			B			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	32.9			7.1			32.9			7.1		
Change Period (Y+Rc), s	4.0			4.0			4.0			4.0		
Max Green Setting (Gmax), s	16.0			16.0			16.0			16.0		
Max Q Clear Time (g_c+I1), s	4.7			2.1			2.0			4.0		
Green Ext Time (p_c), s	1.2			0.0			5.1			0.2		
Intersection Summary												
HCM 6th Ctrl Delay	2.5											
HCM 6th LOS	A											

HCM 6th Signalized Intersection Summary

5: SR 169 & Baker St

10/02/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	95	35	345	900	45
Future Volume (veh/h)	35	95	35	345	900	45
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.99	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1811	1856	1856	1870	1870
Adj Flow Rate, veh/h	37	101	37	367	957	48
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	6	6	3	3	2	2
Cap, veh/h	50	135	349	1264	1203	60
Arrive On Green	0.12	0.12	1.00	1.00	0.68	0.68
Sat Flow, veh/h	417	1139	556	1856	1766	89
Grp Volume(v), veh/h	139	0	37	367	0	1005
Grp Sat Flow(s),veh/h/ln	1568	0	556	1856	0	1854
Q Serve(g_s), s	3.4	0.0	1.6	0.0	0.0	15.1
Cycle Q Clear(g_c), s	3.4	0.0	16.7	0.0	0.0	15.1
Prop In Lane	0.27	0.73	1.00			0.05
Lane Grp Cap(c), veh/h	186	0	349	1264	0	1263
V/C Ratio(X)	0.75	0.00	0.11	0.29	0.00	0.80
Avail Cap(c_a), veh/h	627	0	349	1264	0	1263
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.98	0.98	0.00	1.00
Uniform Delay (d), s/veh	17.0	0.0	4.6	0.0	0.0	4.4
Incr Delay (d2), s/veh	5.9	0.0	0.6	0.6	0.0	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.1	0.2	0.0	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.9	0.0	5.2	0.6	0.0	9.7
LnGrp LOS	C	A	A	A	A	A
Approach Vol, veh/h	139			404	1005	
Approach Delay, s/veh	22.9			1.0	9.7	
Approach LOS	C			A	A	
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	31.3		8.7		31.3	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	16.0		16.0		16.0	
Max Q Clear Time (g_c+l1), s	18.7		5.4		17.1	
Green Ext Time (p_c), s	0.0		0.4		0.0	

Intersection Summary

HCM 6th Ctrl Delay	8.6
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Intersection

Int Delay, s/veh 2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	55	30	0	0	10
Future Vol, veh/h	30	55	30	0	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	60	33	0	0	11

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	33	0	0 159 33
Stage 1	-	-	- 33 -
Stage 2	-	-	- 126 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1579	-	- 832 1041
Stage 1	-	-	- 989 -
Stage 2	-	-	- 900 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1579	-	- 814 1041
Mov Cap-2 Maneuver	-	-	- 814 -
Stage 1	-	-	- 967 -
Stage 2	-	-	- 900 -

Approach	EB	WB	SB
HCM Control Delay, s	2.6	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1579	-	-	-	1041
HCM Lane V/C Ratio	0.021	-	-	-	0.01
HCM Control Delay (s)	7.3	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0

MOVEMENT SUMMARY

 **Site: 101 [7.Roberts Dr (Site Folder: 2032-No Build)]**

Roberts Dr and SR 169

Site Category: Future No Build - 2032

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: SR 169														
3	L2	15	2.0	15	2.0	0.015	10.7	LOS B	0.1	1.9	0.39	0.60	0.39	34.0
8	T1	355	2.0	355	2.0	0.243	4.5	LOS A	1.6	40.9	0.42	0.45	0.42	36.6
Approach		370	2.0	370	2.0	0.243	4.8	LOS A	1.6	40.9	0.42	0.45	0.42	36.5
North: SR 169														
4	T1	845	2.0	845	2.0	0.502	3.9	LOS A	4.3	109.2	0.13	0.36	0.13	37.7
14	R2	350	2.0	350	2.0	0.263	4.2	LOS A	1.6	40.6	0.11	0.45	0.11	36.4
Approach		1195	2.0	1195	2.0	0.502	4.0	LOS A	4.3	109.2	0.12	0.39	0.12	37.3
West: Roberts Dr														
5	L2	200	2.0	200	2.0	0.285	15.1	LOS B	1.8	45.5	0.76	0.85	0.76	32.7
12	R2	30	2.0	30	2.0	0.285	9.2	LOS A	1.8	45.5	0.76	0.85	0.76	31.7
Approach		230	2.0	230	2.0	0.285	14.3	LOS B	1.8	45.5	0.76	0.85	0.76	32.6
All Vehicles		1795	2.0	1795	2.0	0.502	5.5	LOS A	4.3	109.2	0.26	0.46	0.26	36.5

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: U:\PSO\Projects\Clients\3043-BlackDiamondCityof\214-3043-028 2018 MDRT Traffic Eng\02WBS\Ph40 Transportation Model Dev
Task4_Build_and_Calibrate_Model\SynchroModel\SIDRA\Roundabouts-2032.sip9

HCM 6th TWSC
9: SR 169 & Black Diamond-Ravensdale Rd

10/02/2023

Intersection

Int Delay, s/veh 2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	270	455	100	0	1195
Future Vol, veh/h	0	270	455	100	0	1195
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	Free	-	Free
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	2	2	1	1
Mvmt Flow	0	303	511	112	0	1343

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	511	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.21	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.309	-
Pot Cap-1 Maneuver	0	565	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	565	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 565	-
HCM Lane V/C Ratio	- 0.537	-
HCM Control Delay (s)	- 18.5	-
HCM Lane LOS	- C	-
HCM 95th %tile Q(veh)	- 3.2	-

HCM 6th Signalized Intersection Summary

10: SR 169 & SE 288th St

01/12/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	85	30	15	435	975	160
Future Volume (veh/h)	85	30	15	435	975	160
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1841	1856	1856	1841	1841
Adj Flow Rate, veh/h	96	34	17	489	1096	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	4	4	3	3	4	4
Cap, veh/h	142	126	78	1398	1446	
Arrive On Green	0.08	0.08	0.79	0.79	0.79	0.00
Sat Flow, veh/h	1753	1560	21	1780	1841	1560
Grp Volume(v), veh/h	96	34	506	0	1096	0
Grp Sat Flow(s),veh/h/ln	1753	1560	1800	0	1841	1560
Q Serve(g_s), s	3.2	1.2	0.0	0.0	18.9	0.0
Cycle Q Clear(g_c), s	3.2	1.2	4.8	0.0	18.9	0.0
Prop In Lane	1.00	1.00	0.03			1.00
Lane Grp Cap(c), veh/h	142	126	1476	0	1446	
V/C Ratio(X)	0.68	0.27	0.34	0.00	0.76	
Avail Cap(c_a), veh/h	467	416	1476	0	1446	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	26.8	25.9	1.9	0.0	3.4	0.0
Incr Delay (d2), s/veh	5.5	1.1	0.6	0.0	3.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.5	0.3	0.0	1.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.3	27.0	2.5	0.0	7.2	0.0
LnGrp LOS	C	C	A	A	A	
Approach Vol, veh/h	130			506	1096	A
Approach Delay, s/veh	30.9			2.5	7.2	
Approach LOS	C			A	A	
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	51.1		8.9		51.1	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	36.0		16.0		36.0	
Max Q Clear Time (g_c+l1), s	6.8		5.2		20.9	
Green Ext Time (p_c), s	2.2		0.3		5.4	
Intersection Summary						
HCM 6th Ctrl Delay			7.6			
HCM 6th LOS			A			

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis

11: SR 169 & 280th St

01/12/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	70	50	35	575	1070	130
Future Volume (vph)	70	50	35	575	1070	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.5	6.7	6.7	6.7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1568	1805	1863	1881	1599
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1568	1805	1863	1881	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	74	53	37	605	1126	137
RTOR Reduction (vph)	0	49	0	0	0	17
Lane Group Flow (vph)	74	4	37	605	1126	120
Heavy Vehicles (%)	2%	3%	0%	2%	1%	1%
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	11.2	11.2	7.2	117.0	104.3	104.3
Effective Green, g (s)	11.2	11.2	7.2	117.0	104.3	104.3
Actuated g/C Ratio	0.08	0.08	0.05	0.84	0.74	0.74
Clearance Time (s)	5.1	5.1	5.5	6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	141	125	92	1556	1401	1191
v/s Ratio Prot	c0.04		0.02	c0.32	c0.60	
v/s Ratio Perm		0.00				0.07
v/c Ratio	0.52	0.03	0.40	0.39	0.80	0.10
Uniform Delay, d1	61.8	59.4	64.3	2.8	11.3	4.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.5	0.1	2.9	0.7	5.0	0.2
Delay (s)	65.3	59.5	67.2	3.5	16.3	5.1
Level of Service	E	E	E	A	B	A
Approach Delay (s)	62.9			7.2	15.1	
Approach LOS	E			A	B	

Intersection Summary

HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.3
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

12: SR 169 & SE Tahoma Way/SE 271st PI

01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	40	15	25	260	15	65	25	740	120	5	120	1120	65
Future Volume (veh/h)	40	15	25	260	15	65	25	740	120	5	120	1120	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach	No			No			No				No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1870	1900		1900	1870	1900
Adj Flow Rate, veh/h	42	16	26	274	16	68	26	779	126		126	1179	68
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	2	0		0	2	0
Cap, veh/h	55	49	79	193	48	203	33	1775	287		151	2202	127
Arrive On Green	0.03	0.08	0.08	0.11	0.15	0.15	0.02	0.58	0.58		0.08	0.64	0.64
Sat Flow, veh/h	1810	641	1042	1810	313	1329	1810	3062	495		1810	3415	197
Grp Volume(v), veh/h	42	0	42	274	0	84	26	452	453		126	613	634
Grp Sat Flow(s),veh/h/ln	1810	0	1683	1810	0	1642	1810	1777	1781		1810	1777	1835
Q Serve(g_s), s	3.2	0.0	3.3	14.9	0.0	6.4	2.0	20.1	20.1		9.6	26.2	26.3
Cycle Q Clear(g_c), s	3.2	0.0	3.3	14.9	0.0	6.4	2.0	20.1	20.1		9.6	26.2	26.3
Prop In Lane	1.00		0.62	1.00		0.81	1.00		0.28		1.00		0.11
Lane Grp Cap(c), veh/h	55	0	128	193	0	250	33	1030	1032		151	1146	1183
V/C Ratio(X)	0.77	0.00	0.33	1.42	0.00	0.34	0.78	0.44	0.44		0.83	0.54	0.54
Avail Cap(c_a), veh/h	167	0	371	193	0	386	252	1030	1032		252	1146	1183
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	67.4	0.0	61.3	62.6	0.0	53.0	68.4	16.6	16.6		63.2	13.5	13.5
Incr Delay (d2), s/veh	19.8	0.0	1.5	217.7	0.0	0.8	32.2	1.4	1.4		11.3	1.8	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	1.5	18.6	0.0	2.7	1.2	8.3	8.3		4.8	10.4	10.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	87.2	0.0	62.7	280.3	0.0	53.8	100.6	17.9	17.9		74.5	15.3	15.2
LnGrp LOS	F	A	E	F	A	D	F	B	B		E	B	B
Approach Vol, veh/h	84			358			931				1373		
Approach Delay, s/veh	75.0			227.1			20.3				20.7		
Approach LOS	E			F			C				C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	7.2	87.1	20.0	15.8	8.1	96.2	9.3	26.4					
Change Period (Y+Rc), s	5.5	5.9	5.1	5.1	5.5	5.9	5.1	5.1					
Max Green Setting (Gmax), s	19.5	53.1	14.9	30.9	19.5	53.1	12.9	32.9					
Max Q Clear Time (g_c+I1), s	11.6	22.1	16.9	5.3	4.0	28.3	5.2	8.4					
Green Ext Time (p_c), s	0.2	6.1	0.0	0.2	0.0	8.9	0.0	0.4					

Intersection Summary

HCM 6th Ctrl Delay 49.1

HCM 6th LOS D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary

13: SR 169 & SR 516

01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	195	380	140	200	380	160	310	545	45	1	290	890	100
Future Volume (veh/h)	195	380	140	200	380	160	310	545	45	1	290	890	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach	No			No			No				No		
Adj Sat Flow, veh/h/ln	1870	1885	1885	1885	1870	1841	1885	1856	1826		1841	1870	1885
Adj Flow Rate, veh/h	203	396	146	208	396	167	323	568	47		302	927	104
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %	2	1	1	1	2	4	1	3	5		4	2	1
Cap, veh/h	101	482	176	189	443	367	351	1031	85		331	974	109
Arrive On Green	0.06	0.19	0.19	0.11	0.24	0.24	0.20	0.31	0.31		0.19	0.30	0.30
Sat Flow, veh/h	1781	2565	934	1795	1870	1550	1795	3296	272		1753	3219	361
Grp Volume(v), veh/h	203	275	267	208	396	167	323	303	312		302	512	519
Grp Sat Flow(s),veh/h/ln	1781	1791	1708	1795	1870	1550	1795	1763	1805		1753	1777	1804
Q Serve(g_s), s	6.5	16.9	17.3	12.1	23.6	10.6	20.3	16.4	16.5		19.4	32.4	32.4
Cycle Q Clear(g_c), s	6.5	16.9	17.3	12.1	23.6	10.6	20.3	16.4	16.5		19.4	32.4	32.4
Prop In Lane	1.00		0.55	1.00		1.00	1.00		0.15		1.00		0.20
Lane Grp Cap(c), veh/h	101	337	321	189	443	367	351	552	565		331	538	546
V/C Ratio(X)	2.02	0.82	0.83	1.10	0.89	0.46	0.92	0.55	0.55		0.91	0.95	0.95
Avail Cap(c_a), veh/h	101	380	362	189	488	404	351	552	565		373	541	549
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	54.3	44.8	44.9	51.4	42.5	37.5	45.4	32.8	32.8		45.7	39.3	39.3
Incr Delay (d2), s/veh	490.4	11.8	13.8	95.1	17.7	0.9	28.7	3.9	3.9		24.6	28.5	28.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	8.4	8.3	10.3	12.6	4.0	11.6	7.4	7.6		10.5	17.9	18.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	544.6	56.6	58.7	146.6	60.2	38.4	74.1	36.7	36.7		70.3	67.8	67.5
LnGrp LOS	F	E	E	F	E	D	E	D	D		E	E	E
Approach Vol, veh/h	745			771			938				1333		
Approach Delay, s/veh	190.3			78.8			49.6				68.3		
Approach LOS	F			E			D				E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	37.2	41.9	17.6	28.3	28.4	40.7	12.0	33.9					
Change Period (Y+Rc), s	5.5	5.9	5.5	6.7	5.9	* 5.9	5.5	6.7					
Max Green Setting (Gmax), s	24.5	30.4	12.1	24.4	19.9	* 35	6.5	30.0					
Max Q Clear Time (g_c+D), s	21.4	18.5	14.1	19.3	22.3	34.4	8.5	25.6					
Green Ext Time (p_c), s	0.3	2.7	0.0	1.4	0.0	0.4	0.0	1.2					

Intersection Summary

HCM 6th Ctrl Delay 89.8

HCM 6th LOS F

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis

14: SR 169 & SE 240th Blvd

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	55	35	160	60	35	90	140	825	25	10	110	1460
Future Volume (vph)	55	35	160	60	35	90	140	825	25	10	110	1460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.0	5.1	5.1		5.5	5.9			5.5	5.9
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		1.00	0.95			1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.89		1.00	1.00			1.00	0.99
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (prot)	1770	1900	1583	3502	1683		1805	3460			1805	3487
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (perm)	1770	1900	1583	3502	1683		1805	3460			1805	3487
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	58	37	168	63	37	95	147	868	26	11	116	1537
RTOR Reduction (vph)	0	0	168	0	80	0	0	1	0	0	0	1
Lane Group Flow (vph)	58	37	0	63	52	0	147	893	0	0	127	1594
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	2%	0%	2%	0%	0%	1%	0%	4%	0%	0%	0%	3%
Turn Type	Prot	NA	NA	Prot	NA		Prot	NA		Prot	Prot	NA
Protected Phases	7	4		3	8		5	2		1	1	6
Permitted Phases												
Actuated Green, G (s)	8.7	12.0	0.0	6.7	10.0		17.2	84.4			15.3	82.5
Effective Green, g (s)	8.7	12.0	0.0	6.7	10.0		17.2	84.4			15.3	82.5
Actuated g/C Ratio	0.06	0.09	0.00	0.05	0.07		0.12	0.60			0.11	0.59
Clearance Time (s)	5.1	5.1		5.1	5.1		5.5	5.9			5.5	5.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	109	162	0	167	120		221	2085			197	2054
v/s Ratio Prot	c0.03	0.02		0.02	c0.03		c0.08	0.26			0.07	c0.46
v/s Ratio Perm												
v/c Ratio	0.53	0.23	0.00	0.38	0.43		0.67	0.43			0.64	0.78
Uniform Delay, d1	63.7	59.7	70.0	64.6	62.3		58.6	14.9			59.7	21.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.29	0.49
Incremental Delay, d2	4.9	0.7	0.0	1.4	2.5		7.3	0.6			0.7	0.3
Delay (s)	68.6	60.4	70.0	66.1	64.8		66.0	15.5			77.5	10.8
Level of Service	E	E	E	E	E		E	B			E	B
Approach Delay (s)		68.3			65.2			22.7				15.7
Approach LOS		E			E			C				B
Intersection Summary												
HCM 2000 Control Delay			25.3			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			21.6			
Intersection Capacity Utilization			79.4%			ICU Level of Service			D			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: SR 169 & SE 240th Blvd

01/12/2023

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	55
Future Volume (vph)	55
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	58
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th Signalized Intersection Summary

15: SR 169 & Witte Rd SE

01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	450	50	15	70	45	10	15	900	20	5	1595	785
Future Volume (veh/h)	450	50	15	70	45	10	15	900	20	5	1595	785
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1796	1900	1826	1900	1900	1900	1870	1737	1900	1870	1885
Adj Flow Rate, veh/h	464	52	15	72	46	10	15	928	21	5	1644	809
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	7	0	5	0	0	0	2	11	0	2	1
Cap, veh/h	515	199	58	91	79	17	29	2223	50	11	1464	664
Arrive On Green	0.15	0.15	0.15	0.05	0.05	0.05	0.02	0.63	0.63	0.01	0.62	0.62
Sat Flow, veh/h	3456	1339	386	1739	1510	328	1810	3552	80	1810	2375	1077
Grp Volume(v), veh/h	464	0	67	72	0	56	15	464	485	5	1195	1258
Grp Sat Flow(s),veh/h/ln	1728	0	1726	1739	0	1839	1810	1777	1856	1810	1777	1675
Q Serve(g_s), s	18.5	0.0	4.8	5.7	0.0	4.2	1.2	18.5	18.5	0.4	86.3	86.3
Cycle Q Clear(g_c), s	18.5	0.0	4.8	5.7	0.0	4.2	1.2	18.5	18.5	0.4	86.3	86.3
Prop In Lane	1.00		0.22	1.00		0.18	1.00		0.04	1.00		0.64
Lane Grp Cap(c), veh/h	515	0	257	91	0	96	29	1112	1161	11	1095	1033
V/C Ratio(X)	0.90	0.00	0.26	0.79	0.00	0.58	0.53	0.42	0.42	0.44	1.09	1.22
Avail Cap(c_a), veh/h	555	0	419	242	0	407	123	1112	1161	123	1095	1033
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.09	0.09	0.09
Uniform Delay (d), s/veh	58.5	0.0	52.7	65.6	0.0	64.8	68.4	13.3	13.3	69.3	26.9	26.9
Incr Delay (d2), s/veh	17.0	0.0	0.5	13.9	0.0	5.4	14.1	1.2	1.1	2.4	42.8	99.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	0.0	2.1	2.9	0.0	2.1	0.6	7.4	7.7	0.2	46.1	59.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.6	0.0	53.3	79.4	0.0	70.3	82.5	14.4	14.4	71.7	69.6	125.9
LnGrp LOS	E	A	D	E	A	E	F	B	B	E	F	F
Approach Vol, veh/h	531		128			964			2458			
Approach Delay, s/veh	72.8		75.4			15.5			98.4			
Approach LOS	E		E			B			F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.4	93.9	12.9	26.9	7.7	92.6	26.4	13.3				
Change Period (Y+Rc), s	5.5	6.3	5.5	6.0	5.5	6.3	5.5	6.0				
Max Green Setting (Gmax), s	9.5	53.7	19.5	34.0	9.5	53.7	22.5	31.0				
Max Q Clear Time (g_c+I), s	12.4	20.5	7.7	6.8	3.2	88.3	20.5	6.2				
Green Ext Time (p_c), s	0.0	6.5	0.1	0.3	0.0	0.0	0.4	0.2				
Intersection Summary												
HCM 6th Ctrl Delay	74.8											
HCM 6th LOS	E											

HCM 6th Signalized Intersection Summary 16: SR 169 & SE Wax Rd

01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	10	410	50	25	50	275	1050	30	50	1910	130
Future Volume (veh/h)	115	10	410	50	25	50	275	1050	30	50	1910	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1737	1885	1900	1900	1900	1885	1870	1900	1900	1885	1885
Adj Flow Rate, veh/h	119	10	423	52	26	52	284	1082	31	52	1969	134
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	11	1	0	0	0	1	2	0	0	1	1
Cap, veh/h	102	383	350	65	112	225	221	1936	55	67	1657	739
Arrive On Green	0.06	0.22	0.22	0.04	0.20	0.20	0.12	0.55	0.55	0.04	0.46	0.46
Sat Flow, veh/h	1795	1737	1587	1810	562	1125	1795	3528	101	1810	3582	1598
Grp Volume(v), veh/h	119	10	423	52	0	78	284	545	568	52	1969	134
Grp Sat Flow(s),veh/h/ln	1795	1737	1587	1810	0	1687	1795	1777	1852	1810	1791	1598
Q Serve(g_s), s	8.5	0.7	33.1	4.3	0.0	5.8	18.5	29.9	29.9	4.3	69.4	7.4
Cycle Q Clear(g_c), s	8.5	0.7	33.1	4.3	0.0	5.8	18.5	29.9	29.9	4.3	69.4	7.4
Prop In Lane	1.00		1.00	1.00		0.67	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	102	383	350	65	0	337	221	975	1017	67	1657	739
V/C Ratio(X)	1.17	0.03	1.21	0.80	0.00	0.23	1.28	0.56	0.56	0.77	1.19	0.18
Avail Cap(c_a), veh/h	102	383	350	65	0	337	221	975	1017	118	1657	739
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.80	0.80	0.80	0.49	0.49	0.49
Uniform Delay (d), s/veh	70.7	45.8	58.5	71.8	0.0	50.3	65.8	22.0	22.0	71.6	40.3	23.6
Incr Delay (d2), s/veh	141.9	0.0	117.4	48.7	0.0	0.3	151.9	1.9	1.8	8.9	87.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	0.3	24.7	2.9	0.0	2.5	17.7	12.7	13.2	2.1	49.6	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	212.7	45.8	175.9	120.4	0.0	50.7	217.6	23.9	23.8	80.5	128.2	23.9
LnGrp LOS	F	D	F	F	A	D	F	C	C	F	F	C
Approach Vol, veh/h	552		130			1397			2155			
Approach Delay, s/veh	181.5		78.6			63.2			120.6			
Approach LOS	F		E			E			F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.1	88.2	10.9	39.8	24.0	75.3	14.0	36.7				
Change Period (Y+Rc), s	5.5	5.9	5.5	6.7	5.5	5.9	5.5	6.7				
Max Green Setting (Gmax), s	9.8	78.1	5.4	33.1	18.5	69.4	8.5	30.0				
Max Q Clear Time (g_c+I10), s	16.3	31.9	6.3	35.1	20.5	71.4	10.5	7.8				
Green Ext Time (p_c), s	0.0	8.6	0.0	0.0	0.0	0.0	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay	108.3											
HCM 6th LOS	F											

HCM 6th Signalized Intersection Summary

17: SR 169 & SE 231st St

01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	50	965	10	65	20	575	600	25	15	1145	155
Future Volume (veh/h)	175	50	965	10	65	20	575	600	25	15	1145	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1707	1885	1574	1767	1811	1870	1885	1841	1678	1870	1870
Adj Flow Rate, veh/h	182	52	1005	10	68	21	599	625	26	16	1193	161
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	13	1	22	9	6	2	1	4	15	2	2
Cap, veh/h	178	512	1319	14	271	84	585	1818	76	22	1290	575
Arrive On Green	0.10	0.30	0.30	0.01	0.21	0.21	0.17	0.52	0.52	0.01	0.36	0.36
Sat Flow, veh/h	1781	1707	2812	1499	1295	400	3456	3504	146	1598	3554	1585
Grp Volume(v), veh/h	182	52	1005	10	0	89	599	319	332	16	1193	161
Grp Sat Flow(s),veh/h/ln	1781	1707	1406	1499	0	1695	1728	1791	1859	1598	1777	1585
Q Serve(g_s), s	13.0	2.9	38.4	0.9	0.0	5.7	22.0	13.6	13.6	1.3	41.9	9.4
Cycle Q Clear(g_c), s	13.0	2.9	38.4	0.9	0.0	5.7	22.0	13.6	13.6	1.3	41.9	9.4
Prop In Lane	1.00		1.00	1.00		0.24	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	178	512	1319	14	0	355	585	929	964	22	1290	575
V/C Ratio(X)	1.02	0.10	0.76	0.72	0.00	0.25	1.02	0.34	0.34	0.74	0.92	0.28
Avail Cap(c_a), veh/h	178	512	1319	46	0	391	585	929	964	74	1290	575
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	0.83	1.00	0.00	1.00	0.75	0.75	0.75	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.5	32.9	28.5	64.2	0.0	42.9	54.0	18.3	18.3	63.9	39.7	29.4
Incr Delay (d2), s/veh	67.2	0.1	2.2	50.2	0.0	0.4	38.5	0.8	0.7	38.8	12.5	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.1	1.2	12.8	0.5	0.0	2.4	12.5	5.6	5.9	0.8	19.9	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	125.7	32.9	30.7	114.4	0.0	43.3	92.5	19.1	19.1	102.7	52.2	30.6
LnGrp LOS	F	C	C	F	A	D	F	B	B	F	D	C
Approach Vol, veh/h	1239					99		1250		1370		
Approach Delay, s/veh	44.8					50.4		54.3		50.3		
Approach LOS	D					D		D		D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.8	73.3	5.2	45.7	26.0	53.1	17.0	33.9				
Change Period (Y+Rc), s	4.0	5.9	4.0	6.7	4.0	5.9	4.0	6.7				
Max Green Setting (Gmax), s	60.4	60.4	4.0	39.0	22.0	44.4	13.0	30.0				
Max Q Clear Time (g_c+I), s	13.3	15.6	2.9	40.4	24.0	43.9	15.0	7.7				
Green Ext Time (p_c), s	0.0	4.1	0.0	0.0	0.0	0.4	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay 49.8

HCM 6th LOS D

HCM Signalized Intersection Capacity Analysis

18: SE 231st St & SR 18 EB Ramps

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (vph)	110	785	0	0	725	115	100	0	420	0	0	0
Future Volume (vph)	110	785	0	0	725	115	100	0	420	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3			6.3	6.3		5.9	5.9			
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		0.95	1.00			
Satd. Flow (prot)	1787	3539			3505	1599		1770	1583			
Flt Permitted	0.95	1.00			1.00	1.00		0.95	1.00			
Satd. Flow (perm)	1787	3539			3505	1599		1770	1583			
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	111	793	0	0	732	116	101	0	424	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	71	0	0	103	0	0	0
Lane Group Flow (vph)	111	793	0	0	732	45	0	101	321	0	0	0
Heavy Vehicles (%)	1%	2%	0%	0%	3%	1%	2%	0%	2%	0%	0%	0%
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases						6	8		8			
Actuated Green, G (s)	7.7	43.1			29.1	29.1		19.7	19.7			
Effective Green, g (s)	7.7	43.1			29.1	29.1		19.7	19.7			
Actuated g/C Ratio	0.10	0.57			0.39	0.39		0.26	0.26			
Clearance Time (s)	6.3	6.3			6.3	6.3		5.9	5.9			
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)	183	2033			1359	620		464	415			
v/s Ratio Prot	c0.06	0.22			c0.21							
v/s Ratio Perm						0.03		0.06	c0.20			
v/c Ratio	0.61	0.39			0.54	0.07		0.22	0.77			
Uniform Delay, d1	32.2	8.7			17.8	14.5		21.6	25.6			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	5.6	0.6			1.5	0.2		0.2	8.7			
Delay (s)	37.8	9.3			19.3	14.7		21.9	34.3			
Level of Service	D	A			B	B		C	C			
Approach Delay (s)		12.8			18.7			31.9			0.0	
Approach LOS		B			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			19.4				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			75.0				Sum of lost time (s)			18.5		
Intersection Capacity Utilization			68.7%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

19: SE 231st St & SR 18 WB Ramps

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↑	↑
Traffic Volume (vph)	0	610	230	415	445	0	0	0	0	255	0	115
Future Volume (vph)	0	610	230	415	445	0	0	0	0	255	0	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3	5.5	6.3						5.9	5.9
Lane Util. Factor		0.95	1.00	1.00	0.95						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		3574	1568	1752	3312						1736	1455
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		3574	1568	1752	3312						1736	1455
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	622	235	423	454	0	0	0	0	260	0	117
RTOR Reduction (vph)	0	0	125	0	0	0	0	0	0	0	0	91
Lane Group Flow (vph)	0	622	110	423	454	0	0	0	0	0	260	26
Heavy Vehicles (%)	0%	1%	3%	3%	9%	0%	0%	0%	0%	4%	0%	11%
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		19.0	19.0	25.6	50.1						17.7	17.7
Effective Green, g (s)		19.0	19.0	25.6	50.1						17.7	17.7
Actuated g/C Ratio		0.24	0.24	0.32	0.63						0.22	0.22
Clearance Time (s)		6.3	6.3	5.5	6.3						5.9	5.9
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		848	372	560	2074						384	321
v/s Ratio Prot		c0.17		c0.24	0.14							
v/s Ratio Perm			0.07								0.15	0.02
v/c Ratio		0.73	0.30	0.76	0.22						0.68	0.08
Uniform Delay, d1		28.2	25.0	24.4	6.5						28.5	24.7
Progression Factor		1.00	1.00	1.00	1.00						1.00	1.00
Incremental Delay, d2		5.6	2.0	5.8	0.2						4.7	0.1
Delay (s)		33.7	27.0	30.1	6.7						33.2	24.8
Level of Service		C	C	C	A						C	C
Approach Delay (s)		31.9			18.0			0.0			30.6	
Approach LOS		C			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			25.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.7		
Intersection Capacity Utilization			68.7%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Intersection Delay, s/veh 23.1

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	270	5	15	180	40	0	85	25	120	290	45
Future Vol, veh/h	30	270	5	15	180	40	0	85	25	120	290	45
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	2	2	2	1	1	1	3	3	3
Mvmt Flow	32	284	5	16	189	42	0	89	26	126	305	47
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	20.5	15.5	12	31.4
HCM LOS	C	C	B	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	0%	10%	0%	6%	26%
Vol Thru, %	77%	90%	0%	77%	64%
Vol Right, %	23%	0%	100%	17%	10%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	110	300	5	235	455
LT Vol	0	30	0	15	120
Through Vol	85	270	0	180	290
RT Vol	25	0	5	40	45
Lane Flow Rate	116	316	5	247	479
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.222	0.619	0.009	0.462	0.82
Departure Headway (Hd)	6.917	7.051	6.283	6.717	6.161
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	516	512	567	534	584
Service Time	5	4.813	4.045	4.787	4.213
HCM Lane V/C Ratio	0.225	0.617	0.009	0.463	0.82
HCM Control Delay	12	20.7	9.1	15.5	31.4
HCM Lane LOS	B	C	A	C	D
HCM 95th-tile Q	0.8	4.2	0	2.4	8.3

HCM Signalized Intersection Capacity Analysis

21: Witte Rd SE & SR 516

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	725	0	75	695	125	5	45	95	165	95	335
Future Volume (vph)	225	725	0	75	695	125	5	45	95	165	95	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	6.8		5.5	6.8	6.8		5.1			5.9	5.9
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		0.91			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00			0.97	1.00
Satd. Flow (prot)	1805	1863		1805	1863	1615		1713			1830	1599
Flt Permitted	0.95	1.00		0.95	1.00	1.00		1.00			0.97	1.00
Satd. Flow (perm)	1805	1863		1805	1863	1615		1713			1830	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	234	755	0	78	724	130	5	47	99	172	99	349
RTOR Reduction (vph)	0	0	0	0	0	75	0	57	0	0	0	194
Lane Group Flow (vph)	234	755	0	78	724	55	0	94	0	0	271	155
Confl. Peds. (#/hr)			3	3			1					1
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	3%	0%	1%	0%	1%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3		4	4	4 5
Permitted Phases						6						
Actuated Green, G (s)	15.8	66.0		6.9	56.7	56.7		12.5			26.3	42.1
Effective Green, g (s)	15.8	66.0		6.9	56.7	56.7		12.5			26.3	42.1
Actuated g/C Ratio	0.12	0.49		0.05	0.42	0.42		0.09			0.19	0.31
Clearance Time (s)	5.9	6.8		5.5	6.8	6.8		5.1			5.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	211	910		92	782	678		158			356	498
v/s Ratio Prot	c0.13	0.41		0.04	c0.39			c0.05			c0.15	0.10
v/s Ratio Perm						0.03						
v/c Ratio	1.11	0.83		0.85	0.93	0.08		0.59			0.76	0.31
Uniform Delay, d1	59.6	29.7		63.5	37.2	23.5		58.8			51.4	35.4
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	94.2	8.7		47.8	18.5	0.2		5.9			9.3	0.4
Delay (s)	153.8	38.3		111.3	55.6	23.7		64.7			60.6	35.8
Level of Service	F	D		F	E	C		E			E	D
Approach Delay (s)		65.7			55.9			64.7			46.6	
Approach LOS		E			E			E			D	
Intersection Summary												
HCM 2000 Control Delay			57.8				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			135.0				Sum of lost time (s)			23.7		
Intersection Capacity Utilization			91.6%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

22: 216th Ave SE & SR 516

01/12/2023

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	795	240	290	720	275	235
Future Volume (vph)	795	240	290	720	275	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	4.0	7.0	5.5	5.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1881	1540	1805	1845	1787	1599
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1881	1540	1805	1845	1787	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	828	250	302	750	286	245
RTOR Reduction (vph)	0	149	0	0	0	194
Lane Group Flow (vph)	828	101	302	750	286	51
Confl. Peds. (#/hr)		4	4			3
Heavy Vehicles (%)	1%	2%	0%	3%	1%	1%
Turn Type	NA	Perm	Prot	NA	Prot	Prot
Protected Phases	2		1	6	8	8
Permitted Phases	2	2				8
Actuated Green, G (s)	36.2	36.2	18.4	58.6	18.9	18.9
Effective Green, g (s)	36.2	36.2	18.4	58.6	18.9	18.9
Actuated g/C Ratio	0.40	0.40	0.20	0.65	0.21	0.21
Clearance Time (s)	7.0	7.0	4.0	7.0	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	756	619	369	1201	375	335
v/s Ratio Prot	c0.44		c0.17	0.41	c0.16	0.03
v/s Ratio Perm		0.07				
v/c Ratio	1.10	0.16	0.82	0.62	0.76	0.15
Uniform Delay, d1	26.9	17.2	34.2	9.2	33.4	29.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	61.8	0.6	13.2	2.5	8.9	0.2
Delay (s)	88.7	17.8	47.4	11.7	42.3	29.2
Level of Service	F	B	D	B	D	C
Approach Delay (s)	72.3			21.9	36.3	
Approach LOS	E			C	D	
Intersection Summary						
HCM 2000 Control Delay			45.2		HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.94			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	16.5
Intersection Capacity Utilization			87.3%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

23: SE Wax Rd & SR 516

01/12/2023

												
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	45	210	1005	45	25	105	835	95	150	130	105	225
Future Volume (vph)	45	210	1005	45	25	105	835	95	150	130	105	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9	5.9			5.9	5.9		5.5	5.9		5.5
Lane Util. Factor		1.00	0.95			1.00	0.95		1.00	1.00		1.00
Frt		1.00	0.99			1.00	0.98		1.00	0.93		1.00
Flt Protected		0.95	1.00			0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1761	3548			1791	3488		1770	1765		1805
Flt Permitted		0.95	1.00			0.95	1.00		0.95	1.00		0.95
Satd. Flow (perm)		1761	3548			1791	3488		1770	1765		1805
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	216	1036	46	26	108	861	98	155	134	108	232
RTOR Reduction (vph)	0	0	2	0	0	0	5	0	0	25	0	0
Lane Group Flow (vph)	0	262	1080	0	0	134	954	0	155	217	0	232
Heavy Vehicles (%)	0%	3%	1%	3%	0%	1%	2%	1%	2%	0%	1%	0%
Turn Type	Prot	Prot	NA		Prot	Prot	NA		Prot	NA		Prot
Protected Phases	7	7	4		3	3	8		5	2		1
Permitted Phases												
Actuated Green, G (s)		37.6	55.6			17.2	35.2		18.4	38.5		15.5
Effective Green, g (s)		37.6	55.6			17.2	35.2		18.4	38.5		15.5
Actuated g/C Ratio		0.25	0.37			0.11	0.23		0.12	0.26		0.10
Clearance Time (s)		5.9	5.9			5.9	5.9		5.5	5.9		5.5
Vehicle Extension (s)		3.0	3.0			3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		441	1315			205	818		217	453		186
v/s Ratio Prot		c0.15	c0.30			0.07	c0.27		0.09	c0.12		c0.13
v/s Ratio Perm												
v/c Ratio		0.59	0.82			0.65	1.17		0.71	0.48		1.25
Uniform Delay, d1		49.5	42.7			63.5	57.4		63.3	47.3		67.2
Progression Factor		1.63	0.84			1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		1.1	2.2			7.3	87.8		10.6	3.6		148.0
Delay (s)		81.5	37.8			70.8	145.2		73.9	50.9		215.2
Level of Service		F	D			E	F		E	D		F
Approach Delay (s)			46.4				136.1			59.9		
Approach LOS			D				F			E		
Intersection Summary												
HCM 2000 Control Delay			86.7				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)			23.2		
Intersection Capacity Utilization			85.3%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

23: SE Wax Rd & SR 516

01/12/2023



Movement	SBT	SBR
Lane Configurations	↑	↑
Traffic Volume (vph)	245	265
Future Volume (vph)	245	265
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.9	5.9
Lane Util. Factor	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1900	1568
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1900	1568
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	253	273
RTOR Reduction (vph)	0	201
Lane Group Flow (vph)	253	72
Heavy Vehicles (%)	0%	3%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	35.6	35.6
Effective Green, g (s)	35.6	35.6
Actuated g/C Ratio	0.24	0.24
Clearance Time (s)	5.9	5.9
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	450	372
v/s Ratio Prot	c0.13	
v/s Ratio Perm		0.05
v/c Ratio	0.56	0.19
Uniform Delay, d1	50.3	45.7
Progression Factor	1.00	1.00
Incremental Delay, d2	5.0	1.2
Delay (s)	55.4	46.9
Level of Service	E	D
Approach Delay (s)	101.2	
Approach LOS	F	
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

24: 172nd Ave SE & SR 516

01/12/2023

												
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	10	270	1095	115	15	195	1015	50	140	75	140	100
Future Volume (vph)	10	270	1095	115	15	195	1015	50	140	75	140	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	5.1			5.1	5.1		5.9	5.9		5.9
Lane Util. Factor		1.00	0.95			1.00	0.95		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00			1.00	1.00		1.00	0.98		1.00
Flpb, ped/bikes		1.00	1.00			1.00	1.00		1.00	1.00		1.00
Frt		1.00	0.99			1.00	0.99		1.00	0.90		1.00
Flt Protected		0.95	1.00			0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1805	3523			1788	3513		1805	1668		1805
Flt Permitted		0.95	1.00			0.95	1.00		0.95	1.00		0.95
Satd. Flow (perm)		1805	3523			1788	3513		1805	1668		1805
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	284	1153	121	16	205	1068	53	147	79	147	105
RTOR Reduction (vph)	0	0	4	0	0	0	2	0	0	68	0	0
Lane Group Flow (vph)	0	295	1270	0	0	221	1119	0	147	158	0	105
Confl. Peds. (#/hr)	3	2			10			2	3		10	10
Heavy Vehicles (%)	0%	0%	1%	1%	0%	1%	2%	0%	0%	0%	1%	0%
Turn Type	Prot	Prot	NA		Prot	Prot	NA		Prot	NA		Prot
Protected Phases	7	7	4		3	3	8		5	2		1
Permitted Phases												
Actuated Green, G (s)		46.9	56.4			34.3	43.8		16.0	23.5		13.8
Effective Green, g (s)		46.9	56.4			34.3	43.8		16.0	23.5		13.8
Actuated g/C Ratio		0.31	0.38			0.23	0.29		0.11	0.16		0.09
Clearance Time (s)		5.1	5.1			5.1	5.1		5.9	5.9		5.9
Vehicle Extension (s)		3.0	3.0			3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		564	1324			408	1025		192	261		166
v/s Ratio Prot		c0.16	c0.36			0.12	c0.32		c0.08	c0.09		0.06
v/s Ratio Perm												
v/c Ratio		0.52	0.96			0.54	1.09		0.77	0.60		0.63
Uniform Delay, d1		42.4	45.7			50.9	53.1		65.2	58.9		65.7
Progression Factor		0.44	1.24			0.99	1.44		1.00	1.00		1.00
Incremental Delay, d2		0.3	7.6			0.6	48.6		16.5	10.0		7.6
Delay (s)		19.0	64.1			51.1	125.1		81.7	68.9		73.3
Level of Service		B	E			D	F		F	E		E
Approach Delay (s)			55.6				112.9			73.9		
Approach LOS			E				F			E		
Intersection Summary												
HCM 2000 Control Delay			80.4				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)			22.0		
Intersection Capacity Utilization			87.8%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

24: 172nd Ave SE & SR 516

01/12/2023



Movement	SBT	SBR
Lane Configurations	P	
Traffic Volume (vph)	85	100
Future Volume (vph)	85	100
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.9	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.92	
Flt Protected	1.00	
Satd. Flow (prot)	1726	
Flt Permitted	1.00	
Satd. Flow (perm)	1726	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	89	105
RTOR Reduction (vph)	44	0
Lane Group Flow (vph)	150	0
Confl. Peds. (#/hr)		3
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	21.3	
Effective Green, g (s)	21.3	
Actuated g/C Ratio	0.14	
Clearance Time (s)	5.9	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	245	
v/s Ratio Prot	0.09	
v/s Ratio Perm		
v/c Ratio	0.61	
Uniform Delay, d1	60.5	
Progression Factor	1.00	
Incremental Delay, d2	11.0	
Delay (s)	71.4	
Level of Service	E	
Approach Delay (s)	72.1	
Approach LOS	E	
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

25: 168th PI & SR 516

01/12/2023

												
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	10	235	1345	270	5	215	1100	20	365	55	170	40
Future Volume (vph)	10	235	1345	270	5	215	1100	20	365	55	170	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9	5.9	5.9		5.9	5.9		5.1	5.1		5.1
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95		0.97	1.00		1.00
Frpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	0.99		1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00		1.00
Frt		1.00	1.00	0.85		1.00	1.00		1.00	0.89		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1788	3574	1615		1788	3529		3502	1653		1805
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (perm)		1788	3574	1615		1788	3529		3502	1653		1805
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	11	270	1546	310	6	247	1264	23	420	63	195	46
RTOR Reduction (vph)	0	0	0	94	0	0	1	0	0	76	0	0
Lane Group Flow (vph)	0	281	1546	216	0	253	1286	0	420	182	0	46
Confl. Peds. (#/hr)	1	2		3	2	3		2	1		2	2
Heavy Vehicles (%)	0%	1%	1%	0%	0%	1%	2%	0%	0%	0%	1%	0%
Turn Type	Prot	Prot	NA	custom	Prot	Prot	NA		Prot	NA		Prot
Protected Phases	5	5	2	2	1	1	6		3	8		7
Permitted Phases				2								
Actuated Green, G (s)		22.0	64.1	64.1		21.0	63.1		26.2	35.2		7.7
Effective Green, g (s)		22.0	64.1	64.1		21.0	63.1		26.2	35.2		7.7
Actuated g/C Ratio		0.15	0.43	0.43		0.14	0.42		0.17	0.23		0.05
Clearance Time (s)		5.9	5.9	5.9		5.9	5.9		5.1	5.1		5.1
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		262	1527	690		250	1484		611	387		92
v/s Ratio Prot		c0.16	c0.43	0.13		0.14	0.36		c0.12	0.11		0.03
v/s Ratio Perm												
v/c Ratio		1.07	1.01	0.31		1.01	0.87		0.69	0.47		0.50
Uniform Delay, d1		64.0	43.0	28.4		64.5	39.6		58.1	49.4		69.3
Progression Factor		0.89	1.02	1.06		1.12	0.74		1.00	1.00		1.00
Incremental Delay, d2		70.7	23.9	1.0		44.0	3.8		3.2	0.9		4.2
Delay (s)		127.6	67.6	31.0		115.9	33.1		61.3	50.3		73.5
Level of Service		F	E	C		F	C		E	D		E
Approach Delay (s)			70.2				46.7			57.1		
Approach LOS			E				D			E		
Intersection Summary												
HCM 2000 Control Delay			60.5				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)			22.0		
Intersection Capacity Utilization			86.7%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

25: 168th PI & SR 516

01/12/2023



Movement	SBT	SBR
Lane Configurations	P	
Traffic Volume (vph)	70	70
Future Volume (vph)	70	70
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.1	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.93	
Flt Protected	1.00	
Satd. Flow (prot)	1746	
Flt Permitted	1.00	
Satd. Flow (perm)	1746	
Peak-hour factor, PHF	0.87	0.87
Adj. Flow (vph)	80	80
RTOR Reduction (vph)	27	0
Lane Group Flow (vph)	133	0
Confl. Peds. (#/hr)		1
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	16.7	
Effective Green, g (s)	16.7	
Actuated g/C Ratio	0.11	
Clearance Time (s)	5.1	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	194	
v/s Ratio Prot	c0.08	
v/s Ratio Perm		
v/c Ratio	0.69	
Uniform Delay, d1	64.1	
Progression Factor	1.00	
Incremental Delay, d2	9.7	
Delay (s)	73.8	
Level of Service	E	
Approach Delay (s)	73.8	
Approach LOS	E	
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

26: SR 516 & SR 18 EB Ramps

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	1300	0	0	1410	195	225	0	815	0	0	0
Future Volume (vph)	115	1300	0	0	1410	195	225	0	815	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.9			5.9		5.9	5.9	5.9			
Lane Util. Factor	0.97	0.95			0.95		1.00	0.95	0.95			
Frpb, ped/bikes	1.00	1.00			1.00		1.00	0.99	0.99			
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	1.00			
Frt	1.00	1.00			0.98		1.00	0.85	0.85			
Flt Protected	0.95	1.00			1.00		0.95	1.00	1.00			
Satd. Flow (prot)	3303	3574			3507		1787	1499	1499			
Flt Permitted	0.95	1.00			1.00		0.95	1.00	1.00			
Satd. Flow (perm)	3303	3574			3507		1787	1499	1499			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	120	1354	0	0	1469	203	234	0	849	0	0	0
RTOR Reduction (vph)	0	0	0	0	4	0	0	295	295	0	0	0
Lane Group Flow (vph)	120	1354	0	0	1668	0	234	130	129	0	0	0
Confl. Peds. (#/hr)	2		4	4		2			1	1		
Heavy Vehicles (%)	6%	1%	0%	0%	1%	0%	1%	0%	1%	0%	0%	0%
Turn Type	Prot	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			3				
Permitted Phases							3		3			
Actuated Green, G (s)	10.6	108.7			92.6		29.5	29.5	29.5			
Effective Green, g (s)	10.6	108.7			92.6		29.5	29.5	29.5			
Actuated g/C Ratio	0.07	0.72			0.62		0.20	0.20	0.20			
Clearance Time (s)	5.5	5.9			5.9		5.9	5.9	5.9			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	233	2589			2164		351	294	294			
v/s Ratio Prot	0.04	c0.38			c0.48			0.09				
v/s Ratio Perm							c0.13		0.09			
v/c Ratio	0.52	0.52			0.77		0.67	0.44	0.44			
Uniform Delay, d1	67.2	9.2			21.0		55.7	53.0	53.0			
Progression Factor	1.29	2.17			1.52		1.00	1.00	1.00			
Incremental Delay, d2	1.4	0.5			1.6		4.7	1.1	1.1			
Delay (s)	87.8	20.4			33.4		60.4	54.1	54.0			
Level of Service	F	C			C		E	D	D			
Approach Delay (s)		25.9			33.4			55.4			0.0	
Approach LOS		C			C			E			A	
Intersection Summary												
HCM 2000 Control Delay			36.4				HCM 2000 Level of Service		D			
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)		22.8			
Intersection Capacity Utilization			79.9%				ICU Level of Service		D			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

27: SR 516 & SR 18 WB Ramps

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑↑						↑↓	↑
Traffic Volume (vph)	0	1245	410	450	1135	0	0	0	0	160	5	280
Future Volume (vph)	0	1245	410	450	1135	0	0	0	0	160	5	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9	5.9	5.5	5.9						5.9	5.9
Lane Util. Factor		0.95	1.00	0.97	0.91						0.95	0.95
Frpb, ped/bikes		1.00	0.98	1.00	1.00						1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	1.00
Frt		1.00	0.85	1.00	1.00						0.96	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.97	1.00
Satd. Flow (prot)		3539	1543	3467	5136						1628	1475
Flt Permitted		1.00	1.00	0.95	1.00						0.97	1.00
Satd. Flow (perm)		3539	1543	3467	5136						1628	1475
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1311	432	474	1195	0	0	0	0	168	5	295
RTOR Reduction (vph)	0	0	70	0	0	0	0	0	0	0	11	93
Lane Group Flow (vph)	0	1311	362	474	1195	0	0	0	0	0	233	131
Confl. Peds. (#/hr)	3		2	2		3						
Heavy Vehicles (%)	0%	2%	3%	1%	1%	0%	0%	0%	0%	1%	33%	4%
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						3	
Permitted Phases			2							3		3
Actuated Green, G (s)		81.1	81.1	25.3	111.9						26.3	26.3
Effective Green, g (s)		81.1	81.1	25.3	111.9						26.3	26.3
Actuated g/C Ratio		0.54	0.54	0.17	0.75						0.18	0.18
Clearance Time (s)		5.9	5.9	5.5	5.9						5.9	5.9
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		1913	834	584	3831						285	258
v/s Ratio Prot		c0.37		c0.14	0.23							
v/s Ratio Perm			0.23								0.14	0.09
v/c Ratio		0.69	0.43	0.81	0.31						0.82	0.51
Uniform Delay, d1		25.1	20.7	60.1	6.3						59.6	56.0
Progression Factor		0.70	0.61	0.74	2.17						1.00	1.00
Incremental Delay, d2		1.6	1.3	5.6	0.1						16.5	1.6
Delay (s)		19.1	14.0	50.3	13.8						76.0	57.5
Level of Service		B	B	D	B						E	E
Approach Delay (s)		17.8			24.2			0.0			67.2	
Approach LOS		B			C			A			E	
Intersection Summary												
HCM 2000 Control Delay			26.5			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				17.3		
Intersection Capacity Utilization			79.9%			ICU Level of Service				D		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: SR 516 & 164th Ave SE

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	1165	10	20	1025	365	5	5	5	485	10	210
Future Volume (vph)	115	1165	10	20	1025	365	5	5	5	485	10	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.9		5.5	5.9	5.9		5.5		5.9	5.9	5.9
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00		0.95	0.95	1.00
Frt	1.00	1.00		1.00	1.00	0.85		0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98		0.95	0.95	1.00
Satd. Flow (prot)	1752	3535		1703	3539	1615		1785		1698	1706	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.70		0.75	0.72	1.00
Satd. Flow (perm)	1752	3535		1703	3539	1615		1273		1336	1294	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	120	1214	10	21	1068	380	5	5	5	505	10	219
RTOR Reduction (vph)	0	0	0	0	0	142	0	5	0	0	0	106
Lane Group Flow (vph)	120	1224	0	21	1068	238	0	10	0	258	257	113
Heavy Vehicles (%)	3%	2%	0%	6%	2%	0%	0%	0%	0%	1%	0%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		9	6			7			4	
Permitted Phases						6	7	7		4		4
Actuated Green, G (s)	15.5	80.8		5.0	70.3	70.3		3.8		37.6	37.6	37.6
Effective Green, g (s)	15.5	80.8		5.0	70.3	70.3		3.8		37.6	37.6	37.6
Actuated g/C Ratio	0.10	0.54		0.03	0.47	0.47		0.03		0.25	0.25	0.25
Clearance Time (s)	5.5	5.9		5.5	5.9	5.9		5.5		5.9	5.9	5.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	181	1904		56	1658	756		32		334	324	396
v/s Ratio Prot	c0.07	c0.35		0.01	0.30							
v/s Ratio Perm						0.15		c0.01		0.19	c0.20	0.07
v/c Ratio	0.66	0.64		0.38	0.64	0.31		0.32		0.77	0.79	0.29
Uniform Delay, d1	64.7	24.4		71.0	30.3	24.8		71.8		52.2	52.6	45.4
Progression Factor	1.22	0.51		0.60	1.29	1.85		1.00		1.00	1.00	1.00
Incremental Delay, d2	5.8	1.1		4.0	1.8	1.0		5.6		10.6	12.5	0.4
Delay (s)	84.9	13.5		46.8	40.9	47.0		77.5		62.8	65.1	45.8
Level of Service	F	B		D	D	D		E		E	E	D
Approach Delay (s)		19.8			42.6			77.5			58.5	
Approach LOS		B			D			E			E	
Intersection Summary												
HCM 2000 Control Delay			37.4				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)			22.8		
Intersection Capacity Utilization			70.9%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

29: Covington Way SE & SR 516

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	870	465	255	925	25	490	5	355	15	10	30
Future Volume (vph)	25	870	465	255	925	25	490	5	355	15	10	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.9		5.5	5.9		6.0	6.0	6.0		5.9	5.9
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.95		1.00	1.00		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.95	1.00		0.97	1.00
Satd. Flow (prot)	1805	3347		1770	3525		1681	1688	1583		1843	1615
Flt Permitted	0.95	1.00		0.95	1.00		0.74	0.71	1.00		0.38	1.00
Satd. Flow (perm)	1805	3347		1770	3525		1310	1259	1583		722	1615
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	26	906	484	266	964	26	510	5	370	16	10	31
RTOR Reduction (vph)	0	50	0	0	1	0	0	0	250	0	0	29
Lane Group Flow (vph)	26	1340	0	266	989	0	255	260	120	0	26	2
Confl. Peds. (#/hr)	1		2	2		1						
Heavy Vehicles (%)	0%	1%	2%	2%	2%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			4			3	
Permitted Phases							4		4	3	3	3
Actuated Green, G (s)	5.3	67.8		20.5	83.0		29.9	29.9	29.9		8.5	8.5
Effective Green, g (s)	5.3	67.8		20.5	83.0		29.9	29.9	29.9		8.5	8.5
Actuated g/C Ratio	0.04	0.45		0.14	0.55		0.20	0.20	0.20		0.06	0.06
Clearance Time (s)	5.5	5.9		5.5	5.9		6.0	6.0	6.0		5.9	5.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	63	1512		241	1950		261	250	315		40	91
v/s Ratio Prot	0.01	c0.40		c0.15	0.28							
v/s Ratio Perm							0.19	c0.21	0.08		c0.04	0.00
v/c Ratio	0.41	0.89		1.10	0.51		0.98	1.04	0.38		0.65	0.02
Uniform Delay, d1	70.8	37.6		64.8	20.8		59.7	60.1	52.0		69.3	66.8
Progression Factor	1.00	1.00		1.17	0.77		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	4.3	8.0		83.2	0.8		48.8	67.7	0.8		32.0	0.1
Delay (s)	75.2	45.6		159.0	16.8		108.5	127.8	52.8		101.3	66.9
Level of Service	E	D		F	B		F	F	D		F	E
Approach Delay (s)		46.1			46.9			90.9			82.6	
Approach LOS		D			D			F			F	
Intersection Summary												
HCM 2000 Control Delay			57.9			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			23.3			
Intersection Capacity Utilization			97.9%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Intersection												
Int Delay, s/veh	148.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	65	1255	0	0	1135	210	0	0	0	115	0	90
Future Vol, veh/h	65	1255	0	0	1135	210	0	0	0	115	0	90
Conflicting Peds, #/hr	1	0	3	3	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	1	0	0	3	2	0	0	0	3	0	1
Mvmt Flow	69	1335	0	0	1207	223	0	0	0	122	0	96

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1431	0	0	1338	0	0	2080	2907	671	2126	2796	716
Stage 1	-	-	-	-	-	-	1476	1476	-	1320	1320	-
Stage 2	-	-	-	-	-	-	604	1431	-	806	1476	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.56	6.5	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.56	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.56	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.53	4	3.31
Pot Cap-1 Maneuver	481	-	-	522	-	-	31	16	404	~ 28	19	375
Stage 1	-	-	-	-	-	-	135	192	-	164	228	-
Stage 2	-	-	-	-	-	-	457	202	-	340	192	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	481	-	-	521	-	-	20	14	403	~ 25	16	375
Mov Cap-2 Maneuver	-	-	-	-	-	-	20	14	-	~ 25	16	-
Stage 1	-	-	-	-	-	-	115	164	-	140	228	-
Stage 2	-	-	-	-	-	-	340	202	-	291	164	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0	0	\$ 2078.1
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	481	-	-	521	-	-	42
HCM Lane V/C Ratio	-	0.144	-	-	-	-	-	5.193
HCM Control Delay (s)	0	13.7	-	-	0	-	-	\$ 2078.1
HCM Lane LOS	A	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	-	0.5	-	-	0	-	-	25.2

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

31: Covington Way SE & 165th PI SE

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	25	5	15	330	0	190	5	435	125	120	220	370
Future Volume (vph)	25	5	15	330	0	190	5	435	125	120	220	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0		5.0	4.0	5.0			4.0	5.0
Lane Util. Factor	1.00	1.00		1.00		1.00	1.00	0.95			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00		1.00	1.00	0.99			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00		1.00	1.00	1.00			1.00	1.00
Frt	1.00	0.89		1.00		0.85	1.00	0.97			1.00	1.00
Flt Protected	0.95	1.00		0.95		1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	1388	1510		1787		1599	1357	3391			1805	1881
Flt Permitted	0.76	1.00		0.74		1.00	0.95	1.00			0.95	1.00
Satd. Flow (perm)	1107	1510		1399		1599	1357	3391			1805	1881
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	27	5	16	351	0	202	5	463	133	128	234	394
RTOR Reduction (vph)	0	11	0	0	0	137	0	34	0	0	0	0
Lane Group Flow (vph)	27	10	0	351	0	65	5	562	0	0	362	394
Confl. Peds. (#/hr)									3		3	
Heavy Vehicles (%)	30%	0%	15%	1%	0%	1%	33%	3%	0%	0%	0%	1%
Turn Type	Perm	NA		Perm		Perm	Prot	NA		Prot	Prot	NA
Protected Phases		4			8		5	2		1	1	6
Permitted Phases	4			8		8						
Actuated Green, G (s)	27.7	27.7		27.7		27.7	0.9	21.0			27.3	47.4
Effective Green, g (s)	27.7	27.7		27.7		27.7	0.9	21.0			27.3	47.4
Actuated g/C Ratio	0.31	0.31		0.31		0.31	0.01	0.23			0.30	0.53
Clearance Time (s)	5.0	5.0		5.0		5.0	4.0	5.0			4.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0		3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	340	464		430		492	13	791			547	990
v/s Ratio Prot		0.01					0.00	c0.17			c0.20	0.21
v/s Ratio Perm	0.02			c0.25		0.04						
v/c Ratio	0.08	0.02		0.82		0.13	0.38	0.71			0.66	0.40
Uniform Delay, d1	22.1	21.7		28.8		22.5	44.3	31.7			27.3	12.8
Progression Factor	1.00	1.00		1.00		1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2	0.1	0.0		11.4		0.1	17.9	5.4			3.0	1.2
Delay (s)	22.2	21.7		40.2		22.6	62.2	37.1			30.3	14.0
Level of Service	C	C		D		C	E	D			C	B
Approach Delay (s)		22.0			33.8			37.3				21.6
Approach LOS		C			C			D				C
Intersection Summary												
HCM 2000 Control Delay			29.8									
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			90.0									
Intersection Capacity Utilization			80.5%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

31: Covington Way SE & 165th PI SE

01/12/2023

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1077
Flt Permitted	1.00
Satd. Flow (perm)	1077
Peak-hour factor, PHF	0.94
Adj. Flow (vph)	11
RTOR Reduction (vph)	5
Lane Group Flow (vph)	6
Confl. Peds. (#/hr)	
Heavy Vehicles (%)	50%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	47.4
Effective Green, g (s)	47.4
Actuated g/C Ratio	0.53
Clearance Time (s)	5.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	567
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.01
Uniform Delay, d1	10.1
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	10.2
Level of Service	B
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th Signalized Intersection Summary

32: Covington Way SE & SE Wax Rd

01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	415	0	110	0	435	245	65	665	0
Future Volume (veh/h)	0	0	0	415	0	110	0	435	245	65	665	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1885	1900	1870	1900	1870	1900	1870	1885	1900
Adj Flow Rate, veh/h	0	0	0	441	0	117	0	463	261	69	707	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	1	0	2	0	2	0	2	1	0
Cap, veh/h	0	916	0	632	0	149	0	761	654	234	767	0
Arrive On Green	0.00	0.00	0.00	0.48	0.00	0.48	0.00	0.41	0.41	0.41	0.41	0.00
Sat Flow, veh/h	0	1900	0	1164	0	309	0	1870	1606	730	1885	0
Grp Volume(v), veh/h	0	0	0	558	0	0	0	463	261	69	707	0
Grp Sat Flow(s),veh/h/ln	0	1900	0	1472	0	0	0	1870	1606	730	1885	0
Q Serve(g_s), s	0.0	0.0	0.0	28.5	0.0	0.0	0.0	17.6	10.4	7.4	32.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	28.5	0.0	0.0	0.0	17.6	10.4	25.0	32.0	0.0
Prop In Lane	0.00		0.00	0.79		0.21	0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	916	0	781	0	0	0	761	654	234	767	0
V/C Ratio(X)	0.00	0.00	0.00	0.71	0.00	0.00	0.00	0.61	0.40	0.29	0.92	0.00
Avail Cap(c_a), veh/h	0	916	0	781	0	0	0	831	714	262	838	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	19.4	0.0	0.0	0.0	21.0	18.9	30.9	25.3	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	5.5	0.0	0.0	0.0	1.1	0.4	0.7	14.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	10.0	0.0	0.0	0.0	7.4	3.7	1.3	16.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	25.0	0.0	0.0	0.0	22.2	19.3	31.6	40.0	0.0
LnGrp LOS	A	A	A	C	A	A	A	C	B	C	D	A
Approach Vol, veh/h	0		558			724			776			
Approach Delay, s/veh	0.0		25.0			21.1			39.3			
Approach LOS			C			C			D			
Timer - Assigned Phs	2		4			6			8			
Phs Duration (G+Y+Rc), s	48.4		41.6			48.4			41.6			
Change Period (Y+Rc), s	5.0		5.0			5.0			5.0			
Max Green Setting (Gmax), s	40.0		40.0			40.0			40.0			
Max Q Clear Time (g_c+I1), s	0.0		19.6			30.5			34.0			
Green Ext Time (p_c), s	0.0		3.7			2.5			2.6			
Intersection Summary												
HCM 6th Ctrl Delay	29.0											
HCM 6th LOS	C											

Intersection

Int Delay, s/veh 1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	195	35	35	215	20	15
Future Vol, veh/h	195	35	35	215	20	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	212	38	38	234	22	16

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	250
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1316
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1316
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	11.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	585	-	-	1316	-
HCM Lane V/C Ratio	0.065	-	-	0.029	-
HCM Control Delay (s)	11.6	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

HCM 6th Signalized Intersection Summary

34: 216th Ave SE & SE 288th St

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	0	125	0	100	0	365	135	140	420	0
Future Volume (veh/h)	5	0	0	125	0	100	0	365	135	140	420	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1856	1856	1856	1900	1900	1900	1885	1885	1885
Adj Flow Rate, veh/h	5	0	0	130	0	0	0	380	0	146	438	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	3	3	3	0	0	0	1	1	1
Cap, veh/h	578	0	0	542	0		0	873		717	866	0
Arrive On Green	0.11	0.00	0.00	0.11	0.00	0.00	0.00	0.46	0.00	0.46	0.46	0.00
Sat Flow, veh/h	1748	0	0	1415	0	1572	0	1900	1610	1011	1885	0
Grp Volume(v), veh/h	5	0	0	130	0	0	0	380	0	146	438	0
Grp Sat Flow(s),veh/h/ln	1748	0	0	1415	0	1572	0	1900	1610	1011	1885	0
Q Serve(g_s), s	0.0	0.0	0.0	1.6	0.0	0.0	0.0	2.5	0.0	2.1	3.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.7	0.0	0.0	0.0	2.5	0.0	4.6	3.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	578	0	0	542	0		0	873		717	866	0
V/C Ratio(X)	0.01	0.00	0.00	0.24	0.00		0.00	0.44		0.20	0.51	0.00
Avail Cap(c_a), veh/h	1668	0	0	1607	0		0	1644		1127	1631	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.4	0.0	0.0	8.1	0.0	0.0	0.0	3.4	0.0	4.9	3.5	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.3	0.0	0.1	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.4	0.0	0.0	8.3	0.0	0.0	0.0	3.7	0.0	5.1	4.0	0.0
LnGrp LOS	A	A	A	A	A		A	A		A	A	A
Approach Vol, veh/h	5				130		A		380		A	
Approach Delay, s/veh	7.4				8.3				3.7		4.3	
Approach LOS	A				A				A		A	
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	12.5			6.0			12.5			6.0		
Change Period (Y+Rc), s	4.0			4.0			4.0			4.0		
Max Green Setting (Gmax), s	16.0			16.0			16.0			16.0		
Max Q Clear Time (g_c+I1), s	4.5			2.0			6.6			3.7		
Green Ext Time (p_c), s	1.2			0.0			1.9			0.3		
Intersection Summary												
HCM 6th Ctrl Delay	4.6											
HCM 6th LOS	A											

HCM Signalized Intersection Capacity Analysis

35: SE 296th St/216th Ave SE & SE Covington-Sawyer Rd/292nd St

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	245	15	215	10	20	25	170	225	10	20	280	245
Future Volume (vph)	245	15	215	10	20	25	170	225	10	20	280	245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	5.0		4.0		5.0	4.0			4.0	5.0
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00			1.00	1.00
Frt		1.00	0.85		0.94		1.00	0.99			1.00	0.85
Flt Protected		0.95	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1797	1568		1729		1752	1852			1859	1615
Flt Permitted		0.75	1.00		0.93		0.41	1.00			0.97	1.00
Satd. Flow (perm)		1407	1568		1626		754	1852			1813	1615
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	269	16	236	11	22	27	187	247	11	22	308	269
RTOR Reduction (vph)	0	0	171	0	19	0	0	2	0	0	0	150
Lane Group Flow (vph)	0	285	65	0	41	0	187	256	0	0	330	119
Heavy Vehicles (%)	1%	0%	3%	0%	0%	5%	3%	2%	0%	0%	2%	0%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		8			4		5	2			6	
Permitted Phases	8		8	4			2			6		6
Actuated Green, G (s)		21.9	21.9		21.9		48.1	48.1			35.0	35.0
Effective Green, g (s)		22.9	21.9		22.9		48.1	49.1			36.0	35.0
Actuated g/C Ratio		0.29	0.27		0.29		0.60	0.61			0.45	0.44
Clearance Time (s)		5.0	5.0		5.0		5.0	5.0			5.0	5.0
Vehicle Extension (s)		2.0	2.0		2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)		402	429		465		554	1136			815	706
v/s Ratio Prot							c0.03	0.14				
v/s Ratio Perm		c0.20	0.04		0.03		0.17				c0.18	0.07
v/c Ratio		0.71	0.15		0.09		0.34	0.23			0.40	0.17
Uniform Delay, d1		25.6	22.0		20.9		8.0	6.9			14.8	13.7
Progression Factor		1.00	1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2		4.6	0.1		0.0		0.1	0.5			1.5	0.5
Delay (s)		30.2	22.1		20.9		8.2	7.4			16.3	14.2
Level of Service		C	C		C		A	A			B	B
Approach Delay (s)		26.5			20.9			7.7			15.3	
Approach LOS		C			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			17.0				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			13.0		
Intersection Capacity Utilization			59.3%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

36: 219th Ave SE & SE 296th St

01/12/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	290	160	10	265	195	20
Future Volume (veh/h)	290	160	10	265	195	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1870	1900	1885	1870	1900
Adj Flow Rate, veh/h	362	200	12	331	244	25
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	1	2	0	1	2	0
Cap, veh/h	1195	1005	589	1331	320	290
Arrive On Green	0.63	0.63	0.01	0.71	0.18	0.18
Sat Flow, veh/h	1885	1585	1810	1885	1781	1610
Grp Volume(v), veh/h	362	200	12	331	244	25
Grp Sat Flow(s), veh/h/ln	1885	1585	1810	1885	1781	1610
Q Serve(g_s), s	6.1	3.7	0.2	4.4	9.1	0.9
Cycle Q Clear(g_c), s	6.1	3.7	0.2	4.4	9.1	0.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1195	1005	589	1331	320	290
V/C Ratio(X)	0.30	0.20	0.02	0.25	0.76	0.09
Avail Cap(c_a), veh/h	1195	1005	717	1331	662	598
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.8	5.4	4.5	3.7	27.3	23.9
Incr Delay (d2), s/veh	0.6	0.4	0.0	0.4	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	1.0	0.0	1.2	3.9	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.4	5.8	4.5	4.1	28.7	24.0
LnGrp LOS	A	A	A	A	C	C
Approach Vol, veh/h	562			343	269	
Approach Delay, s/veh	6.2			4.1	28.3	
Approach LOS	A			A	C	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	5.0	48.4		16.6		53.4
Change Period (Y+Rc), s	4.0	5.0		5.0		5.0
Max Green Setting (Gmax), s	6.0	25.0		25.0		35.0
Max Q Clear Time (g_c+I2), s	12.2	8.1		11.1		6.4
Green Ext Time (p_c), s	0.0	1.2		0.5		0.7
Intersection Summary						
HCM 6th Ctrl Delay			10.6			
HCM 6th LOS			B			

HCM 6th TWSC
37: 218th Ave SE & SE Auburn-Black Diamond Rd

10/02/2023

Intersection

Int Delay, s/veh 4.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	460	265	65	290	90	80
Future Vol, veh/h	460	265	65	290	90	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	479	276	68	302	94	83

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	755
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	855
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	855
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	32.3
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	303	-	-	855	-
HCM Lane V/C Ratio	0.584	-	-	0.079	-
HCM Control Delay (s)	32.3	-	-	9.6	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	3.5	-	-	0.3	-

MOVEMENT SUMMARY

 **Site: 101 [38.Ten Trails Pkwy - 1 Lane (Site Folder: 2032-No Build)]**

Ten Trails Pkwy and SE Auburn Black Diamond Rd
Site Category: Future No Build - 2032
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Ten Trails Pkwy														
3	L2	50	8.0	50	8.0	0.120	12.5	LOS B	0.7	17.2	0.59	0.68	0.59	34.9
8	T1	40	0.0	40	0.0	0.120	6.2	LOS A	0.7	17.2	0.59	0.68	0.59	35.1
18	R2	25	0.0	25	0.0	0.120	6.2	LOS A	0.7	17.2	0.59	0.68	0.59	34.1
Approach		115	3.5	115	3.5	0.120	8.9	LOS A	0.7	17.2	0.59	0.68	0.59	34.8
East: SE Auburn Black Diamond Rd														
1	L2	30	0.0	30	0.0	0.287	10.4	LOS B	1.7	43.9	0.36	0.48	0.36	36.8
6	T1	285	2.0	285	2.0	0.287	4.5	LOS A	1.7	43.9	0.36	0.48	0.36	36.7
16	R2	55	0.0	55	0.0	0.287	4.6	LOS A	1.7	43.9	0.36	0.48	0.36	35.6
Approach		370	1.5	370	1.5	0.287	5.0	LOS A	1.7	43.9	0.36	0.48	0.36	36.5
North: Ten Trails Pkwy														
7	L2	60	0.0	60	0.0	0.139	11.3	LOS B	0.8	18.9	0.49	0.63	0.49	35.7
4	T1	35	0.0	35	0.0	0.139	5.4	LOS A	0.8	18.9	0.49	0.63	0.49	35.6
14	R2	60	2.0	60	2.0	0.139	5.5	LOS A	0.8	18.9	0.49	0.63	0.49	34.5
Approach		155	0.8	155	0.8	0.139	7.7	LOS A	0.8	18.9	0.49	0.63	0.49	35.2
West: SE Auburn Black Diamond Rd														
5	L2	55	0.0	55	0.0	0.394	10.4	LOS B	2.7	68.6	0.37	0.48	0.37	36.7
2	T1	405	3.0	405	3.0	0.394	4.6	LOS A	2.7	68.6	0.37	0.48	0.37	36.5
12	R2	50	4.0	50	4.0	0.394	4.6	LOS A	2.7	68.6	0.37	0.48	0.37	35.4
Approach		510	2.8	510	2.8	0.394	5.2	LOS A	2.7	68.6	0.37	0.48	0.37	36.4
All Vehicles		1150	2.2	1150	2.2	0.394	5.9	LOS A	2.7	68.6	0.41	0.52	0.41	36.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 101 [39.Lake Sawyer Rd - 1 Lane (Site Folder: 2032-No Build)]**

Lake Sawyer Rd and SE Auburn Black Diamond Rd
Site Category: Future No Build - 2032
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Lake Sawyer Rd														
3	L2	150	6.0	150	6.0	0.438	12.2	LOS B	3.1	81.2	0.67	0.71	0.67	35.2
8	T1	75	6.0	75	6.0	0.438	6.2	LOS A	3.1	81.2	0.67	0.71	0.67	35.2
18	R2	215	6.0	215	6.0	0.438	6.3	LOS A	3.1	81.2	0.67	0.71	0.67	34.1
Approach		440	6.0	440	6.0	0.438	8.3	LOS A	3.1	81.2	0.67	0.71	0.67	34.7
East: SE Auburn Black Diamond Rd														
1	L2	330	2.0	330	2.0	0.537	12.0	LOS B	4.2	105.7	0.67	0.71	0.67	34.7
6	T1	160	2.0	160	2.0	0.537	6.1	LOS A	4.2	105.7	0.67	0.71	0.67	34.6
16	R2	105	2.0	105	2.0	0.537	6.1	LOS A	4.2	105.7	0.67	0.71	0.67	33.7
Approach		595	2.0	595	2.0	0.537	9.4	LOS A	4.2	105.7	0.67	0.71	0.67	34.5
North: Lake Sawyer Rd														
7	L2	70	1.0	70	1.0	0.279	13.4	LOS B	1.9	47.0	0.74	0.77	0.74	34.9
4	T1	110	1.0	110	1.0	0.279	7.4	LOS A	1.9	47.0	0.74	0.77	0.74	34.8
14	R2	60	1.0	60	1.0	0.279	7.5	LOS A	1.9	47.0	0.74	0.77	0.74	33.8
Approach		240	1.0	240	1.0	0.279	9.2	LOS A	1.9	47.0	0.74	0.77	0.74	34.6
West: SE Auburn Black Diamond Rd														
5	L2	95	1.0	95	1.0	0.500	13.4	LOS B	3.9	98.6	0.75	0.79	0.80	35.2
2	T1	215	1.0	215	1.0	0.500	7.4	LOS A	3.9	98.6	0.75	0.79	0.80	35.1
12	R2	180	1.0	180	1.0	0.500	7.5	LOS A	3.9	98.6	0.75	0.79	0.80	34.1
Approach		490	1.0	490	1.0	0.500	8.6	LOS A	3.9	98.6	0.75	0.79	0.80	34.7
All Vehicles		1765	2.6	1765	2.6	0.537	8.9	LOS A	4.2	105.7	0.70	0.74	0.72	34.6

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 40 [40.Roberts Dr Morgan St (Site Folder: 2032-No Build)]

Roberts Dr and Morgan St
Site Category: Future No Build - 2032
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Morgan St														
3	L2	220	2.0	220	2.0	0.178	10.7	LOS B	0.9	21.6	0.36	0.66	0.36	34.1
Approach		220	2.0	220	2.0	0.178	10.7	LOS B	0.9	21.6	0.36	0.66	0.36	34.1
East: Roberts Dr														
1	L2	10	2.0	10	2.0	0.284	10.8	LOS B	1.6	40.9	0.41	0.48	0.41	36.7
6	T1	340	2.0	340	2.0	0.284	4.8	LOS A	1.6	40.9	0.41	0.48	0.41	36.6
Approach		350	2.0	350	2.0	0.284	5.0	LOS A	1.6	40.9	0.41	0.48	0.41	36.6
West: Roberts Dr														
2	T1	235	2.0	235	2.0	0.324	3.9	LOS A	2.0	51.4	0.08	0.40	0.08	37.9
12	R2	230	2.0	230	2.0	0.324	3.9	LOS A	2.0	51.4	0.08	0.40	0.08	36.7
Approach		465	2.0	465	2.0	0.324	3.9	LOS A	2.0	51.4	0.08	0.40	0.08	37.3
All Vehicles		1035	2.0	1035	2.0	0.324	5.7	LOS A	2.0	51.4	0.25	0.48	0.25	36.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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HCM Signalized Intersection Capacity Analysis

40: Morgan St & SE Auburn-Black Diamond Rd/Roberts Dr

10/02/2023

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	EB	EB	WB	WB	NB	NB
Traffic Volume (vph)	255	230	10	340	220	0
Future Volume (vph)	255	230	10	340	220	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00	
Frpb, ped/bikes	0.99			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.94			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	1743			1860	1805	
Flt Permitted	1.00			0.98	0.95	
Satd. Flow (perm)	1743			1827	1805	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	277	250	11	370	239	0
RTOR Reduction (vph)	80	0	0	0	0	0
Lane Group Flow (vph)	447	0	0	381	239	0
Confl. Peds. (#/hr)		1			1	
Heavy Vehicles (%)	1%	1%	2%	2%	0%	0%
Turn Type	NA		Perm	NA	Prot	
Protected Phases	4			8	2	
Permitted Phases			8			
Actuated Green, G (s)	11.8			11.8	9.4	
Effective Green, g (s)	11.8			11.8	9.4	
Actuated g/C Ratio	0.40			0.40	0.32	
Clearance Time (s)	4.0			4.0	4.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	704			738	581	
v/s Ratio Prot	c0.26				c0.13	
v/s Ratio Perm				0.21		
v/c Ratio	0.63			0.52	0.41	
Uniform Delay, d1	7.0			6.6	7.7	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	1.9			0.6	0.5	
Delay (s)	8.8			7.2	8.2	
Level of Service	A			A	A	
Approach Delay (s)	8.8			7.2	8.2	
Approach LOS	A			A	A	
Intersection Summary						
HCM 2000 Control Delay			8.2		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.54			
Actuated Cycle Length (s)			29.2		Sum of lost time (s)	8.0
Intersection Capacity Utilization			46.4%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th TWSC
41: Railroad Ave/Morgan St & Baker St

10/02/2023

Intersection

Int Delay, s/veh 3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	60	170	15	90	125
Future Vol, veh/h	10	60	170	15	90	125
Conflicting Peds, #/hr	0	1	0	10	10	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	1	2
Mvmt Flow	11	65	185	16	98	136

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	535	204	0
Stage 1	203	-	-
Stage 2	332	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	510	842	-
Stage 1	836	-	-
Stage 2	731	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	467	834	-
Mov Cap-2 Maneuver	467	-	-
Stage 1	829	-	-
Stage 2	674	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	3.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	750	1355
HCM Lane V/C Ratio	-	-	0.101	0.072
HCM Control Delay (s)	-	-	10.3	7.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.3	0.2

Intersection

Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	15	115	10	15	15	30	150	10	15	300	10
Future Vol, veh/h	10	15	115	10	15	15	30	150	10	15	300	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	13	33	0	0	2	0	0	1	0
Mvmt Flow	11	16	125	11	16	16	33	163	11	16	326	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.1	8.9	9.7	11.5
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	16%	7%	25%	5%
Vol Thru, %	79%	11%	38%	92%
Vol Right, %	5%	82%	38%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	190	140	40	325
LT Vol	30	10	10	15
Through Vol	150	15	15	300
RT Vol	10	115	15	10
Lane Flow Rate	207	152	43	353
Geometry Grp	1	1	1	1
Degree of Util (X)	0.275	0.202	0.066	0.453
Departure Headway (Hd)	4.786	4.768	5.455	4.614
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	746	746	650	777
Service Time	2.852	2.84	3.544	2.671
HCM Lane V/C Ratio	0.277	0.204	0.066	0.454
HCM Control Delay	9.7	9.1	8.9	11.5
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	1.1	0.8	0.2	2.4

Intersection

Int Delay, s/veh 3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	605	255	5	430	100	0
Future Vol, veh/h	605	255	5	430	100	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	None
Storage Length	-	0	90	-	0	110
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	3	3	1	1
Mvmt Flow	672	283	6	478	111	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	-	672
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.13
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.227
Pot Cap-1 Maneuver	-	0	914
Stage 1	-	0	-
Stage 2	-	0	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	914
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	38.4
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT
Capacity (veh/h)	215	-	-	914	-
HCM Lane V/C Ratio	0.517	-	-	0.006	-
HCM Control Delay (s)	38.4	0	-	9	-
HCM Lane LOS	E	A	-	A	-
HCM 95th %tile Q(veh)	2.7	-	-	0	-

HCM 6th Signalized Intersection Summary

44: Ten Trails Place SE & SE Auburn-Black Diamond Rd

01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	490	0	0	370	0	0	0	0	0	0	0
Future Volume (veh/h)	0	490	0	0	370	0	0	0	0	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	533	0	0	402	0	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	760	1080	0	760	1080	0	0	20	0	0	20	0
Arrive On Green	0.00	0.58	0.00	0.00	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sat Flow, veh/h	983	1870	0	871	1870	0	0-74814		0	0-74814		0
Grp Volume(v), veh/h	0	533	0	0	402	0	0	0	0	0	0	0
Grp Sat Flow(s),veh/h/ln	983	1870	0	871	1870	0	0	1870	0	0	1870	0
Q Serve(g_s), s	0.0	1.6	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	1.6	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.00	0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	760	1080	0	760	1080	0	0	20	0	0	20	0
V/C Ratio(X)	0.00	0.49	0.00	0.00	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	1854	3161	0	1729	3161	0	0	3161	0	0	3161	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	1.2	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.5	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h	533				402		0				0	
Approach Delay, s/veh	1.5				1.3		0.0				0.0	
Approach LOS	A				A							
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	0.0		9.5		0.0		9.5					
Change Period (Y+Rc), s	4.0		4.0		4.0		4.0					
Max Green Setting (Gmax), s	16.0		16.0		16.0		16.0					
Max Q Clear Time (g_c+I1), s	0.0		3.6		0.0		3.1					
Green Ext Time (p_c), s	0.0		2.4		0.0		2.1					

Intersection Summary

HCM 6th Ctrl Delay	1.4
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary

1: SR 169 & SE Green Valley Rd

10/02/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	0	15	5	0	0	10	745	5	5	1200	50
Future Volume (veh/h)	55	0	15	5	0	0	10	745	5	5	1200	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1900	1900	1900	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	0	18	6	0	0	12	876	6	6	1412	59
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	0	0	0	2	2	2	2	2	2
Cap, veh/h	134	1	22	169	0	0	39	1558	11	32	1608	1368
Arrive On Green	0.07	0.00	0.07	0.07	0.00	0.00	0.86	0.86	0.86	0.86	0.86	0.86
Sat Flow, veh/h	1135	15	318	1546	0	0	10	1806	12	2	1864	1585
Grp Volume(v), veh/h	83	0	0	6	0	0	894	0	0	1418	0	59
Grp Sat Flow(s),veh/h/ln	1468	0	0	1546	0	0	1828	0	0	1866	0	1585
Q Serve(g_s), s	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Cycle Q Clear(g_c), s	6.7	0.0	0.0	0.4	0.0	0.0	15.1	0.0	0.0	51.6	0.0	0.6
Prop In Lane	0.78		0.22	1.00		0.00	0.01		0.01	0.00		1.00
Lane Grp Cap(c), veh/h	157	0	0	169	0	0	1608	0	0	1640	0	1368
V/C Ratio(X)	0.53	0.00	0.00	0.04	0.00	0.00	0.56	0.00	0.00	0.86	0.00	0.04
Avail Cap(c_a), veh/h	345	0	0	258	0	0	1608	0	0	1640	0	1368
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.9	0.0	0.0	52.0	0.0	0.0	2.2	0.0	0.0	4.7	0.0	1.2
Incr Delay (d2), s/veh	2.7	0.0	0.0	0.1	0.0	0.0	1.4	0.0	0.0	6.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0	0.2	0.0	0.0	2.0	0.0	0.0	7.6	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.6	0.0	0.0	52.1	0.0	0.0	3.6	0.0	0.0	11.0	0.0	1.2
LnGrp LOS	E	A	A	D	A	A	A	A	A	B	A	A
Approach Vol, veh/h	83			6			894			1477		
Approach Delay, s/veh	57.6			52.1			3.6			10.6		
Approach LOS	E			D			A			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	107.5			12.5			107.5			12.5		
Change Period (Y+Rc), s	4.0			4.0			4.0			4.0		
Max Green Setting (Gmax), s	88.0			24.0			88.0			16.0		
Max Q Clear Time (g_c+I1), s	17.1			8.7			53.6			2.4		
Green Ext Time (p_c), s	7.8			0.3			19.2			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	9.7											
HCM 6th LOS	A											

HCM 6th TWSC
2: SR 169 & SE 332nd St

01/12/2023

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	0	0	1020	0	0	1325
Future Vol, veh/h	0	0	1020	0	0	1325
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	2	0	0	3
Mvmt Flow	0	0	1121	0	0	1456
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	2577	1121	0	0	1121	0
Stage 1	1121	-	-	-	-	-
Stage 2	1456	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	29	253	-	-	631	-
Stage 1	314	-	-	-	-	-
Stage 2	216	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	29	253	-	-	631	-
Mov Cap-2 Maneuver	29	-	-	-	-	-
Stage 1	314	-	-	-	-	-
Stage 2	216	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	0	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	-	631	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	-	-	0	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	

HCM 6th Signalized Intersection Summary

3: SR 169 & Jones Lake Rd

10/02/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	260	170	65	195	10	85	330	110	75	835	5
Future Volume (veh/h)	5	260	170	65	195	10	85	330	110	75	835	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1894	1864	1894	1870	1870	1870	1870	1870	1870	1870	1856	1856
Adj Flow Rate, veh/h	5	283	179	71	212	11	89	347	120	82	879	5
Peak Hour Factor	0.95	0.92	0.95	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.95	0.95
Percent Heavy Veh, %	0	2	0	2	2	2	2	2	2	2	3	3
Cap, veh/h	56	448	389	203	427	22	114	378	131	487	910	5
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.06	0.28	0.28	0.27	0.49	0.49
Sat Flow, veh/h	9	1850	1605	930	1762	91	1781	1328	459	1781	1843	10
Grp Volume(v), veh/h	288	0	179	71	0	223	89	0	467	82	0	884
Grp Sat Flow(s),veh/h/ln	1859	0	1605	930	0	1854	1781	0	1788	1781	0	1854
Q Serve(g_s), s	0.0	0.0	6.4	5.0	0.0	7.0	3.3	0.0	17.1	2.4	0.0	31.2
Cycle Q Clear(g_c), s	9.3	0.0	6.4	14.4	0.0	7.0	3.3	0.0	17.1	2.4	0.0	31.2
Prop In Lane	0.02		1.00	1.00		0.05	1.00		0.26	1.00		0.01
Lane Grp Cap(c), veh/h	505	0	389	203	0	449	114	0	508	487	0	915
V/C Ratio(X)	0.57	0.00	0.46	0.35	0.00	0.50	0.78	0.00	0.92	0.17	0.00	0.97
Avail Cap(c_a), veh/h	514	0	397	208	0	458	134	0	791	487	0	1090
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.9	0.0	21.8	29.4	0.0	22.0	31.1	0.0	23.4	18.7	0.0	16.5
Incr Delay (d2), s/veh	0.9	0.0	0.3	0.4	0.0	0.3	18.0	0.0	8.1	0.1	0.0	17.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.0	2.3	1.1	0.0	2.9	1.9	0.0	7.7	0.9	0.0	14.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.8	0.0	22.1	29.7	0.0	22.4	49.1	0.0	31.5	18.7	0.0	33.7
LnGrp LOS	C	A	C	C	A	C	D	A	C	B	A	C
Approach Vol, veh/h		467			294			556			966	
Approach Delay, s/veh		23.2			24.1			34.3			32.4	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.0	23.7		20.9	8.8	37.9		20.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	14.9	29.9		16.7	5.1	39.7		16.7				
Max Q Clear Time (g_c+I1), s	4.4	19.1		11.3	5.3	33.2		16.4				
Green Ext Time (p_c), s	0.0	0.1		0.3	0.0	0.2		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				29.9								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary

4: SR 169 & Lawson Rd

10/02/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	35	15	0	90	25	375	10	145	1000	5
Future Volume (veh/h)	0	0	35	15	0	90	25	375	10	145	1000	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	0	0	37	16	0	95	26	395	11	153	1053	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	3	3	3	2	2	2
Cap, veh/h	0	0	180	120	8	152	122	1145	31	926	1277	6
Arrive On Green	0.00	0.00	0.11	0.11	0.00	0.11	0.69	0.69	0.69	1.00	1.00	1.00
Sat Flow, veh/h	0	0	1589	154	71	1339	38	1668	45	978	1860	9
Grp Volume(v), veh/h	0	0	37	111	0	0	432	0	0	153	0	1058
Grp Sat Flow(s),veh/h/ln	0	0	1589	1565	0	0	1751	0	0	978	0	1869
Q Serve(g_s), s	0.0	0.0	0.8	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.8	2.7	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.00		1.00	0.14		0.86	0.06		0.03	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	180	280	0	0	1298	0	0	926	0	1283
V/C Ratio(X)	0.00	0.00	0.21	0.40	0.00	0.00	0.33	0.00	0.00	0.17	0.00	0.82
Avail Cap(c_a), veh/h	0	0	636	723	0	0	1298	0	0	926	0	1283
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.79	0.00	0.00	0.20	0.00	0.20
Uniform Delay (d), s/veh	0.0	0.0	16.1	16.9	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.6	0.9	0.0	0.0	0.5	0.0	0.0	0.1	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.3	0.9	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	16.7	17.8	0.0	0.0	3.1	0.0	0.0	0.1	0.0	1.3
LnGrp LOS	A	A	B	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h	37			111			432			1211		
Approach Delay, s/veh	16.7			17.8			3.1			1.1		
Approach LOS	B			B			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	31.5			8.5			31.5			8.5		
Change Period (Y+Rc), s	4.0			4.0			4.0			4.0		
Max Green Setting (Gmax), s	16.0			16.0			16.0			16.0		
Max Q Clear Time (g_c+I1), s	5.8			2.8			2.0			4.7		
Green Ext Time (p_c), s	1.5			0.1			6.3			0.3		
Intersection Summary												
HCM 6th Ctrl Delay	3.0											
HCM 6th LOS	A											

HCM 6th Signalized Intersection Summary

5: SR 169 & Baker St

10/02/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	175	40	425	975	45
Future Volume (veh/h)	35	175	40	425	975	45
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.99	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1811	1856	1856	1870	1870
Adj Flow Rate, veh/h	37	186	43	452	1037	48
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	6	6	3	3	2	2
Cap, veh/h	48	243	213	1134	1084	50
Arrive On Green	0.19	0.19	1.00	1.00	0.61	0.61
Sat Flow, veh/h	257	1290	516	1856	1773	82
Grp Volume(v), veh/h	224	0	43	452	0	1085
Grp Sat Flow(s),veh/h/ln	1554	0	516	1856	0	1855
Q Serve(g_s), s	5.5	0.0	2.6	0.0	0.0	21.9
Cycle Q Clear(g_c), s	5.5	0.0	24.5	0.0	0.0	21.9
Prop In Lane	0.17	0.83	1.00			0.04
Lane Grp Cap(c), veh/h	293	0	213	1134	0	1134
V/C Ratio(X)	0.76	0.00	0.20	0.40	0.00	0.96
Avail Cap(c_a), veh/h	622	0	213	1134	0	1134
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.95	0.95	0.00	1.00
Uniform Delay (d), s/veh	15.4	0.0	11.2	0.0	0.0	7.3
Incr Delay (d2), s/veh	4.1	0.0	2.0	1.0	0.0	18.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.4	0.3	0.0	10.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.5	0.0	13.3	1.0	0.0	25.4
LnGrp LOS	B	A	B	A	A	C
Approach Vol, veh/h	224			495	1085	
Approach Delay, s/veh	19.5			2.1	25.4	
Approach LOS	B			A	C	
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	28.5		11.5		28.5	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	16.0		16.0		16.0	
Max Q Clear Time (g_c+l1), s	26.5		7.5		23.9	
Green Ext Time (p_c), s	0.0		0.6		0.0	
Intersection Summary						
HCM 6th Ctrl Delay			18.3			
HCM 6th LOS			B			

Notes

User approved volume balancing among the lanes for turning movement.

Intersection												
Int Delay, s/veh	13.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	35	60	60	0	30	0	65	275	0	0	205	10
Future Vol, veh/h	35	60	60	0	30	0	65	275	0	0	205	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	65	65	0	33	0	71	299	0	0	223	11
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	33	0	0	130	0	0	324	207	98	356	239	33
Stage 1	-	-	-	-	-	-	174	174	-	33	33	-
Stage 2	-	-	-	-	-	-	150	33	-	323	206	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1579	-	-	1455	-	-	629	690	958	599	662	1041
Stage 1	-	-	-	-	-	-	828	755	-	983	868	-
Stage 2	-	-	-	-	-	-	853	868	-	689	731	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1579	-	-	1455	-	-	447	672	958	383	645	1041
Mov Cap-2 Maneuver	-	-	-	-	-	-	447	672	-	383	645	-
Stage 1	-	-	-	-	-	-	806	735	-	957	868	-
Stage 2	-	-	-	-	-	-	627	868	-	398	712	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.7			0			19.4			13.5		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	613	1579	-	-	1455	-	-	657				
HCM Lane V/C Ratio	0.603	0.024	-	-	-	-	-	0.356				
HCM Control Delay (s)	19.4	7.3	0	-	0	-	-	13.5				
HCM Lane LOS	C	A	A	-	A	-	-	B				
HCM 95th %tile Q(veh)	4	0.1	-	-	0	-	-	1.6				

MOVEMENT SUMMARY

 **Site: 101 [7.Roberts Dr (Site Folder: 2032-Build)]**

Roberts Dr and SR 169
Site Category: Future Build - 2032
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [Total HV] veh/h %		DEMAND FLOWS [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. Dist] veh ft		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: SR 169														
3u	U	50	2.0	50	2.0	0.245	13.4	LOS B	1.6	39.5	0.49	0.67	0.49	34.3
3	L2	220	2.0	220	2.0	0.245	11.0	LOS B	1.6	39.5	0.49	0.67	0.49	33.6
8	T1	545	2.0	545	2.0	0.387	4.8	LOS A	3.0	76.2	0.53	0.48	0.53	36.2
Approach		815	2.0	815	2.0	0.387	7.0	LOS A	3.0	76.2	0.52	0.54	0.52	35.3
North: SR 169														
7u	U	25	3.0	25	3.0	0.801	16.1	LOS B	12.0	304.1	0.83	0.73	0.94	36.0
4	T1	1105	2.0	1105	2.0	0.801	7.6	LOS A	12.0	304.1	0.83	0.73	0.94	35.1
14	R2	180	2.0	180	2.0	0.186	5.7	LOS A	1.0	25.7	0.48	0.59	0.48	35.5
Approach		1310	2.0	1310	2.0	0.801	7.5	LOS A	12.0	304.1	0.78	0.71	0.88	35.2
West: Roberts Dr														
5	L2	210	2.0	210	2.0	0.772	45.6	LOS D	10.2	257.9	1.00	1.31	1.83	23.0
12	R2	80	2.0	80	2.0	0.772	39.7	LOS D	10.2	257.9	1.00	1.31	1.83	22.5
Approach		290	2.0	290	2.0	0.772	44.0	LOS D	10.2	257.9	1.00	1.31	1.83	22.9
All Vehicles		2415	2.0	2415	2.0	0.801	11.7	LOS B	12.0	304.1	0.72	0.72	0.87	33.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: U:\PSO\Projects\Clients\3043-BlackDiamondCityof\214-3043-028 2018 MDRT Traffic Eng\02WBS\Ph40 Transportation Model Dev
\Task4_Build_and_Calibrate_Model\SynchroModel\SIDRA\Roundabouts-2032.sip9

HCM 6th TWSC
9: SR 169 & Black Diamond-Ravensdale Rd

10/02/2023

Intersection

Int Delay, s/veh 5.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	350	530	250	0	1310
Future Vol, veh/h	0	350	530	250	0	1310
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	Free	-	Free
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	2	2	1	1
Mvmt Flow	0	393	596	281	0	1472

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	596	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.21	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.309	-
Pot Cap-1 Maneuver	0	505	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	505	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	32.9	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 505	-
HCM Lane V/C Ratio	- 0.779	-
HCM Control Delay (s)	- 32.9	-
HCM Lane LOS	- D	-
HCM 95th %tile Q(veh)	- 7	-

HCM 6th Signalized Intersection Summary

10: SR 169 & SE 288th St

01/12/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	85	115	120	755	1390	160
Future Volume (veh/h)	85	115	120	755	1390	160
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1841	1856	1856	1841	1841
Adj Flow Rate, veh/h	96	129	135	848	1562	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	4	4	3	3	4	4
Cap, veh/h	210	186	298	1386	2613	
Arrive On Green	0.12	0.12	0.75	0.75	0.75	0.00
Sat Flow, veh/h	1753	1560	327	1856	3681	0
Grp Volume(v), veh/h	96	129	135	848	1562	0
Grp Sat Flow(s),veh/h/ln	1753	1560	327	1856	1749	0
Q Serve(g_s), s	3.1	4.8	19.3	12.8	12.2	0.0
Cycle Q Clear(g_c), s	3.1	4.8	31.5	12.8	12.2	0.0
Prop In Lane	1.00	1.00	1.00			0.00
Lane Grp Cap(c), veh/h	210	186	298	1386	2613	
V/C Ratio(X)	0.46	0.69	0.45	0.61	0.60	
Avail Cap(c_a), veh/h	467	416	298	1386	2613	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.6	25.4	10.7	3.5	3.5	0.0
Incr Delay (d2), s/veh	1.6	4.5	4.9	2.0	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.9	1.3	1.8	1.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.2	29.9	15.6	5.6	4.5	0.0
LnGrp LOS	C	C	B	A	A	
Approach Vol, veh/h	225			983	1562	A
Approach Delay, s/veh	28.3			6.9	4.5	
Approach LOS	C			A	A	
Timer - Assigned Phs	2			4		6
Phs Duration (G+Y+Rc), s	48.8			11.2		48.8
Change Period (Y+Rc), s	4.0			4.0		4.0
Max Green Setting (Gmax), s	36.0			16.0		36.0
Max Q Clear Time (g_c+I1), s	33.5			6.8		14.2
Green Ext Time (p_c), s	1.5			0.6		8.7

Intersection Summary

HCM 6th Ctrl Delay	7.3
HCM 6th LOS	A

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis

11: SR 169 & 280th St

01/12/2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	70	110	90	910	1405	130
Future Volume (vph)	70	110	90	910	1405	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.5	6.7	6.7	6.7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1568	1805	1863	1881	1599
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1568	1805	1863	1881	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	74	116	95	958	1479	137
RTOR Reduction (vph)	0	107	0	0	0	15
Lane Group Flow (vph)	74	9	95	958	1479	122
Heavy Vehicles (%)	2%	3%	0%	2%	1%	1%
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	11.2	11.2	13.3	117.0	98.2	98.2
Effective Green, g (s)	11.2	11.2	13.3	117.0	98.2	98.2
Actuated g/C Ratio	0.08	0.08	0.10	0.84	0.70	0.70
Clearance Time (s)	5.1	5.1	5.5	6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	141	125	171	1556	1319	1121
v/s Ratio Prot	c0.04		0.05	c0.51	c0.79	
v/s Ratio Perm		0.01				0.08
v/c Ratio	0.52	0.07	0.56	0.62	1.12	0.11
Uniform Delay, d1	61.8	59.6	60.5	3.9	20.9	6.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.5	0.3	3.9	1.8	65.2	0.2
Delay (s)	65.3	59.9	64.4	5.7	86.1	7.0
Level of Service	E	E	E	A	F	A
Approach Delay (s)	62.0			11.0	79.3	
Approach LOS	E			B	E	
Intersection Summary						
HCM 2000 Control Delay			53.0		HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			1.03			
Actuated Cycle Length (s)			140.0		Sum of lost time (s)	17.3
Intersection Capacity Utilization			90.6%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th Signalized Intersection Summary

12: SR 169 & SE Tahoma Way/SE 271st PI

01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	40	15	25	330	15	65	85	1030	120	10	120	1480	65
Future Volume (veh/h)	40	15	25	330	15	65	85	1030	120	10	120	1480	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1870	1900		1900	1870	1900
Adj Flow Rate, veh/h	42	16	26	347	16	68	89	1084	126		126	1558	68
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	2	0		0	2	0
Cap, veh/h	55	49	79	193	48	203	112	1859	216		151	2086	91
Arrive On Green	0.03	0.08	0.08	0.11	0.15	0.15	0.06	0.58	0.58		0.08	0.60	0.60
Sat Flow, veh/h	1810	641	1042	1810	313	1329	1810	3207	372		1810	3469	151
Grp Volume(v), veh/h	42	0	42	347	0	84	89	600	610		126	795	831
Grp Sat Flow(s),veh/h/ln	1810	0	1683	1810	0	1642	1810	1777	1803		1810	1777	1843
Q Serve(g_s), s	3.2	0.0	3.3	14.9	0.0	6.4	6.8	30.0	30.1		9.6	45.2	45.8
Cycle Q Clear(g_c), s	3.2	0.0	3.3	14.9	0.0	6.4	6.8	30.0	30.1		9.6	45.2	45.8
Prop In Lane	1.00		0.62	1.00		0.81	1.00		0.21		1.00		0.08
Lane Grp Cap(c), veh/h	55	0	128	193	0	250	112	1030	1045		151	1069	1108
V/C Ratio(X)	0.77	0.00	0.33	1.80	0.00	0.34	0.80	0.58	0.58		0.83	0.74	0.75
Avail Cap(c_a), veh/h	167	0	371	193	0	386	252	1030	1045		252	1069	1108
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	67.4	0.0	61.3	62.6	0.0	53.0	64.8	18.7	18.7		63.2	20.1	20.2
Incr Delay (d2), s/veh	19.8	0.0	1.5	380.7	0.0	0.8	12.1	2.4	2.4		11.3	4.7	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	1.5	27.3	0.0	2.7	3.5	12.5	12.7		4.8	18.9	19.9
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	87.2	0.0	62.7	443.3	0.0	53.8	76.9	21.1	21.1		74.5	24.9	24.9
LnGrp LOS	F	A	E	F	A	D	E	C	C		E	C	C
Approach Vol, veh/h	84			431			1299			1752			
Approach Delay, s/veh	75.0			367.4			24.9			28.4			
Approach LOS	E			F			C			C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	7.2	87.1	20.0	15.8	14.1	90.1	9.3	26.4					
Change Period (Y+Rc), s	5.5	5.9	5.1	5.1	5.5	5.9	5.1	5.1					
Max Green Setting (Gmax), s	19.5	53.1	14.9	30.9	19.5	53.1	12.9	32.9					
Max Q Clear Time (g_c+I1), s	11.6	32.1	16.9	5.3	8.8	47.8	5.2	8.4					
Green Ext Time (p_c), s	0.2	8.0	0.0	0.2	0.1	4.1	0.0	0.4					

Intersection Summary

HCM 6th Ctrl Delay 69.2
 HCM 6th LOS E

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary

13: SR 169 & SR 516

01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	195	380	165	370	380	160	335	630	75	1	290	955	100
Future Volume (veh/h)	195	380	165	370	380	160	335	630	75	1	290	955	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach	No			No			No				No		
Adj Sat Flow, veh/h/ln	1870	1885	1885	1885	1870	1841	1885	1856	1826		1841	1870	1885
Adj Flow Rate, veh/h	203	396	172	385	396	167	349	656	78		302	995	104
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %	2	1	1	1	2	4	1	3	5		4	2	1
Cap, veh/h	99	377	317	271	277	117	379	1136	135		332	1082	113
Arrive On Green	0.06	0.20	0.20	0.08	0.22	0.22	0.21	0.36	0.36		0.19	0.33	0.33
Sat Flow, veh/h	1781	1885	1586	3483	1246	525	1795	3171	377		1753	3246	339
Grp Volume(v), veh/h	203	396	172	385	0	563	349	364	370		302	545	554
Grp Sat Flow(s),veh/h/ln	1781	1885	1586	1742	0	1772	1795	1763	1785		1753	1777	1808
Q Serve(g_s), s	7.5	27.0	8.1	10.5	0.0	30.0	25.7	22.6	22.6		22.8	39.8	39.8
Cycle Q Clear(g_c), s	7.5	27.0	8.1	10.5	0.0	30.0	25.7	22.6	22.6		22.8	39.8	39.8
Prop In Lane	1.00		1.00	1.00		0.30	1.00		0.21		1.00		0.19
Lane Grp Cap(c), veh/h	99	377	317	271	0	394	379	631	639		332	592	602
V/C Ratio(X)	2.05	1.05	0.54	1.42	0.00	1.43	0.92	0.58	0.58		0.91	0.92	0.92
Avail Cap(c_a), veh/h	99	377	317	271	0	394	379	631	639		539	627	637
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	63.8	54.0	18.6	62.2	0.0	52.5	52.1	35.1	35.1		53.6	43.3	43.3
Incr Delay (d2), s/veh	506.3	60.1	1.9	209.8	0.0	207.7	27.3	3.8	3.8		12.9	21.7	21.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	18.8	3.1	12.4	0.0	35.7	14.2	10.2	10.3		11.1	20.6	20.9
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	570.0	114.1	20.5	272.0	0.0	260.2	79.4	38.9	38.9		66.5	65.0	64.8
LnGrp LOS	F	F	C	F	A	F	E	D	D		E	E	E
Approach Vol, veh/h	771			948			1083				1401		
Approach Delay, s/veh	213.3			265.0			51.9				65.3		
Approach LOS	F			F			D				E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	31.1	54.2	16.0	33.7	34.4	50.9	13.0	36.7					
Change Period (Y+Rc), s	5.5	5.9	5.5	6.7	5.9	* 5.9	5.5	6.7					
Max Green Setting (Gmax), s	41.5	32.4	10.5	27.0	26.3	* 48	7.5	30.0					
Max Q Clear Time (g_c+Q), s	24.8	24.6	12.5	29.0	27.7	41.8	9.5	32.0					
Green Ext Time (p_c), s	0.8	2.6	0.0	0.0	0.0	3.2	0.0	0.0					

Intersection Summary

HCM 6th Ctrl Delay 134.0

HCM 6th LOS F

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis

14: SR 169 & SE 240th Blvd

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	55	35	140	60	35	90	190	830	25	10	110	1455
Future Volume (vph)	55	35	140	60	35	90	190	830	25	10	110	1455
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		5.1	5.1		5.5	5.9	4.0		5.5	5.9
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00		1.00	0.95
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.88		1.00	0.89		1.00	1.00	0.85		1.00	0.99
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1628		1805	1683		1805	3471	1615		1805	3487
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1628		1805	1683		1805	3471	1615		1805	3487
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	58	37	147	63	37	95	200	874	26	11	116	1532
RTOR Reduction (vph)	0	120	0	0	79	0	0	0	26	0	0	1
Lane Group Flow (vph)	58	64	0	63	53	0	200	874	0	0	127	1589
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	2%	0%	2%	0%	0%	1%	0%	4%	0%	0%	0%	3%
Turn Type	Prot	NA		Prot	NA		Prot	NA	NA	Prot	Prot	NA
Protected Phases	7	4		3	8		5	2		1	1	6
Permitted Phases												
Actuated Green, G (s)	8.7	11.1		9.0	11.4		25.3	83.0	0.0		15.3	73.0
Effective Green, g (s)	8.7	11.1		9.0	11.4		25.3	83.0	0.0		15.3	73.0
Actuated g/C Ratio	0.06	0.08		0.06	0.08		0.18	0.59	0.00		0.11	0.52
Clearance Time (s)	5.1	5.1		5.1	5.1		5.5	5.9			5.5	5.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	109	129		116	137		326	2057	0		197	1818
v/s Ratio Prot	0.03	c0.04		c0.03	0.03		c0.11	0.25			0.07	c0.46
v/s Ratio Perm												
v/c Ratio	0.53	0.50		0.54	0.39		0.61	0.42	0.00		0.64	0.87
Uniform Delay, d1	63.7	61.8		63.5	61.0		52.8	15.5	70.0		59.7	29.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.26	0.63
Incremental Delay, d2	4.9	3.0		5.1	1.8		3.4	0.6	0.0		0.7	0.6
Delay (s)	68.6	64.8		68.6	62.8		56.2	16.2	70.0		76.1	19.1
Level of Service	E	E		E	E		E	B	E		E	B
Approach Delay (s)		65.7			64.7			24.7				23.3
Approach LOS		E			E			C				C
Intersection Summary												
HCM 2000 Control Delay			29.4				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)		21.6			
Intersection Capacity Utilization			85.6%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: SR 169 & SE 240th Blvd

01/12/2023

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	55
Future Volume (vph)	55
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	58
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th Signalized Intersection Summary

15: SR 169 & Witte Rd SE

01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↱	↱		↰↱	↱		↰↱	↱↲		↰↱	↱↲	
Traffic Volume (veh/h)	450	50	15	70	45	10	15	875	20	5	1555	785
Future Volume (veh/h)	450	50	15	70	45	10	15	875	20	5	1555	785
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1796	1900	1826	1900	1900	1900	1870	1737	1900	1870	1885
Adj Flow Rate, veh/h	464	52	15	72	46	10	15	902	21	5	1603	809
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	7	0	5	0	0	0	2	11	0	2	1
Cap, veh/h	515	199	58	91	79	17	29	2221	52	11	1452	674
Arrive On Green	0.15	0.15	0.15	0.05	0.05	0.05	0.02	0.63	0.63	0.00	0.41	0.41
Sat Flow, veh/h	3456	1339	386	1739	1510	328	1810	3550	83	1810	2355	1094
Grp Volume(v), veh/h	464	0	67	72	0	56	15	452	471	5	1175	1237
Grp Sat Flow(s),veh/h/ln	1728	0	1726	1739	0	1839	1810	1777	1855	1810	1777	1672
Q Serve(g_s), s	18.5	0.0	4.8	5.7	0.0	4.2	1.2	17.8	17.8	0.4	86.3	86.3
Cycle Q Clear(g_c), s	18.5	0.0	4.8	5.7	0.0	4.2	1.2	17.8	17.8	0.4	86.3	86.3
Prop In Lane	1.00		0.22	1.00		0.18	1.00		0.04	1.00		0.65
Lane Grp Cap(c), veh/h	515	0	257	91	0	96	29	1112	1161	11	1095	1031
V/C Ratio(X)	0.90	0.00	0.26	0.79	0.00	0.58	0.53	0.41	0.41	0.44	1.07	1.20
Avail Cap(c_a), veh/h	555	0	419	242	0	407	123	1112	1161	123	1095	1031
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.09	0.09	0.09
Uniform Delay (d), s/veh	58.5	0.0	52.7	65.6	0.0	64.8	68.4	13.1	13.1	69.5	41.1	41.1
Incr Delay (d2), s/veh	17.0	0.0	0.5	13.9	0.0	5.4	14.1	1.1	1.1	2.4	34.9	90.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	0.0	2.1	2.9	0.0	2.1	0.6	7.1	7.4	0.2	49.1	62.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.6	0.0	53.3	79.4	0.0	70.3	82.5	14.2	14.2	71.8	76.0	132.0
LnGrp LOS	E	A	D	E	A	E	F	B	B	E	F	F
Approach Vol, veh/h	531		128			938			2417			
Approach Delay, s/veh	72.8		75.4			15.3			104.7			
Approach LOS	E		E			B			F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.4	93.9	12.9	26.9	7.7	92.6	26.4	13.3				
Change Period (Y+Rc), s	5.5	6.3	5.5	6.0	5.5	6.3	5.5	6.0				
Max Green Setting (Gmax), s	9.5	53.7	19.5	34.0	9.5	53.7	22.5	31.0				
Max Q Clear Time (g_c+I), s	12.4	19.8	7.7	6.8	3.2	88.3	20.5	6.2				
Green Ext Time (p_c), s	0.0	6.3	0.1	0.3	0.0	0.0	0.4	0.2				
Intersection Summary												
HCM 6th Ctrl Delay	78.6											
HCM 6th LOS	E											

HCM 6th Signalized Intersection Summary

16: SR 169 & SE Wax Rd

01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	10	410	45	20	45	275	1025	30	50	1870	130
Future Volume (veh/h)	115	10	410	45	20	45	275	1025	30	50	1870	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1737	1885	1900	1900	1900	1885	1870	1900	1900	1885	1885
Adj Flow Rate, veh/h	119	10	423	46	21	46	284	1057	31	52	1928	134
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	11	1	0	0	0	1	2	0	0	1	1
Cap, veh/h	144	364	332	60	86	187	289	1943	57	68	1534	684
Arrive On Green	0.08	0.21	0.21	0.03	0.16	0.16	0.16	0.55	0.55	0.04	0.43	0.43
Sat Flow, veh/h	1795	1737	1586	1810	526	1153	1795	3525	103	1810	3582	1598
Grp Volume(v), veh/h	119	10	423	46	0	67	284	533	555	52	1928	134
Grp Sat Flow(s),veh/h/ln	1795	1737	1586	1810	0	1680	1795	1777	1852	1810	1791	1598
Q Serve(g_s), s	9.1	0.6	29.3	3.5	0.0	4.9	22.1	26.9	26.9	4.0	59.9	7.3
Cycle Q Clear(g_c), s	9.1	0.6	29.3	3.5	0.0	4.9	22.1	26.9	26.9	4.0	59.9	7.3
Prop In Lane	1.00		1.00	1.00		0.69	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	144	364	332	60	0	273	289	979	1021	68	1534	684
V/C Ratio(X)	0.83	0.03	1.27	0.76	0.00	0.25	0.98	0.54	0.54	0.76	1.26	0.20
Avail Cap(c_a), veh/h	276	364	332	291	0	364	289	979	1021	381	1534	684
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.81	0.81	0.81	0.42	0.42	0.42
Uniform Delay (d), s/veh	63.4	44.0	55.3	67.1	0.0	51.1	58.6	20.1	20.1	66.7	40.0	25.0
Incr Delay (d2), s/veh	11.3	0.0	144.9	17.8	0.0	0.5	43.3	1.8	1.7	7.2	118.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.3	25.1	1.9	0.0	2.1	13.3	11.2	11.7	2.0	50.5	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.7	44.0	200.2	85.0	0.0	51.6	101.9	21.9	21.8	74.0	158.2	25.3
LnGrp LOS	E	D	F	F	A	D	F	C	C	E	F	C
Approach Vol, veh/h	552		113			1372			2114			
Approach Delay, s/veh	170.3		65.2			38.4			147.7			
Approach LOS	F		E			D			F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	80.8	83.1	10.2	36.0	28.0	65.8	16.7	29.4				
Change Period (Y+Rc), s	5.5	5.9	5.5	6.7	5.5	5.9	5.5	6.7				
Max Green Setting (Gmax), s	29.5	35.1	22.5	29.3	22.5	42.1	21.5	30.3				
Max Q Clear Time (g_c+I10), s	10.0	28.9	5.5	31.3	24.1	61.9	11.1	6.9				
Green Ext Time (p_c), s	0.1	3.3	0.1	0.0	0.0	0.0	0.2	0.3				
Intersection Summary												
HCM 6th Ctrl Delay	112.3											
HCM 6th LOS	F											

HCM 6th Signalized Intersection Summary

17: SR 169 & SE 231st St

01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	50	955	10	65	20	575	580	25	15	1115	155
Future Volume (veh/h)	175	50	955	10	65	20	575	580	25	15	1115	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1707	1885	1574	1767	1811	1870	1885	1841	1678	1870	1870
Adj Flow Rate, veh/h	182	52	995	10	68	21	599	604	26	16	1161	161
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	13	1	22	9	6	2	1	4	15	2	2
Cap, veh/h	162	542	1327	14	306	94	534	1650	71	22	1177	525
Arrive On Green	0.09	0.32	0.32	0.01	0.24	0.24	0.15	0.47	0.47	0.01	0.33	0.33
Sat Flow, veh/h	1781	1707	2812	1499	1295	400	3456	3499	150	1598	3554	1585
Grp Volume(v), veh/h	182	52	995	10	0	89	599	309	321	16	1161	161
Grp Sat Flow(s),veh/h/ln	1781	1707	1406	1499	0	1695	1728	1791	1858	1598	1777	1585
Q Serve(g_s), s	10.0	2.4	31.8	0.7	0.0	4.7	17.0	12.1	12.1	1.1	35.7	8.3
Cycle Q Clear(g_c), s	10.0	2.4	31.8	0.7	0.0	4.7	17.0	12.1	12.1	1.1	35.7	8.3
Prop In Lane	1.00		1.00	1.00		0.24	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	162	542	1327	14	0	400	534	845	876	22	1177	525
V/C Ratio(X)	1.12	0.10	0.75	0.70	0.00	0.22	1.12	0.37	0.37	0.71	0.99	0.31
Avail Cap(c_a), veh/h	162	559	1355	55	0	462	534	845	876	58	1177	525
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	0.83	1.00	0.00	1.00	0.85	0.85	0.85	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.0	26.4	23.7	54.3	0.0	33.9	46.5	18.6	18.6	54.0	36.5	27.4
Incr Delay (d2), s/veh	101.7	0.1	1.9	46.5	0.0	0.3	74.2	1.0	1.0	33.9	23.2	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	0.9	10.2	0.5	0.0	1.9	12.6	5.0	5.2	0.6	18.5	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	151.7	26.5	25.7	100.8	0.0	34.1	120.7	19.6	19.6	87.9	59.8	28.9
LnGrp LOS	F	C	C	F	A	C	F	B	B	F	E	C
Approach Vol, veh/h	1229			99			1229			1338		
Approach Delay, s/veh	44.4			40.9			68.9			56.4		
Approach LOS	D			D			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	57.8	5.1	41.6	21.0	42.3	14.0	32.7					
Change Period (Y+Rc), s	4.0	5.9	4.0	6.7	4.0	5.9	4.0	6.7				
Max Green Setting (Gmax), s	45.4	4.0	36.0	17.0	32.4	10.0	30.0					
Max Q Clear Time (g_c+I), s	14.1	2.7	33.8	19.0	37.7	12.0	6.7					
Green Ext Time (p_c), s	0.0	3.8	0.0	1.1	0.0	0.0	0.4					

Intersection Summary

HCM 6th Ctrl Delay 56.1

HCM 6th LOS E

HCM Signalized Intersection Capacity Analysis

18: SE 231st St & SR 18 EB Ramps

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (vph)	110	785	0	0	725	110	100	0	410	0	0	0
Future Volume (vph)	110	785	0	0	725	110	100	0	410	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3			6.3	6.3		5.9	5.9			
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		0.95	1.00			
Satd. Flow (prot)	1787	3539			3505	1599		1770	1583			
Flt Permitted	0.95	1.00			1.00	1.00		0.95	1.00			
Satd. Flow (perm)	1787	3539			3505	1599		1770	1583			
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	111	793	0	0	732	111	101	0	414	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	67	0	0	104	0	0	0
Lane Group Flow (vph)	111	793	0	0	732	44	0	101	310	0	0	0
Heavy Vehicles (%)	1%	2%	0%	0%	3%	1%	2%	0%	2%	0%	0%	0%
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases						6	8		8			
Actuated Green, G (s)	7.7	43.5			29.5	29.5		19.3	19.3			
Effective Green, g (s)	7.7	43.5			29.5	29.5		19.3	19.3			
Actuated g/C Ratio	0.10	0.58			0.39	0.39		0.26	0.26			
Clearance Time (s)	6.3	6.3			6.3	6.3		5.9	5.9			
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)	183	2052			1378	628		455	407			
v/s Ratio Prot	c0.06	0.22			c0.21							
v/s Ratio Perm						0.03		0.06	c0.20			
v/c Ratio	0.61	0.39			0.53	0.07		0.22	0.76			
Uniform Delay, d1	32.2	8.5			17.4	14.2		21.9	25.7			
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2	5.6	0.6			1.5	0.2		0.2	8.2			
Delay (s)	37.8	9.1			18.9	14.4		22.2	33.9			
Level of Service	D	A			B	B		C	C			
Approach Delay (s)		12.6			18.3			31.6			0.0	
Approach LOS		B			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			19.1				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			75.0				Sum of lost time (s)			18.5		
Intersection Capacity Utilization			68.7%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

19: SE 231st St & SR 18 WB Ramps

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↑	↑
Traffic Volume (vph)	0	610	230	415	445	0	0	0	0	255	0	115
Future Volume (vph)	0	610	230	415	445	0	0	0	0	255	0	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3	5.5	6.3						5.9	5.9
Lane Util. Factor		0.95	1.00	1.00	0.95						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		3574	1568	1752	3312						1736	1455
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		3574	1568	1752	3312						1736	1455
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	622	235	423	454	0	0	0	0	260	0	117
RTOR Reduction (vph)	0	0	125	0	0	0	0	0	0	0	0	91
Lane Group Flow (vph)	0	622	110	423	454	0	0	0	0	0	260	26
Heavy Vehicles (%)	0%	1%	3%	3%	9%	0%	0%	0%	0%	4%	0%	11%
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		19.0	19.0	25.6	50.1						17.7	17.7
Effective Green, g (s)		19.0	19.0	25.6	50.1						17.7	17.7
Actuated g/C Ratio		0.24	0.24	0.32	0.63						0.22	0.22
Clearance Time (s)		6.3	6.3	5.5	6.3						5.9	5.9
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		848	372	560	2074						384	321
v/s Ratio Prot		c0.17		c0.24	0.14							
v/s Ratio Perm			0.07								0.15	0.02
v/c Ratio		0.73	0.30	0.76	0.22						0.68	0.08
Uniform Delay, d1		28.2	25.0	24.4	6.5						28.5	24.7
Progression Factor		1.00	1.00	1.00	1.00						1.00	1.00
Incremental Delay, d2		5.6	2.0	5.8	0.2						4.7	0.1
Delay (s)		33.7	27.0	30.1	6.7						33.2	24.8
Level of Service		C	C	C	A						C	C
Approach Delay (s)		31.9			18.0			0.0			30.6	
Approach LOS		C			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			25.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.7		
Intersection Capacity Utilization			68.7%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Intersection Delay, s/veh 116

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	270	5	15	215	40	0	240	25	120	440	110
Future Vol, veh/h	30	270	5	15	215	40	0	240	25	120	440	110
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	2	2	2	1	1	1	3	3	3
Mvmt Flow	32	284	5	16	226	42	0	253	26	126	463	116
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	32.8	26.9	24.8	225.9
HCM LOS	D	D	C	F

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	0%	10%	0%	6%	18%
Vol Thru, %	91%	90%	0%	80%	66%
Vol Right, %	9%	0%	100%	15%	16%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	265	300	5	270	670
LT Vol	0	30	0	15	120
Through Vol	240	270	0	215	440
RT Vol	25	0	5	40	110
Lane Flow Rate	279	316	5	284	705
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.61	0.725	0.011	0.633	1.43
Departure Headway (Hd)	8.891	9.366	8.583	9.25	7.297
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	410	388	420	392	501
Service Time	6.891	7.066	6.283	7.25	5.375
HCM Lane V/C Ratio	0.68	0.814	0.012	0.724	1.407
HCM Control Delay	24.8	33.2	11.4	26.9	225.9
HCM Lane LOS	C	D	B	D	F
HCM 95th-tile Q	3.9	5.6	0	4.2	33.9

HCM Signalized Intersection Capacity Analysis

21: Witte Rd SE & SR 516

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	725	0	75	720	155	5	45	95	175	95	335
Future Volume (vph)	225	725	0	75	720	155	5	45	95	175	95	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	6.8		5.5	6.8	6.8		5.1			5.9	5.9
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		0.91			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00			0.97	1.00
Satd. Flow (prot)	1805	1863		1805	1863	1615		1713			1829	1599
Flt Permitted	0.95	1.00		0.95	1.00	1.00		1.00			0.97	1.00
Satd. Flow (perm)	1805	1863		1805	1863	1615		1713			1829	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	234	755	0	78	750	161	5	47	99	182	99	349
RTOR Reduction (vph)	0	0	0	0	0	94	0	57	0	0	0	185
Lane Group Flow (vph)	234	755	0	78	750	67	0	94	0	0	281	164
Confl. Peds. (#/hr)			3	3			1					1
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	3%	0%	1%	0%	1%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3		4	4	4 5
Permitted Phases						6						
Actuated Green, G (s)	15.8	65.3		6.7	55.8	55.8		12.5			27.2	43.0
Effective Green, g (s)	15.8	65.3		6.7	55.8	55.8		12.5			27.2	43.0
Actuated g/C Ratio	0.12	0.48		0.05	0.41	0.41		0.09			0.20	0.32
Clearance Time (s)	5.9	6.8		5.5	6.8	6.8		5.1			5.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	211	901		89	770	667		158			368	509
v/s Ratio Prot	c0.13	0.41		0.04	c0.40			c0.05			c0.15	0.10
v/s Ratio Perm						0.04						
v/c Ratio	1.11	0.84		0.88	0.97	0.10		0.59			0.76	0.32
Uniform Delay, d1	59.6	30.3		63.7	38.9	24.2		58.8			50.9	34.9
Progression Factor	1.00	1.00		0.96	0.60	0.74		1.00			1.00	1.00
Incremental Delay, d2	94.2	9.2		20.1	10.9	0.1		5.9			9.1	0.4
Delay (s)	153.8	39.4		81.6	34.1	18.0		64.7			59.9	35.3
Level of Service	F	D		F	C	B		E			E	D
Approach Delay (s)		66.5			35.3			64.7			46.3	
Approach LOS		E			D			E			D	
Intersection Summary												
HCM 2000 Control Delay			50.6				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			135.0				Sum of lost time (s)			23.7		
Intersection Capacity Utilization			93.4%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

22: 216th Ave SE & SR 516

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	790	260	290	740	0	325	0	235	15	0	0
Future Volume (vph)	0	790	260	290	740	0	325	0	235	15	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	4.0	7.0		5.5		5.5		4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00		1.00		1.00		1.00	
Frpb, ped/bikes		1.00	0.97	1.00	1.00		1.00		0.97		1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00		1.00		1.00	
Frt		1.00	0.85	1.00	1.00		1.00		0.85		1.00	
Flt Protected		1.00	1.00	0.95	1.00		0.95		1.00		0.95	
Satd. Flow (prot)		1881	1540	1805	1845		1787		1558		1770	
Flt Permitted		1.00	1.00	0.95	1.00		0.95		1.00		0.95	
Satd. Flow (perm)		1881	1540	1805	1845		1787		1558		1770	
Peak-hour factor, PHF	0.92	0.96	0.96	0.96	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92
Adj. Flow (vph)	0	823	271	302	771	0	339	0	245	16	0	0
RTOR Reduction (vph)	0	0	162	0	0	0	0	0	189	0	0	0
Lane Group Flow (vph)	0	823	109	302	771	0	339	0	56	0	16	0
Confl. Peds. (#/hr)			4	4					3			
Heavy Vehicles (%)	2%	1%	2%	0%	3%	2%	1%	2%	1%	2%	2%	2%
Turn Type		NA	Perm	Prot	NA		Prot		Perm	Prot	NA	
Protected Phases		2		1	6		8			8		
Permitted Phases		2	2						8			
Actuated Green, G (s)		36.1	36.1	16.7	56.8		20.7		20.7		20.7	
Effective Green, g (s)		36.1	36.1	16.7	56.8		20.7		20.7		20.7	
Actuated g/C Ratio		0.40	0.40	0.19	0.63		0.23		0.23		0.23	
Clearance Time (s)		7.0	7.0	4.0	7.0		5.5		5.5			
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0		3.0			
Lane Grp Cap (vph)		754	617	334	1164		411		358		407	
v/s Ratio Prot		c0.44		c0.17	0.42		c0.19				0.01	
v/s Ratio Perm			0.07						0.04			
v/c Ratio		1.09	0.18	0.90	0.66		0.82		0.16		0.04	
Uniform Delay, d1		26.9	17.4	35.9	10.5		32.9		27.7		26.9	
Progression Factor		1.00	1.00	1.00	1.00		1.00		1.00		1.00	
Incremental Delay, d2		60.5	0.6	26.5	3.0		12.7		0.2		0.0	
Delay (s)		87.5	18.0	62.3	13.5		45.6		27.9		27.0	
Level of Service		F	B	E	B		D		C		C	
Approach Delay (s)		70.3			27.2			38.2			27.0	
Approach LOS		E			C			D			C	
Intersection Summary												
HCM 2000 Control Delay			46.6			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.97									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			16.5			
Intersection Capacity Utilization			87.0%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

23: SE Wax Rd & SR 516

01/12/2023

												
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↔			↔	↔	↔	↔	↔		↔
Traffic Volume (vph)	45	210	995	80	25	105	830	95	180	130	105	260
Future Volume (vph)	45	210	995	80	25	105	830	95	180	130	105	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9	5.9			5.9	5.9	5.9	5.5	5.9		5.5
Lane Util. Factor		1.00	0.95			1.00	0.95	1.00	1.00	1.00		0.97
Frt		1.00	0.99			1.00	1.00	0.85	1.00	0.93		1.00
Flt Protected		0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (prot)		1761	3529			1791	3539	1599	1770	1765		3502
Flt Permitted		0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (perm)		1761	3529			1791	3539	1599	1770	1765		3502
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	216	1026	82	26	108	856	98	186	134	108	268
RTOR Reduction (vph)	0	0	5	0	0	0	0	71	0	27	0	0
Lane Group Flow (vph)	0	262	1103	0	0	134	856	27	186	215	0	268
Heavy Vehicles (%)	0%	3%	1%	3%	0%	1%	2%	1%	2%	0%	1%	0%
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	7	7	4		3	3	8		5	2		1
Permitted Phases							8					
Actuated Green, G (s)		19.1	38.9			10.9	30.7	30.7	15.0	24.2		12.8
Effective Green, g (s)		19.1	38.9			10.9	30.7	30.7	15.0	24.2		12.8
Actuated g/C Ratio		0.17	0.35			0.10	0.28	0.28	0.14	0.22		0.12
Clearance Time (s)		5.9	5.9			5.9	5.9	5.9	5.5	5.9		5.5
Vehicle Extension (s)		3.0	3.0			3.0	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		305	1247			177	987	446	241	388		407
v/s Ratio Prot		c0.15	c0.31			0.07	0.24		c0.11	0.12		0.08
v/s Ratio Perm								0.02				
v/c Ratio		0.86	0.88			0.76	0.87	0.06	0.77	0.56		0.66
Uniform Delay, d1		44.1	33.4			48.3	37.7	29.1	45.8	38.1		46.5
Progression Factor		1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		20.6	7.8			16.8	8.1	0.1	14.2	5.6		3.8
Delay (s)		64.8	41.2			65.0	45.9	29.1	60.0	43.8		50.3
Level of Service		E	D			E	D	C	E	D		D
Approach Delay (s)			45.7				46.7			50.8		
Approach LOS			D				D			D		
Intersection Summary												
HCM 2000 Control Delay			46.9				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			110.0				Sum of lost time (s)			23.2		
Intersection Capacity Utilization			82.8%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

23: SE Wax Rd & SR 516

01/12/2023



Movement	SBT	SBR
Lane Configurations	↑	↑
Traffic Volume (vph)	245	265
Future Volume (vph)	245	265
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.9	5.9
Lane Util. Factor	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1900	1568
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1900	1568
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	253	273
RTOR Reduction (vph)	0	151
Lane Group Flow (vph)	253	122
Heavy Vehicles (%)	0%	3%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	22.0	22.0
Effective Green, g (s)	22.0	22.0
Actuated g/C Ratio	0.20	0.20
Clearance Time (s)	5.9	5.9
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	380	313
v/s Ratio Prot	c0.13	
v/s Ratio Perm		0.08
v/c Ratio	0.67	0.39
Uniform Delay, d1	40.6	38.2
Progression Factor	1.00	1.00
Incremental Delay, d2	8.9	3.6
Delay (s)	49.5	41.8
Level of Service	D	D
Approach Delay (s)	47.1	
Approach LOS	D	
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

24: 172nd Ave SE & SR 516

01/12/2023

												
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	10	270	1115	115	15	195	1040	50	140	75	140	100
Future Volume (vph)	10	270	1115	115	15	195	1040	50	140	75	140	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.1	5.1			5.1	5.1		5.9	5.9		5.9
Lane Util. Factor		1.00	0.95			1.00	0.95		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00			1.00	1.00		1.00	0.98		1.00
Flpb, ped/bikes		1.00	1.00			1.00	1.00		1.00	1.00		1.00
Frt		1.00	0.99			1.00	0.99		1.00	0.90		1.00
Flt Protected		0.95	1.00			0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1805	3524			1788	3514		1805	1668		1805
Flt Permitted		0.95	1.00			0.95	1.00		0.95	1.00		0.95
Satd. Flow (perm)		1805	3524			1788	3514		1805	1668		1805
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	284	1174	121	16	205	1095	53	147	79	147	105
RTOR Reduction (vph)	0	0	4	0	0	0	2	0	0	68	0	0
Lane Group Flow (vph)	0	295	1291	0	0	221	1146	0	147	158	0	105
Confl. Peds. (#/hr)	3	2			10			2	3		10	10
Heavy Vehicles (%)	0%	0%	1%	1%	0%	1%	2%	0%	0%	0%	1%	0%
Turn Type	Prot	Prot	NA		Prot	Prot	NA		Prot	NA		Prot
Protected Phases	7	7	4		3	3	8		5	2		1
Permitted Phases												
Actuated Green, G (s)		46.9	56.4			34.3	43.8		16.0	23.5		13.8
Effective Green, g (s)		46.9	56.4			34.3	43.8		16.0	23.5		13.8
Actuated g/C Ratio		0.31	0.38			0.23	0.29		0.11	0.16		0.09
Clearance Time (s)		5.1	5.1			5.1	5.1		5.9	5.9		5.9
Vehicle Extension (s)		3.0	3.0			3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		564	1325			408	1026		192	261		166
v/s Ratio Prot		c0.16	c0.37			0.12	c0.33		c0.08	c0.09		0.06
v/s Ratio Perm												
v/c Ratio		0.52	0.97			0.54	1.12		0.77	0.60		0.63
Uniform Delay, d1		42.4	46.1			50.9	53.1		65.2	58.9		65.7
Progression Factor		0.46	1.22			1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		0.3	10.1			1.5	65.9		16.5	10.0		7.6
Delay (s)		19.9	66.3			52.4	119.0		81.7	68.9		73.3
Level of Service		B	E			D	F		F	E		E
Approach Delay (s)			57.7				108.3			73.9		
Approach LOS			E				F			E		
Intersection Summary												
HCM 2000 Control Delay			79.6				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)			22.0		
Intersection Capacity Utilization			88.3%				ICU Level of Service			E		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

24: 172nd Ave SE & SR 516

01/12/2023



Movement	SBT	SBR
Lane Configurations	P	
Traffic Volume (vph)	85	100
Future Volume (vph)	85	100
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.9	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.92	
Flt Protected	1.00	
Satd. Flow (prot)	1726	
Flt Permitted	1.00	
Satd. Flow (perm)	1726	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	89	105
RTOR Reduction (vph)	44	0
Lane Group Flow (vph)	150	0
Confl. Peds. (#/hr)		3
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	21.3	
Effective Green, g (s)	21.3	
Actuated g/C Ratio	0.14	
Clearance Time (s)	5.9	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	245	
v/s Ratio Prot	0.09	
v/s Ratio Perm		
v/c Ratio	0.61	
Uniform Delay, d1	60.5	
Progression Factor	1.00	
Incremental Delay, d2	11.0	
Delay (s)	71.4	
Level of Service	E	
Approach Delay (s)	72.1	
Approach LOS	E	
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

25: 168th PI & SR 516

01/12/2023

												
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	10	235	1335	270	5	215	1105	50	365	55	170	60
Future Volume (vph)	10	235	1335	270	5	215	1105	50	365	55	170	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9	5.9	5.9		5.9	5.9		5.1	5.1		5.1
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95		0.97	1.00		1.00
Frpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	0.99		1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00		1.00
Frt		1.00	1.00	0.85		1.00	0.99		1.00	0.89		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1788	3574	1615		1788	3515		3502	1653		1805
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (perm)		1788	3574	1615		1788	3515		3502	1653		1805
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	11	270	1534	310	6	247	1270	57	420	63	195	69
RTOR Reduction (vph)	0	0	0	95	0	0	2	0	0	76	0	0
Lane Group Flow (vph)	0	281	1534	215	0	253	1325	0	420	182	0	69
Confl. Peds. (#/hr)	1	2		3	2	3		2	1		2	2
Heavy Vehicles (%)	0%	1%	1%	0%	0%	1%	2%	0%	0%	0%	1%	0%
Turn Type	Prot	Prot	NA	custom	Prot	Prot	NA		Prot	NA		Prot
Protected Phases	5	5	2	2	1	1	6		3	8		7
Permitted Phases				2								
Actuated Green, G (s)		22.0	64.1	64.1		21.0	63.1		26.2	34.5		8.4
Effective Green, g (s)		22.0	64.1	64.1		21.0	63.1		26.2	34.5		8.4
Actuated g/C Ratio		0.15	0.43	0.43		0.14	0.42		0.17	0.23		0.06
Clearance Time (s)		5.9	5.9	5.9		5.9	5.9		5.1	5.1		5.1
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		262	1527	690		250	1478		611	380		101
v/s Ratio Prot		c0.16	c0.43	0.13		0.14	0.38		c0.12	0.11		0.04
v/s Ratio Perm												
v/c Ratio		1.07	1.00	0.31		1.01	0.90		0.69	0.48		0.68
Uniform Delay, d1		64.0	43.0	28.4		64.5	40.4		58.1	50.0		69.5
Progression Factor		0.86	1.05	1.08		1.12	0.75		1.00	1.00		1.00
Incremental Delay, d2		70.8	21.9	1.0		43.0	4.7		3.2	1.0		17.4
Delay (s)		126.0	67.1	31.6		115.1	34.9		61.3	50.9		86.9
Level of Service		F	E	C		F	C		E	D		F
Approach Delay (s)			69.7				47.8			57.3		
Approach LOS			E				D			E		
Intersection Summary												
HCM 2000 Control Delay			60.8				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)			22.0		
Intersection Capacity Utilization			86.4%				ICU Level of Service			E		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

25: 168th PI & SR 516

01/12/2023



Movement	SBT	SBR
Lane Configurations	P	
Traffic Volume (vph)	70	70
Future Volume (vph)	70	70
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.1	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.93	
Flt Protected	1.00	
Satd. Flow (prot)	1746	
Flt Permitted	1.00	
Satd. Flow (perm)	1746	
Peak-hour factor, PHF	0.87	0.87
Adj. Flow (vph)	80	80
RTOR Reduction (vph)	27	0
Lane Group Flow (vph)	133	0
Confl. Peds. (#/hr)		1
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	16.7	
Effective Green, g (s)	16.7	
Actuated g/C Ratio	0.11	
Clearance Time (s)	5.1	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	194	
v/s Ratio Prot	c0.08	
v/s Ratio Perm		
v/c Ratio	0.69	
Uniform Delay, d1	64.1	
Progression Factor	1.00	
Incremental Delay, d2	9.7	
Delay (s)	73.8	
Level of Service	E	
Approach Delay (s)	77.8	
Approach LOS	E	
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

26: SR 516 & SR 18 EB Ramps

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	1290	0	0	1400	205	225	0	815	0	0	0
Future Volume (vph)	140	1290	0	0	1400	205	225	0	815	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.9			5.9		5.9	5.9	5.9			
Lane Util. Factor	0.97	0.95			0.95		1.00	0.95	0.95			
Frpb, ped/bikes	1.00	1.00			1.00		1.00	0.99	0.99			
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	1.00			
Frt	1.00	1.00			0.98		1.00	0.85	0.85			
Flt Protected	0.95	1.00			1.00		0.95	1.00	1.00			
Satd. Flow (prot)	3303	3574			3503		1787	1499	1499			
Flt Permitted	0.95	1.00			1.00		0.95	1.00	1.00			
Satd. Flow (perm)	3303	3574			3503		1787	1499	1499			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	146	1344	0	0	1458	214	234	0	849	0	0	0
RTOR Reduction (vph)	0	0	0	0	4	0	0	296	296	0	0	0
Lane Group Flow (vph)	146	1344	0	0	1668	0	234	129	128	0	0	0
Confl. Peds. (#/hr)	2		4	4		2			1	1		
Heavy Vehicles (%)	6%	1%	0%	0%	1%	0%	1%	0%	1%	0%	0%	0%
Turn Type	Prot	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			3				
Permitted Phases							3		3			
Actuated Green, G (s)	11.8	108.7			91.4		29.5	29.5	29.5			
Effective Green, g (s)	11.8	108.7			91.4		29.5	29.5	29.5			
Actuated g/C Ratio	0.08	0.72			0.61		0.20	0.20	0.20			
Clearance Time (s)	5.5	5.9			5.9		5.9	5.9	5.9			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	259	2589			2134		351	294	294			
v/s Ratio Prot	0.04	c0.38			c0.48			0.09				
v/s Ratio Perm							c0.13		0.09			
v/c Ratio	0.56	0.52			0.78		0.67	0.44	0.44			
Uniform Delay, d1	66.6	9.1			21.9		55.7	53.0	52.9			
Progression Factor	1.36	2.43			1.51		1.00	1.00	1.00			
Incremental Delay, d2	1.9	0.5			1.6		4.7	1.1	1.0			
Delay (s)	92.7	22.6			34.7		60.4	54.0	54.0			
Level of Service	F	C			C		E	D	D			
Approach Delay (s)		29.5			34.7			55.4			0.0	
Approach LOS		C			C			E			A	
Intersection Summary												
HCM 2000 Control Delay			38.2				HCM 2000 Level of Service		D			
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)		22.8			
Intersection Capacity Utilization			80.6%				ICU Level of Service		D			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

27: SR 516 & SR 18 WB Ramps

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑↑						↑↓	↑
Traffic Volume (vph)	0	1230	410	450	1160	0	0	0	0	160	5	450
Future Volume (vph)	0	1230	410	450	1160	0	0	0	0	160	5	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9	5.9	5.5	5.9						5.9	5.9
Lane Util. Factor		0.95	1.00	0.97	0.91						0.95	0.95
Frpb, ped/bikes		1.00	0.98	1.00	1.00						1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	1.00
Frt		1.00	0.85	1.00	1.00						0.93	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.98	1.00
Satd. Flow (prot)		3539	1543	3467	5136						1587	1475
Flt Permitted		1.00	1.00	0.95	1.00						0.98	1.00
Satd. Flow (perm)		3539	1543	3467	5136						1587	1475
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1295	432	474	1221	0	0	0	0	168	5	474
RTOR Reduction (vph)	0	0	77	0	0	0	0	0	0	0	23	84
Lane Group Flow (vph)	0	1295	355	474	1221	0	0	0	0	0	311	229
Confl. Peds. (#/hr)	3		2	2		3						
Heavy Vehicles (%)	0%	2%	3%	1%	1%	0%	0%	0%	0%	1%	33%	4%
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						3	
Permitted Phases			2							3		3
Actuated Green, G (s)		74.8	74.8	25.3	105.6						32.6	32.6
Effective Green, g (s)		74.8	74.8	25.3	105.6						32.6	32.6
Actuated g/C Ratio		0.50	0.50	0.17	0.70						0.22	0.22
Clearance Time (s)		5.9	5.9	5.5	5.9						5.9	5.9
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		1764	769	584	3615						344	320
v/s Ratio Prot		c0.37		c0.14	0.24							
v/s Ratio Perm			0.23								0.20	0.16
v/c Ratio		0.73	0.46	0.81	0.34						0.90	0.72
Uniform Delay, d1		29.7	24.5	60.1	8.6						57.2	54.4
Progression Factor		0.69	0.58	0.77	2.03						1.00	1.00
Incremental Delay, d2		2.2	1.6	5.5	0.2						26.0	7.4
Delay (s)		22.8	15.9	51.8	17.7						83.2	61.9
Level of Service		C	B	D	B						F	E
Approach Delay (s)		21.0			27.2			0.0			72.9	
Approach LOS		C			C			A			E	
Intersection Summary												
HCM 2000 Control Delay			31.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				17.3		
Intersection Capacity Utilization			80.6%			ICU Level of Service				D		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: SR 516 & 164th Ave SE

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	1165	10	20	1230	360	5	5	5	470	10	220
Future Volume (vph)	115	1165	10	20	1230	360	5	5	5	470	10	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.9		5.5	5.9	5.9		5.5		5.9	5.9	5.9
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00		0.95	0.95	1.00
Frt	1.00	1.00		1.00	1.00	0.85		0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98		0.95	0.95	1.00
Satd. Flow (prot)	1752	3535		1703	3539	1615		1785		1698	1706	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.70		0.75	0.72	1.00
Satd. Flow (perm)	1752	3535		1703	3539	1615		1273		1336	1294	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	120	1214	10	21	1281	375	5	5	5	490	10	229
RTOR Reduction (vph)	0	0	0	0	0	115	0	5	0	0	0	107
Lane Group Flow (vph)	120	1224	0	21	1281	260	0	10	0	250	250	122
Heavy Vehicles (%)	3%	2%	0%	6%	2%	0%	0%	0%	0%	1%	0%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		9	6			7			4	
Permitted Phases						6	7	7		4		4
Actuated Green, G (s)	15.8	81.9		5.1	71.2	71.2		3.8		36.4	36.4	36.4
Effective Green, g (s)	15.8	81.9		5.1	71.2	71.2		3.8		36.4	36.4	36.4
Actuated g/C Ratio	0.11	0.55		0.03	0.47	0.47		0.03		0.24	0.24	0.24
Clearance Time (s)	5.5	5.9		5.5	5.9	5.9		5.5		5.9	5.9	5.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	184	1930		57	1679	766		32		324	314	384
v/s Ratio Prot	c0.07	c0.35		0.01	c0.36							
v/s Ratio Perm						0.16		c0.01		0.19	c0.19	0.08
v/c Ratio	0.65	0.63		0.37	0.76	0.34		0.32		0.77	0.80	0.32
Uniform Delay, d1	64.5	23.6		70.9	32.4	24.7		71.8		52.9	53.3	46.6
Progression Factor	1.23	0.51		0.66	1.29	1.65		1.00		1.00	1.00	1.00
Incremental Delay, d2	4.8	0.9		3.6	3.0	1.1		5.6		10.8	13.1	0.5
Delay (s)	84.4	13.0		50.6	44.9	41.7		77.5		63.8	66.4	47.1
Level of Service	F	B		D	D	D		E		E	E	D
Approach Delay (s)		19.3			44.3			77.5			59.4	
Approach LOS		B			D			E			E	
Intersection Summary												
HCM 2000 Control Delay			38.4				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)			22.8		
Intersection Capacity Utilization			77.2%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

29: Covington Way SE & SR 516

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	870	500	410	925	25	490	5	380	15	10	35
Future Volume (vph)	25	870	500	410	925	25	490	5	380	15	10	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.9		5.5	5.9		6.0	6.0	6.0		5.9	5.9
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.95		1.00	1.00		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.95	1.00		0.97	1.00
Satd. Flow (prot)	1805	3336		1770	3525		1681	1688	1583		1843	1615
Flt Permitted	0.95	1.00		0.95	1.00		0.74	0.71	1.00		0.39	1.00
Satd. Flow (perm)	1805	3336		1770	3525		1310	1259	1583		740	1615
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	26	906	521	427	964	26	510	5	396	16	10	36
RTOR Reduction (vph)	0	58	0	0	1	0	0	0	251	0	0	34
Lane Group Flow (vph)	26	1369	0	427	989	0	255	260	145	0	26	2
Confl. Peds. (#/hr)	1		2	2		1						
Heavy Vehicles (%)	0%	1%	2%	2%	2%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			4			3	
Permitted Phases							4		4	3	3	3
Actuated Green, G (s)	5.3	68.6		20.5	83.8		29.3	29.3	29.3		8.3	8.3
Effective Green, g (s)	5.3	68.6		20.5	83.8		29.3	29.3	29.3		8.3	8.3
Actuated g/C Ratio	0.04	0.46		0.14	0.56		0.20	0.20	0.20		0.06	0.06
Clearance Time (s)	5.5	5.9		5.5	5.9		6.0	6.0	6.0		5.9	5.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	63	1525		241	1969		255	245	309		40	89
v/s Ratio Prot	0.01	c0.41		c0.24	0.28							
v/s Ratio Perm							0.19	c0.21	0.09		c0.04	0.00
v/c Ratio	0.41	0.90		1.77	0.50		1.00	1.06	0.47		0.65	0.02
Uniform Delay, d1	70.8	37.5		64.8	20.3		60.4	60.4	53.5		69.4	67.0
Progression Factor	1.00	1.00		1.22	0.92		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	4.3	8.7		359.2	0.7		56.4	74.6	1.1		32.0	0.1
Delay (s)	75.2	46.2		438.4	19.4		116.7	134.9	54.6		101.4	67.1
Level of Service	E	D		F	B		F	F	D		F	E
Approach Delay (s)		46.7			145.6			94.9			81.5	
Approach LOS		D			F			F			F	
Intersection Summary												
HCM 2000 Control Delay	95.2			HCM 2000 Level of Service					F			
HCM 2000 Volume to Capacity ratio	1.06											
Actuated Cycle Length (s)	150.0			Sum of lost time (s)					23.3			
Intersection Capacity Utilization	109.1%			ICU Level of Service					H			
Analysis Period (min)	15											
c Critical Lane Group												

Intersection												
Int Delay, s/veh	235.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	65	1255	0	35	1135	210	0	0	0	115	0	90
Future Vol, veh/h	65	1255	0	35	1135	210	0	0	0	115	0	90
Conflicting Peds, #/hr	1	0	3	3	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	1	0	0	3	2	0	0	0	3	0	1
Mvmt Flow	69	1335	0	37	1207	223	0	0	0	122	0	96
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1431	0	0	1338	0	0	2154	2981	671	2200	2870	716
Stage 1	-	-	-	-	-	-	1476	1476	-	1394	1394	-
Stage 2	-	-	-	-	-	-	678	1505	-	806	1476	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.56	6.5	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.56	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.56	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.53	4	3.31
Pot Cap-1 Maneuver	481	-	-	522	-	-	28	14	404	~ 25	17	375
Stage 1	-	-	-	-	-	-	135	192	-	148	210	-
Stage 2	-	-	-	-	-	-	413	186	-	340	192	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	481	-	-	521	-	-	13	7	403	~ 16	9	375
Mov Cap-2 Maneuver	-	-	-	-	-	-	13	7	-	~ 16	9	-
Stage 1	-	-	-	-	-	-	115	164	-	127	127	-
Stage 2	-	-	-	-	-	-	186	113	-	291	164	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			0.3			0			\$ 3329.5		
HCM LOS							A			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	481	-	-	521	-	-	28				
HCM Lane V/C Ratio	-	0.144	-	-	0.071	-	-	7.789				
HCM Control Delay (s)	0	13.7	-	-	12.4	-	-	\$ 3329.5				
HCM Lane LOS	A	B	-	-	B	-	-	F				
HCM 95th %tile Q(veh)	-	0.5	-	-	0.2	-	-	26.8				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined				*: All major volume in platoon		

HCM Signalized Intersection Capacity Analysis

31: Covington Way SE & 165th PI SE

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	25	5	15	365	0	190	5	490	155	120	220	560
Future Volume (vph)	25	5	15	365	0	190	5	490	155	120	220	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0		5.0	4.0	5.0			4.0	5.0
Lane Util. Factor	1.00	1.00		1.00		1.00	1.00	0.95			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00		1.00	1.00	0.99			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00		1.00	1.00	1.00			1.00	1.00
Frt	1.00	0.89		1.00		0.85	1.00	0.96			1.00	1.00
Flt Protected	0.95	1.00		0.95		1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	1388	1510		1787		1599	1357	3382			1805	1881
Flt Permitted	0.76	1.00		0.74		1.00	0.95	1.00			0.95	1.00
Satd. Flow (perm)	1107	1510		1399		1599	1357	3382			1805	1881
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	27	5	16	388	0	202	5	521	165	128	234	596
RTOR Reduction (vph)	0	11	0	0	0	114	0	38	0	0	0	0
Lane Group Flow (vph)	27	10	0	388	0	88	5	648	0	0	362	596
Confl. Peds. (#/hr)									3		3	
Heavy Vehicles (%)	30%	0%	15%	1%	0%	1%	33%	3%	0%	0%	0%	1%
Turn Type	Perm	NA		Perm		Perm	Prot	NA		Prot	Prot	NA
Protected Phases		4			8		5	2		1	1	6
Permitted Phases	4			8		8						
Actuated Green, G (s)	29.1	29.1		29.1		29.1	0.8	23.2			23.7	46.1
Effective Green, g (s)	29.1	29.1		29.1		29.1	0.8	23.2			23.7	46.1
Actuated g/C Ratio	0.32	0.32		0.32		0.32	0.01	0.26			0.26	0.51
Clearance Time (s)	5.0	5.0		5.0		5.0	4.0	5.0			4.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0		3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	357	488		452		517	12	871			475	963
v/s Ratio Prot		0.01					0.00	c0.19			c0.20	0.32
v/s Ratio Perm	0.02			c0.28		0.05						
v/c Ratio	0.08	0.02		0.86		0.17	0.42	0.74			0.76	0.62
Uniform Delay, d1	21.1	20.7		28.5		21.8	44.4	30.7			30.6	15.7
Progression Factor	1.00	1.00		1.00		1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2	0.1	0.0		14.9		0.2	21.8	5.7			7.1	3.0
Delay (s)	21.2	20.8		43.4		22.0	66.1	36.4			37.7	18.7
Level of Service	C	C		D		C	E	D			D	B
Approach Delay (s)		21.0			36.1			36.6				25.7
Approach LOS		C			D			D				C
Intersection Summary												
HCM 2000 Control Delay			31.5			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			14.0			
Intersection Capacity Utilization			82.4%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

31: Covington Way SE & 165th PI SE

01/12/2023

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1077
Flt Permitted	1.00
Satd. Flow (perm)	1077
Peak-hour factor, PHF	0.94
Adj. Flow (vph)	11
RTOR Reduction (vph)	5
Lane Group Flow (vph)	6
Confl. Peds. (#/hr)	
Heavy Vehicles (%)	50%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	46.1
Effective Green, g (s)	46.1
Actuated g/C Ratio	0.51
Clearance Time (s)	5.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	551
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.01
Uniform Delay, d1	10.8
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	10.8
Level of Service	B
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th Signalized Intersection Summary

32: Covington Way SE & SE Wax Rd

01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕		↕		↕
Traffic Volume (veh/h)	0	0	0	445	0	110	0	515	270	65	850	0
Future Volume (veh/h)	0	0	0	445	0	110	0	515	270	65	850	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1885	1900	1870	1900	1870	1900	1870	1885	1900
Adj Flow Rate, veh/h	0	0	0	473	0	117	0	548	287	69	904	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	1	0	2	0	2	0	2	1	0
Cap, veh/h	0	844	0	596	0	130	0	831	714	221	838	0
Arrive On Green	0.00	0.00	0.00	0.44	0.00	0.44	0.00	0.44	0.44	0.44	0.44	0.00
Sat Flow, veh/h	0	1900	0	1179	0	292	0	1870	1607	658	1885	0
Grp Volume(v), veh/h	0	0	0	590	0	0	0	548	287	69	904	0
Grp Sat Flow(s),veh/h/ln	0	1900	0	1471	0	0	0	1870	1607	658	1885	0
Q Serve(g_s), s	0.0	0.0	0.0	33.5	0.0	0.0	0.0	20.7	10.9	8.3	40.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	33.5	0.0	0.0	0.0	20.7	10.9	29.0	40.0	0.0
Prop In Lane	0.00		0.00	0.80		0.20	0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	844	0	726	0	0	0	831	714	221	838	0
V/C Ratio(X)	0.00	0.00	0.00	0.81	0.00	0.00	0.00	0.66	0.40	0.31	1.08	0.00
Avail Cap(c_a), veh/h	0	844	0	726	0	0	0	831	714	221	838	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	23.2	0.0	0.0	0.0	19.6	16.9	31.0	25.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	9.7	0.0	0.0	0.0	1.9	0.4	0.8	54.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	12.6	0.0	0.0	0.0	8.8	3.8	1.3	29.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	32.9	0.0	0.0	0.0	21.6	17.3	31.8	79.6	0.0
LnGrp LOS	A	A	A	C	A	A	A	C	B	C	F	A
Approach Vol, veh/h												
0												
Approach Delay, s/veh												
0.0												
Approach LOS												
C												
C												
E												
Timer - Assigned Phs												
2												
4												
6												
8												
Phs Duration (G+Y+Rc), s												
45.0												
45.0												
45.0												
45.0												
Change Period (Y+Rc), s												
5.0												
5.0												
5.0												
5.0												
Max Green Setting (Gmax), s												
40.0												
40.0												
40.0												
40.0												
Max Q Clear Time (g_c+I1), s												
0.0												
22.7												
35.5												
42.0												
Green Ext Time (p_c), s												
0.0												
4.2												
1.5												
0.0												
Intersection Summary												
HCM 6th Ctrl Delay												
46.0												
HCM 6th LOS												
D												

Intersection

Int Delay, s/veh 1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	275	35	35	320	20	15
Future Vol, veh/h	275	35	35	320	20	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	299	38	38	348	22	16

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	337
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1222
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1222
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	466	-	-	1222	-
HCM Lane V/C Ratio	0.082	-	-	0.031	-
HCM Control Delay (s)	13.4	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

HCM 6th Signalized Intersection Summary

34: 216th Ave SE & SE 288th St

01/12/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	0	185	0	145	0	440	170	185	485	0
Future Volume (veh/h)	5	0	0	185	0	145	0	440	170	185	485	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1856	1856	1856	1900	1900	1900	1885	1885	1885
Adj Flow Rate, veh/h	5	0	0	193	0	0	0	458	0	193	505	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	3	3	3	0	0	0	1	1	1
Cap, veh/h	529	0	0	476	0		0	1081		325	669	0
Arrive On Green	0.17	0.00	0.00	0.17	0.00	0.00	0.00	0.57	0.00	0.57	0.57	0.00
Sat Flow, veh/h	1722	0	0	1411	0	1572	0	1900	1610	310	1175	0
Grp Volume(v), veh/h	5	0	0	193	0	0	0	458	0	698	0	0
Grp Sat Flow(s),veh/h/ln	1722	0	0	1411	0	1572	0	1900	1610	1485	0	0
Q Serve(g_s), s	0.0	0.0	0.0	4.0	0.0	0.0	0.0	4.2	0.0	7.5	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.0	0.0	4.0	0.0	0.0	0.0	4.2	0.0	11.7	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	0.00		1.00	0.28		0.00
Lane Grp Cap(c), veh/h	529	0	0	476	0		0	1081		994	0	0
V/C Ratio(X)	0.01	0.00	0.00	0.41	0.00		0.00	0.42		0.70	0.00	0.00
Avail Cap(c_a), veh/h	1028	0	0	963	0		0	2216		1876	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.6	0.0	0.0	12.3	0.0	0.0	0.0	3.8	0.0	5.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.3	0.0	0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.4	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.6	0.0	0.0	12.8	0.0	0.0	0.0	4.0	0.0	6.2	0.0	0.0
LnGrp LOS	B	A	A	B	A		A	A		A	A	A
Approach Vol, veh/h	5			193			A			698		
Approach Delay, s/veh	10.6			12.8			4.0			6.2		
Approach LOS	B			B			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	21.6			9.3			21.6			9.3		
Change Period (Y+Rc), s	4.0			4.0			4.0			4.0		
Max Green Setting (Gmax), s	36.0			16.0			36.0			16.0		
Max Q Clear Time (g_c+I1), s	6.2			2.1			13.7			6.0		
Green Ext Time (p_c), s	1.9			0.0			3.8			0.4		
Intersection Summary												
HCM 6th Ctrl Delay	6.4											
HCM 6th LOS	A											

35: SE 296th St/216th Ave SE & SE Covington-Sawyer Rd/292nd St

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary

36: 219th Ave SE & SE 296th St

01/12/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	580	160	10	585	195	20
Future Volume (veh/h)	580	160	10	585	195	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1870	1900	1885	1870	1900
Adj Flow Rate, veh/h	725	200	12	731	244	25
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	1	2	0	1	2	0
Cap, veh/h	1195	1005	370	1331	320	290
Arrive On Green	0.63	0.63	0.01	0.71	0.18	0.18
Sat Flow, veh/h	1885	1585	1810	1885	1781	1610
Grp Volume(v), veh/h	725	200	12	731	244	25
Grp Sat Flow(s), veh/h/ln	1885	1585	1810	1885	1781	1610
Q Serve(g_s), s	16.0	3.7	0.2	13.0	9.1	0.9
Cycle Q Clear(g_c), s	16.0	3.7	0.2	13.0	9.1	0.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1195	1005	370	1331	320	290
V/C Ratio(X)	0.61	0.20	0.03	0.55	0.76	0.09
Avail Cap(c_a), veh/h	1195	1005	498	1331	662	598
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.67	0.67	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.6	5.4	6.4	4.9	27.3	23.9
Incr Delay (d2), s/veh	1.5	0.3	0.0	1.6	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	1.0	0.0	3.7	3.9	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.2	5.7	6.4	6.6	28.7	24.0
LnGrp LOS	A	A	A	A	C	C
Approach Vol, veh/h	925			743	269	
Approach Delay, s/veh	8.4			6.6	28.3	
Approach LOS	A			A	C	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	5.0	48.4		16.6		53.4
Change Period (Y+Rc), s	4.0	5.0		5.0		5.0
Max Green Setting (Gmax), s	6.0	25.0		25.0		35.0
Max Q Clear Time (g_c+I12, s)	12.2	18.0		11.1		15.0
Green Ext Time (p_c), s	0.0	1.6		0.5		1.7

Intersection Summary

HCM 6th Ctrl Delay	10.5
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary

37: 218th Ave SE & SE Auburn-Black Diamond Rd

10/02/2023

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1225	265	205	1035	90	210
Future Volume (veh/h)	1225	265	205	1035	90	210
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1276	276	214	1078	94	219
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1462	1239	170	1462	259	231
Arrive On Green	0.78	0.78	0.78	0.78	0.15	0.15
Sat Flow, veh/h	1870	1585	333	1870	1781	1585
Grp Volume(v), veh/h	1276	276	214	1078	94	219
Grp Sat Flow(s),veh/h/ln	1870	1585	333	1870	1781	1585
Q Serve(g_s), s	51.5	5.1	34.5	32.7	5.2	15.1
Cycle Q Clear(g_c), s	51.5	5.1	86.0	32.7	5.2	15.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1462	1239	170	1462	259	231
V/C Ratio(X)	0.87	0.22	1.26	0.74	0.36	0.95
Avail Cap(c_a), veh/h	1462	1239	170	1462	259	231
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.2	3.2	44.4	6.2	42.4	46.6
Incr Delay (d2), s/veh	6.1	0.1	155.8	2.0	0.9	45.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.0	1.1	11.9	8.7	2.3	8.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.3	3.3	200.2	8.2	43.3	91.9
LnGrp LOS	B	A	F	A	D	F
Approach Vol, veh/h	1552			1292	313	
Approach Delay, s/veh	12.4			40.0	77.3	
Approach LOS	B			D	E	
Timer - Assigned Phs	2		4		8	
Phs Duration (G+Y+Rc), s	20.0		90.0		90.0	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	16.0		74.0		86.0	
Max Q Clear Time (g_c+I1), s	17.1		53.5		88.0	
Green Ext Time (p_c), s	0.0		12.4		0.0	
Intersection Summary						
HCM 6th Ctrl Delay			30.1			
HCM 6th LOS			C			

HCM 6th Signalized Intersection Summary

40: Morgan St & SE Auburn-Black Diamond Rd/Roberts Dr

10/02/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	295	680	10	415	0	295	120	0	0	0	160
Future Volume (veh/h)	30	295	680	10	415	0	295	120	0	0	0	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1885	1885	1870	1870	1870	1900	1870	1900	1870	1870	1870
Adj Flow Rate, veh/h	33	321	0	11	451	0	321	130	0	0	0	174
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	1	1	2	2	2	0	2	0	2	2	2
Cap, veh/h	214	638		179	677	0	466	482	0	0	0	0
Arrive On Green	0.37	0.37	0.00	0.37	0.37	0.00	0.26	0.26	0.00	0.00	0.00	0.00
Sat Flow, veh/h	80	1735	1598	17	1840	0	1810	1870	0	0	0	-63402
Grp Volume(v), veh/h	354	0	0	462	0	0	321	130	0	0	0	174
Grp Sat Flow(s),veh/h/ln	1815	0	1598	1857	0	0	1810	1870	0	0	0	-63402
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	3.4	1.2	0.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	3.1	0.0	0.0	4.4	0.0	0.0	3.4	1.2	0.0	0.0	0.0	0.1
Prop In Lane	0.09		1.00	0.02		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	852	0		856	0	0	466	482	0	0	0	-297
V/C Ratio(X)	0.42	0.00		0.54	0.00	0.00	0.69	0.27	0.00	0.00	0.00	-0.59
Avail Cap(c_a), veh/h	1751	0		1813	0	0	1440	3326	0	0	0	-50438
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	5.3	0.0	0.0	5.7	0.0	0.0	7.2	6.3	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.5	0.0	0.0	1.8	0.3	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.3	0.0	0.0	0.9	0.3	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.6	0.0	0.0	6.2	0.0	0.0	9.0	6.6	0.0	0.0	0.0	0.0
LnGrp LOS	A	A		A	A	A	A	A	A	A	A	A
Approach Vol, veh/h	354			462			451			174		
Approach Delay, s/veh	5.6			6.2			8.3			0.0		
Approach LOS	A			A			A			A		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	9.5			11.9		9.5	0.0		11.9			
Change Period (Y+Rc), s	4.0			4.0		4.0	4.0		4.0			
Max Green Setting (Gmax), s	38.0			19.0		17.0	17.0		19.0			
Max Q Clear Time (g_c+I1), s	0.0			5.1		5.4	0.0		6.4			
Green Ext Time (p_c), s	0.0			1.1		1.0	0.0		1.5			
Intersection Summary												
HCM 6th Ctrl Delay	6.0											
HCM 6th LOS	A											

HCM 6th TWSC
41: Railroad Ave/Morgan St & Baker St

10/02/2023

Intersection

Int Delay, s/veh 2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	75	350	15	175	505
Future Vol, veh/h	10	75	350	15	175	505
Conflicting Peds, #/hr	0	1	0	10	10	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	1	2
Mvmt Flow	11	82	380	16	190	549

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1327	399	0
Stage 1	398	-	-
Stage 2	929	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	173	655	-
Stage 1	683	-	-
Stage 2	388	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	131	649	-
Mov Cap-2 Maneuver	131	-	-
Stage 1	678	-	-
Stage 2	296	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.3	0	2.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	443	1148
HCM Lane V/C Ratio	-	-	0.209	0.166
HCM Control Delay (s)	-	-	15.3	8.8
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.8	0.6

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	15	115	15	15	15	30	150	10	15	300	10
Future Vol, veh/h	10	15	115	15	15	15	30	150	10	15	300	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	13	33	0	0	2	0	0	1	0
Mvmt Flow	11	16	125	16	16	16	33	163	11	16	326	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.1	9	9.7	11.5
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	16%	7%	33%	5%
Vol Thru, %	79%	11%	33%	92%
Vol Right, %	5%	82%	33%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	190	140	45	325
LT Vol	30	10	15	15
Through Vol	150	15	15	300
RT Vol	10	115	15	10
Lane Flow Rate	207	152	49	353
Geometry Grp	1	1	1	1
Degree of Util (X)	0.276	0.202	0.075	0.454
Departure Headway (Hd)	4.804	4.78	5.499	4.63
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	741	744	645	774
Service Time	2.872	2.855	3.59	2.69
HCM Lane V/C Ratio	0.279	0.204	0.076	0.456
HCM Control Delay	9.7	9.1	9	11.5
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	1.1	0.8	0.2	2.4

Intersection

Int Delay, s/veh 9.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	605	530	5	430	260	0
Future Vol, veh/h	605	530	5	430	260	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	None
Storage Length	-	0	90	-	0	110
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	3	3	1	1
Mvmt Flow	672	589	6	478	289	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	-	672
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.13
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.227
Pot Cap-1 Maneuver	-	0	914
Stage 1	-	0	-
Stage 2	-	0	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	914
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	48.8
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT
Capacity (veh/h)	351	-	-	914	-
HCM Lane V/C Ratio	0.823	-	-	0.006	-
HCM Control Delay (s)	48.8	0	-	9	-
HCM Lane LOS	E	A	-	A	-
HCM 95th %tile Q(veh)	7.2	-	-	0	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th Signalized Intersection Summary

44: Ten Trails Place SE & SE Auburn-Black Diamond Rd

01/12/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	860	145	0	1035	0	115	0	205	0	135	0
Future Volume (veh/h)	0	860	145	0	1035	0	115	0	205	0	135	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	935	158	0	1125	0	125	0	223	0	147	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	102	1072	181	102	1286	0	265	0	316	0	373	0
Arrive On Green	0.00	0.69	0.69	0.00	0.69	0.00	0.20	0.00	0.20	0.00	0.20	0.00
Sat Flow, veh/h	501	1559	264	516	1870	0	1241	0	1585	0	1870	0
Grp Volume(v), veh/h	0	0	1093	0	1125	0	125	0	223	0	147	0
Grp Sat Flow(s),veh/h/ln	501	0	1823	516	1870	0	1241	0	1585	0	1870	0
Q Serve(g_s), s	0.0	0.0	33.2	0.0	33.4	0.0	6.9	0.0	9.3	0.0	4.8	0.0
Cycle Q Clear(g_c), s	0.0	0.0	33.2	0.0	33.4	0.0	11.7	0.0	9.3	0.0	4.8	0.0
Prop In Lane	1.00		0.14	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	102	0	1253	102	1286	0	265	0	316	0	373	0
V/C Ratio(X)	0.00	0.00	0.87	0.00	0.87	0.00	0.47	0.00	0.70	0.00	0.39	0.00
Avail Cap(c_a), veh/h	223	0	1696	227	1741	0	297	0	358	0	422	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	8.6	0.0	8.7	0.0	29.8	0.0	26.4	0.0	24.7	0.0
Incr Delay (d2), s/veh	0.0	0.0	4.0	0.0	4.1	0.0	1.3	0.0	5.3	0.0	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	7.9	0.0	11.3	0.0	2.1	0.0	3.8	0.0	2.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	12.7	0.0	12.7	0.0	31.1	0.0	31.8	0.0	25.3	0.0
LnGrp LOS	A	A	B	A	B	A	C	A	C	A	C	A
Approach Vol, veh/h	1093		1125			348			147			
Approach Delay, s/veh	12.7		12.7			31.5			25.3			
Approach LOS	B		B			C			C			
Timer - Assigned Phs	2		4			6			8			
Phs Duration (G+Y+Rc), s	18.2		52.8			18.2			52.8			
Change Period (Y+Rc), s	4.0		4.0			4.0			4.0			
Max Green Setting (Gmax), s	16.0		66.0			16.0			66.0			
Max Q Clear Time (g_c+I1), s	13.7		35.2			6.8			35.4			
Green Ext Time (p_c), s	0.4		10.2			0.4			13.3			
Intersection Summary												
HCM 6th Ctrl Delay			15.8									
HCM 6th LOS			B									

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	305	510	0	215	1020
Future Vol, veh/h	0	305	510	0	215	1020
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	332	554	0	234	1109
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	554	0	0	554	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	0	532	-	-	1016	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	532	-	-	1016	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	22.3	0		1.7		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 532		1016	-	
HCM Lane V/C Ratio	-	- 0.623		0.23	-	
HCM Control Delay (s)	-	- 22.3		9.6	-	
HCM Lane LOS	-	- C		A	-	
HCM 95th %tile Q(veh)	-	- 4.2		0.9	-	

MOVEMENT SUMMARY

 **Site: 101 [38.Ten Trails Pkwy - Reduced (Site Folder: 2032-Build)]**

Ten Trails Pkwy and SE Auburn Black Diamond Rd
Site Category: Future Build - 2032
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] ft				mph
South: Ten Trails Pkwy														
3	L2	285	8.0	285	8.0	0.781	34.8	LOS C	8.4	224.5	1.00	1.23	1.65	25.5
8	T1	390	0.0	390	0.0	0.984	54.6	LOS E	23.6	590.4	1.00	1.68	2.77	20.7
18	R2	130	0.0	130	0.0	0.984	57.4	LOS E	23.6	590.4	1.00	1.68	2.77	20.3
Approach		805	2.8	805	2.8	0.984	48.0	LOS D	23.6	590.4	1.00	1.52	2.37	22.1
East: SE Auburn Black Diamond Rd														
1	L2	35	0.0	35	0.0	0.726	14.7	LOS B	6.5	165.2	0.87	0.95	1.14	34.9
6	T1	810	2.0	810	2.0	0.726	9.5	LOS A	6.5	165.2	0.84	0.91	1.05	34.9
16	R2	65	0.0	65	0.0	0.367	7.3	LOS A	1.9	47.0	0.71	0.74	0.74	34.5
Approach		910	1.8	910	1.8	0.726	9.5	LOS A	6.5	165.2	0.83	0.90	1.04	34.9
North: Ten Trails Pkwy														
7	L2	65	0.0	65	0.0	0.131	15.1	LOS B	0.6	15.9	0.75	0.91	0.75	32.6
4	T1	505	0.0	505	0.0	0.761	15.4	LOS B	8.4	210.2	0.98	1.19	1.55	32.2
14	R2	65	2.0	65	2.0	0.761	19.2	LOS B	8.4	210.2	0.98	1.19	1.55	31.2
Approach		635	0.2	635	0.2	0.761	15.7	LOS B	8.4	210.2	0.95	1.16	1.47	32.1
West: SE Auburn Black Diamond Rd														
5	L2	135	0.0	135	0.0	0.936	23.4	LOS D	18.5	472.9	1.00	1.34	1.89	31.0
2	T1	810	3.0	810	3.0	0.936	17.7	LOS D	18.5	472.9	1.00	1.34	1.89	30.8
12	R2	350	4.0	350	4.0	0.490	8.1	LOS A	3.1	79.6	0.73	0.89	0.82	34.5
Approach		1295	3.0	1295	3.0	0.936	15.7	LOS B	18.5	472.9	0.93	1.22	1.60	31.7
All Vehicles		3645	2.2	3645	2.2	0.984	21.3	LOS C	23.6	590.4	0.92	1.20	1.61	29.6

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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\Task4_Build_and_Calibrate_Model\SynchroModel\SIDRA\Roundabouts-2032.sip9

MOVEMENT SUMMARY

 **Site: 101 [39.Lake Sawyer Rd - Reduced (Site Folder: 2032-Build)]**

Lake Sawyer Rd and SE Auburn Black Diamond Rd
Site Category: Future Build - 2032
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
South: Lake Sawyer Rd														
3	L2	190	6.0	190	6.0	0.728	17.0	LOS B	6.3	164.5	0.92	1.09	1.27	33.1
8	T1	340	6.0	340	6.0	0.728	11.2	LOS B	6.3	164.5	0.92	1.09	1.27	33.0
18	R2	235	6.0	235	6.0	0.444	9.6	LOS A	2.4	64.1	0.79	0.93	0.91	33.6
Approach		765	6.0	765	6.0	0.728	12.1	LOS B	6.3	164.5	0.88	1.04	1.16	33.2
East: SE Auburn Black Diamond Rd														
1	L2	160	2.0	160	2.0	0.831	32.9	LOS C	13.4	339.1	1.00	1.37	1.96	27.1
6	T1	240	2.0	240	2.0	0.831	26.8	LOS C	13.4	339.1	1.00	1.37	1.96	27.0
16	R2	130	2.0	130	2.0	0.831	27.0	LOS C	13.4	339.1	1.00	1.37	1.96	26.4
Approach		530	2.0	530	2.0	0.831	28.7	LOS C	13.4	339.1	1.00	1.37	1.96	26.9
North: Lake Sawyer Rd														
7	L2	225	1.0	225	1.0	0.620	14.6	LOS B	6.9	174.6	0.90	0.89	1.05	34.3
4	T1	470	1.0	470	1.0	0.620	8.5	LOS A	6.9	174.6	0.90	0.89	1.05	34.2
14	R2	640	1.0	640	1.0	0.740	13.2	LOS B	9.7	244.2	0.98	1.09	1.37	32.0
Approach		1335	1.0	1335	1.0	0.740	11.8	LOS B	9.7	244.2	0.94	0.99	1.20	33.1
West: SE Auburn Black Diamond Rd														
5	L2	370	1.0	370	1.0	0.615	21.0	LOS C	6.3	159.7	1.00	1.12	1.32	29.9
2	T1	485	1.0	485	1.0	0.819	21.9	LOS C	14.9	374.7	1.00	1.28	1.79	29.3
12	R2	185	1.0	185	1.0	0.819	21.9	LOS C	14.9	374.7	1.00	1.28	1.79	28.5
Approach		1040	1.0	1040	1.0	0.819	21.6	LOS C	14.9	374.7	1.00	1.22	1.62	29.4
All Vehicles		3670	2.2	3670	2.2	0.831	17.1	LOS B	14.9	374.7	0.95	1.12	1.42	31.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 101 [200.North Connector (Site Folder: 2032-Build)]**

SR 169 and North Connector
Site Category: Future Build - 2032
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: SR 169														
8	L2	95	2.0	95	2.0	0.093	10.6	LOS B	0.5	13.2	0.39	0.63	0.39	34.0
8	T1	700	2.0	700	2.0	0.474	4.6	LOS A	4.2	106.7	0.51	0.45	0.51	36.3
Approach		795	2.0	795	2.0	0.474	5.3	LOS A	4.2	106.7	0.49	0.48	0.49	36.0
North: SR 169														
4	T1	1310	2.0	1310	2.0	0.824	4.9	LOS A	13.6	346.2	0.63	0.46	0.63	35.8
14	R2	100	2.0	100	2.0	0.090	4.6	LOS A	0.4	11.3	0.26	0.48	0.26	36.0
Approach		1410	2.0	1410	2.0	0.824	4.9	LOS A	13.6	346.2	0.61	0.46	0.61	35.9
West: North Connector														
5	L2	165	2.0	165	2.0	0.578	43.8	LOS D	5.7	143.6	1.00	1.17	1.48	23.2
12	R2	165	2.0	165	2.0	0.389	18.8	LOS B	3.7	94.5	1.00	0.93	1.00	29.5
Approach		330	2.0	330	2.0	0.578	31.3	LOS C	5.7	143.6	1.00	1.05	1.24	25.9
All Vehicles		2535	2.0	2535	2.0	0.824	8.5	LOS A	13.6	346.2	0.62	0.54	0.65	34.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 101 [201.Pipeline Rd (Site Folder: 2032-Build)]**

SR 169 and Pipeline Rd
Site Category: Future Build - 2032
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: SR 169														
3u	U	195	2.0	195	2.0	0.405	12.7	LOS B	3.4	86.8	0.39	0.61	0.39	34.4
3	L2	430	2.0	430	2.0	0.405	10.2	LOS B	3.4	86.8	0.39	0.61	0.39	33.7
8	T1	250	2.0	250	2.0	0.210	4.4	LOS A	1.3	34.2	0.35	0.43	0.35	36.9
Approach		875	2.0	875	2.0	0.405	9.1	LOS A	3.4	86.8	0.38	0.56	0.38	34.7
North: SR 169														
4	T1	950	2.0	950	2.0	0.852	16.6	LOS D	16.8	425.5	1.00	1.21	1.70	31.5
14	R2	25	2.0	25	2.0	0.032	7.4	LOS A	0.2	4.4	0.63	0.63	0.63	34.8
Approach		975	2.0	975	2.0	0.852	16.3	LOS B	16.8	425.5	0.99	1.20	1.67	31.6
West: Pipeline Rd														
5	L2	110	2.0	110	2.0	0.793	44.8	LOS D	10.8	274.8	1.00	1.32	1.85	23.5
12	R2	200	2.0	200	2.0	0.793	38.9	LOS D	10.8	274.8	1.00	1.32	1.85	23.0
Approach		310	2.0	310	2.0	0.793	41.0	LOS D	10.8	274.8	1.00	1.32	1.85	23.2
All Vehicles		2160	2.0	2160	2.0	0.852	16.9	LOS B	16.8	425.5	0.74	0.96	1.18	31.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 101 [202.North Connector and Pipeline Rd (Site Folder: 2032-Build)]**

North Connector and Pipeline Rd
Site Category: Future Build - 2032
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: North Connector														
3	L2	10	2.0	10	2.0	0.147	11.8	LOS B	0.8	20.4	0.56	0.60	0.56	36.1
8	T1	130	2.0	130	2.0	0.147	5.9	LOS A	0.8	20.4	0.56	0.60	0.56	36.0
18	R2	10	2.0	10	2.0	0.147	5.9	LOS A	0.8	20.4	0.56	0.60	0.56	34.9
Approach		150	2.0	150	2.0	0.147	6.3	LOS A	0.8	20.4	0.56	0.60	0.56	35.9
East: Pipeline Rd														
1	L2	50	2.0	50	2.0	0.429	12.3	LOS B	2.8	70.4	0.65	0.66	0.65	35.7
6	T1	350	2.0	350	2.0	0.429	6.4	LOS A	2.8	70.4	0.65	0.66	0.65	35.6
16	R2	50	2.0	50	2.0	0.429	6.5	LOS A	2.8	70.4	0.65	0.66	0.65	34.5
Approach		450	2.0	450	2.0	0.429	7.1	LOS A	2.8	70.4	0.65	0.66	0.65	35.5
North: North Connector														
7	L2	10	2.0	10	2.0	0.390	11.9	LOS B	2.6	66.6	0.64	0.66	0.64	36.3
4	T1	100	2.0	100	2.0	0.390	5.9	LOS A	2.6	66.6	0.64	0.66	0.64	36.2
14	R2	300	2.0	300	2.0	0.390	6.0	LOS A	2.6	66.6	0.64	0.66	0.64	35.1
Approach		410	2.0	410	2.0	0.390	6.1	LOS A	2.6	66.6	0.64	0.66	0.64	35.4
West: Pipeline Rd														
5	L2	325	2.0	325	2.0	0.380	10.6	LOS B	2.4	61.5	0.40	0.61	0.40	35.0
2	T1	150	2.0	150	2.0	0.380	4.6	LOS A	2.4	61.5	0.40	0.61	0.40	34.9
12	R2	10	2.0	10	2.0	0.380	4.7	LOS A	2.4	61.5	0.40	0.61	0.40	33.9
Approach		485	2.0	485	2.0	0.380	8.6	LOS A	2.4	61.5	0.40	0.61	0.40	35.0
All Vehicles		1495	2.0	1495	2.0	0.429	7.2	LOS A	2.8	70.4	0.55	0.64	0.55	35.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 101 [203.Lake Sawyer Rd and Pipeline Rd - All Movements (Site Folder: 2032-Build)]**

Lake Sawyer Rd and Pipeline Rd
Site Category: Future Build - 2032
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] ft				mph
South: Lake Sawyer Rd														
3	L2	340	2.0	340	2.0	0.334	11.7	LOS B	2.4	60.0	0.65	0.73	0.65	33.4
8	T1	455	2.0	455	2.0	0.417	5.5	LOS A	3.4	87.2	0.67	0.55	0.67	35.7
18	R2	85	2.0	85	2.0	0.417	5.5	LOS A	3.4	87.2	0.67	0.55	0.67	34.6
Approach		880	2.0	880	2.0	0.417	7.9	LOS A	3.4	87.2	0.66	0.62	0.66	34.7
East: Pipeline Rd														
1	L2	465	2.0	465	2.0	0.493	12.8	LOS B	3.0	77.0	0.72	0.91	0.82	33.3
6	T1	225	2.0	225	2.0	0.319	7.3	LOS A	1.5	37.2	0.66	0.68	0.66	35.4
16	R2	1	2.0	1	2.0	0.319	7.3	LOS A	1.5	37.2	0.66	0.68	0.66	34.3
Approach		691	2.0	691	2.0	0.493	11.0	LOS B	3.0	77.0	0.70	0.84	0.77	33.9
North: Lake Sawyer Rd														
7	L2	1	2.0	1	2.0	0.663	15.2	LOS B	4.4	111.2	0.79	0.96	1.05	35.2
4	T1	450	2.0	450	2.0	0.663	9.3	LOS A	4.4	111.2	0.79	0.96	1.05	35.0
14	R2	50	2.0	50	2.0	0.663	9.4	LOS A	4.4	111.2	0.79	0.96	1.05	34.0
Approach		501	2.0	501	2.0	0.663	9.3	LOS A	4.4	111.2	0.79	0.96	1.05	34.9
West: Pipeline Rd														
5	L2	75	2.0	75	2.0	1.012	62.3	LOS F	31.8	807.8	1.00	1.98	3.55	20.2
2	T1	290	2.0	290	2.0	1.012	56.0	LOS F	31.8	807.8	1.00	1.98	3.55	20.2
12	R2	345	2.0	345	2.0	1.012	56.2	LOS F	31.8	807.8	1.00	1.98	3.55	19.8
Approach		710	2.0	710	2.0	1.012	56.8	LOS E	31.8	807.8	1.00	1.98	3.55	20.0
All Vehicles		2782	2.0	2782	2.0	1.012	21.4	LOS C	31.8	807.8	0.78	1.08	1.49	29.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 101 [204.SR 169 and South Connector (Site Folder: 2032-Build)]**

SR 169 and South Connector
Site Category: Future Build - 2032
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: SR 169														
3	L2	248	2.0	248	2.0	0.188	9.9	LOS A	1.1	28.9	0.14	0.61	0.14	34.6
8	T1	600	2.0	600	2.0	0.360	3.9	LOS A	2.8	70.1	0.16	0.36	0.16	37.6
Approach		848	2.0	848	2.0	0.360	5.7	LOS A	2.8	70.1	0.15	0.44	0.15	36.7
North: SR 169														
4	T1	1150	2.0	1150	2.0	0.438	5.3	LOS A	3.0	75.6	0.49	0.50	0.49	36.3
14	R2	25	2.0	25	2.0	0.438	5.2	LOS A	3.0	75.6	0.47	0.49	0.47	35.1
Approach		1175	2.0	1175	2.0	0.438	5.3	LOS A	3.0	75.6	0.49	0.50	0.49	36.3
West: South Connector														
5	L2	25	2.0	25	2.0	0.209	12.9	LOS B	0.9	22.7	0.66	0.83	0.66	35.9
12	R2	123	2.0	123	2.0	0.209	7.0	LOS A	0.9	22.7	0.66	0.83	0.66	34.7
Approach		148	2.0	148	2.0	0.209	8.0	LOS A	0.9	22.7	0.66	0.83	0.66	34.9
All Vehicles		2171	2.0	2171	2.0	0.438	5.6	LOS A	3.0	75.6	0.37	0.50	0.37	36.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 101 [203.Lake Sawyer Rd and Pipeline Rd - All Movements (Site Folder: 2032-Build)]**

Lake Sawyer Rd and Pipeline Rd
Site Category: Future Build - 2032
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Lake Sawyer Rd														
3	L2	440	2.0	440	2.0	0.367	10.8	LOS B	2.7	68.5	0.48	0.65	0.48	33.8
8	T1	455	2.0	455	2.0	0.557	4.9	LOS A	5.4	137.3	0.56	0.50	0.56	36.3
18	R2	385	2.0	385	2.0	0.557	4.9	LOS A	5.4	137.3	0.56	0.50	0.56	35.1
Approach		1280	2.0	1280	2.0	0.557	6.9	LOS A	5.4	137.3	0.53	0.55	0.53	35.1
East: Pipeline Rd														
1	L2	465	2.0	465	2.0	0.491	12.9	LOS B	2.9	72.8	0.71	0.92	0.82	33.3
6	T1	325	2.0	325	2.0	0.441	8.0	LOS A	2.3	57.7	0.70	0.78	0.79	35.3
16	R2	5	2.0	5	2.0	0.441	8.0	LOS A	2.3	57.7	0.70	0.78	0.79	34.2
Approach		795	2.0	795	2.0	0.491	10.9	LOS B	2.9	72.8	0.71	0.86	0.81	34.1
North: Lake Sawyer Rd														
7	L2	5	2.0	5	2.0	0.645	16.6	LOS B	4.3	109.7	0.82	0.99	1.13	34.4
4	T1	375	2.0	375	2.0	0.645	10.7	LOS B	4.3	109.7	0.82	0.99	1.13	34.3
14	R2	55	2.0	55	2.0	0.645	10.8	LOS B	4.3	109.7	0.82	0.99	1.13	33.2
Approach		435	2.0	435	2.0	0.645	10.8	LOS B	4.3	109.7	0.82	0.99	1.13	34.1
West: Pipeline Rd														
5	L2	75	2.0	75	2.0	0.675	21.6	LOS C	7.8	199.0	0.97	1.15	1.42	31.7
2	T1	90	2.0	90	2.0	0.675	15.3	LOS B	7.8	199.0	0.97	1.15	1.42	31.6
12	R2	345	2.0	345	2.0	0.675	15.5	LOS B	7.8	199.0	0.97	1.15	1.42	30.7
Approach		510	2.0	510	2.0	0.675	16.4	LOS B	7.8	199.0	0.97	1.15	1.42	31.0
All Vehicles		3020	2.0	3021	2.0	0.675	10.1	LOS B	7.8	199.0	0.69	0.80	0.84	33.9

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 101 [204.SR 169 and South Connector (Site Folder: 2032-Build)]

SR 169 and South Connector
Site Category: Future Build - 2032
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: SR 169														
3	L2	370	2.0	370	2.0	0.285	9.9	LOS A	2.0	49.6	0.16	0.61	0.16	34.6
8	T1	965	2.0	965	2.0	0.580	4.0	LOS A	6.3	160.2	0.22	0.36	0.22	37.4
Approach		1335	2.0	1335	2.0	0.580	5.6	LOS A	6.3	160.2	0.20	0.43	0.20	36.5
North: SR 169														
4	T1	1305	2.0	1305	2.0	0.538	6.3	LOS A	4.1	103.6	0.64	0.61	0.65	35.7
14	R2	25	2.0	25	2.0	0.538	6.1	LOS A	4.1	103.6	0.63	0.57	0.63	34.6
Approach		1330	2.0	1330	2.0	0.538	6.3	LOS A	4.1	103.6	0.64	0.61	0.65	35.7
West: South Connector														
5	L2	25	2.0	25	2.0	0.238	13.4	LOS B	1.1	27.7	0.73	0.87	0.73	35.6
12	R2	120	2.0	120	2.0	0.238	7.4	LOS A	1.1	27.7	0.73	0.87	0.73	34.5
Approach		145	2.0	145	2.0	0.238	8.5	LOS A	1.1	27.7	0.73	0.87	0.73	34.6
All Vehicles		2810	2.0	2810	2.0	0.580	6.1	LOS A	6.3	160.2	0.44	0.54	0.44	36.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 101 [1.SR 169 and SE Green Valley Rd (Site Folder: 2032-Build)]**

SR 169 and SE Green Valley Rd
Site Category: Future Build - 2032
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: SR 169														
3	L2	10	2.0	10	2.0	0.616	10.3	LOS B	6.7	170.3	0.41	0.41	0.41	36.7
8	T1	745	2.0	745	2.0	0.616	4.4	LOS A	6.7	170.3	0.41	0.41	0.41	36.6
18	R2	5	2.0	5	2.0	0.616	4.4	LOS A	6.7	170.3	0.41	0.41	0.41	35.5
Approach		760	2.0	760	2.0	0.616	4.4	LOS A	6.7	170.3	0.41	0.41	0.41	36.6
East: SE Green Valley Rd														
1	L2	5	0.0	5	0.0	0.010	14.1	LOS B	0.1	1.4	0.70	0.66	0.70	33.6
6	T1	1	0.0	1	0.0	0.010	8.1	LOS A	0.1	1.4	0.70	0.66	0.70	33.5
16	R2	1	0.0	1	0.0	0.010	8.2	LOS A	0.1	1.4	0.70	0.66	0.70	32.6
Approach		7	0.0	7	0.0	0.010	12.4	LOS B	0.1	1.4	0.70	0.66	0.70	33.5
North: SR 169														
7	L2	1	2.0	1	2.0	0.964	12.0	LOS E	66.6	1692.0	1.00	0.30	1.00	34.7
4	T1	1200	2.0	1200	2.0	0.964	6.1	LOS E	66.6	1692.0	1.00	0.30	1.00	34.6
14	R2	50	2.0	50	2.0	0.964	6.1	LOS E	66.6	1692.0	1.00	0.30	1.00	33.6
Approach		1251	2.0	1251	2.0	0.964	6.1	LOS A	66.6	1692.0	1.00	0.30	1.00	34.6
West: SE Green Valley Rd														
5	L2	55	2.0	55	2.0	0.274	24.5	LOS C	2.1	52.1	1.00	0.99	1.00	29.1
2	T1	1	2.0	1	2.0	0.274	18.5	LOS B	2.1	52.1	1.00	0.99	1.00	29.0
12	R2	15	2.0	15	2.0	0.274	18.6	LOS B	2.1	52.1	1.00	0.99	1.00	28.3
Approach		71	2.0	71	2.0	0.274	23.1	LOS C	2.1	52.1	1.00	0.99	1.00	28.9
All Vehicles		2089	2.0	2089	2.0	0.964	6.1	LOS A	66.6	1692.0	0.78	0.36	0.79	35.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 101 [3.SR 169 and Jones Lake Rd (Site Folder: 2032-Build)]**

SR 169 and Jones Lake Rd
Site Category: Future Build - 2032
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: SR 169														
3	L2	85	2.0	85	2.0	0.558	12.9	LOS B	4.7	120.5	0.74	0.74	0.78	35.3
8	T1	330	2.0	330	2.0	0.558	7.0	LOS A	4.7	120.5	0.74	0.74	0.78	35.2
18	R2	110	2.0	110	2.0	0.558	7.0	LOS A	4.7	120.5	0.74	0.74	0.78	34.2
Approach		525	2.0	525	2.0	0.558	7.9	LOS A	4.7	120.5	0.74	0.74	0.78	35.0
East: Jones Lake Rd														
1	L2	65	2.0	65	2.0	0.308	12.3	LOS B	2.0	49.7	0.65	0.68	0.65	35.3
6	T1	195	2.0	195	2.0	0.308	6.4	LOS A	2.0	49.7	0.65	0.68	0.65	35.2
16	R2	10	2.0	10	2.0	0.308	6.4	LOS A	2.0	49.7	0.65	0.68	0.65	34.2
Approach		270	2.0	270	2.0	0.308	7.8	LOS A	2.0	49.7	0.65	0.68	0.65	35.2
North: SR 169														
7	L2	75	2.0	75	2.0	0.963	30.8	LOS E	27.2	696.9	1.00	1.33	1.99	28.1
4	T1	835	3.0	835	3.0	0.963	25.0	LOS E	27.2	696.9	1.00	1.33	1.99	28.0
14	R2	5	3.0	5	3.0	0.963	25.0	LOS E	27.2	696.9	1.00	1.33	1.99	27.4
Approach		915	2.9	915	2.9	0.963	25.5	LOS C	27.2	696.9	1.00	1.33	1.99	28.0
West: Jones Lake Rd														
5	L2	5	0.0	5	0.0	0.513	20.3	LOS C	5.1	128.7	1.00	1.03	1.18	32.5
2	T1	260	2.0	260	2.0	0.513	14.5	LOS B	5.1	128.7	1.00	1.03	1.18	32.4
12	R2	170	0.0	170	0.0	0.421	14.2	LOS B	3.4	84.4	1.00	1.03	1.09	31.5
Approach		435	1.2	435	1.2	0.513	14.4	LOS B	5.1	128.7	1.00	1.03	1.14	32.0
All Vehicles		2145	2.2	2145	2.2	0.963	16.7	LOS B	27.2	696.9	0.89	1.04	1.35	31.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 101 [10.SR 169 and SE 288th St (Site Folder: 2032-Build)]**

SR 169 and SE 288th St
Site Category: Future Build - 2032
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: SR 169														
3	L2	120	3.0	120	3.0	0.737	10.9	LOS B	9.6	244.6	0.62	0.50	0.62	35.7
8	T1	755	3.0	755	3.0	0.737	4.9	LOS A	9.6	244.6	0.62	0.50	0.62	35.6
Approach		875	3.0	875	3.0	0.737	5.7	LOS A	9.6	244.6	0.62	0.50	0.62	35.6
North: SR 169														
4	T1	1390	4.0	1390	4.0	0.821	6.9	LOS A	12.0	309.6	0.68	0.51	0.68	35.6
14	R2	160	4.0	160	4.0	0.406	5.1	LOS A	2.7	69.6	0.41	0.49	0.41	35.4
Approach		1550	4.0	1550	4.0	0.821	6.7	LOS A	12.0	309.6	0.65	0.51	0.65	35.5
West: SE 288th St														
5	L2	85	4.0	85	4.0	0.498	20.5	LOS C	3.0	77.5	0.87	1.02	1.10	31.4
12	R2	115	4.0	115	4.0	0.498	23.0	LOS C	3.0	77.5	0.87	1.02	1.10	30.5
Approach		200	4.0	200	4.0	0.498	21.9	LOS C	3.0	77.5	0.87	1.02	1.10	30.9
All Vehicles		2625	3.7	2625	3.7	0.821	7.6	LOS A	12.0	309.6	0.66	0.55	0.68	35.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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\Task4_Build_and_Calibrate_Model\SynchroModel\SIDRA\Roundabouts-2032.sip9

MOVEMENT SUMMARY

 **Site: 101 [37.Auburn-Black Diamond Rd and 218th Ave SE (Site Folder: 2032-Build)]**

Auburn-Black Diamond Rd and 218th Ave SE
Site Category: Future Build - 2032
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: 218th Ave SE														
3	L2	90	2.0	90	2.0	0.398	30.0	LOS C	3.1	78.4	1.00	1.03	1.10	26.8
18	R2	210	2.0	210	2.0	0.665	36.9	LOS D	7.7	196.8	1.00	1.18	1.49	23.8
Approach		300	2.0	300	2.0	0.665	34.9	LOS C	7.7	196.8	1.00	1.14	1.37	24.6
East: SE Auburn-Black Diamond Rd														
1	L2	205	2.0	205	2.0	0.217	10.4	LOS B	1.3	32.0	0.32	0.62	0.32	34.2
6	T1	1035	2.0	1035	2.0	0.728	4.6	LOS A	9.8	247.9	0.58	0.46	0.58	36.0
Approach		1240	2.0	1240	2.0	0.728	5.6	LOS A	9.8	247.9	0.54	0.48	0.54	35.7
West: SE Auburn-Black Diamond Rd														
2	T1	1225	2.0	1225	2.0	0.923	11.7	LOS D	23.6	598.2	1.00	0.85	1.26	33.7
12	R2	265	2.0	265	2.0	0.308	5.9	LOS A	1.7	44.4	0.48	0.59	0.48	35.5
Approach		1490	2.0	1490	2.0	0.923	10.7	LOS B	23.6	598.2	0.91	0.81	1.12	34.0
All Vehicles		3030	2.0	3030	2.0	0.923	11.0	LOS B	23.6	598.2	0.77	0.71	0.91	33.4

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 101 [40.Morgan St and SE Auburn-Black Diamond Rd/Roberts Dr (Site Folder: 2032-Build)]**

Morgan St and SE Auburn-Black Diamond Rd/Roberts Dr
Site Category: Future Build - 2032
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Morgan St														
3	L2	295	0.0	295	0.0	0.400	11.7	LOS B	2.4	60.2	0.55	0.70	0.55	34.6
8	T1	120	2.0	120	2.0	0.400	5.8	LOS A	2.4	60.2	0.55	0.70	0.55	34.5
18	R2	1	0.0	1	0.0	0.400	5.8	LOS A	2.4	60.2	0.55	0.70	0.55	33.5
Approach		416	0.6	416	0.6	0.400	10.0	LOS A	2.4	60.2	0.55	0.70	0.55	34.6
East: Roberts Dr														
1	L2	10	2.0	10	2.0	0.468	12.8	LOS B	3.2	81.2	0.69	0.69	0.71	35.7
6	T1	415	2.0	415	2.0	0.468	6.8	LOS A	3.2	81.2	0.69	0.69	0.71	35.6
16	R2	1	2.0	1	2.0	0.468	6.9	LOS A	3.2	81.2	0.69	0.69	0.71	34.5
Approach		426	2.0	426	2.0	0.468	7.0	LOS A	3.2	81.2	0.69	0.69	0.71	35.6
North: Morgan St														
7	L2	1	2.0	1	2.0	0.223	14.1	LOS B	1.3	33.6	0.72	0.78	0.72	35.6
4	T1	1	2.0	1	2.0	0.223	8.1	LOS A	1.3	33.6	0.72	0.78	0.72	35.5
14	R2	160	2.0	160	2.0	0.223	8.2	LOS A	1.3	33.6	0.72	0.78	0.72	34.4
Approach		162	2.0	162	2.0	0.223	8.2	LOS A	1.3	33.6	0.72	0.78	0.72	34.4
West: SE Auburn-Black Diamond Rd														
5	L2	30	2.0	30	2.0	0.765	10.0	LOS A	12.5	314.2	0.24	0.40	0.24	37.4
2	T1	295	1.0	295	1.0	0.765	4.0	LOS A	12.5	314.2	0.24	0.40	0.24	37.3
12	R2	680	1.0	680	1.0	0.765	4.1	LOS A	12.5	314.2	0.24	0.40	0.24	36.2
Approach		1005	1.0	1005	1.0	0.765	4.2	LOS A	12.5	314.2	0.24	0.40	0.24	36.5
All Vehicles		2009	1.2	2009	1.2	0.765	6.3	LOS A	12.5	314.2	0.44	0.55	0.44	35.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Appendix G

Agency Comments and Responses



Parametrix Comment/Response Form										Project Number: 214-3043-029 Task 51			
										Project Name: MPD Transportation Model date Report			
Document Name and Date					The Villages MPD Transportation Model Update Report – March 2023								
Originator(s)					Parametrix								
Reviewer(s)					King County / Maple Valley								
Date of Review Request					Click here to enter a date.		COMMENTS DUE BY						
No.	Page*	Line No.	Exhibit No.	Priority**	Comment	Reviewer Initials	Response	Status Code***	Originator Initials	Resolution? Yes/No	Verified? Yes/No		
					The update report should include a discussion of the validity of using the PSRC's trip-based model for this update, instead of the current PSRC activity-based travel model	King County	The trip-based model was used as it was the calibrated model available when the bulk of the analysis was underway. The study team coordinated with PSRC during the duration of the modeling effort to make appropriate refinements, as necessary. The City is currently using PSRC’s activity based travel demand model as it updates its Comprehensive Plan.						
					Per report, new model must include 20-year unfunded projects with a reasonable likelihood of obtaining funding based on consultation with each jurisdiction. The SE Kent-Kangley Rd and Landsburg Road SE intersection , and the SE Auburn-Black Diamond Road and SE Green Valley Road intersection are assumed to be signalized per Table 2 on page 7. Both of these projects have no known funding source in the foreseeable future and should be removed from Table 2 and modeling analysis.	King County	Updated analysis to reflect no signals at these intersections; mitigation per DA assumed for 2032 Full Build Out: Kent-Kangley/Landsburg – LOS C in 2032 No Build, LOS F in 2032 Full-Buildout (16% increase in volumes); DA mitigation not included as intersection was upgraded to AWSC and proposed mitigation doesn’t apply anymore ABD/Green Valley – LOS E in 2032 No Build; LOS E in 2032 Full-Buildout with DA mitigation (refuge for NB LT)						
					The updated report does not include evaluation of any roadway segments for the county major arterials shown in figures 4 and 6. Recommend that roadway traffic volumes and levels of service be provided and discussed in the report for county major arterial roads in the vicinity of Black Diamond.	King County	The Conditions of Approval require intersection operations analysis only.						
					King County intersection LOS standard (E) is exceeded in the 2032 Full Build-out scenario for the SE Auburn-Black Diamond Road and 218th Avenue SE intersection, and potentially more intersections knowing that signal improvements will not be funded	King County	2032 No Build = LOS D; With DA mitigation (NB LT refuge lane) 2032 Full Build LOS is LOS F; The March 2023 report recommended mitigation of a signal or a roundabout be included in the updated Conditions of Approval at this intersection.						
					SE Kent-Kangley Rd and Landsburg Road SE should be analyzed as a stop-controlled intersection for the 2032 No Build and 2032 Full Buildout conditions. Proposed mitigation to address development impacts should also be included in the report.	King County	Updated 2032 Build and 2032 No Build to show same control as Existing – all-way stop control. Kent-Kangley/Landsburg – LOS C in 2032 No Build, LOS F in 2032 Full-Buildout (16% increase in volumes); DA mitigation not included as intersection was upgraded to AWSC and proposed mitigation doesn’t apply anymore.						

Priority
* Page No. or “G” for general comment about the report
** An explanation of the three priority levels follows.
1 = Substantive comment (including critical issues pertaining to policy or important conclusions)
2 = Factual or substantive errors or omissions
3 = Editorial comment (suggestions to improve the general quality of the report or typographical error)

*** **Status Codes:** A = Incorporated; B = Alternate Revision Proposed; C = Evaluated/Not Incorporated; D = Response to Question

Parametrix Comment/Response Form										Project Number: 214-3043-029 Task 51			
										Project Name: MPD Transportation Model date Report			
Document Name and Date					The Villages MPD Transportation Model Update Report – March 2023								
Originator(s)					Parametrix								
Reviewer(s)					King County / Maple Valley								
Date of Review Request					Click here to enter a date.		COMMENTS DUE BY						
No.	Page*	Line No.	Exhibit No.	Priority**	Comment	Reviewer Initials	Response	Status Code***	Originator Initials	Resolution? Yes/No	Verified? Yes/No		
					SE Auburn-Black Diamond Road and 218th Avenue SE have an incorrect eastbound lane configuration for the 2032 No Build condition	King County	Corrected to match existing conditions; 2032 No Build remains at LOS D						
					SE Auburn-Black Diamond Road and SE Green Valley Road should be analyzed as a stop-controlled intersection for the 2032 No Build and 2032 Full Buildout conditions. In addition, the eastbound lane configuration for the 2032 No Build condition is input differently from the other scenarios. Proposed mitigation to address development impacts should also be included in the report.	King County	Updated No Build to match existing conditions; Full Buildout includes DA mitigation (refuge for NB LT) LOS E in 2032 No Build; LOS E in 2032 Full-Buildout with						
					Proposed Mitigation for impacts to unincorporated King County intersections should be a condition of approval and paid by the developer(s) to bring intersection(s) back into compliance with King County LOS standards as determined by the King County Road Services Division.	King County	Comment noted; specific intersections addressed in other comments.						
					Modify Table 6 on page 19 to reflect the revised LOS results.	King County	Table updated						
					Per report, new model must include 6-year funded projects. The intersection of SR-169 and SE 288th Street is managed by WSDOT and not King County. Therefore, WSDOT Levels of Service (LOS) should be applied. Correct Table 1 on page 6 and Table 5 on page 18. In addition, numerous intersections shown in Tables 5 and 6 on pages 18 and 19 are located within the City of Black Diamond or Unincorporated King County but are under Washington State DOT (WSDOT) jurisdiction and standards. Verify jurisdictions and make necessary corrections for Tables 5 and 6 and use the correct corresponding agency LOS.	King County	WSDOT LOS standards for intersections within Black Diamond and unincorporated King County was the standard used in the analysis. Will update Tables to show SR 169/288 th as under WSDOT jurisdiction.						
					The intersection of SR 169/SE Green Valley is under WSDOT jurisdiction. Per the analysis, it is operating at LOS F for the 2022 Existing Condition, which exceeds WSDOT LOS standard D. Per the Black Diamond Comprehensive Plan, a signal is planned at this intersection and the updated analysis recommends advancing this project provided one MUTCD signal warrant is met. Coordinate with WSDOT for design and review.	King County	Comment noted, this intersection is WSDOT jurisdiction.						
					The study does not include Maple Valley’s work on our transportation plan; need to review most recent 20-year TIP and LOS standards	Maple Valley	The analysis for this report was conducted in 2022, prior to the most recent Maple Valley Transportation Plan. Have reviewed the updated 20-year project list provided by the City of Maple Valley; No changes have been proposed to intersections analyzed for this study;						

Parametrix Comment/Response Form										Project Number: 214-3043-029 Task 51				
										Project Name: MPD Transportation Model date Report				
Document Name and Date					The Villages MPD Transportation Model Update Report – March 2023									
Originator(s)					Parametrix									
Reviewer(s)					King County / Maple Valley									
Date of Review Request					Click here to enter a date.		COMMENTS DUE BY							
No.	Page*	Line No.	Exhibit No.	Priority**	Comment	Reviewer Initials	Response	Status Code***	Originator Initials	Resolution? Yes/No	Verified? Yes/No			
							(Note: Maple Valley modeling shows 0.4% growth between 2022 and 2044 on SR 169; we assumed 1.4% annual growth)							
					Covington’s team reviewed the Villages MPD (aka Ten Trails) transportation model update and has no comments or feedback on the findings presented in the report.	Covington	Noted							

Alex Atchison

From: Andy Williamson <awilliamson@blackdiamondwa.gov>
Sent: Wednesday, July 12, 2023 4:09 PM
To: Austin Fisher; Alex Atchison
Subject: Fwd: City of Black Diamond – The Villages MPD Transportation Model Update Report – March 2023 prepared by Parametrix

Begin forwarded message:

From: "Kosai-Eng, Joann" <Joann.Kosai-Eng@kingcounty.gov>
Date: July 12, 2023 at 2:23:11 PM PDT
To: Andy Williamson <awilliamson@blackdiamondwa.gov>
Cc: "Sung, Huey-Yi" <hsung@kingcounty.gov>
Subject: **City of Black Diamond – The Villages MPD Transportation Model Update Report – March 2023 prepared by Parametrix**

July 12, 2023

TO: Andy Williamson, Master Development Review Team (MDRT) & Economic Development Director, City of Black Diamond

FR: JoAnn Kosai-Eng, P.E., County Roads Engineer, King County Road Services Division

RE: City of Black Diamond – The Villages MPD Transportation Model Update Report – March 2023 prepared by Parametrix

Thank you for the opportunity to review and comment on the Transportation Model Update-per Hearing Examiner Conditions for City of Black Diamond prepared by Parametrix in March 2023.

The report addresses the Hearing Examiner Transportation conditions for The Villages (now Ten Trails) and Lawson Hills Master Planned Developments (MPDs) Responses to Conditions 10 through 17. These conditions pertain to updates of the transportation modeling conducted as part of the Final Environmental Impact Statement (FEIS) conducted for The Villages and Lawson Hills developments. The report documents the updated methodology, assumptions, and results in addressing Conditions 11 through 17.

King County Department of Local Services (KCDLS), Road Services Division reviewed the *Transportation Model Update-per Hearing Examiner Conditions* report with focus on the following King County intersections:

1. #20, SE Kent-Kangley Rd and Landsburg Road SE
2. #37, SE Auburn-Black Diamond Road and 218th Avenue SE
3. #42, SE Green Valley Road and 218th Avenue SE
4. #43, SE Auburn-Black Diamond Road and SE Green Valley Road

Below are the comments summarized by topics.

Travel model

1. Software used

The update report should include a discussion of the validity of using the PSRC's trip-based model for this update, instead of the current PSRC activity-based travel model.

2. 20-year funded projects assumed

Per report, new model must include 20-year unfunded projects with a reasonable likelihood of obtaining funding based on consultation with each jurisdiction. The SE Kent-Kangley Rd and Landsburg Road SE intersection, and the SE Auburn-Black Diamond Road and SE Green Valley Road intersection are assumed to be signalized per Table 2 on page 7. Both of these projects have no known funding source in the foreseeable future and should be removed from Table 2 and modeling analysis.

3. Roadway congestion

The updated report does not include evaluation of any roadway segments for the county major arterials shown in figures 4 and 6. Recommend that roadway traffic volumes and levels of service be provided and discussed in the report for county major arterial roads in the vicinity of Black Diamond.

Level of Services (LOS)

King County intersection LOS standard (E) is exceeded in the 2032 Full Build-out scenario for the SE Auburn-Black Diamond Road and 218th Avenue SE intersection, and potentially more intersections knowing that signal improvements will not be funded.

1. SE Kent-Kangley Rd and Landsburg Road SE should be analyzed as a stop controlled intersection for the 2032 No Build and 2032 Full Buildout conditions. Proposed mitigation to address development impacts should also be included in the report.
2. SE Auburn-Black Diamond Road and 218th Avenue SE have an incorrect eastbound lane configuration for the 2032 No Build condition.
3. SE Auburn-Black Diamond Road and SE Green Valley Road should be analyzed as a stop controlled intersection for the 2032 No Build and 2032 Full Buildout conditions. In addition, the eastbound lane configuration for the 2032 No Build condition is input differently from the other scenarios. Proposed mitigation to address development impacts should also be included in the report.
4. Proposed Mitigation for impacts to unincorporated King County intersections should be a condition of approval and paid by the developer(s) to bring intersection(s) back into compliance with King County LOS standards as determined by the King County Road Services Division.
5. Modify Table 6 on page 19 to reflect the revised LOS results.
6. Per report, new model must include 6-year funded projects. The intersection of SR-169 and SE 288th Street is managed by WSDOT and not King County. Therefore WSDOT Levels of Service (LOS) should be applied. Correct Table 1 on page 6 and Table 5 on page 18. In addition, numerous intersections shown in Tables 5 and 6 on pages 18 and 19 are located within the City of Black Diamond or Unincorporated King County, but are under Washington State DOT (WSDOT) jurisdiction and standards. Verify jurisdictions and make necessary corrections for Tables 5 and 6 and use the correct corresponding agency LOS.

Miscellaneous

1. The intersection of SR 169/SE Green Valley is under WSDOT jurisdiction. Per the analysis, it is operating at LOS F for the 2022 Existing Condition, which exceeds WSDOT LOS standard D. Per the Black Diamond Comprehensive Plan, a signal is planned at this

intersection and the updated analysis recommends advancing this project provided one MUTCD signal warrant is met. Coordinate with WSDOT for design and review.

Please accept this email as a formal comment regarding the *Transportation Model Update-per Hearing Examiner Conditions* report.

We look forward to future opportunities to coordinate with you on transportation-related issues.

JoAnn Kosai-Eng, County Road Engineer | Road Services Division,

King County Department of Local Services

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From: Tawni Dalziel <Tawni.Dalziel@maplevalleywa.gov>

Sent: Wednesday, June 28, 2023 3:32 PM

To: Tracey Redd <tredd@blackdiamondwa.gov>

Cc: Andy Williamson <awilliamson@blackdiamondwa.gov>; David Linehan <david@madronalaw.com>; Laura Philpot <Laura.Philpot@maplevalleywa.gov>; Steven Chen <Steven.Chen@maplevalleywa.gov>; Jeff Taraday <jeff@lighthouselawgroup.com>

Subject: RE: [External]Affected Jurisdiction Notice - The Villages MPD Transportation Model Update

Good afternoon,

The city of Maple Valley has reviewed the traffic study titled Transportation Model Updates per Hearing Examiner Conditions prepared by Parametrix dated March 2023. The study does not include Maple Valley's work on our transportation plan. I have provided a BOX link to our traffic model, a February transportation presentation to our City Council, our draft 20 Year TIP and LOS standards. We are open to meeting with Black Diamond to discuss how our two cities can better align our transportation plans. Let us know some available dates.

<https://app.box.com/s/yw18wecupyons75amxqmhfuwvjywvru5>

Best,
Tawni



Tawni Dalziel, P.E.
Director
Public Works and Community Development Department
Direct: 425-413-6624
Cell: 206-571-3064
www.maplevalleywa.gov

From: Tracey Redd <tredd@blackdiamondwa.gov>

Sent: Thursday, May 18, 2023 12:01 PM

To: Tawni Dalziel <Tawni.Dalziel@maplevalleywa.gov>; Laura Philpot <Laura.Philpot@maplevalleywa.gov>

Cc: Andy Williamson <awilliamson@blackdiamondwa.gov>; David Linehan <david@madronalaw.com>

Subject: [External]Affected Jurisdiction Notice - The Villages MPD Transportation Model Update

Hello – you are receiving this email as an affected jurisdiction of The Villages Master Planned Development (a/k/a Ten Trails) in the City of Black Diamond. In association with MPD Permit Condition of Approval #17(e), the City has completed the validation/ calibration/ operations analysis for the MPD's Transportation Model Update and is requesting to meet with you to discuss the City's findings in the Update report. For additional information, please see the attached Notice letter on this email.

To review the Transportation Model Update that the City has prepared, please navigate to the dropbox link below:
<https://www.dropbox.com/t/se8FLulqeoEteO5P>

For your reference and additional background information, all the MPD Permit Conditions of Approval have been included in the Transportation Model Update as Appendix A (beginning on page 28 of the PDF document).

Thank you for your attention to this Notice. If this email is not the correct contact address for this correspondence, please let me know and we will resend it to the appropriate contact.

Tracey Redd

SENIOR ACCOUNTANT / ADMIN ASSISTANT III
MASTER DEVELOPMENT REVIEW TEAM
360-851-4448



PO BOX 599, BLACK DIAMOND, WA 98010
PHONE: 360-851-4500

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Alex Atchison

From: Andy Williamson <awilliamson@blackdiamondwa.gov>
Sent: Tuesday, August 8, 2023 12:41 PM
To: Austin Fisher; Alex Atchison
Subject: FW: Response: Affected Jurisdiction Notice - The Villages MPD Transportation

Here you go

Andrew Williamson



MDRT/Economic Development Director
Phone: 360-851-4448
Fax: 360-851-4501
Email: awilliamson@blackdiamondwa.gov

City offices will be open to the public on July 6, 2021 by appointment only. Please call 360-851-4500 should you need to schedule an appointment. If you are not comfortable with coming into the office, we remain committed to assisting you as best we can by phone or electronically.

NOTICE OF PUBLIC DISCLOSURE: This e-mail is public domain. Any correspondence from or to this e-mail account may be a public record. Accordingly, this e-mail, in whole or in part, may be subject to disclosure pursuant to RCW 42.56, regardless of any claim of confidentiality or privilege asserted by an external party.

From: Salina Lyons <slyons@covingtonwa.gov>
Sent: Wednesday, May 31, 2023 2:28 PM
To: Tracey Redd <tredd@blackdiamondwa.gov>
Cc: Regan Bolli <rbolli@covingtonwa.gov>; Krista Bates <kbates@covingtonwa.gov>; Don Vondran <DVondran@covingtonwa.gov>; Andy Williamson <awilliamson@blackdiamondwa.gov>
Subject: Response: Affected Jurisdiction Notice - The Villages MPD Transportation

Hi Tracey

I am following up on the MPD Permit CoA #17 and the request to meet to discuss the findings in the report.

Covington's team reviewed the Villages MPD (aka Ten Trails) transportation model update and has no comments or feedback on the findings presented in the report. We will continue collecting mitigation related to Covington through the existing and separate mitigation agreements with the Master Developer.

If your team would still like to discuss the findings with Covington, please provide a few meeting options, and I can help to coordinate with the Covington team.

Salina Lyons, AICP | Community Development Director
City of Covington
253-480-2441
slyons@covingtonwa.gov
www.covingtonwa.gov
www.facebook.com/cityofcovington

Schedule: Mon-Thurs 7:00AM - 5:30PM



Exhibit 6:

Sensitivity Analysis

TECHNICAL MEMORANDUM

DATE: July 19, 2023
TO: Andy Williamson, City of Black Diamond
FROM: Alex Atchison, PE, PTOE
SUBJECT: Pipeline Road - Sensitivity Analysis
CC: Austin Fisher, PE
PROJECT NUMBER: 214-3043-028
PROJECT NAME: Black Diamond - MDRT

This technical memorandum evaluates the construction triggers for Pipeline Road as required in The Ten Trails (formerly The Villages) and Lawson Hills MPD Development Agreements and makes recommendations based on updated traffic modeling.

DEVELOPMENT AGREEMENT

Pipeline Road is a proposed roadway that will be constructed between SR 169 and Lake Sawyer Road SE, resulting in additional east-west connectivity through Black Diamond and serving as an alternative to Roberts Drive. Construction timeline of this roadway is predicated on Section 6.4.3 of The Villages MPD Development Agreement.

Section 6.4.3 of The Villages Master Planned Development (MPD) Development Agreement provides that “the preliminary design and alignment of the Pipeline Road shall be completed by the Master Developer and the right of way dedicated to the City prior to the City’s approval of a building permit for the 1,200th dwelling unit of the Villages MPD.” Additionally, Section 6.4.3 of The Villages MPD Development Agreement provides that “Pipeline Road shall be constructed by the Master Developer and open for traffic prior to the earlier of (i) the City’s approval of a building permit for the 1,746th dwelling unit of The Villages MPD; or (ii) when the Traffic Monitoring Plan (Exhibit “F”) shows that construction is necessary to prevent a significantly adverse degradation of Level of Service on Roberts Drive.”

PREVIOUS ANALYSIS

Phase 1B Mid-Point Traffic Monitoring Report – February 2021

Improvements at the intersection of Morgan Street / Roberts Drive were previously identified in the *Phase 1B Mid-Point Traffic Monitoring Report (TMR)* (TranspoGroup, February 2021). The Phase 1B TMR studied the cumulative impacts of Phase 1A, 1B and 2. Through build-out of Phase 1B, the Ten Trails MPD would total 1,741 dwelling units, below the defined dwelling unit threshold for constructing Pipeline Road. The Phase 1B TMR noted that a signal would be needed at the intersection of Morgan Street / Roberts Drive by the 1,900 ERU (approximately in 2025) with the caveat that in the event that Pipeline Road was under construction prior to the 1,900th ERU, the improvement at Roberts Drive/Morgan Street would not be necessary.

Phase 1A Mid-Point Traffic Monitoring Report – November 2021

The *Phase 1A Mid-Point Traffic Monitoring Report (TMR)* (TranspoGroup, November 2021) analyzed the impacts of Phase 1A as well as portions of Phase 1B and 2 of the Ten Trails and Lawson Hills MPDs that were anticipated to be completed prior to build-out of Phase 1A in the year 2026. Based on the MPD schedule analyzed in the Phase 1A TMR, the trigger of 1,200 dwelling units would be met in 2022 and the trigger of 1,746 dwelling units would be met in 2025. Based on this, the traffic analysis in Phase 1A TMR assumed Pipeline Road would be constructed by 2025. As such, the intersection improvements at Morgan Street/Roberts Drive previously identified in the Phase 1B TMR were no longer deemed necessary by the year 2026.

UPDATED DEVELOPMENT SCHEDULE

Oakpointe provided an updated development implementation schedule for both Ten Trails¹ and Lawson Hills MPDs to the City of Black Diamond in July 2022. The updated schedule is included in Attachment A. The updated development schedule shows approximately 1,714 dwelling units by the year 2024, 2,230 dwelling units by the year 2025 and 2,886 dwelling units by 2026, and 3,484 dwelling units by 2027. Updated traffic analysis was performed for each of these build-out years to determine impacts at the intersections of Ten Trails Parkway / Roberts Drive, Lake Sawyer Road / Roberts Drive and Morgan Street / Roberts Drive and if the improvements previously identified were needed to prevent a “significantly adverse degradation of Level of Service on Roberts Drive.”

UPDATED ANALYSIS

Traffic Volumes

The Phase 1B TMR and Phase 1A TMR traffic analysis was based on intersection turning movement counts (TMCs) collected in November 2019. Updated TMCs were collected in March 2023. Using this data and the updated MPD buildout schedule, the Parametrix team updated the weekday PM peak hour traffic analysis.

Using the 2023 PM peak hour TMCs, an annual growth rate of 1.14% was applied to forecast future forecasted traffic volumes for the years 2025, 2026 and 2027. This growth rate is based on output from the City’s travel demand model, created as part of the analysis for the *Black Diamond Transportation Model Update per Hearing Examiner Conditions* (Parametrix, March 2023).

Trip Generation and Trip Distribution

Weekday PM peak hour trip generation for the MPD development were estimated based on the size and type of development, corresponding with the updated MPD buildout schedule, and assumptions outlined in the *Trip Generation Manual* (Institute of Transportation Engineers (ITE), 11th Edition) and the *Trip Generation Handbook* (ITE, 3rd Edition). This methodology is primarily consistent with that used in *The Villages Transportation Technical Report (TTR)* (Parametrix, December 2009) and *Lawson Hills TTR* (Parametrix, December 2009) but incorporates updates to the Trip Generation Manual that have occurred since the TTRs were published. A summary of expected trip generation is show below.

- By 2024, a total of 1,714 dwelling units are forecasted to be constructed. Combined with the proposed retail construction, a total of 1,784 net new PM peak hour trips are forecasted to be generated.
- By 2025, a total of 2,230 dwelling units are forecasted to be constructed. Combined with the proposed retail construction, a total of 2,416 net new PM peak hour trips are forecasted to be generated by 2025.

¹ The Ten Trails MPD was known as The Villages MPD until September 2016.

- By 2026, a total of 2,886 dwelling units are forecasted to be constructed. Combined with the proposed retail, office and school construction, a total of 2,909 net new PM peak hour trips are forecasted to be generated by 2026.
- By 2027, a total of 3,484 dwelling units are forecasted to be constructed. Combined with the proposed retail, office and school construction, a total of 3,646 net new PM peak hour trips are forecasted to be generated by 2027.

Trip generation calculations are included in Attachment B. Trips were assigned to the roadway system based on updated trip distribution consistent with the *Black Diamond Transportation Model Update per Hearing Examiner Conditions* (Parametrix, March 2023).

Traffic Operations

The operational characteristics of an intersection are determined by calculating the intersection's level of service (LOS). An intersection as a whole and its individual turning movements can be described alphabetically with a range of levels of service (A through F), with LOS A indicating free-flow traffic and LOS F indicating congestion and long vehicle delays. Level of service is measured in average delay per vehicle and is typically reported for the intersection as a whole at signalized intersections and for the approach or turning movement that experiences the most delay at unsignalized intersections.

PM peak hour levels of service, delays and as applicable, volume-to-capacity (v/c) ratios were calculated at study intersections based on methodologies contained in the *Highway Capacity Manual, 6th Edition* (Transportation Research Board). These are the same methodologies used in evaluating intersection operations in as well as the City's Comprehensive Plan (2019).

Existing channelization, including single lane roundabouts were assumed at the intersections of Roberts Drive/Ten Trails Parkway SE, Roberts Drive/Lake Sawyer Road SE and SR 169/Roberts Drive and stop control on Morgan Street at the intersection of Roberts Drive/ Morgan Street, was included in the traffic operations model. Additionally, no Pipeline Road was assumed in the initial analysis, to determine if the trigger for constructing this new roadway had changed from what is in the Development Agreement.

The City of Black Diamond's adopted LOS standard is LOS C or better for intersections not located along SR 169. The LOS standard for intersections on SR 169 is LOS D, consistent with WSDOT standards. PM peak hour level of service results are shown in **Table 1**. Attachment C contains detailed LOS worksheets.

As illustrated in Table 1, the intersection of Morgan Street/ Roberts Drive is forecasted to fall below the City's LOS standard of LOS C by the year 2024. The intersections of Ten Trails Parkway/Roberts Drive and SR 169/Roberts Drive are forecasted to operate within applicable LOS standards through the year 2027.

The intersection of Lake Sawyer Road/Roberts Drive is forecasted to operate at LOS E by the year 2027, below applicable LOS standards. This assumes Pipeline Road has not been constructed and trip assignment and distribution is the same as under existing conditions.

The City's most recent Transportation Improvement Plan (TIP) (2024-2029) includes a roundabout at the intersection of Morgan Street/Roberts Drive in the year 2029. A roundabout was analyzed at this intersection and results, shown in Table 1, show that the intersection of Morgan Street/Roberts Drive would operate at LOS A through the year 2027. A signal at this location was also analyzed and results of the modeling show that a signal at Morgan Street/Roberts Drive would operate at LOS B or better through the year 2027.

Table 1 – PM Peak Hour Level of Service Summary

Intersection	Intersection Control	2024		2025		2026		2027	
		Dwelling Units	1,360	Dwelling Units	1,714	Dwelling Units	2,886	Dwelling Units	3,484
		LOS ¹	Delay ²	LOS ¹	Delay ²	LOS ¹	Delay ²	LOS ¹	Delay ²
Ten Trails Parkway / Roberts Drive	Roundabout	A	6.2	A	6.5	A	7.6	A	9.5
Lake Sawyer Road / Roberts Drive	Roundabout	A	7.3	A	9.1	B	19.1	E	56
Morgan Street / Roberts Drive	Stop Sign ³	E	38	F	110	F	365	F	>800
	Signal	A	6.7	A	7.5	A	8.9	B	11.0
	Roundabout	A	5.9	A	6.1	A	6.4	A	7.0
SR 169 / Roberts Drive	Roundabout	A	5.7	A	5.9	A	6.3	A	7.6
1. Level of service (A – F) as defined by the Highway Capacity Manual (HCM) 6th Edition, Transportation Research Board 2. Average delay per vehicle in seconds 3. Worst movement reported for two-way stop sign traffic control; worst movement is northbound movement at Morgan Street/Roberts Drive									

The current TIP includes construction of Pipeline Road by 2025, as per the analysis results of the Phase 1A TMR. However, if intersection improvements at the intersection of Morgan Street / Roberts Drive are constructed by the end of 2024, this intersection will operate within applicable LOS standards through the year 2027. This would delay the need for Pipeline Road to sometime between when the 2,866 dwelling unit is constructed in 2026 and when the 3,484 dwelling unit is constructed in 2027, when the LOS at the intersection of Lake Sawyer Road/Roberts Drive is forecasted to fall below City standards.

FINDINGS AND RECOMMENDATIONS

- The Villages Master Planned Development (MPD) Development Agreement provides that prior to the City's approval of a building permit for the 1,200th dwelling unit of the Villages MPD, the preliminary design and alignment for Pipeline Road needed to be completed. Additionally, Pipeline Road needed to be constructed and open to traffic prior to approval of the building permit for the 1,746th dwelling unit or when traffic analysis shows that construction is necessary to prevent a significantly adverse degradation of Level of Service on Roberts Drive.
- Traffic analysis for the Ten Trails and Lawson Hills MPDs was updated to reflect 1) updated baseline turning movement counts taken in 2023, 2) the most recent ITE trip generation rates, 3) updates to trip distribution based on the City's most recent travel demand model completed in 2023, and 4) the July 2022 updated MPD implementation schedule. The traffic analysis evaluated four intersections on Roberts Drive, including Ten Trails Parkway, Lake Sawyer Road, Morgan Street and SR 169, to determine if the triggers for construction of Pipeline Road have changed.
- Results of the updated analysis shows that if the improvements planned for the intersection of Morgan Street/Roberts Drive are constructed by the end of 2024, Pipeline Road does not need to be constructed and open until after the 2,866 dwelling unit is constructed (approximately sometime in 2027 according to the most recent development schedule.)

Attachment A



FILE COPY

June 20, 2022



Andy Williamson
MDRT & Economic Development Director
City of Black Diamond
24301 Roberts Drive
Black Diamond, WA 98010

Dear Mr. Williamson:

On March 25, 2022, the City of Black Diamond requested, pursuant to MPD Condition of Approval #17, that CCD Black Diamond Partners LLC ("Oakpointe") provide to the City "a summary of Ten Trails MPD project impacts and a summary of compliance with MPD Permit mitigation measures" by June 23, 2022. In response to this request and in compliance with discussions with MDRT Staff, Oakpointe is providing the attached spreadsheet of project impacts and status of improvements and an absorption schedule for both Ten Trails and Lawson Hills MPDs.

Please let me know if you need any additional information.

Sincerely,

A handwritten signature in black ink, appearing to read "Justin Wortman".

Justin Wortman

3025 112th Ave NE SUITE 100
BELLEVUE, WA 98004

WWW.OAKPOINTE.COM

All Phases

	Ten Trails					
	SF Res (units)		MF Res (units)	Office (ksf)	Retail (ksf)	School (students)
	Trad.	AQ				
2018	12	0	0	0	0	0
2019	145	0	0	0	0	0
2020	237	0	17	0	0	0
2021	286	0	88	0	0	0
2022	238	80	132	0	0	0
2023	30	70	25	0	97	0
2024	187	82	85	0	97	0
2025	271	80	65	0	86	0
2026	350	89	43	45	45	600
2027	244	0	178	25	0	0
2028	299	0	147	0	0	0
2029	390	0	17	0	0	0
2030	311	0	99	75	0	0
2031	160	0	100	150	0	0
2032	143	0	100	155	0	0
Total	3303 4800	401	1096	450	325	600

Lawson Hills

SF Res (units)	MF Res (units)	Office (ksf)	Retail (ksf)	School (students)
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
28	72	0	0	0
78	96	0	0	0
111	65	0	65	0
280	56	70	65	0
289	0	65	60	0
175	0	65	0	0
0	0	0	0	600
0	0	0	0	0
961 1250	289	200	190	600

SF Res (units)		MF Res (units)	Office (ksf)	Retail (ksf)	School (students)
Trad.	AQ				
12	0	0	0	0	0
145	0	0	0	0	0
237	0	17	0	0	0
286	0	88	0	0	0
238	80	132	0	0	0
30	70	25	0	97	0
187	82	85	0	97	0
299	80	137	0	86	0
428	89	139	45	45	600
355	0	243	25	65	0
579	0	203	70	65	0
679	0	17	65	60	0
486	0	99	140	0	0
160	0	100	150	0	600
143	0	100	155	0	0
4264	401	1385	650	515	1200

Attachment B

2024 PM Peak Hour Trip Generation - Buildout Summary

Weekday PM Peak	Ten Trails: 1A/1B/2/3			Gross Trips			Interal Trips			Pass-By Trips			Net New Trips		
Land Use	ITE LU	Size	Units	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Single Family	210	1135	units	999	629	370	107	74	33	0	0	0	892	555	337
Senior Adult Housing	251	232	units	85	52	33	6	4	2	0	0	0	80	48	32
Multifamily	221	347	units	136	83	53	46	30	16	0	0	0	90	53	37
Elementary School	520	0	students	0	0	0	0	0	0	0	0	0	0	0	0
Office	710	0	ksf	0	0	0	0	0	0	0	0	0	0	0	0
Retail	820	194	ksf	1,086	522	565	158	50	108	206	103	103	722	368	354
				2,307	1,286	1,021	316	158	158	206	103	103	1,784	1,025	760

Weekday PM Peak	Lawson Hills: 1B/2			Gross Trips			Interal Trips			Pass-By Trips			Net New Trips		
Land Use	ITE LU	Size	Units	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Single Family	210	0	units	0	0	0	0	0	0	0	0	0	0	0	0
Multifamily	221	0	units	0	0	0	0	0	0	0	0	0	0	1	0
Elementary School	520	0	students	0	0	0	0	0	0	0	0	0	0	0	0
Office	710	0	ksf	0	0	0	0	0	0	0	0	0	0	0	0
Retail	820	0	ksf	0	0	0	0	0	0	0	0	0	0	0	0
				0	0	0	0	0	0	0	0	0	0	1	0

ERUs	1,714			2,307	1,286	1,021	316	158	158	206	103	103	1,784	1,025	759
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2025 PM Peak Hour Trip Generation - Buildout Summary

Weekday PM Peak	Ten Trails: 1A/1B/2/3			Gross Trips			Interal Trips			Pass-By Trips			Net New Trips		
Land Use	ITE LU	Size	Units	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Single Family	210	1406	units	1,218	767	451	133	94	39	0	0	0	1,085	674	411
Senior Adult Housing	251	312	units	108	66	42	9	6	2	0	0	0	99	59	40
Multifamily	221	412	units	161	98	63	48	32	16	0	0	0	113	66	46
Elementary School	520	0	students	96	0	0	0	0	0	0	0	0	96	0	0
Office	710	0	ksf	0	0	0	0	0	0	0	0	0	0	0	0
Retail	820	280	ksf	1,426	685	742	190	58	132	271	135	135	965	491	474
				3,009	1,616	1,297	380	190	190	271	135	135	2,358	1,290	972

Weekday PM Peak	Lawson Hills: 1B/2			Gross Trips			Interal Trips			Pass-By Trips			Net New Trips		
Land Use	ITE LU	Size	Units	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Single Family	210	28	units	30	19	11	0	0	0	0	0	0	30	19	11
Multifamily	221	72	units	28	17	11	0	0	0	0	0	0	28	17	11
Elementary School	520	0	students	0	0	0	0	0	0	0	0	0	0	0	0
Office	710	0	ksf	0	0	0	0	0	0	0	0	0	0	0	0
Retail	820	0	ksf	0	0	0	0	0	0	0	0	0	0	0	0
				58	36	22	0	0	0	0	0	0	58	37	22

ERUs 2,230				3,067	1,652	1,319	380	190	190	271	135	135	2,416	1,327	993
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2026 PM Peak Hour Trip Generation - Buildout Summary

Weekday PM Peak	Ten Trails: 1A/1B/2/3			Gross Trips			Interal Trips			Pass-By Trips			Net New Trips		
Land Use	ITE LU	Size	Units	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Single Family	210	1756	units	1,496	943	554	192	129	64	0	0	0	1,304	814	490
Senior Adult Housing	251	401	units	131	80	51	11	8	3	0	0	0	120	72	48
Multifamily	221	455	units	178	109	69	52	34	18	0	0	0	126	75	51
Elementary School	520	600	students	96	46	50	29	15	14	0	0	0	67	31	36
Office	710	45	ksf	91	16	76	24	8	16	0	0	0	67	8	60
Retail	820	325	ksf	1,599	768	832	241	81	160	304	152	152	1,054	535	520
				3,592	1,961	1,632	550	275	275	304	152	152	2,739	1,534	1,205

Weekday PM Peak	Lawson Hills: 1B/2			Gross Trips			Interal Trips			Pass-By Trips			Net New Trips		
Land Use	ITE LU	Size	Units	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Single Family	210	106	units	105	66	39	0	0	0	0	0	0	105	66	39
Multifamily	221	168	units	66	40	26	0	0	0	0	0	0	66	40	26
Elementary School	520	0	students	0	0	0	0	0	0	0	0	0	0	0	0
Office	710	0	ksf	0	0	0	0	0	0	0	0	0	0	0	0
Retail	820	0	ksf	0	0	0	0	0	0	0	0	0	0	0	0
				171	106	65	0	0	1	0	0	0	171	107	64

ERUs				2,886	3,763	2,067	1,696	550	275	275	304	152	152	2,909	1,640	1,269
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2027 PM Peak Hour Trip Generation - Buildout Summary

Weekday PM Peak	Ten Trails: 1A/1B/2/3			Gross Trips			Interal Trips			Pass-By Trips			Net New Trips		
Land Use	ITE LU	Size	Units	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Single Family	210	2000	units	1,689	1,064	625	195	128	67	0	0	0	1,493	936	558
Senior Adult Housing	251	401	units	131	80	51	10	7	3	0	0	0	121	73	48
Multifamily	221	633	units	248	151	97	56	37	20	0	0	0	191	114	77
Elementary School	520	600	students	96	46	50	29	15	14	0	0	0	67	31	36
Office	710	70	ksf	139	24	115	41	16	25	0	0	0	98	8	90
Retail	820	325	ksf	1,599	768	832	252	89	163	304	152	152	1,043	527	517
				3,901	2,132	1,769	584	292	292	304	152	152	3,014	1,688	1,325

Weekday PM Peak	Lawson Hills: 1B/2			Gross Trips			Interal Trips			Pass-By Trips			Net New Trips		
Land Use	ITE LU	Size	Units	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Single Family	210	217	units	206	130	76	0	0	0	0	0	0	206	130	76
Multifamily	221	233	units	91	56	36	0	0	0	0	0	0	91	56	35
Elementary School	520	0	students	0	0	0	0	0	0	0	0	0	0	0	0
Office	710	0	ksf	0	0	0	0	0	0	0	0	0	0	0	0
Retail	820	65	ksf	414	199	215	0	0	0	79	39	39	335	159	176
				711	384	327	0	0	1	79	39	39	632	345	287

ERUs				3,484	4,612	2,516	2,096	584	292	292	382	191	191	3,646	2,033	1,612
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Attachment C

LANE SUMMARY

 **Site: 101 [38.Ten Trails Pkwy (Site Folder: 2024-Build)]**

Ten Trails Pkwy and SE Auburn Black Diamond Rd
Site Category: Future Build - 2024
Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h	HV] %						[Veh	Dist] ft				
South: Ten Trails Pkwy													
Lane 1 ^d	270	3.6	979	0.276	100	9.0	LOS A	1.7	42.9	Full	1600	0.0	0.0
Approach	270	3.6		0.276		9.0	LOS A	1.7	42.9				
East: SE Auburn Black Diamond Rd													
Lane 1 ^d	400	1.5	1216	0.329	100	5.4	LOS A	2.0	50.5	Full	1600	0.0	0.0
Approach	400	1.5		0.329		5.4	LOS A	2.0	50.5				
North: Ten Trails Pkwy													
Lane 1 ^d	250	0.5	1062	0.235	100	7.3	LOS A	1.3	33.7	Full	1600	0.0	0.0
Approach	250	0.5		0.235		7.3	LOS A	1.3	33.7				
West: SE Auburn Black Diamond Rd													
Lane 1 ^d	595	3.0	1208	0.493	100	5.8	LOS A	3.6	90.9	Full	1600	0.0	0.0
Approach	595	3.0		0.493		5.8	LOS A	3.6	90.9				
Intersection	1515	2.3		0.493		6.5	LOS A	3.6	90.9				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: Ten Trails Pkwy											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From S To Exit:	W	N	E			Cap. veh/h	v/c	%	%		
Lane 1	120	50	100	270	3.6	979	0.276	100	NA	NA	
Approach	120	50	100	270	3.6		0.276				
East: SE Auburn Black Diamond Rd											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From E To Exit:	S	W	N			Cap. veh/h	v/c	%	%		
Lane 1	35	305	60	400	1.5	1216	0.329	100	NA	NA	
Approach	35	305	60	400	1.5		0.329				

North: Ten Trails Pkwy											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From N To Exit:	E	S	W			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.	
Lane 1	60	130	60	250	0.5	1062	0.235	100	NA	NA	
Approach	60	130	60	250	0.5		0.235				
West: SE Auburn Black Diamond Rd											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From W To Exit:	N	E	S			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.	
Lane 1	60	380	155	595	3.0	1208	0.493	100	NA	NA	
Approach	60	380	155	595	3.0		0.493				
Total %HV Deg.Satn (v/c)											
Intersection	1515	2.3		0.493							

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis												
	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Ten Trails Pkwy Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: SE Auburn Black Diamond Rd Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Ten Trails Pkwy Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: SE Auburn Black Diamond Rd Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

 **Site: 101 [39.Lake Sawyer Rd (Site Folder: 2024-Build)]**

Lake Sawyer Rd and SE Auburn Black Diamond Rd
Site Category: Future Build - 2024
Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: Lake Sawyer Rd													
Lane 1 ^d	345	6.0	830	0.415	100	9.3	LOS A	2.9	75.2	Full	1600	0.0	0.0
Approach	345	6.0		0.415		9.3	LOS A	2.9	75.2				
East: SE Auburn Black Diamond Rd													
Lane 1 ^d	660	2.0	1047	0.630	100	8.9	LOS A	6.1	153.7	Full	1600	0.0	0.0
Approach	660	2.0		0.630		8.9	LOS A	6.1	153.7				
North: Lake Sawyer Rd													
Lane 1 ^d	460	1.0	941	0.489	100	9.7	LOS A	3.8	96.9	Full	1600	0.0	0.0
Approach	460	1.0		0.489		9.7	LOS A	3.8	96.9				
West: SE Auburn Black Diamond Rd													
Lane 1 ^d	535	1.0	1057	0.506	100	8.7	LOS A	3.8	96.7	Full	1600	0.0	0.0
Approach	535	1.0		0.506		8.7	LOS A	3.8	96.7				
Intersection	2000	2.2		0.630		9.1	LOS A	6.1	153.7				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: Lake Sawyer Rd											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From S To Exit:	W	N	E			Cap. veh/h	v/c	%	%		
Lane 1	85	140	120	345	6.0	830	0.415	100	NA	NA	
Approach	85	140	120	345	6.0		0.415				
East: SE Auburn Black Diamond Rd											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From E To Exit:	S	W	N			Cap. veh/h	v/c	%	%		
Lane 1	90	370	200	660	2.0	1047	0.630	100	NA	NA	
Approach	90	370	200	660	2.0		0.630				

North: Lake Sawyer Rd										
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From N To Exit:	E	S	W			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.
Lane 1	175	155	130	460	1.0	941	0.489	100	NA	NA
Approach	175	155	130	460	1.0		0.489			
West: SE Auburn Black Diamond Rd										
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From W To Exit:	N	E	S			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.
Lane 1	210	265	60	535	1.0	1057	0.506	100	NA	NA
Approach	210	265	60	535	1.0		0.506			
Total %HV Deg.Satn (v/c)										
Intersection	2000	2.2		0.630						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis												
	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
South Exit: Lake Sawyer Rd Merge Type: Not Applied												
Full Length Lane	1											Merge Analysis not applied.
East Exit: SE Auburn Black Diamond Rd Merge Type: Not Applied												
Full Length Lane	1											Merge Analysis not applied.
North Exit: Lake Sawyer Rd Merge Type: Not Applied												
Full Length Lane	1											Merge Analysis not applied.
West Exit: SE Auburn Black Diamond Rd Merge Type: Not Applied												
Full Length Lane	1											Merge Analysis not applied.

Intersection

Int Delay, s/veh 10.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	315	280	5	380	275	5
Future Vol, veh/h	315	280	5	380	275	5
Conflicting Peds, #/hr	0	1	0	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	4	4	2	2	3	3
Mvmt Flow	328	292	5	396	286	5

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	- 328	0 735 328
Stage 1	-	-	- 328 -
Stage 2	-	-	- 407 -
Critical Hdwy	-	- 4.12	- 6.43 6.23
Critical Hdwy Stg 1	-	-	- 5.43 -
Critical Hdwy Stg 2	-	-	- 5.43 -
Follow-up Hdwy	-	- 2.218	- 3.527 3.327
Pot Cap-1 Maneuver	-	0 1232	- 385 711
Stage 1	-	0	- 728 -
Stage 2	-	0	- 670 -
Platoon blocked, %	-		-
Mov Cap-1 Maneuver	-	- 1232	- 383 711
Mov Cap-2 Maneuver	-	-	- 383 -
Stage 1	-	-	- 728 -
Stage 2	-	-	- 666 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	38
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	WBL	WBT
Capacity (veh/h)	386	-	1232	-
HCM Lane V/C Ratio	0.756	-	0.004	-
HCM Control Delay (s)	38	-	7.9	0
HCM Lane LOS	E	-	A	A
HCM 95th %tile Q(veh)	6.1	-	0	-

HCM 6th Signalized Intersection Summary

40: Morgan St & SE Auburn-Black Diamond Rd/Roberts Dr

07/19/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩			↩	↩	
Traffic Volume (veh/h)	315	280	5	380	275	5
Future Volume (veh/h)	315	280	5	380	275	5
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1841	1870	1870	1856	1856
Adj Flow Rate, veh/h	328	0	5	396	286	5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	2	2	3	3
Cap, veh/h	618		177	623	488	9
Arrive On Green	0.34	0.00	0.34	0.34	0.28	0.28
Sat Flow, veh/h	1841	0	9	1855	1727	30
Grp Volume(v), veh/h	328	0	401	0	292	0
Grp Sat Flow(s),veh/h/ln	1841	0	1864	0	1764	0
Q Serve(g_s), s	3.0	0.0	0.0	0.0	3.0	0.0
Cycle Q Clear(g_c), s	3.0	0.0	3.8	0.0	3.0	0.0
Prop In Lane		0.00	0.01		0.98	0.02
Lane Grp Cap(c), veh/h	618		800	0	498	0
V/C Ratio(X)	0.53		0.50	0.00	0.59	0.00
Avail Cap(c_a), veh/h	1844		2033	0	1346	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	5.6	0.0	5.9	0.0	6.5	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.5	0.0	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.3	0.0	0.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.3	0.0	6.4	0.0	7.6	0.0
LnGrp LOS	A		A	A	A	A
Approach Vol, veh/h	328	A		401	292	
Approach Delay, s/veh	6.3			6.4	7.6	
Approach LOS	A			A	A	
Timer - Assigned Phs		2		4		8
Phs Duration (G+Y+Rc), s		9.9		11.0		11.0
Change Period (Y+Rc), s		4.0		4.0		4.0
Max Green Setting (Gmax), s		16.0		21.0		21.0
Max Q Clear Time (g_c+I1), s		5.0		5.0		5.8
Green Ext Time (p_c), s		0.9		1.0		1.3

Intersection Summary

HCM 6th Ctrl Delay	6.7
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

LANE SUMMARY

 **Site: 40 [40.Roberts Dr Morgan St (Site Folder: 2024)]**

Roberts Dr and Morgan St
Site Category: Future No Build - 2024
Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h	HV %						[Veh	Dist]				
	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: Morgan St													
Lane 1 ^d	280	2.0	1178	0.238	100	11.0	LOS B	1.2	30.7	Full	1600	0.0	0.0
Approach	280	2.0		0.238		11.0	LOS B	1.2	30.7				
East: Roberts Dr													
Lane 1 ^d	385	2.0	1183	0.326	100	5.2	LOS A	2.0	49.8	Full	1600	0.0	0.0
Approach	385	2.0		0.326		5.2	LOS A	2.0	49.8				
West: Roberts Dr													
Lane 1 ^d	595	2.0	1442	0.413	100	3.9	LOS A	3.0	76.1	Full	1600	0.0	0.0
Approach	595	2.0		0.413		3.9	LOS A	3.0	76.1				
Intersection	1260	2.0		0.413		5.9	LOS A	3.0	76.1				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)										
South: Morgan St										
Mov.	L2	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From S					Cap.	Satn	Util.	SL	Ov.	Lane
To Exit:	W	E			veh/h	v/c	%	%	%	No.
Lane 1	275	5	280	2.0	1178	0.238	100	NA	NA	
Approach	275	5	280	2.0		0.238				
East: Roberts Dr										
Mov.	L2	T1	Total	%HV		Deg.	Lane	Prob.	Ov.	
From E					Cap.	Satn	Util.	SL	Ov.	Lane
To Exit:	S	W			veh/h	v/c	%	%	%	No.
Lane 1	5	380	385	2.0	1183	0.326	100	NA	NA	
Approach	5	380	385	2.0		0.326				
West: Roberts Dr										
Mov.	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From W					Cap.	Satn	Util.	SL	Ov.	Lane
To Exit:	E	S			veh/h	v/c	%	%	%	No.

Lane 1	315	280	595	2.0	1442	0.413	100	NA	NA
Approach	315	280	595	2.0		0.413			
Total %HV Deg.Satn (v/c)									
Intersection	1260	2.0		0.413					

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis												
	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
South Exit: Morgan St Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: Roberts Dr Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Roberts Dr Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										

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Project: \\parametrix.com\pmx\PSO\Projects\Clients\3043-BlackDiamondCityof\214-3043-028 2018 MDRT Traffic Eng\02WBS\Ph40 Transportation Model Dev\Task4_Build_and_Calibrate_Model\SynchroModel\Synchro\Sensitivity Analysis - Pipeline Road\Roundabouts-2023_2027_Int40.sip9

LANE SUMMARY

 **Site: 101 [7.Roberts Dr (Site Folder: 2024-Build)]**

Roberts Dr and SR 169
Site Category: Future Build - 2024
Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: SR 169													
Lane 1	11	2.0	976	0.011	100	10.9	LOS B	0.1	1.4	Short	150	0.0	NA
Lane 2 ^d	321	2.0	1423	0.226	100	4.7	LOS A	1.5	37.3	Full	1600	0.0	0.0
Approach	332	2.0		0.226		4.9	LOS A	1.5	37.3				
North: SR 169													
Lane 1 ^d	764	2.0	1688	0.453	100	3.9	LOS A	3.7	92.7	Full	1600	0.0	0.0
Lane 2	368	2.0	1372	0.268	100	4.1	LOS A	1.7	42.4	Short	150	0.0	NA
Approach	1132	2.0		0.453		4.0	LOS A	3.7	92.7				
West: Roberts Dr													
Lane 1 ^d	272	2.0	870	0.313	100	13.7	LOS B	1.9	48.8	Full	1600	0.0	0.0
Approach	272	2.0		0.313		13.7	LOS B	1.9	48.8				
Intersection	1736	2.0		0.453		5.7	LOS A	3.7	92.7				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)										
South: SR 169										
Mov.	L2	T1	Total	%HV		Deg.	Lane	Prob.	Ov.	
From S					Cap.	Satn	Util.	SL	OV.	Lane
To Exit:	W	N			veh/h	v/c	%	%	%	No.
Lane 1	11	-	11	2.0	976	0.011	100	0.0	2	
Lane 2	-	321	321	2.0	1423	0.226	100	NA	NA	
Approach	11	321	332	2.0		0.226				
North: SR 169										
Mov.	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From N					Cap.	Satn	Util.	SL	OV.	Lane
To Exit:	S	W			veh/h	v/c	%	%	%	No.
Lane 1	764	-	764	2.0	1688	0.453	100	NA	NA	
Lane 2	-	368	368	2.0	1372	0.268	100	0.0	1	
Approach	764	368	1132	2.0		0.453				

West: Roberts Dr										
Mov.	L2	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From W To Exit:	N	S			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.	
Lane 1	243	29	272	2.0	870	0.313	100	NA	NA	
Approach	243	29	272	2.0		0.313				
Total %HV Deg.Satn (v/c)										
Intersection	1736	2.0		0.453						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis												
	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap pcu/h	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
South Exit: SR 169 Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SR 169 Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Roberts Dr Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										

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Model Dev\Task4_Build_and_Calibrate_Model\SynchroModel\Synchro\Sensitivity Analysis - Pipeline Road\Roundabouts-2023_2027.sip9

LANE SUMMARY

 **Site: 101 [38.Ten Trails Pkwy (Site Folder: 2025-Build)]**

Ten Trails Pkwy and SE Auburn Black Diamond Rd

Site Category: Future Build - 2025

Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
	[Total veh/h	HV %						[Veh Dist] ft					
South: Ten Trails Pkwy													
Lane 1 ^d	270	3.6	979	0.276	100	9.0	LOS A	1.7	42.9	Full	1600	0.0	0.0
Approach	270	3.6		0.276		9.0	LOS A	1.7	42.9				
East: SE Auburn Black Diamond Rd													
Lane 1 ^d	400	1.5	1216	0.329	100	5.4	LOS A	2.0	50.5	Full	1600	0.0	0.0
Approach	400	1.5		0.329		5.4	LOS A	2.0	50.5				
North: Ten Trails Pkwy													
Lane 1 ^d	250	0.5	1062	0.235	100	7.3	LOS A	1.3	33.7	Full	1600	0.0	0.0
Approach	250	0.5		0.235		7.3	LOS A	1.3	33.7				
West: SE Auburn Black Diamond Rd													
Lane 1 ^d	595	3.0	1208	0.493	100	5.8	LOS A	3.6	90.9	Full	1600	0.0	0.0
Approach	595	3.0		0.493		5.8	LOS A	3.6	90.9				
Intersection	1515	2.3		0.493		6.5	LOS A	3.6	90.9				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: Ten Trails Pkwy											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From S To Exit:	W	N	E			Cap. veh/h	v/c	%	%		
Lane 1	120	50	100	270	3.6	979	0.276	100	NA	NA	
Approach	120	50	100	270	3.6		0.276				
East: SE Auburn Black Diamond Rd											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From E To Exit:	S	W	N			Cap. veh/h	v/c	%	%		
Lane 1	35	305	60	400	1.5	1216	0.329	100	NA	NA	
Approach	35	305	60	400	1.5		0.329				

North: Ten Trails Pkwy										
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From N To Exit:	E	S	W			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.
Lane 1	60	130	60	250	0.5	1062	0.235	100	NA	NA
Approach	60	130	60	250	0.5		0.235			
West: SE Auburn Black Diamond Rd										
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From W To Exit:	N	E	S			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.
Lane 1	60	380	155	595	3.0	1208	0.493	100	NA	NA
Approach	60	380	155	595	3.0		0.493			
Total %HV Deg.Satn (v/c)										
Intersection	1515	2.3		0.493						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis												
	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
South Exit: Ten Trails Pkwy Merge Type: Not Applied												
Full Length Lane	1											Merge Analysis not applied.
East Exit: SE Auburn Black Diamond Rd Merge Type: Not Applied												
Full Length Lane	1											Merge Analysis not applied.
North Exit: Ten Trails Pkwy Merge Type: Not Applied												
Full Length Lane	1											Merge Analysis not applied.
West Exit: SE Auburn Black Diamond Rd Merge Type: Not Applied												
Full Length Lane	1											Merge Analysis not applied.

LANE SUMMARY

 **Site: 101 [39.Lake Sawyer Rd (Site Folder: 2025-Build)]**

Lake Sawyer Rd and SE Auburn Black Diamond Rd

Site Category: Future Build - 2025

Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
	[Total veh/h	HV %						[Veh Dist] ft					
South: Lake Sawyer Rd													
Lane 1 ^d	370	6.0	821	0.451	100	9.7	LOS A	3.3	86.9	Full	1600	0.0	0.0
Approach	370	6.0		0.451		9.7	LOS A	3.3	86.9				
East: SE Auburn Black Diamond Rd													
Lane 1 ^d	720	2.0	1044	0.690	100	10.3	LOS B	7.6	191.9	Full	1600	0.0	0.0
Approach	720	2.0		0.690		10.3	LOS B	7.6	191.9				
North: Lake Sawyer Rd													
Lane 1 ^d	460	1.0	876	0.525	100	10.7	LOS B	4.5	113.7	Full	1600	0.0	0.0
Approach	460	1.0		0.525		10.7	LOS B	4.5	113.7				
West: SE Auburn Black Diamond Rd													
Lane 1 ^d	535	1.0	1009	0.530	100	9.5	LOS A	4.3	108.4	Full	1600	0.0	0.0
Approach	535	1.0		0.530		9.5	LOS A	4.3	108.4				
Intersection	2085	2.2		0.690		10.0	LOS B	7.6	191.9				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: Lake Sawyer Rd											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From S To Exit:	W	N	E			Cap. veh/h	v/c	%	%		
Lane 1	85	140	145	370	6.0	821	0.451	100	NA	NA	
Approach	85	140	145	370	6.0		0.451				
East: SE Auburn Black Diamond Rd											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From E To Exit:	S	W	N			Cap. veh/h	v/c	%	%		
Lane 1	150	370	200	720	2.0	1044	0.690	100	NA	NA	
Approach	150	370	200	720	2.0		0.690				

North: Lake Sawyer Rd											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From N To Exit:	E	S	W			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.	
Lane 1	175	155	130	460	1.0	876	0.525	100	NA	NA	
Approach	175	155	130	460	1.0		0.525				
West: SE Auburn Black Diamond Rd											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From W To Exit:	N	E	S			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.	
Lane 1	210	265	60	535	1.0	1009	0.530	100	NA	NA	
Approach	210	265	60	535	1.0		0.530				
Total %HV Deg.Satn (v/c)											
Intersection	2085	2.2		0.690							

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis												
	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Lake Sawyer Rd Merge Type: Not Applied												
Full Length Lane	1											Merge Analysis not applied.
East Exit: SE Auburn Black Diamond Rd Merge Type: Not Applied												
Full Length Lane	1											Merge Analysis not applied.
North Exit: Lake Sawyer Rd Merge Type: Not Applied												
Full Length Lane	1											Merge Analysis not applied.
West Exit: SE Auburn Black Diamond Rd Merge Type: Not Applied												
Full Length Lane	1											Merge Analysis not applied.

Intersection

Int Delay, s/veh 31.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	370	335	5	450	330	5
Future Vol, veh/h	370	335	5	450	330	5
Conflicting Peds, #/hr	0	1	0	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	4	4	2	2	3	3
Mvmt Flow	385	349	5	469	344	5

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	- 385	0 865 385
Stage 1	-	-	- 385 -
Stage 2	-	-	- 480 -
Critical Hdwy	-	- 4.12	- 6.43 6.23
Critical Hdwy Stg 1	-	-	- 5.43 -
Critical Hdwy Stg 2	-	-	- 5.43 -
Follow-up Hdwy	-	- 2.218	- 3.527 3.327
Pot Cap-1 Maneuver	-	0 1173	- ~ 323 660
Stage 1	-	0	- 686 -
Stage 2	-	0	- 620 -
Platoon blocked, %	-		-
Mov Cap-1 Maneuver	-	- 1173	- ~ 321 660
Mov Cap-2 Maneuver	-	-	- ~ 321 -
Stage 1	-	-	- 686 -
Stage 2	-	-	- 616 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	110
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	WBL	WBT
Capacity (veh/h)	323	-	1173	-
HCM Lane V/C Ratio	1.08	-	0.004	-
HCM Control Delay (s)	110	-	8.1	0
HCM Lane LOS	F	-	A	A
HCM 95th %tile Q(veh)	13.2	-	0	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th Signalized Intersection Summary

40: Morgan St & SE Auburn-Black Diamond Rd/Roberts Dr

07/19/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩			↩	↩	
Traffic Volume (veh/h)	370	335	5	450	330	5
Future Volume (veh/h)	370	335	5	450	330	5
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1841	1870	1870	1856	1856
Adj Flow Rate, veh/h	385	0	5	469	344	5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	2	2	3	3
Cap, veh/h	657		156	663	527	8
Arrive On Green	0.36	0.00	0.36	0.36	0.30	0.30
Sat Flow, veh/h	1841	0	7	1858	1734	25
Grp Volume(v), veh/h	385	0	474	0	350	0
Grp Sat Flow(s),veh/h/ln	1841	0	1865	0	1764	0
Q Serve(g_s), s	4.0	0.0	0.0	0.0	4.1	0.0
Cycle Q Clear(g_c), s	4.0	0.0	5.2	0.0	4.1	0.0
Prop In Lane		0.00	0.01		0.98	0.01
Lane Grp Cap(c), veh/h	657		820	0	537	0
V/C Ratio(X)	0.59		0.58	0.00	0.65	0.00
Avail Cap(c_a), veh/h	1248		1415	0	1196	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	6.2	0.0	6.5	0.0	7.1	0.0
Incr Delay (d2), s/veh	0.8	0.0	0.6	0.0	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.6	0.0	1.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.0	0.0	7.2	0.0	8.5	0.0
LnGrp LOS	A		A	A	A	A
Approach Vol, veh/h	385	A		474	350	
Approach Delay, s/veh	7.0			7.2	8.5	
Approach LOS	A			A	A	
Timer - Assigned Phs	2		4		8	
Phs Duration (G+Y+Rc), s	11.2		12.4		12.4	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	16.0		16.0		16.0	
Max Q Clear Time (g_c+I1), s	6.1		6.0		7.2	
Green Ext Time (p_c), s	1.1		1.0		1.3	

Intersection Summary

HCM 6th Ctrl Delay	7.5
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

LANE SUMMARY

 **Site: 40 [40.Roberts Dr Morgan St (Site Folder: 2025)]**

Roberts Dr and Morgan St
Site Category: Future No Build - 2025
Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: Morgan St													
Lane 1 ^d	335	2.0	1138	0.294	100	11.4	LOS B	1.6	40.4	Full	1600	0.0	0.0
Approach	335	2.0		0.294		11.4	LOS B	1.6	40.4				
East: Roberts Dr													
Lane 1 ^d	455	2.0	1129	0.403	100	5.6	LOS A	2.6	67.0	Full	1600	0.0	0.0
Approach	455	2.0		0.403		5.6	LOS A	2.6	67.0				
West: Roberts Dr													
Lane 1 ^d	705	2.0	1442	0.489	100	3.9	LOS A	4.1	104.8	Full	1600	0.0	0.0
Approach	705	2.0		0.489		3.9	LOS A	4.1	104.8				
Intersection	1495	2.0		0.489		6.1	LOS A	4.1	104.8				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)										
South: Morgan St										
Mov.	L2	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From S					Cap. veh/h	v/c	%	%		
To Exit:	W	E								
Lane 1	330	5	335	2.0	1138	0.294	100	NA	NA	
Approach	330	5	335	2.0		0.294				
East: Roberts Dr										
Mov.	L2	T1	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From E					Cap. veh/h	v/c	%	%		
To Exit:	S	W								
Lane 1	5	450	455	2.0	1129	0.403	100	NA	NA	
Approach	5	450	455	2.0		0.403				
West: Roberts Dr										
Mov.	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From W					Cap. veh/h	v/c	%	%		
To Exit:	E	S								

Lane 1	370	335	705	2.0	1442	0.489	100	NA	NA
Approach	370	335	705	2.0		0.489			
Total %HV Deg.Satn (v/c)									
Intersection	1495	2.0		0.489					

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis												
	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
South Exit: Morgan St Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: Roberts Dr Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Roberts Dr Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										

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Model Dev\Task4_Build_and_Calibrate_Model\SynchroModel\Synchro\Sensitivity Analysis - Pipeline Road\Roundabouts-2023_2027_Int40.sip9

LANE SUMMARY

 **Site: 101 [7.Roberts Dr (Site Folder: 2025-Build)]**

Roberts Dr and SR 169
Site Category: Future Build - 2025
Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: SR 169													
Lane 1	11	2.0	940	0.012	100	11.1	LOS B	0.1	1.5	Short	150	0.0	NA
Lane 2 ^d	333	2.0	1374	0.242	100	4.9	LOS A	1.6	41.3	Full	1600	0.0	0.0
Approach	344	2.0		0.242		5.1	LOS A	1.6	41.3				
North: SR 169													
Lane 1 ^d	784	2.0	1688	0.465	100	3.9	LOS A	3.9	98.4	Full	1600	0.0	0.0
Lane 2	429	2.0	1397	0.307	100	4.1	LOS A	2.0	51.6	Short	150	0.0	NA
Approach	1213	2.0		0.465		4.0	LOS A	3.9	98.4				
West: Roberts Dr													
Lane 1 ^d	320	2.0	855	0.374	100	14.2	LOS B	2.4	60.9	Full	1600	0.0	0.0
Approach	320	2.0		0.374		14.2	LOS B	2.4	60.9				
Intersection	1877	2.0		0.465		5.9	LOS A	3.9	98.4				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)										
South: SR 169										
Mov.	L2	T1	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From S To Exit:	W	N			Cap. veh/h	v/c	%	%		
Lane 1	11	-	11	2.0	940	0.012	100	0.0	2	
Lane 2	-	333	333	2.0	1374	0.242	100	NA	NA	
Approach	11	333	344	2.0		0.242				
North: SR 169										
Mov.	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From N To Exit:	S	W			Cap. veh/h	v/c	%	%		
Lane 1	784	-	784	2.0	1688	0.465	100	NA	NA	
Lane 2	-	429	429	2.0	1397	0.307	100	0.0	1	
Approach	784	429	1213	2.0		0.465				

West: Roberts Dr										
Mov.	L2	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From W To Exit:	N	S			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.	
Lane 1	291	29	320	2.0	855	0.374	100	NA	NA	
Approach	291	29	320	2.0		0.374				
Total %HV Deg.Satn (v/c)										
Intersection	1877	2.0		0.465						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis												
	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
South Exit: SR 169 Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SR 169 Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Roberts Dr Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										

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Project: \\parametrix.com\pmx\PSO\Projects\Clients\3043-BlackDiamondCityof\214-3043-028 2018 MDRT Traffic Eng\02WBS\Ph40 Transportation

Model Dev\Task4_Build_and_Calibrate_Model\SynchroModel\Synchro\Sensitivity Analysis - Pipeline Road\Roundabouts-2023_2027.sip9

LANE SUMMARY

 **Site: 101 [38.Ten Trails Pkwy (Site Folder: 2026-Build)]**

Ten Trails Pkwy and SE Auburn Black Diamond Rd
Site Category: Future Build - 2026
Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
	[Total veh/h	HV %						[Veh Dist] ft					
South: Ten Trails Pkwy													
Lane 1 ^d	365	3.6	845	0.432	100	10.3	LOS B	3.1	80.7	Full	1600	0.0	0.0
Approach	365	3.6		0.432		10.3	LOS B	3.1	80.7				
East: SE Auburn Black Diamond Rd													
Lane 1 ^d	500	1.6	1158	0.432	100	5.7	LOS A	3.0	75.5	Full	1600	0.0	0.0
Approach	500	1.6		0.432		5.7	LOS A	3.0	75.5				
North: Ten Trails Pkwy													
Lane 1 ^d	310	0.4	933	0.332	100	8.2	LOS A	2.1	53.7	Full	1600	0.0	0.0
Approach	310	0.4		0.332		8.2	LOS A	2.1	53.7				
West: SE Auburn Black Diamond Rd													
Lane 1 ^d	775	3.1	1142	0.679	100	7.3	LOS A	7.1	181.3	Full	1600	0.0	0.0
Approach	775	3.1		0.679		7.3	LOS A	7.1	181.3				
Intersection	1950	2.4		0.679		7.6	LOS A	7.1	181.3				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: Ten Trails Pkwy											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From S To Exit:	W	N	E			Cap. veh/h	v/c	%	%		
Lane 1	165	50	150	365	3.6	845	0.432	100	NA	NA	
Approach	165	50	150	365	3.6		0.432				
East: SE Auburn Black Diamond Rd											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From E To Exit:	S	W	N			Cap. veh/h	v/c	%	%		
Lane 1	35	405	60	500	1.6	1158	0.432	100	NA	NA	
Approach	35	405	60	500	1.6		0.432				

North: Ten Trails Pkwy											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From N To Exit:	E	S	W			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.	
Lane 1	60	190	60	310	0.4	933	0.332	100	NA	NA	
Approach	60	190	60	310	0.4		0.332				
West: SE Auburn Black Diamond Rd											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From W To Exit:	N	E	S			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.	
Lane 1	60	495	220	775	3.1	1142	0.679	100	NA	NA	
Approach	60	495	220	775	3.1		0.679				
Total %HV Deg.Satn (v/c)											
Intersection	1950	2.4		0.679							

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis												
	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Ten Trails Pkwy Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: SE Auburn Black Diamond Rd Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Ten Trails Pkwy Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: SE Auburn Black Diamond Rd Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

 **Site: 101 [39.Lake Sawyer Rd (Site Folder: 2026-Build)]**

Lake Sawyer Rd and SE Auburn Black Diamond Rd

Site Category: Future Build - 2026

Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
	[Total veh/h	HV %						[Veh Dist] ft					
South: Lake Sawyer Rd													
Lane 1 ^d	525	6.0	586	0.896	100	34.4	LOS D	16.3	425.8	Full	1600	0.0	0.0
Approach	525	6.0		0.896		34.4	LOS C	16.3	425.8				
East: SE Auburn Black Diamond Rd													
Lane 1 ^d	705	2.0	914	0.771	100	14.0	LOS B	10.5	266.5	Full	1600	0.0	0.0
Approach	705	2.0		0.771		14.0	LOS B	10.5	266.5				
North: Lake Sawyer Rd													
Lane 1 ^d	640	1.0	876	0.730	100	14.1	LOS B	9.1	230.1	Full	1600	0.0	0.0
Approach	640	1.0		0.730		14.1	LOS B	9.1	230.1				
West: SE Auburn Black Diamond Rd													
Lane 1 ^d	750	1.0	898	0.835	100	17.5	LOS B	13.6	342.9	Full	1600	0.0	0.0
Approach	750	1.0		0.835		17.5	LOS B	13.6	342.9				
Intersection	2620	2.3		0.896		19.1	LOS B	16.3	425.8				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: Lake Sawyer Rd											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From S To Exit:	W	N	E			Cap. veh/h	v/c	%	%		
Lane 1	105	190	230	525	6.0	586	0.896	100	NA	NA	
Approach	105	190	230	525	6.0		0.896				
East: SE Auburn Black Diamond Rd											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From E To Exit:	S	W	N			Cap. veh/h	v/c	%	%		
Lane 1	90	390	225	705	2.0	914	0.771	100	NA	NA	
Approach	90	390	225	705	2.0		0.771				

North: Lake Sawyer Rd											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From N To Exit:	E	S	W			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.	
Lane 1	235	240	165	640	1.0	876	0.730	100	NA	NA	
Approach	235	240	165	640	1.0		0.730				
West: SE Auburn Black Diamond Rd											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From W To Exit:	N	E	S			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.	
Lane 1	280	375	95	750	1.0	898	0.835	100	NA	NA	
Approach	280	375	95	750	1.0		0.835				
Total %HV Deg.Satn (v/c)											
Intersection	2620	2.3		0.896							

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis												
	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Lake Sawyer Rd Merge Type: Not Applied												
Full Length Lane	1											Merge Analysis not applied.
East Exit: SE Auburn Black Diamond Rd Merge Type: Not Applied												
Full Length Lane	1											Merge Analysis not applied.
North Exit: Lake Sawyer Rd Merge Type: Not Applied												
Full Length Lane	1											Merge Analysis not applied.
West Exit: SE Auburn Black Diamond Rd Merge Type: Not Applied												
Full Length Lane	1											Merge Analysis not applied.

Intersection

Int Delay, s/veh 107.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	435	415	5	515	395	5
Future Vol, veh/h	435	415	5	515	395	5
Conflicting Peds, #/hr	0	1	0	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	473	451	5	560	429	5

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	- 473	0 1044 473
Stage 1	-	-	- 473 -
Stage 2	-	-	- 571 -
Critical Hdwy	-	- 4.12	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	-	- 2.218	- 3.5 3.3
Pot Cap-1 Maneuver	-	0 1089	- ~ 256 595
Stage 1	-	0	- 631 -
Stage 2	-	0	- 569 -
Platoon blocked, %	-		-
Mov Cap-1 Maneuver	-	- 1089	- ~ 254 595
Mov Cap-2 Maneuver	-	-	- ~ 254 -
Stage 1	-	-	- 631 -
Stage 2	-	-	- 564 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	\$ 364.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	WBL	WBT
Capacity (veh/h)	256	-	1089	-
HCM Lane V/C Ratio	1.698	-	0.005	-
HCM Control Delay (s)	\$ 364.4	-	8.3	0
HCM Lane LOS	F	-	A	A
HCM 95th %tile Q(veh)	28.1	-	0	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th Signalized Intersection Summary

40: Morgan St & SE Auburn-Black Diamond Rd/Roberts Dr

07/19/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	➡	➡	➡	➡	➡	➡
Traffic Volume (veh/h)	435	415	5	515	395	5
Future Volume (veh/h)	435	415	5	515	395	5
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1870	1870	1900	1900
Adj Flow Rate, veh/h	473	0	5	560	429	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	2	2	0	0
Cap, veh/h	761		124	751	582	7
Arrive On Green	0.40	0.00	0.40	0.40	0.33	0.33
Sat Flow, veh/h	1885	0	5	1861	1782	21
Grp Volume(v), veh/h	473	0	565	0	435	0
Grp Sat Flow(s),veh/h/ln	1885	0	1866	0	1807	0
Q Serve(g_s), s	5.9	0.0	0.0	0.0	6.3	0.0
Cycle Q Clear(g_c), s	5.9	0.0	7.7	0.0	6.3	0.0
Prop In Lane		0.00	0.01		0.99	0.01
Lane Grp Cap(c), veh/h	761		876	0	590	0
V/C Ratio(X)	0.62		0.65	0.00	0.74	0.00
Avail Cap(c_a), veh/h	2226		2316	0	1036	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	7.0	0.0	7.6	0.0	8.9	0.0
Incr Delay (d2), s/veh	0.8	0.0	0.8	0.0	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	1.3	0.0	1.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.9	0.0	8.4	0.0	10.7	0.0
LnGrp LOS	A		A	A	B	A
Approach Vol, veh/h	473	A		565	435	
Approach Delay, s/veh	7.9			8.4	10.7	
Approach LOS	A			A	B	
Timer - Assigned Phs	2		4		8	
Phs Duration (G+Y+Rc), s	13.7		16.0		16.0	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	17.0		35.0		35.0	
Max Q Clear Time (g_c+I1), s	8.3		7.9		9.7	
Green Ext Time (p_c), s	1.3		1.8		2.3	

Intersection Summary

HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

LANE SUMMARY

 **Site: 40 [40.Roberts Dr Morgan St (Site Folder: 2026)]**

Roberts Dr and Morgan St
Site Category: Future No Build - 2026
Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: Morgan St													
Lane 1 ^d	400	2.0	1092	0.366	100	12.0	LOS B	2.1	54.2	Full	1600	0.0	0.0
Approach	400	2.0		0.366		12.0	LOS B	2.1	54.2				
East: Roberts Dr													
Lane 1 ^d	520	2.0	1070	0.486	100	6.1	LOS A	3.5	88.8	Full	1600	0.0	0.0
Approach	520	2.0		0.486		6.1	LOS A	3.5	88.8				
West: Roberts Dr													
Lane 1 ^d	850	2.0	1441	0.590	100	3.9	LOS A	6.2	158.0	Full	1600	0.0	0.0
Approach	850	2.0		0.590		3.9	LOS A	6.2	158.0				
Intersection	1770	2.0		0.590		6.4	LOS A	6.2	158.0				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)										
South: Morgan St										
Mov.	L2	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From S					Cap. veh/h	v/c	%	Ov. %	No.	
To Exit:	W	E								
Lane 1	395	5	400	2.0	1092	0.366	100	NA	NA	
Approach	395	5	400	2.0		0.366				
East: Roberts Dr										
Mov.	L2	T1	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From E					Cap. veh/h	v/c	%	Ov. %	No.	
To Exit:	S	W								
Lane 1	5	515	520	2.0	1070	0.486	100	NA	NA	
Approach	5	515	520	2.0		0.486				
West: Roberts Dr										
Mov.	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From W					Cap. veh/h	v/c	%	Ov. %	No.	
To Exit:	E	S								

Lane 1	435	415	850	2.0	1441	0.590	100	NA	NA
Approach	435	415	850	2.0		0.590			
Total %HV Deg.Satn (v/c)									
Intersection	1770	2.0		0.590					

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis												
	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
South Exit: Morgan St Merge Type: Not Applied												
Full Length Lane		1	Merge Analysis not applied.									
East Exit: Roberts Dr Merge Type: Not Applied												
Full Length Lane		1	Merge Analysis not applied.									
West Exit: Roberts Dr Merge Type: Not Applied												
Full Length Lane		1	Merge Analysis not applied.									

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Project: \\parametrix.com\pmx\PSO\Projects\Clients\3043-BlackDiamondCityof\214-3043-028 2018 MDRT Traffic Eng\02WBS\Ph40 Transportation Model Dev\Task4_Build_and_Calibrate_Model\SynchroModel\Synchro\Sensitivity Analysis - Pipeline Road\Roundabouts-2023_2027_Int40.sip9

LANE SUMMARY

 **Site: 101 [38.Ten Trails Pkwy (Site Folder: 2027-Build)]**

Ten Trails Pkwy and SE Auburn Black Diamond Rd

Site Category: Future Build - 2027

Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
	[Total veh/h	HV %						[Veh Dist] ft					
South: Ten Trails Pkwy													
Lane 1 ^d	435	3.4	729	0.597	100	13.8	LOS B	5.9	151.9	Full	1600	0.0	0.0
Approach	435	3.4		0.597		13.8	LOS B	5.9	151.9				
East: SE Auburn Black Diamond Rd													
Lane 1 ^d	580	1.7	1127	0.515	100	6.0	LOS A	4.0	100.2	Full	1600	0.0	0.0
Approach	580	1.7		0.515		6.0	LOS A	4.0	100.2				
North: Ten Trails Pkwy													
Lane 1 ^d	340	0.4	839	0.405	100	9.2	LOS A	2.8	71.3	Full	1600	0.0	0.0
Approach	340	0.4		0.405		9.2	LOS A	2.8	71.3				
West: SE Auburn Black Diamond Rd													
Lane 1 ^d	890	3.1	1112	0.800	100	9.7	LOS A	11.8	303.2	Full	1600	0.0	0.0
Approach	890	3.1		0.800		9.7	LOS A	11.8	303.2				
Intersection	2245	2.4		0.800		9.5	LOS A	11.8	303.2				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: Ten Trails Pkwy											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From S To Exit:	W	N	E			Cap. veh/h	v/c	%	%		
Lane 1	185	50	200	435	3.4	729	0.597	100	NA	NA	
Approach	185	50	200	435	3.4		0.597				
East: SE Auburn Black Diamond Rd											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From E To Exit:	S	W	N			Cap. veh/h	v/c	%	%		
Lane 1	35	485	60	580	1.7	1127	0.515	100	NA	NA	
Approach	35	485	60	580	1.7		0.515				

LANE SUMMARY

 **Site: 101 [7.Roberts Dr (Site Folder: 2026-Build)]**

Roberts Dr and SR 169
Site Category: Future Build - 2026
Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	v/c	%	sec					ft	%	%
South: SR 169													
Lane 1	12	2.0	901	0.013	100	11.4	LOS B	0.1	1.8	Short	150	0.0	NA
Lane 2 ^d	353	2.0	1320	0.268	100	5.1	LOS A	1.9	47.6	Full	1600	0.0	0.0
Approach	365	2.0		0.268		5.3	LOS A	1.9	47.6				
North: SR 169													
Lane 1 ^d	813	2.0	1686	0.482	100	3.9	LOS A	4.2	106.5	Full	1600	0.0	0.0
Lane 2	484	2.0	1412	0.343	100	4.1	LOS A	2.4	61.2	Short	150	0.0	NA
Approach	1297	2.0		0.482		4.0	LOS A	4.2	106.5				
West: Roberts Dr													
Lane 1 ^d	373	2.0	833	0.448	100	15.6	LOS B	3.3	83.7	Full	1600	0.0	0.0
Approach	373	2.0		0.448		15.6	LOS B	3.3	83.7				
Intersection	2035	2.0		0.482		6.3	LOS A	4.2	106.5				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)										
South: SR 169										
Mov.	L2	T1	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From S To Exit:	W	N			Cap. veh/h	v/c	%	%	No.	
Lane 1	12	-	12	2.0	901	0.013	100	0.0	2	
Lane 2	-	353	353	2.0	1320	0.268	100	NA	NA	
Approach	12	353	365	2.0		0.268				
North: SR 169										
Mov.	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From N To Exit:	S	W			Cap. veh/h	v/c	%	%	No.	
Lane 1	813	-	813	2.0	1686	0.482	100	NA	NA	
Lane 2	-	484	484	2.0	1412	0.343	100	0.0	1	
Approach	813	484	1297	2.0		0.482				

West: Roberts Dr										
Mov.	L2	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From W To Exit:	N	S			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.	
Lane 1	343	30	373	2.0	833	0.448	100	NA	NA	
Approach	343	30	373	2.0		0.448				
Total %HV Deg.Satn (v/c)										
Intersection	2035	2.0		0.482						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis												
	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
South Exit: SR 169 Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SR 169 Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Roberts Dr Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										

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Project: \\parametrix.com\pmx\PSO\Projects\Clients\3043-BlackDiamondCityof\214-3043-028 2018 MDRT Traffic Eng\02WBS\Ph40 Transportation

Model Dev\Task4_Build_and_Calibrate_Model\SynchroModel\Synchro\Sensitivity Analysis - Pipeline Road\Roundabouts-2023_2027.sip9

North: Ten Trails Pkwy											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From N To Exit:	E	S	W			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.	
Lane 1	65	210	65	340	0.4	839	0.405	100	NA	NA	
Approach	65	210	65	340	0.4		0.405				
West: SE Auburn Black Diamond Rd											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From W To Exit:	N	E	S			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.	
Lane 1	60	590	240	890	3.1	1112	0.800	100	NA	NA	
Approach	60	590	240	890	3.1		0.800				
Total %HV Deg.Satn (v/c)											
Intersection	2245	2.4		0.800							

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis												
	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
South Exit: Ten Trails Pkwy Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: SE Auburn Black Diamond Rd Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Ten Trails Pkwy Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: SE Auburn Black Diamond Rd Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

 **Site: 101 [39.Lake Sawyer Rd (Site Folder: 2027-Build)]**

Lake Sawyer Rd and SE Auburn Black Diamond Rd

Site Category: Future Build - 2027

Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: Lake Sawyer Rd													
Lane 1 ^d	590	6.0	519	1.136	100	101.1	LOS F	41.8	1096.3	Full	1600	0.0	0.0
Approach	590	6.0		1.136		101.1	LOS F	41.8	1096.3				
East: SE Auburn Black Diamond Rd													
Lane 1 ^d	845	2.0	927	0.911	100	22.2	LOS D	19.4	493.2	Full	1600	0.0	0.0
Approach	845	2.0		0.911		22.2	LOS C	19.4	493.2				
North: Lake Sawyer Rd													
Lane 1 ^d	680	1.0	740	0.918	100	29.8	LOS D	19.1	482.2	Full	1600	0.0	0.0
Approach	680	1.0		0.918		29.8	LOS C	19.1	482.2				
West: SE Auburn Black Diamond Rd													
Lane 1 ^d	895	1.0	806	1.110	100	76.5	LOS F	51.1	1286.8	Full	1600	0.0	0.0
Approach	895	1.0		1.110		76.5	LOS E	51.1	1286.8				
Intersection	3010	2.3		1.136		55.5	LOS E	51.1	1286.8				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: Lake Sawyer Rd											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From S To Exit:	W	N	E			Cap. veh/h	v/c	%	%		
Lane 1	115	225	250	590	6.0	519	1.136	100	NA	NA	
Approach	115	225	250	590	6.0		1.136				
East: SE Auburn Black Diamond Rd											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From E To Exit:	S	W	N			Cap. veh/h	v/c	%	%		
Lane 1	160	455	230	845	2.0	927	0.911	100	NA	NA	
Approach	160	455	230	845	2.0		0.911				

North: Lake Sawyer Rd											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From N To Exit:	E	S	W			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.	
Lane 1	250	265	165	680	1.0	740	0.918	100	NA	NA	
Approach	250	265	165	680	1.0		0.918				
West: SE Auburn Black Diamond Rd											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From W To Exit:	N	E	S			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.	
Lane 1	280	510	105	895	1.0	806	1.110	100	NA	NA	
Approach	280	510	105	895	1.0		1.110				
Total %HV Deg.Satn (v/c)											
Intersection	3010	2.3		1.136							

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis												
	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
South Exit: Lake Sawyer Rd Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: SE Auburn Black Diamond Rd Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Lake Sawyer Rd Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: SE Auburn Black Diamond Rd Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										

Intersection

Int Delay, s/veh 219.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	540	480	5	635	440	5
Future Vol, veh/h	540	480	5	635	440	5
Conflicting Peds, #/hr	0	1	0	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	587	522	5	690	478	5

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	-	587
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	0	988
Stage 1	-	0	-
Stage 2	-	0	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	988
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	\$ 801.2
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	WBL	WBT
Capacity (veh/h)	182	-	988	-
HCM Lane V/C Ratio	2.658	-	0.006	-
HCM Control Delay (s)	\$ 801.2	-	8.7	0
HCM Lane LOS	F	-	A	A
HCM 95th %tile Q(veh)	42	-	0	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th Signalized Intersection Summary

40: Morgan St & SE Auburn-Black Diamond Rd/Roberts Dr

07/19/2023



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	➡	➡	↶	➡	↶	➡
Traffic Volume (veh/h)	540	480	5	635	440	5
Future Volume (veh/h)	540	480	5	635	440	5
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1870	1870	1900	1900
Adj Flow Rate, veh/h	587	0	5	690	478	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	2	2	0	0
Cap, veh/h	859		95	849	603	6
Arrive On Green	0.46	0.00	0.46	0.46	0.34	0.34
Sat Flow, veh/h	1885	0	3	1863	1785	19
Grp Volume(v), veh/h	587	0	695	0	484	0
Grp Sat Flow(s),veh/h/ln	1885	0	1866	0	1807	0
Q Serve(g_s), s	9.5	0.0	0.0	0.0	9.4	0.0
Cycle Q Clear(g_c), s	9.5	0.0	12.5	0.0	9.4	0.0
Prop In Lane		0.00	0.01		0.99	0.01
Lane Grp Cap(c), veh/h	859		944	0	611	0
V/C Ratio(X)	0.68		0.74	0.00	0.79	0.00
Avail Cap(c_a), veh/h	2434		2493	0	1027	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	8.3	0.0	9.1	0.0	11.6	0.0
Incr Delay (d2), s/veh	1.0	0.0	1.1	0.0	2.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	2.8	0.0	3.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.3	0.0	10.3	0.0	14.0	0.0
LnGrp LOS	A		B	A	B	A
Approach Vol, veh/h	587	A		695	484	
Approach Delay, s/veh	9.3			10.3	14.0	
Approach LOS	A			B	B	
Timer - Assigned Phs	2		4		8	
Phs Duration (G+Y+Rc), s	17.1		21.6		21.6	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	22.0		50.0		50.0	
Max Q Clear Time (g_c+I1), s	11.4		11.5		14.5	
Green Ext Time (p_c), s	1.7		2.5		3.2	

Intersection Summary

HCM 6th Ctrl Delay	11.0
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

LANE SUMMARY

 **Site: 40 [40.Roberts Dr Morgan St (Site Folder: 2027)]**

Roberts Dr and Morgan St
Site Category: Future No Build - 2027
Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: Morgan St													
Lane 1 ^d	445	2.0	1080	0.412	100	12.2	LOS B	2.5	63.7	Full	1600	0.0	0.0
Approach	445	2.0		0.412		12.2	LOS B	2.5	63.7				
East: Roberts Dr													
Lane 1 ^d	640	2.0	1030	0.621	100	8.0	LOS A	6.0	153.4	Full	1600	0.0	0.0
Approach	640	2.0		0.621		8.0	LOS A	6.0	153.4				
West: Roberts Dr													
Lane 1 ^d	930	2.0	1441	0.645	100	3.9	LOS A	8.0	203.9	Full	1600	0.0	0.0
Approach	930	2.0		0.645		3.9	LOS A	8.0	203.9				
Intersection	2015	2.0		0.645		7.0	LOS A	8.0	203.9				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)										
South: Morgan St										
Mov.	L2	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From S					Cap. veh/h	v/c	%	Ov. %	No.	
To Exit:	W	E								
Lane 1	440	5	445	2.0	1080	0.412	100	NA	NA	
Approach	440	5	445	2.0		0.412				
East: Roberts Dr										
Mov.	L2	T1	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From E					Cap. veh/h	v/c	%	Ov. %	No.	
To Exit:	S	W								
Lane 1	5	635	640	2.0	1030	0.621	100	NA	NA	
Approach	5	635	640	2.0		0.621				
West: Roberts Dr										
Mov.	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From W					Cap. veh/h	v/c	%	Ov. %	No.	
To Exit:	E	S								

Lane 1	450	480	930	2.0	1441	0.645	100	NA	NA
Approach	450	480	930	2.0		0.645			
Total %HV Deg.Satn (v/c)									
Intersection	2015	2.0		0.645					

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis												
	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
South Exit: Morgan St Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: Roberts Dr Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Roberts Dr Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										

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Project: \\parametrix.com\pmx\PSO\Projects\Clients\3043-BlackDiamondCityof\214-3043-028 2018 MDRT Traffic Eng\02WBS\Ph40 Transportation Model Dev\Task4_Build_and_Calibrate_Model\SynchroModel\Synchro\Sensitivity Analysis - Pipeline Road\Roundabouts-2023_2027_Int40.sip9

LANE SUMMARY

 **Site: 101 [7.Roberts Dr (Site Folder: 2027-Build)]**

Roberts Dr and SR 169
Site Category: Future Build - 2027
Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
	[Total veh/h	HV] %						[Veh Dist] ft					
South: SR 169													
Lane 1	12	2.0	817	0.015	100	11.9	LOS B	0.1	2.1	Short	150	0.0	NA
Lane 2 ^d	404	2.0	1195	0.338	100	5.7	LOS A	2.6	66.4	Full	1600	0.0	0.0
Approach	416	2.0		0.338		5.9	LOS A	2.6	66.4				
North: SR 169													
Lane 1 ^d	877	2.0	1685	0.520	100	3.9	LOS A	5.0	125.9	Full	1600	0.0	0.0
Lane 2	605	2.0	1437	0.421	100	4.2	LOS A	3.4	86.1	Short	150	0.0	NA
Approach	1482	2.0		0.520		4.0	LOS A	5.0	125.9				
West: Roberts Dr													
Lane 1 ^d	478	2.0	783	0.610	100	20.2	LOS C	6.2	158.4	Full	1600	0.0	0.0
Approach	478	2.0		0.610		20.2	LOS C	6.2	158.4				
Intersection	2376	2.0		0.610		7.6	LOS A	6.2	158.4				

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)										
South: SR 169										
Mov.	L2	T1	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From S To Exit:	W	N			Cap. veh/h	v/c	%	%	No.	
Lane 1	12	-	12	2.0	817	0.015	100	0.0	2	
Lane 2	-	404	404	2.0	1195	0.338	100	NA	NA	
Approach	12	404	416	2.0		0.338				
North: SR 169										
Mov.	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From N To Exit:	S	W			Cap. veh/h	v/c	%	%	No.	
Lane 1	877	-	877	2.0	1685	0.520	100	NA	NA	
Lane 2	-	605	605	2.0	1437	0.421	100	0.0	1	
Approach	877	605	1482	2.0		0.520				

West: Roberts Dr										
Mov.	L2	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From W To Exit:	N	S			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.	
Lane 1	448	30	478	2.0	783	0.610	100	NA	NA	
Approach	448	30	478	2.0		0.610				
Total %HV Deg.Satn (v/c)										
Intersection	2376	2.0		0.610						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis												
	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap pcu/h	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
South Exit: SR 169 Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SR 169 Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Roberts Dr Merge Type: Not Applied												
Full Length Lane	1	Merge Analysis not applied.										

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Project: \\parametrix.com\pmx\PSO\Projects\Clients\3043-BlackDiamondCityof\214-3043-028 2018 MDRT Traffic Eng\02WBS\Ph40 Transportation

Model Dev\Task4_Build_and_Calibrate_Model\SynchroModel\Synchro\Sensitivity Analysis - Pipeline Road\Roundabouts-2023_2027.sip9

Exhibit 7:

City Staff
Report



CITY OF BLACK DIAMOND

P.O. Box 599
24301 Roberts Drive
Black Diamond, WA 98010

Phone: (360) 851-4500
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www.blackdiamondwa.gov

City of Black Diamond – Staff Report Development Agreement Major Amendment The Villages Master Planned Development (MPD) File Number: PLN25-0006

I. APPLICATION INFORMATION

Project Name: Major Amendment to The Villages Master Planned Development (MPD) Development Agreement (TV DA) regarding Pipeline Road Construction Timing

Project Description: The applicant is requesting a Major Amendment to The Villages Master Planned Development (MPD) Development Agreement Section 6.4.3 to modify the language in this section regarding the deadline for when Pipeline Road must be constructed. This request proposes modifying the Dwelling Unit trigger for the construction and dedication timing of Pipeline Road from 1,746 Dwelling Units to 2,866 Dwelling Units. The major amendment request does not modify the acreage of the overall MPD, increase the number of lots within the MPD, decrease the required amount of open space to be provided, or modify the overall design of the approved MPD.

Location: This Major Amendment application impacts the Development Agreement for The Villages Master Planned Development and has no physical location. Pipeline Road will provide an east/west connection from the roundabout at the intersection of Lake Sawyer Road SE / Ten Trails Parkway SE to a future roundabout at State Route 169.

Zoning: The Villages MPD has a zoning designation of Master Planned Development (MPD). The Pipeline Road alignment includes non-MPD properties zoned Business/Industrial Park (B/IP) and Industrial (I).

Property Owner / Applicant: Oakpointe / CCD Black Diamond Partners, LLC

II. FINDINGS

1. The Villages Master Planned Development (MPD) is an approved MPD within the City of Black Diamond. The Master Planned Development Permit for The Villages MPD was adopted by City Council Ordinance No. 10-946. The Development Agreement for the Villages MPD was adopted by City Council Ordinance No. 11-970.
2. The Villages MPD Development Agreement, including associated Development Agreement Exhibit C (MPD Permit Approval), establishes the review criteria to be applied to amendment requests for the Development Agreement. Notably, the MPD Permit Conditions of approval are contained within Development Agreement Exhibit C.

3. The applicant is requesting a Major Amendment to the MPD Development Agreement, as described in the Project Description on the first page of this Staff Report.
4. The Major Amendment request to The Villages MPD Development Agreement includes a revision to Section 6.4.3. The proposed revised language to Development Agreement section 6.4.3 is contained as Exhibit 1.
5. A Major Amendment to a Development Agreement is a Type 4 – Quasi-Judicial Decisions per vested Black Diamond Municipal Code (BDMC) Chapter 18.08.070 and The Villages MPD Development Agreement Section 10.4.2; these decisions are made by the City Council following a recommendation from the Hearing Examiner.
6. The application was deemed complete for processing on March 4, 2025. Public Notice of Application for the proposal was issued pursuant to BDMC 18.08.120 on March 17, 2025.
7. The Notice of Application issued for this proposal (Exhibit 2) identified that the City intends on processing the application as a Major Amendment, with an opportunity to appeal that determination to the Hearing Examiner. No appeal of the City's determination that the application constitutes a Major Amendment was filed.
8. The City issued a Notice of Public Hearing pursuant to BDMC 18.08.180 on December 1, 2025.
9. Public comments received during the course of review of this proposal (ranging from the issuance of the Notice of Application through the publication of this Staff Report) are included as Exhibit 3 to this Staff Report.
10. Environmental review of this Major Amendments application resulted in the Adoption of The Villages MPD Final Environmental Impact Statement (FEIS). The Adoption of Existing Environmental Document was issued on December 1, 2025 and is included as Exhibit 4 to this Staff Report.

III. APPLICABLE PLANS, CODES AND STANDARDS

1. The Villages MPD Development Agreement, Section 10.4.2 – Amendments to the Development Agreement
2. The Villages MPD Development Agreement, Section 12.8.14 – Amendment to MPD Permit Approval
3. Black Diamond Municipal Code Section 18.08* – Administration: Procedures, Notice, and Appeals
4. Black Diamond Municipal Code Section 18.66* – Development Agreements
5. Black Diamond Municipal Code Section 18.98* - Master Planned Development

** - As vested/contained in Exhibit E of The Villages MPD Development Agreement*

IV. ANALYSIS

This section of the report analyzes the proposal for compliance with adopted plans, codes and regulations. The Villages MPD Development Agreement Section 10.4.2 establishes that Major Amendments to the Development Agreement shall be reviewed by the same procedures applicable to a new development agreement request. Black Diamond Municipal Code (BDMC) Section 18.66 establishes the review criteria for new development agreements. Black Diamond Municipal Code (BDMC) Section 18.98.090 establishes the review criteria for new MPD Development Agreements. These criteria are analyzed below:

(1) BDMC 18.66.020 – Applicability and Procedures

A. The city may enter into development agreements with property owners as authorized by RCW 36.70B.170 et seq. Development agreements are intended to be used to address and establish development standards, mitigation requirements, vesting provisions and review procedures that will apply to and govern large, complex and/or phased development proposals located within the city during the term of any agreement.

Staff Comment: As described in Finding #1 above, The Villages MPD has an approved Development Agreement addressing the criteria listed in this section. The proposed Major Amendment does not modify the requirements or established mitigation measures imposed within the Development Agreement. The Major Amendment request does request to modify the timing of an identified transportation mitigation measure (the construction and dedication of Pipeline Road), but is still required to provide the transportation facility whether or not the request is approved.

As detailed in the Transportation Model Update conducted in association with MPD Permit Condition of Approval #17 (Exhibit 5) and Pipeline Road Sensitivity Analysis (Exhibit 6) conducted by the City's traffic engineering consultant, the proposed amended language of Development Agreement Section 6.4.3 to modify the timing of the Pipeline Road construction is consistent with the Traffic Monitoring Plan (Exhibit F of The Villages MPD Development Agreement) as long as the intersection improvements located at the intersection of Morgan Street and Roberts Drive (a stop light) are constructed. This improvement has been constructed, meaning the proposed alteration to the timing of Pipeline Road's construction is consistent with both the Traffic Monitoring Plan and the Phase 1A and Phase 1B Mid-Point Traffic Monitoring Reports. The Traffic Monitoring Plan and both of the Mid-Point Traffic Monitoring Reports are intended to identify when transportation improvements are necessary to prevent significantly adverse degradations of Levels of Service (LoS) on Roberts Drive.

B. Any development agreement shall be consistent with applicable city development regulations except as such regulations may be modified in the development agreement. For purposes of this chapter, "development standards" include but are not limited to:

B.1. Project elements such as uses, densities and intensities of land uses and buildings;

Staff Comment: The proposed Major Amendment does not modify the land uses, development intensity, or residential densities initially assessed by City Council in association with the original review and adoption of The Villages MPD Development Agreement.

B.2. Mitigation measures, conditions and other requirements identified pursuant to SEPA (RCW 43.21 C);

Staff Comment: There are no modifications to the Final Environmental Impact Statement (FEIS) that was prepared for The Villages MPD in association with this Major Amendment request. The City reviewed potential environmental impacts resulting from this proposal for consistency with the assessment conducted in association with the FEIS, and determined that this proposal is consistent with the findings of the original FEIS. As such, the City issued an Adoption of Existing Environmental Document (of The Villages MPD FEIS) for this proposal on December 1, 2025.

B.3. Design standards such as maximum heights, setbacks, landscaping and other development features;

Staff Comment: The proposed Major Amendment does not modify the development standards of construction within the MPD initially assessed by City Council in association with the original review and adoption of The Villages MPD Development Agreement.

B.4. Road and sidewalk standards;

Staff Comment: The proposed Major Amendment does not modify the road or sidewalk standards initially assessed by City Council in association with the original review and adoption of The Villages MPD Development Agreement. Although this request does modify the timing of the identified Pipeline Road, the road and sidewalk standards established within Development Agreement Section 6 remain unchanged.

B.5. Affordable housing

Staff Comment: The proposed Major Amendment does not modify the affordable housing considerations initially assessed by City Council in association with the original review and adoption of The Villages MPD Development Agreement.

B.6. Water, sewer, storm drainage, water quality, and other infrastructure and utility requirements;

Staff Comment: The proposed Major Amendment does not modify the any requirements related to water, sewer, storm, or water quality standards initially assessed by City Council in association with the original review and adoption of The Villages MPD Development Agreement. The Major Amendment does modify the timing of a significant transportation improvement: Pipeline Road. The proposed modification has been reviewed for consistency with the Traffic Monitoring Plan (Exhibit F of The Villages MPD Development Agreement) and associated Phase 1A and Phase 1B Mid-Point Traffic Monitoring Plans to ensure traffic operations will meet adopted Level of Service standards when taking other traffic improvements completed by the applicant (notably the stop light intersection improvement at Morgan Street / Roberts Drive) into account.

B.7. Parks and open space preservation, and recreation facilities;

Staff Comment: The proposed Major Amendment does not modify the park, open space, or recreation facility requirements initially assessed by City Council in association with the original review and adoption of The Villages MPD Development Agreement.

B.8. Phasing of development and construction;.

Staff Comment: The proposed Major Amendment does not modify the Phasing Plan (Exhibit K of The Villages MPD Development Agreement) initially assessed by City Council in association with the original review and adoption of The Villages MPD Development Agreement.

B.9. Development review processes, procedures and standards for implementing decisions, including methods of reimbursement to the city for review processes;

Staff Comment: The proposed Major Amendment does not modify the development review process, decision-making process, or methods of reimbursement for City reviews initially assessed by City Council in association with the original review and adoption of The Villages MPD Development Agreement.

B.10. A build-out or vesting period for applicable development standards;

Staff Comment: The proposed Major Amendment does not modify the build-out or vesting period initially assessed by City Council in association with the original review and adoption of The Villages MPD Development Agreement.

B.11. A process for amending the development agreement; and

Staff Comment: The proposed Major Amendment does not modify the process for amending the Development Agreement initially assessed by City Council in association with the original review and adoption of The Villages MPD Development Agreement.

B.12. Any other appropriate development requirement or procedure.

Staff Comment: The proposed Major Amendment does not modify any terms of the Development Agreement initially assessed by City Council in association with the original review and adoption of The Villages MPD Development Agreement, with the exception of Section 6.4.3.

C. During the term specified in the development agreement, a development permit or approval issued by the city shall be consistent with the standards in such agreement. The standards contained in the development agreement shall govern during the term of the agreement and may not be subject to an amendment of city development standards or regulations adopted after the effective date of the development agreement. Provided, that the development agreement shall reserve to the city the authority to impose new or different regulations to the extent required by a serious threat to public health and safety.

Staff Comment: This Major Amendment application is consistent with the regulatory framework established in association with the Development Agreement. The request has been processed pursuant to Development Agreement Section 10.4. The proposed modification to Section 6.4.3 related to the timing of the construction of Pipeline Road is consistent with the terms of Exhibit K of the Development Agreement (the Traffic Monitoring Plan), based on incremental Phase Mid-Point Traffic Monitoring Plans that have been submitted throughout the Development of the MPD. Notably, MPD Permit Condition of Approval #31 identifies that the timing of the design and alignment of Pipeline Road should be established within the Development Agreement. This Major Amendment request is consistent with that Condition of Approval.

D. A development agreement shall be recorded with the real property documents of King County. During the term of the agreement, it shall be binding on the parties and their successors, including a city that assumes jurisdiction through incorporation or annexation of the area or property subject to the development agreement. Unless terminated, the agreement shall be enforceable by a party to the agreement.

Staff Comment: The Development Agreement has been recorded with King County. If the City Council decides to approve this Major Amendment, the applicant will be required to record the Major Amendment pursuant to this Section.

E. A development agreement shall be reviewed and adopted following a public hearing pursuant to the procedures and requirements set forth in Chapter 18.08.

Staff Comment: The Development Agreement complied with this process in association with City Council's original review and approval. This Major Amendment is complying with this process and will undergo a public hearing to the City's Hearing Examiner and subsequent to that, a closed-record public hearing to the City Council.

(2) BDMC 18.98.090 MPD Permit – Development Agreement

The MPD conditions of approval shall be incorporated into a development agreement as authorized by RCW 36.70B.170. This agreement shall be binding on all MPD property owners and their successors, and shall require that they develop the subject property only in accordance with the terms of the MPD approval. This agreement shall be signed by the mayor and all property owners and lien holders within the MPD boundaries, and recorded, before the city may approve any subsequent implementing permits or approvals (preliminary plat, design review, building permit, etc.).

Staff Comment: This Major Amendment application complies with this requirement. MPD Permit Condition of Approval #31 identifies that the timing of the design and alignment of Pipeline Road should be established within the Development Agreement. This Major Amendment request is consistent with that Condition of Approval.

V. CONCLUSION

1. The proposed Major Amendment to The Villages Planned Development (MPD) Development Agreement conforms to Title 18 (Zoning) of the Black Diamond Municipal Code (BDMC) and The Villages MPD Development Agreement (TV DA).
2. The proposed Major Amendment to The Villages MPD Development Agreement satisfies the review criteria of TV DA Section 10.4.2 and BDMC Sections 18.66 and 18.98.
3. As detailed in the Pipeline Road Sensitivity Analysis (Exhibit 6), Level of Service standards adopted by the City can be met along the Roberts Drive alignment through the construction of 2,866 dwelling units without the construction of Pipeline Road.

VI. RECOMMENDATION

It is City Staff's recommendation that this Major Amendment request to The Villages Master Planned Development (MPD) Development Agreement is approved based on compliance with applicable regulatory standards.

VII. EXHIBITS

- Exhibit 1 - Proposed Major Amendment Language to The Villages MPD Development Agreement Section 6.4.3; prepared by Oakpointe – submitted to the City February 2025
- Exhibit 2 - Notice of Application for City Permit Number PLN25-0006; prepared by The City of Black Diamond – dated March 17, 2025
- Exhibit 3 - Public Comments Received for City File Number PLN25-0006; prepared by public commenters – various dates
- Exhibit 4 - Adoption of the Final Environmental Impact Statement (FEIS) for The Villages Master Planned Development; prepared by The City of Black Diamond – dated December 1, 2025
- Exhibit 5 - Transportation Model Update – per Hearing Examiner Conditions; prepared by Parametrix on behalf of The City of Black Diamond – dated October 2023
- Exhibit 6 - Pipeline Road – Sensitivity Analysis Technical Memorandum; prepared by Parametrix on behalf of The City of Black Diamond – dated July 19, 2023

Exhibit 8:

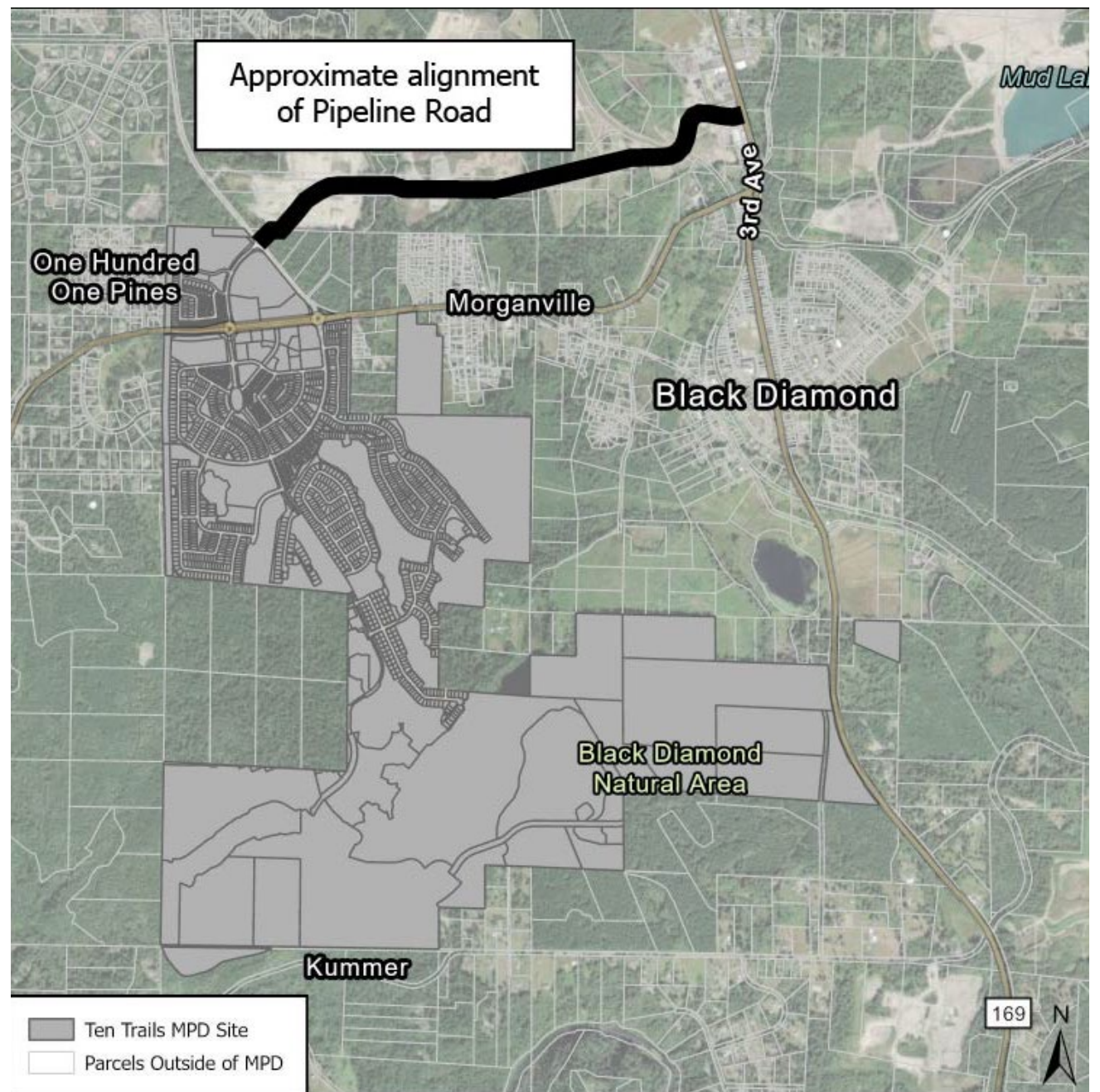
Public Hearing
Presentation

Ten Trails MPD

Major Amendment: Development Agreement

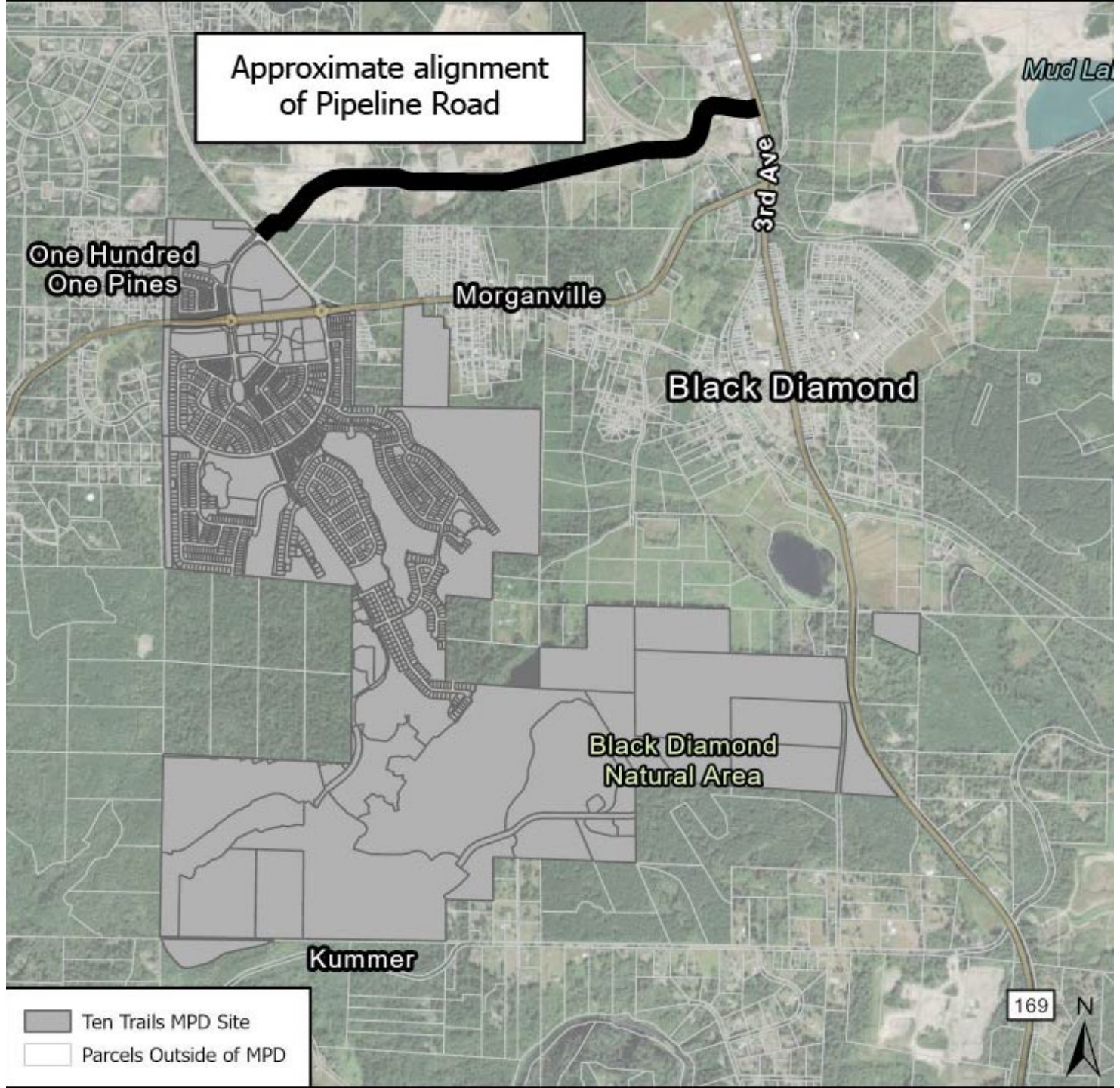
Pipeline Road Construction Timing

PLN25-0006



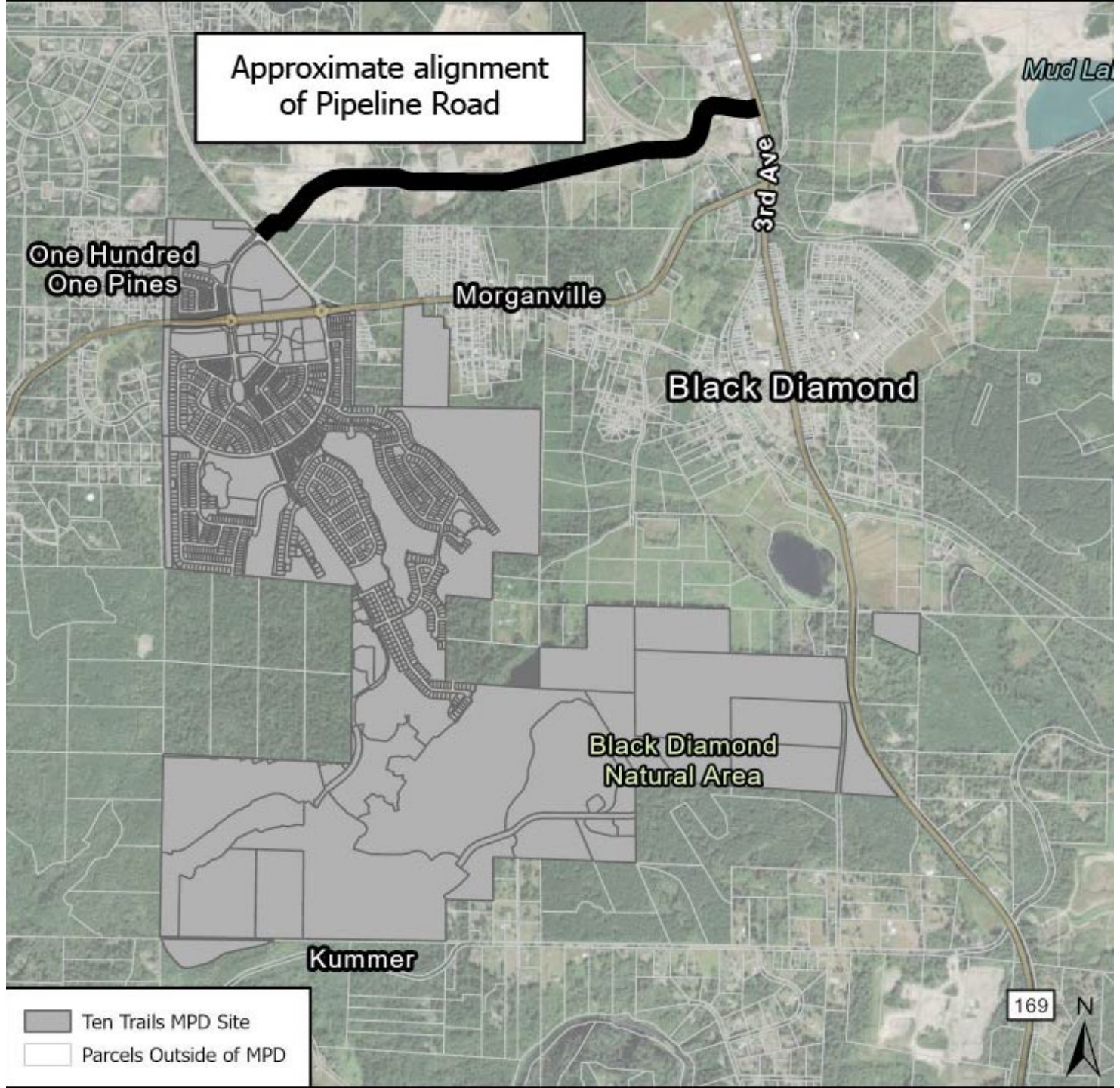
General

- This presentation is meant to serve as a summary of the proposal. A detailed Staff Report that identifies all individual review criteria and project compliance has been prepared. Refer to the Staff Report for detailed information.
- Staff review of the application is oriented around regulatory compliance with the terms of the Black Diamond Municipal Code, The Villages MPD Permit, and The Villages MPD Development Agreement.
- This application is requesting an amendment to Development Agreement Sections 6.4.3 related to the timing of construction and dedication of the new Pipeline Road.



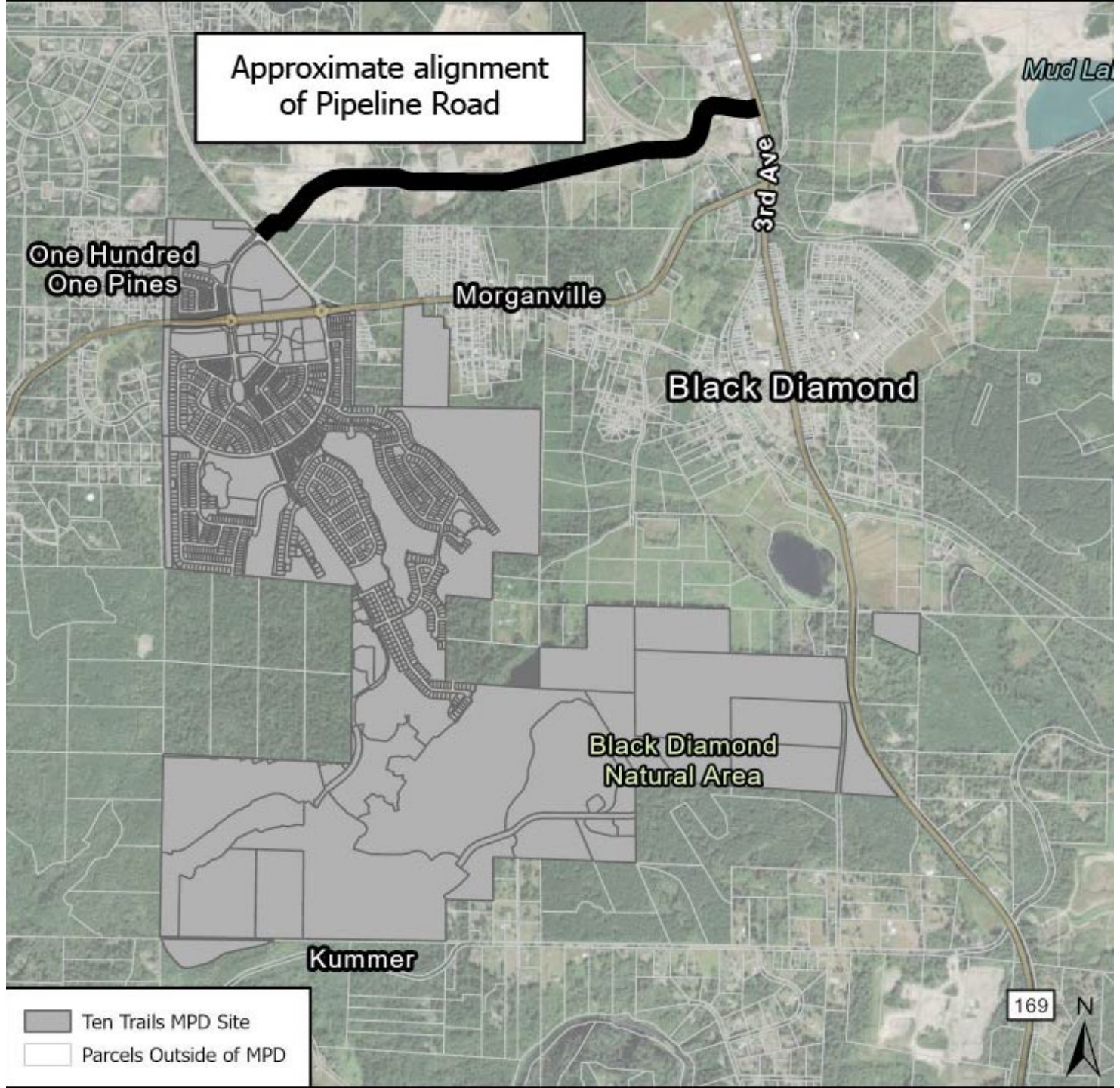
Permit Processing

- The Major Amendment application was deemed complete for processing on March 4, 2025.
- A Notice of Application was issued on March 17, 2025, and provided a 14-day comment period.
- A Notice of Public Hearing was issued on December 1, 2025.
- All public comments received prior to the publication of the City's Staff Report are included as Exhibit 3 to the Staff Report.
- All public comments received after the publication of the City's Staff Report have been compiled, transmitted to the City's Hearing Examiner and application, and have been requested to be added as an additional Exhibit to the Record for this proposal.



Permit Processing

- A Major Amendment to the MPD Development Agreement is required to be processed the same as a new request.
- A Major Amendment to the MPD Development Agreement is a Type-4 Quasi-Judicial Decision, which is processed as follows:
- City Staff makes a recommendation to the City's Hearing Examiner at a public hearing (tonight).
- The City's Hearing Examiner reviews the information and makes a recommendation to the City Council.
- City Council reviews Staff's and the Hearing Examiner's recommendations in a **closed-record hearing** and makes a final decision on the application.



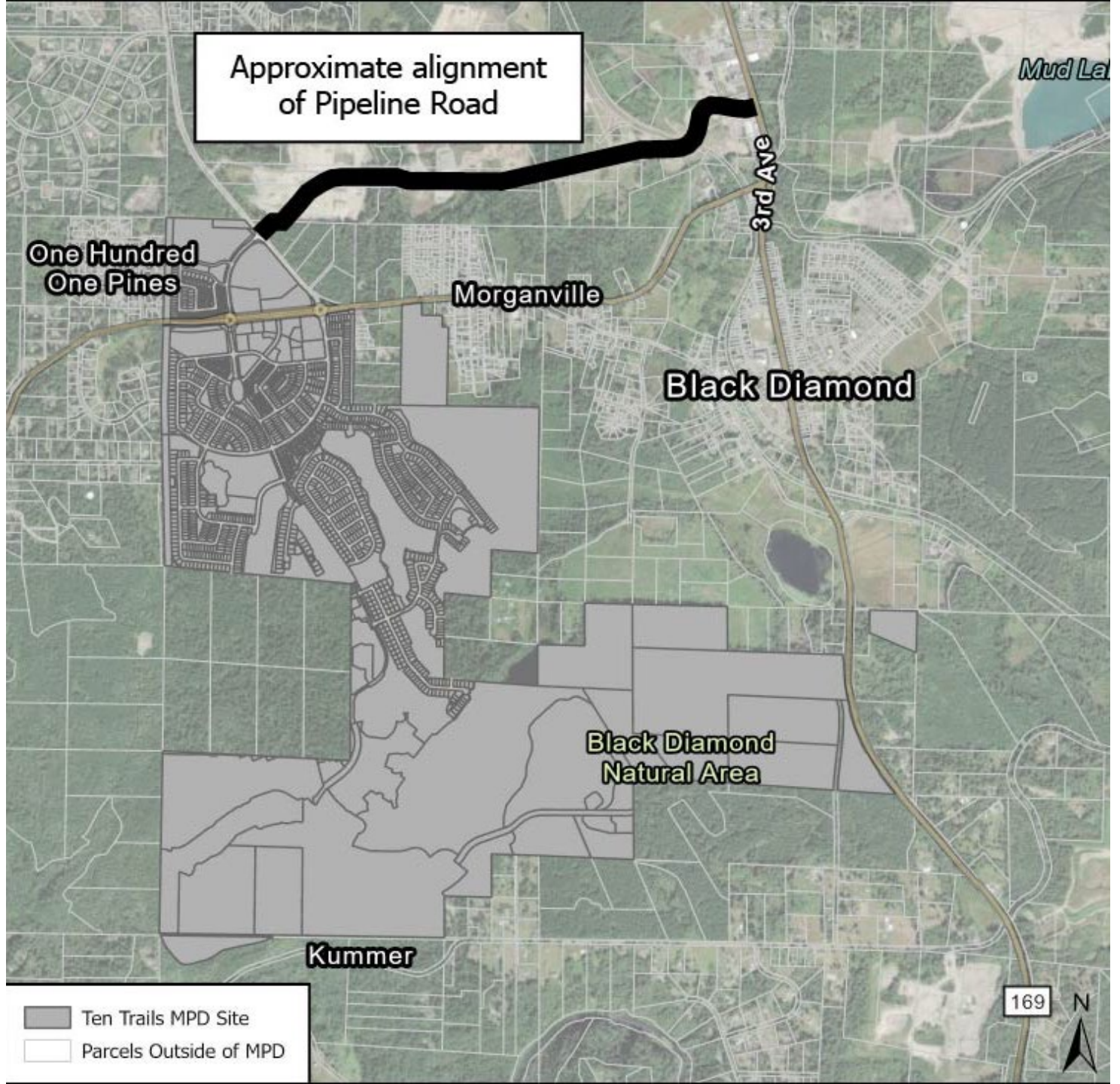
Proposed Development Agreement Amendment

- Development Agreement Section 6.4.3 identifies the required timing of the construction of Pipeline Road.
- The amendment proposes to move the timing of construction and dedication of Pipeline Road to 2,866 approved building permits instead of the existing 1,746 threshold.
- Notably, this application does not request an amendment to MPD Permit Conditions of Approval. MPD Permit Condition of Approval #32 requires the timing of Pipeline Road's design and alignment to be established by the Development Agreement, which was accomplished via Development Agreement Section 6.4.3.

The design of Pipeline Road is to extend from Parcel C at the intersection of the Community Connector and Lake Sawyer Rd SE, easterly towards SR-169, intersecting SR-169 in the vicinity of Black Diamond-Ravensdale Rd, or where the future improved intersection of SR-169 and Black Diamond-Ravensdale Road lies, as determined by the City. Pursuant to Condition of Approval No. 31 of the MPD Permit Approval, the preliminary design and alignment of the Pipeline Road shall be completed by the Master Developer prior to the City's approval of a building permit for the 1200th Dwelling Unit of The Villages MPD. The Pipeline Road shall be constructed by the Master Developer and open for traffic, and the right-of-way dedicated to the City, prior to the earlier of: (i) City's approval of a building permit for the ~~2,866th~~ 1746th Dwelling Unit of The Villages MPD; or (ii) when the Traffic Monitoring Plan (Exhibit "F") shows that construction is necessary to prevent a significantly adverse degradation of Level of Service on Roberts Drive. The Master Developer is required to monitor and, if triggered by the Traffic Monitoring Plan (Exhibit "F"), improve the following intersections along Roberts Drive per Table 11-5-1: (i) Roberts Drive/Morgan Street; (ii) SR 169/Roberts Drive; and (iii) Lake Sawyer Road SE/Roberts Drive. For purposes of this Section 6.4.3, "significantly adverse degradation of Level of Service" shall mean that the Master Developer is unable to make further improvements to these three identified intersections to meet adopted LOS (as defined in the City of Black Diamond's Comprehensive Plan, 2009, or other jurisdiction's standard applicable to the MPD Permit Approval) without widening Roberts Drive to provide an additional eastbound travel lane and/or westbound travel lane.

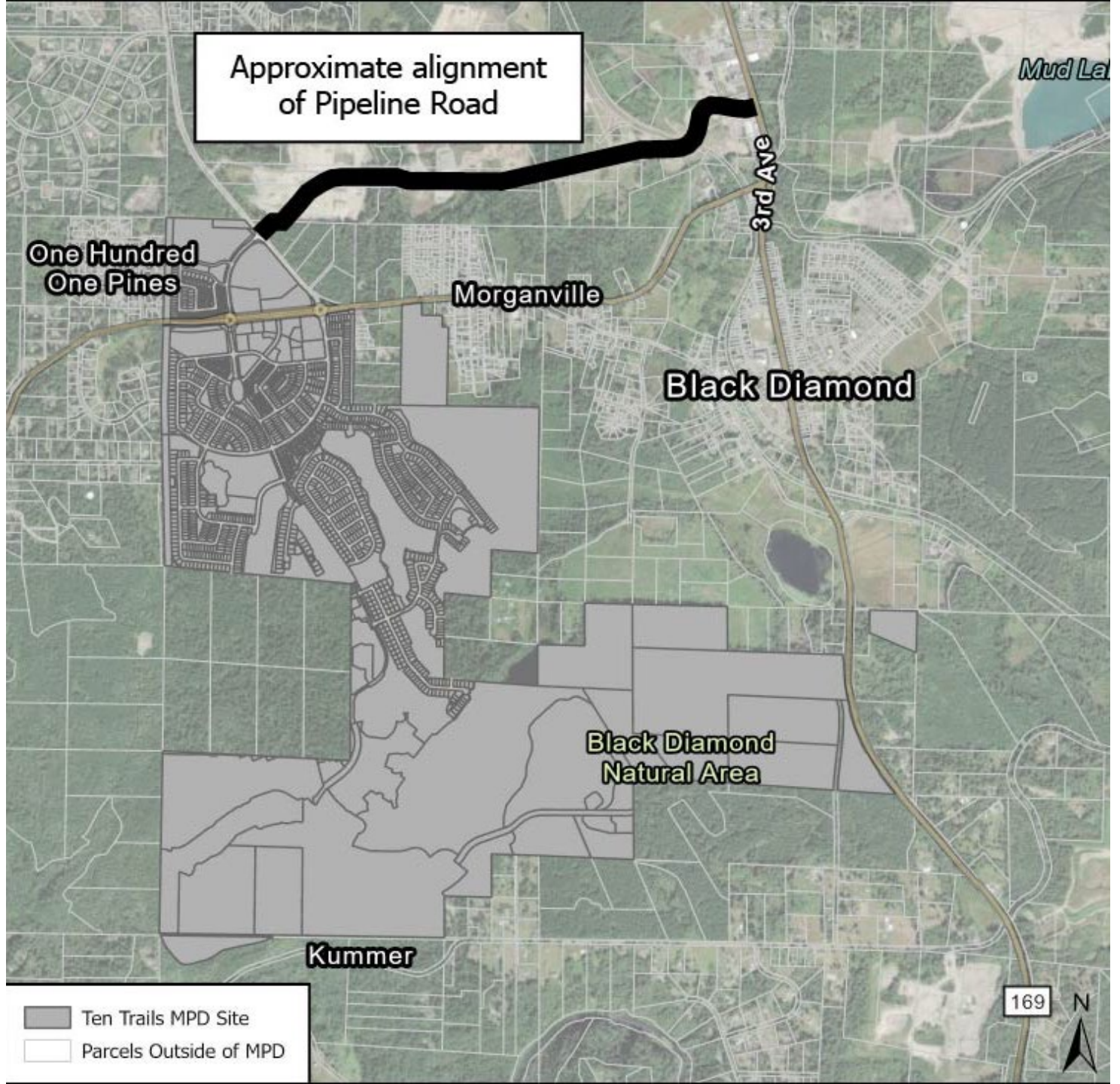
Permit Review

- As detailed in the Staff Report, the proposal complies with review criteria for Development Agreement requests, as established in Development Agreement Section 10.4.2 and vested Municipal Code Section 18.66 and 18.98.
- When assessing the traffic engineering analysis conducted by the applicant, and peer reviewed by the City's traffic engineering consultant, the City has determined the proposed amendment will maintain Level of Service standards for adjacent and impacted roadways associated with this proposal.



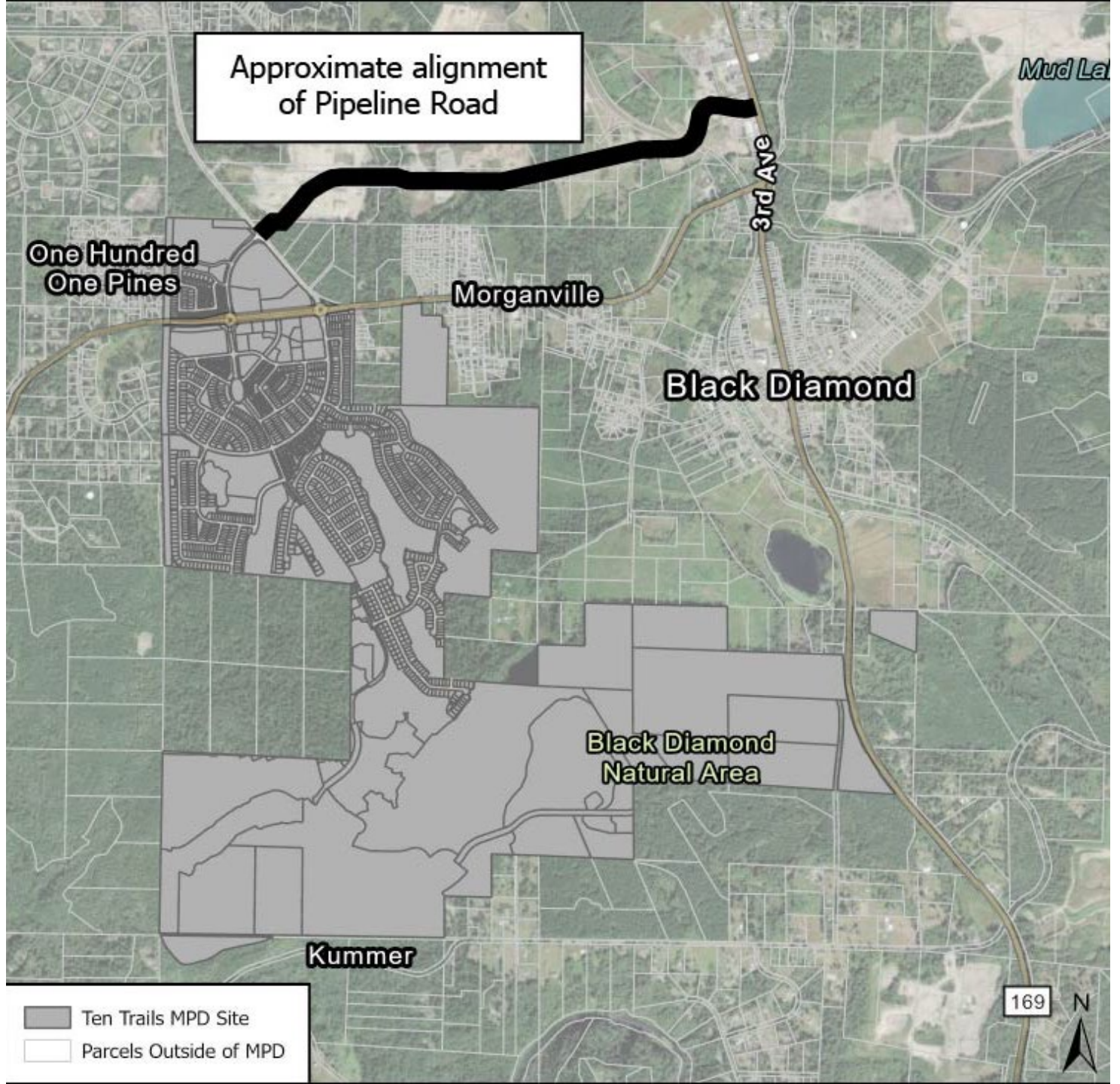
Permit Review

- Multiple detailed traffic analysis documents have been reviewed by the City not only in association with this request, but in association with multiple platting and MPD-Phase requirements:
- - MPD Transportation Monitoring Plan (Exhibit K of TV DA)
- - MPD Permit Condition of Approval #11's Transportation Model Update (Exhibit 5 of the Staff Report)
- - Pipeline Road Sensitivity Analysis (Exhibit 6 of the Staff Report)
- - MPD Phase 1A Mid-Point Traffic Monitoring Report
- -MPD Phase 1B Mid-Point Traffic Monitoring Report



Conclusion

- As proposed, amending the timing of the construction and dedication of Pipeline Road will maintain traffic Level of Service standards for roadways and intersections within the analysis area.
- The proposed Major Amendments satisfy all applicable review criteria, including:
 - Black Diamond Municipal Code
 - The Villages MPD Conditions of Approval
 - The Villages MPD Development Agreement



Conclusion

- Staff recommends that the Major Amendments application be approved based on compliance with the regulatory framework for Development Agreement amendments and traffic analysis included in the application.
- Staff analysis is limited to regulatory compliance with the requested amendment. Significant public feedback has been provided for both Hearing Examiner and City Council consideration.

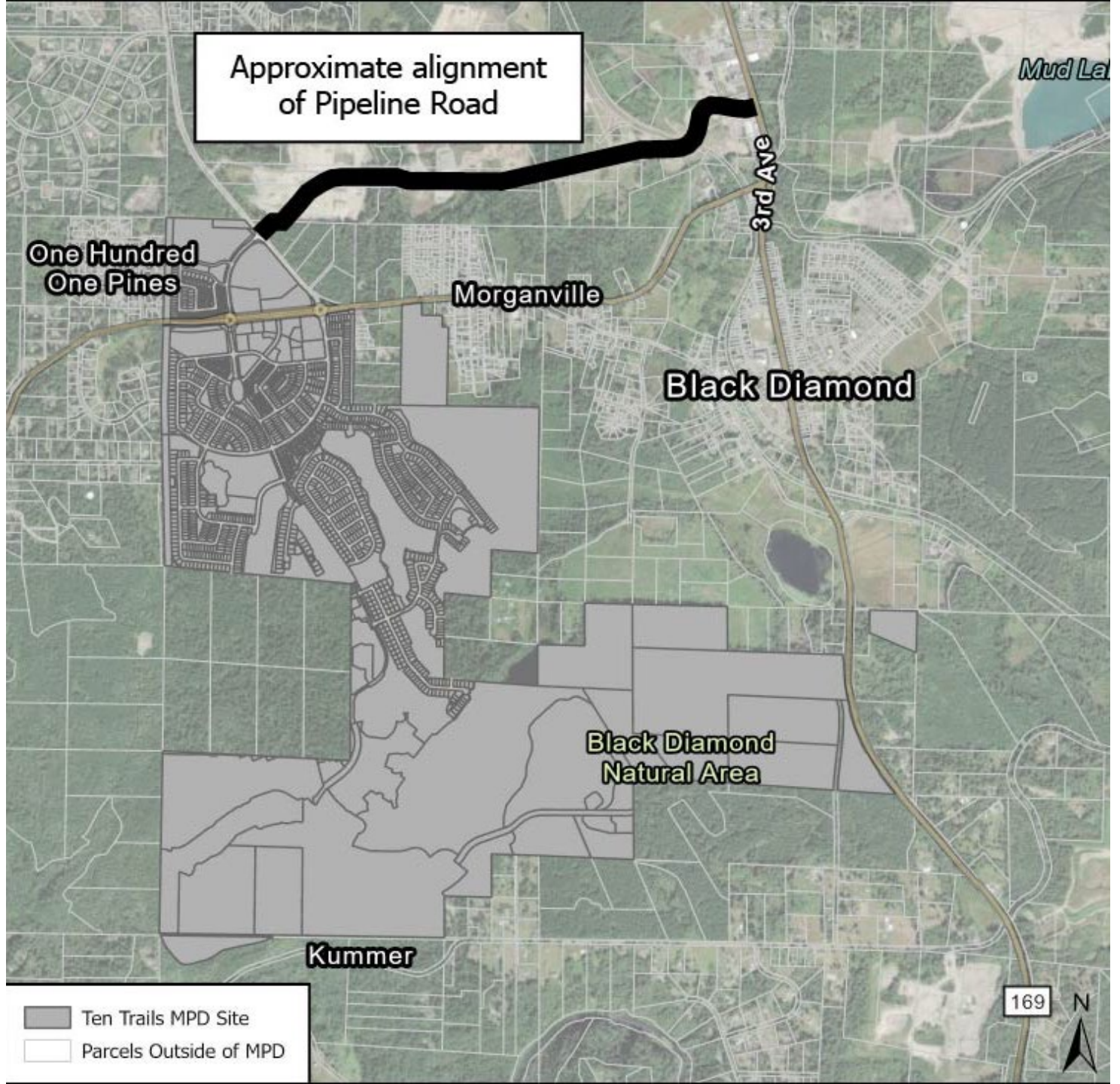


Exhibit 9:

Public
Comments
After SR

Comment on Pipeline Road PLN25-006 for December 15, 2025

From Tamara Katen <te.aoramai@gmail.com>

Date Fri 12/12/2025 10:29 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

The City of Black Diamond should reject developer proposals to delay building the east-west Pipeline Road. We have too much traffic on Roberts Dr., SE 288th St. and other city roads already. When the OakPointe Developments were being considered 15 years ago, residents were promised that a new Pipeline Road would be built to take traffic off our small-town streets. Roberts Drive is a residential area, with many historic and affordable homes. Increased traffic brings noise, exhaust, and lower quality of life. Additionally, all of Black Diamond, especially Ten Trails, is negatively impacted by road constraints as the city grows without Pipeline Road. There are safety concerns for pedestrians and drivers leaving side roads and driveways to Roberts. Emergency services also face road bottlenecks that could cost lives. Thank you for considering these comments.

Tamara Katen, resident

te.aoramai@gmail.com

Comment on Pipeline Road PLN25-006 for December 15, 2025

From Robert Golden <bgolden661@gmail.com>

Date Sat 12/13/2025 12:13 AM

To Alex Campbell <acampbell@blackdiamondwa.gov>

The City of Black Diamond should reject developer proposals to delay building the east-west Pipeline Road. We have too much traffic on Roberts Dr., SE 288th St. and other city roads already.

When the OakPointe Developments were being considered 15 years ago, residents were promised that a new Pipeline Road would be built to take traffic off our small-town streets.

Roberts Drive is a residential area, with many historic and affordable homes. Increased traffic brings noise, exhaust, and lower quality of life.

Additionally, all of Black Diamond, especially Ten Trails, is negatively impacted by road constraints as the city grows without Pipeline Road.

There are safety concerns for pedestrians and drivers leaving side roads and driveways to Roberts. Emergency services also face road bottlenecks that could cost lives.

Thank you for considering these comments.

Robert Golden

Comment on Pipeline Road PLN25-006 for December 15, 2025

From Sam Heather <samheather@hotmail.com>

Date Sat 12/13/2025 8:29 AM

To Alex Campbell <acampbell@blackdiamondwa.gov>

The City of Black Diamond should reject developer proposals to delay building the east-west Pipeline Road. We have too much traffic on Roberts Dr., SE 288th St. and other city roads already.

When the OakPointe Developments were being considered 15 years ago, residents were promised that a new Pipeline Road would be built to take traffic off our small-town streets.

Roberts Drive is a residential area, with many historic and affordable homes. Increased traffic brings noise, exhaust, and lower quality of life.

Additionally, all of Black Diamond, especially Ten Trails, is negatively impacted by road constraints as the city grows without Pipeline Road.

There are safety concerns for pedestrians and drivers leaving side roads and driveways to Roberts. Emergency services also face road bottlenecks that could cost lives.

Thank you for considering these comments.

Sam Heather
Abrams Ave.
Black Diamond, WA.

Comment on Pipeline Road PLN25-006 for December 15, 2025

From Linda Heather <linda.a.heather@hotmail.com>

Date Sat 12/13/2025 8:51 AM

To Alex Campbell <acampbell@blackdiamondwa.gov>

The City of Black Diamond should reject developer proposals to delay building the east-west Pipeline Road. We have too much traffic on Roberts Dr., SE 288th St. and other city roads already.

When the OakPointe Developments were being considered 15 years ago, residents were promised that a new Pipeline Road would be built to take traffic off our small-town streets.

Roberts Drive is a residential area, with many historic and affordable homes. Increased traffic brings noise, exhaust, and lower quality of life.

Additionally, all of Black Diamond, especially Ten Trails, is negatively impacted by road constraints as the city grows without Pipeline Road.

There are safety concerns for pedestrians and drivers leaving side roads and driveways to Roberts. Emergency services also face road bottlenecks that could cost lives.

Thank you for considering these comments.

Linda Heather
Black Diamond Resident since 1983

Comment on Pipeline Road PLN25-006 for December 15, 2025

From BARBARA MANUEL <blmanuel@comcast.net>

Date Sat 12/13/2025 11:58 AM

To Alex Campbell <acampbell@blackdiamondwa.gov>

The City of Black Diamond should reject developer proposals to delay building the east-west Pipeline Road. We have too much traffic on Roberts Dr., SE 288th St. and other city roads already.

When the OakPointe Developments were being considered 15 years ago, residents were promised that a new Pipeline Road would be built to take traffic off our small-town streets.

Roberts Drive is a residential area, with many historic and affordable homes. Increased traffic brings noise, exhaust, and lower quality of life.

Additionally, all of Black Diamond, especially Ten Trails, is negatively impacted by road constraints as the city grows without Pipeline Road.

There are safety concerns for pedestrians and drivers leaving side roads and driveways to Roberts. Emergency services also face road bottlenecks that could cost lives.

Thank you for considering these comments.

Comment on Pipeline Road PLN25-006 for December 15, 2025

From Oleg Sergeev <olleser@gmail.com>

Date Sat 12/13/2025 10:16 AM

To Alex Campbell <acampbell@blackdiamondwa.gov>

I agree with and fully support the statement below. I urge city leaders to stand firmly in the interests of Black Diamond residents—those who live here now and those who will live here in the future—rather than prioritizing developers who have no long-term stake in the quality of life of our community. Decisions made today will shape Black Diamond for generations, and they should reflect the voices, needs, and well-being of its residents first. :

The City of Black Diamond should reject developer proposals to delay building the east-west Pipeline Road. We have too much traffic on Roberts Dr., SE 288th St. and other city roads already.

When the OakPointe Developments were being considered 15 years ago, residents were promised that a new Pipeline Road would be built to take traffic off our small-town streets.

Roberts Drive is a residential area, with many historic and affordable homes. Increased traffic brings noise, exhaust, and lower quality of life.

Additionally, all of Black Diamond, especially Ten Trails, is negatively impacted by road constraints as the city grows without Pipeline Road.

There are safety concerns for pedestrians and drivers leaving side roads and driveways to Roberts. Emergency services also face road bottlenecks that could cost lives.

Thank you for considering these comments.

Oleg Sergeev
Black Diamond resident

Comment on Pipeline Road PLN25-006 for December 15, 2025

From Mary Starr <mrskstarr@gmail.com>

Date Sat 12/13/2025 10:23 AM

To Alex Campbell <acampbell@blackdiamondwa.gov>

Hello,

We have too much traffic on Roberts Dr., SE 288th St. and other city roads already.

When the OakPointe Developments were being considered 15 years ago, residents were promised that a new Pipeline Road would be built to take traffic off our small-town streets.

Roberts Drive is a residential area, with many historic and affordable homes. Increased traffic brings noise, exhaust, and lower quality of life. Additionally, all of Black Diamond, especially Ten Trails, is negatively impacted by road constraints as the city grows without Pipeline Road.

The City of Black Diamond should reject developer proposals to delay building the east-west Pipeline Road.

There are safety concerns for pedestrians and drivers leaving side roads and driveways to Roberts.

I am very concerned Emergency services also face road bottlenecks that could cost lives.

Thank you,

Mary Starr
Black Diamond Resident

Comment on Pipeline Road PLN25-006 for December 15, 2025

From Igor Tetyuk <itetyuk@gmail.com>

Date Sat 12/13/2025 10:50 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

Hello,

The City of Black Diamond should reject developer proposals to delay building the east-west Pipeline Road. We have too much traffic on Roberts Dr., SE 288th St. and other city roads already.

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There are safety concerns for pedestrians and drivers leaving side roads and driveways to Roberts. Emergency services also face road bottlenecks that could cost lives.

Thank you for considering these comments.

Igor Tetyuk

Comment on Pipeline Road PLN25-006 for December 15, 2025

From Mark Bocchi <mbocchi747@gmail.com>

Date Sun 12/14/2025 5:57 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

The City of Black Diamond should reject developer proposals to delay building the east-west Pipeline Road. We have too much traffic on Roberts Dr., SE 288th St. and other city roads already.

When the OakPointe Developments were being considered 15 years ago, residents were promised that a new Pipeline Road would be built to take traffic off our small-town streets.

Roberts Drive is a residential area, with many historic and affordable homes. Increased traffic brings noise, exhaust, and lower quality of life.

Additionally, all of Black Diamond, especially Ten Trails, is negatively impacted by road constraints as the city grows without Pipeline Road.

There are safety concerns for pedestrians and drivers leaving side roads and driveways to Roberts. Emergency services also face road bottlenecks that could cost lives.

Thank you for considering these comments.

Regards,

Mark and Janene Bocchi

Get [Outlook for iOS](#)

Comment on Pipeline Road PLN25-006 for December 15, 2025

From Angela Rossman Fettig <angimal80@hotmail.com>

Date Sun 12/14/2025 10:31 AM

To Alex Campbell <acampbell@blackdiamondwa.gov>

The City of Black Diamond should reject developer proposals to delay building the east-west Pipeline Road. We have too much traffic on Roberts Dr., SE 288th St. and other city roads already.

When the OakPointe Developments were being considered 15 years ago, residents were promised that a new Pipeline Road would be built to take traffic off our small-town streets.

Roberts Drive is a residential area, with many historic and affordable homes. Increased traffic brings noise, exhaust, and lower quality of life.

Additionally, all of Black Diamond, especially Ten Trails, is negatively impacted by road constraints as the city grows without Pipeline Road.

There are safety concerns for pedestrians and drivers leaving side roads and driveways to Roberts. Emergency services also face road bottlenecks that could cost lives.

Thank you for considering these comments.

Angela Fettig
Black Diamond

Sent from my iPhone

PLN25-0006 Pipeline Road

From Amanda Linnane <amandyl7@yahoo.com>

Date Sun 12/14/2025 1:36 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

Cc FriendsofBlackDiamond@comcast.net <FriendsofBlackDiamond@comcast.net>

This email is regarding the much needed Pipeline Road to alleviate the amount of traffic Robert's Drive, SE 288th St. and Lake Sawyer Road are experiencing.

As an over 20 year resident of Black Diamond living on SE 288th St, and seeing how much our road is impacted by traffic daily, I cannot imagine having to withstand even more traffic with all of the homes being added in so close to us without another alternative road. We personally already see everyday, work trucks and semi trucks using our road as a cut through from Hwy 169 to 216th and vice versa, people using our road as a speedway hitting 45+ mph by the time they get to our house, racing one another at times and during certain hours finding it difficult to get out of our driveway leaving earlier than usual just waiting for traffic to clear. There hasn't been any consideration from the city for the amount of traffic we are experiencing including creating a way to divert road debris and water from residents driveways along SE 288th St. We also have many people who walk, run and bike along our road without sidewalks or bike lanes. Please, for the sake of all of us having to deal with already heavy traffic with more to come, make Oakpoint put in their road as agreed upon originally. Since we are having so much "growth" living 2 feet apart from one another packing in homes instead of keeping land in between us, we need this road built.

Thank you,

Amanda Linnane

21915 S.E. 288th St.

Black Diamond, Wa 98010

Comment on Pipeline Road PLN25-006 for December 15, 2025

From cnsolutions1 (null) <cnsolutions1@aol.com>

Date Sun 12/14/2025 10:35 AM

To Alex Campbell <acampbell@blackdiamondwa.gov>

The City of Black Diamond should reject developer proposals to delay building the east-west Pipeline Road. We have too much traffic on Roberts Dr., SE 288th St. and other city roads already.

When the OakPointe Developments were being considered 15 years ago, residents were promised that a new Pipeline Road would be built to take traffic off our small-town streets.

Roberts Drive is a residential area, with many historic and affordable homes. Increased traffic brings noise, exhaust, and lower quality of life.

Additionally, all of Black Diamond, especially Ten Trails, is negatively impacted by road constraints as the city grows without Pipeline Road.

There are safety concerns for pedestrians and drivers leaving side roads and driveways to Roberts. Emergency services also face road bottlenecks that could cost lives.

Thank you for considering these comments.

Jeff and Cheri Merrill
30712 229th Place SE
Black Diamond

Comment on Pipeline Road PLN25-006 for December 15, 2025

From doug <doug@dougostgard.com>

Date Sun 12/14/2025 3:46 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

Doug and Deana Ostgard
23703 Roberts Dr
Black Diamond, Washington 98010

December 14, 2025

To whom it may concern,

We recently heard that OakPoint was applying for a postponement on fulfilling their promise to build Pipeline Road. Our understanding is long ago they made a deal to move forward on this project once a certain number of homes were built. We think a delay is a terrible idea. From our perspective the city and county have given in to endless similar changes requested by the developers. It's time to hold them to their promises. In fact, it is way overdue.

It's time to hold the developer to their promises. We moved here in 2003 planning to settle into a small rural culture, after having lived in large cities way too long. Imagine our shock to discover we've moved into a town hosting, at that time, the largest residential development in Washington state history. Our experience has not been positive. We live on Roberts Drive, only 2 lots from Ten Trails, and the traffic has increased dramatically. The accompanying noise level has also increased. People from Ten Trails like to walk their dogs in front of our house, and too often we find dog turds packaged and left in front of our house for us to clean up. Disgusting. When the new sidewalk was being put in, stupid contractors hired by the city (or the developer?) cut off all branches on the street side of an 80+ year old heritage tree on our land. The tree had to be cut down for fear it would fall over onto our cars and house.

We could go on, but you get the picture. I'm sure we are not the only ones who are weary of the impact of this development. Allowing OakPoint to delay Pipeline Road will surely cause additional negative impact on Black Diamond. There is really no advantage in this delay for Black Diamond residents, only for the developer. Please affirm your support for current city residents above the developer. They made a promise. They need to honor it.

Sincerely,

Doug & Deana Ostgard

pln25-0006

From joseph parker <jparker128@comcast.net>

Date Sun 12/14/2025 6:33 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

Dear Sirs,

I would be totally againts any delay to pipline road. It does not matter if you are on the no growth or planned growth side of the Black Diamond development issue. When you have a plan in place and you do not go through with it, it creates a hodge podge mess. This potential mess is particularly concerning because it can even cause a public safety issue risking peoples lives. None of the development should have taken place until the road was completed, let alone make up reasons to delay it. The developers need to be held accountable to past deals. I'm sure they will put forth an argument, but we all know what the real reason is. There is no valid reason to delay at this point, none that would benefit the citizens of Black Diamond. If they claim it is a lack of money tell them to go get a loan. They can get the Safeway Corporation to cosign. Get it done and get it done now. Either that or go find some other town to develop in.

Comment on Pipeline Road PLN25-006 for December 15, 2025

From Phil Russell <psrussell1@comcast.net>

Date Sun 12/14/2025 5:43 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

Having read the pros and cons of the issue before us, I am wondering, whatever happened to Integrity in business? A specific PROMISE was made to get the contract to build in Black Diamond. And now the developers want modify the promise for their benefit? What about our benefit? What else is on the roster to modify? As residents, we KNOW the traffic crisis we face from experience. We don't need to have their analysis to tell us what is needed and that we can endure the present crisis for several more years before they deal with the problem. Therefore, my wife and I will support the following proposal. (Phil and Sue Russell)

The City of Black Diamond should reject developer proposals to delay building the east-west Pipeline Road. We have too much traffic on Roberts Dr., SE 288th St. and other city roads already.

When the OakPointe Developments were being considered 15 years ago, residents were promised that a new Pipeline Road would be built to take traffic off our small-town streets.

Roberts Drive is a residential area, with many historic and affordable homes. Increased traffic brings noise, exhaust, and lower quality of life.

Additionally, all of Black Diamond, especially Ten Trails, is negatively impacted by road constraints as the city grows without Pipeline Road.

There are safety concerns for pedestrians and drivers leaving side roads and driveways to Roberts. Emergency services also face road bottlenecks that could cost lives.

Thank you for considering these comments.

Sent from my iPad

Comment on Pipeline Road PLN25-006 for December 15, 2025

From Jerel Thomas <jerelthomas@protonmail.com>

Date Sun 12/14/2025 2:41 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

To Whom It Concerns:

I am Jerel Thomas, resident of Black Diamond. I writing to provide my opposition to the proposed delay of the construction of Pipeline Rd. The agreement reached in 2010 for Oakpointe to complete the construction of Pipeline Rd before the 1746th housing unit needs to be enforced like any other contract.

I am aware that Oakpointe completed a traffic study concluding that increase traffic will still allow the city roads to function, meaning the intersections on Roberts Drive can handle the increased traffic. As a 10 year resident of Black Diamond who lives off Roberts Drive, the conclusions of this study contradicts what I personally see and experience on a daily basis.

With 1600 homes built, Roberts Drive has ceased to be a neighborhood road. Despite a 25 mph speed limit, most vehicles travel between 35-45 mph (as witnessed on the electronic speed limit sign). People going 25 mph are tailgated and passed by aggressive drivers. Some drivers pass cars going 40+ miles an hour as they go through 3 crosswalks. This increase in traffic is not safe, yet Oakpointe wants to almost double the amount of vehicles before complying with their agreement.

It should be noted that observational data shows many other recreationists also do not feel safe with the increased traffic on Roberts Drive. Over the past 3 years, there has been a dramatic decrease in the number of cyclists riding through Black Diamond. We used to have large groups bicycling through every weekend. This has almost stopped completely as the joy of riding through a small town neighborhood has been replaced with riding a virtual connecting highway consistently heavy with speeding traffic.

It should also be mentioned that Oakpointe's study is very suspicious. So if their original study showed Pipeline Rd would be needed by the 1746th house, how was it so wrong in its projection? Given the numbers in the new study, their original study was close to 100% off on their numbers? And now as the deadline for the road to be built approaches, they miraculously get a study to show it's supposedly not needed? I find this hard to believe.

In closing, Oakpointe needs to keep their end of the agreement and build Pipeline Rd immediately. As a resident who lives off of Roberts Dr, the increased traffic and aggressive drivers have made it so I don't feel safe walking around my neighborhood. Residents of Ten Trails have been afforded neighborhoods where children and families can walk and people drive 25 mph or less. They don't have semi trucks and heavy equipment being driven up and down the front of their houses all day. I would like to have the same courtesy extended to the neighborhoods that have already existed here for decades. The construction of Pipeline Rd was the agreed upon solution to preserve my neighborhood, and the time to build it is now.

Sincerely,

Jerel Thomas

32401 Lynch Ln

Comment+on+Pipeline+Road+PLN25-006+for+December+15,+2025

From Christy Thomas <cgthomas79@icloud.com>

Date Sun 12/14/2025 8:57 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

Good evening Black Diamond City Council, developers, and other city officials, For 10 years I've lived in, raised my two children and built a life in Black Diamond. When my husband and I first purchased our home in this small town, we were drawn to its beautiful trees, quiet streets, and abundant wildlife—all within a commutable distance from our workplaces. Our daughter graduated from Enumclaw High School while our son was part of the first Kindergarten class of the newly rebuilt Black Diamond Elementary School. When the Before and After School Program was initially in jeopardy, my husband helped find a temporary solution to keep the program going until Covid hit. Our son is an active player in local youth sports, and our daughter works in retail in Maple Valley. I frequent our library, antique shop, and smokehouse—among other local businesses I love in old Black Diamond. In all, we have roots in this community and support reasonable economic and population growth.

For years we have dealt with road closures, construction noise, and increased traffic on Roberts Drive. My husband has contacted the council in the past about speeding on Roberts Drive and the lack of safety for pedestrians and cyclists, including our son and his friends.

Before Ten Trails was built, I could safely walk along Roberts Drive—my residential neighborhood. My husband and I walked loops through Union Drive, Sunny Lane, and Morgan Drive with our dog and our son back when he was still using training wheels. Since the building of Ten Trails, I no longer feel safe using the crosswalks after several near hits by people speeding, texting on their phones, and generally not respecting pedestrians in crosswalks. While I appreciate the sidewalks connecting my side of Roberts Drive to Ten Trails and the access to streets and trails without as much traffic, why should I have to leave my neighborhood for such quality of life?

For years we have waited for Pipeline Road to be built—every time a community member has voiced a complaint about traffic and speeding, we are told there is a plan in place and to be patient. The only plans I've seen being fulfilled are the modified plans of the developers and this council's prioritization of developers' wants and needs over citizens. We have been more than patient—patiently waiting for walkable, local retail in Ten Trails; patiently waiting for the council to quit allowing higher and higher density construction; waiting for Pipeline Road to deliver on promises made.

No surprise that as we approach the threshold to build Pipeline Road that we are told a new traffic study was conducted which justifies Ten Trails developers delaying building Pipeline Road. The council needs to hear this loud and clear—our number one priority must always be infrastructure. While it is commendable to partner with a developer to responsibly and intelligently add on to our community, I have seen nothing but this council and mayor continue to kowtow to the developers, rubberstamping each change, moving deadlines, and telling constituents that it's best.

What do we have to show for our patience? A promised road being delayed even further so we can continue to deal with traffic and noise. A giant grocery store, gas station, and fast-food restaurant rather than local, walkable shops. Gas stations are not “walkable”, drive thru windows are not “walkable”, and weekly grocery shopping is not a “walkable” task. This retail will draw in even more traffic onto Roberts Drive than we currently have.

In defense of any accusations that I am simply anti-Ten Trails and part of the “old guard”, I will note that my family enjoys some of the community events and parks in Ten Trails. My son’s best friends live in Ten Trails, so he is always riding his scooter over to their homes and to the park to play football. I have nothing wrong with progress, but not building an important road is not progress. What harm comes from building the road, as currently scheduled? None that I can see. What harm comes from NOT building the road and allowing the developers to delay? Harm to those of us who live along Roberts Drive—safety for our kids, access to our neighborhood roads, and quality of life.

To add to this, I now find out the plan to extend the easement on Roberts Drive to allow for more utility poles. This will involve cutting down more trees and impacting my neighbors’ property values. In addition, I eagerly await the repaving of Roberts Drive which is sorely needed and yet another promise we are waiting to be fulfilled. And finally, I worry about the 100-year-old bridge on Roberts Drive that people like myself wanted replaced but this council opted to repair. Why would we even consider delaying building a road which would ease the amount and weight of traffic going over this bridge?

We’ve waited long enough. We’ve been patient enough. Hold the developers accountable and do NOT amend the agreement to delay their construction of Pipeline Road.

Sincerely,

Christy G. Thomas, resident
32401 Lynch Lane

Comment on Pipeline Road PLN25-006 for December 15, 2025

From Joe Riordan <joe.riordan.ak@gmail.com>

Date Mon 12/15/2025 10:55 AM

To Alex Campbell <acampbell@blackdiamondwa.gov>

The City of Black Diamond should reject developer proposals to delay building the east-west Pipeline Road. We have too much traffic on Roberts Dr., SE 288th St. and other city roads already.

When the OakPointe Developments were being considered 15 years ago, residents were promised that a new Pipeline Road would be built to take traffic off our small-town streets.

Roberts Drive is a residential area, with many historic and affordable homes. Increased traffic brings noise, exhaust, and lower quality of life.

Additionally, all of Black Diamond, especially Ten Trails, is negatively impacted by road constraints as the city grows without Pipeline Road.

There are safety concerns for pedestrians and drivers leaving side roads and driveways to Roberts. Emergency services also face road bottlenecks that could cost lives.

Thank you for considering these comments.

Comment on Pipeline Road PLN25-006 for December 15, 2025

From Kelley Sauskojus <kelleysauskojus@outlook.com>

Date Mon 12/15/2025 11:26 AM

To Alex Campbell <acampbell@blackdiamondwa.gov>

Mr Campbell

please forward my comments to the Hearing Examiner on the Pipeline Road ammendment:

The City of Black Diamond should reject developer proposals to delay building the east-west Pipeline Road. There is already too much traffic on Roberts Dr., SE 288th St. and other city roads that is having impacts on residents.

When the OakPointe Developments were being considered 15 years ago, residents were promised that a new Pipeline Road would be built to divert traffic off Roberts Dr, and neighborhood streets.

Roberts Drive is a residential area, with many historic and affordable homes. The increased traffic brings noise, exhaust, and lower quality of life. It is already hard to leave my property at 24317 Morgan st already during heavy traffic periods. Traffic backs up past the access and there can be long delays to get out on to Roberts Dr. delaying Pipeline Road will only intensify the impacts to all the residents even further. Every resident is entitled to feel safe pulling out of their dirveways, getting the mail or walking to the neighbors house, this is NOT how Roberts Dr. currently feels.

Additionally, all of Black Diamond, especially Ten Trails, is negatively impacted by road constraints as the city grows without Pipeline Road. The frustration of being bottlenecked in traffic can contribute to more speeding and risky driving behaviors.

To sum up: there are safety concerns for pedestrians and drivers leaving side roads and driveways onto Roberts Dr. Emergency services also face road bottlenecks that could cost lives. The City of Black Diamond should not allow Pipeline Road to be delayed.

Kelley Sauskojus
Resident of Black Diamond

Comment on Pipeline Road PLN25-006 for December 15, 2025

From Margaret Thawley-Hurd <041petunia@gmail.com>

Date Mon 12/15/2025 12:16 PM

To Alex Campbell <acampbell@blackdiamondwa.gov>

I The City of Black Diamond should reject developer proposals to delay building the east-west Pipeline Road. We have too much traffic on Roberts Dr., SE 288th St. and other city roads already. When the OakPointe Developments were being considered 15 years ago, residents were promised that a new Pipeline Road would be built to take traffic off our small-town streets. Roberts Drive is a residential area, with many historic and affordable homes. Increased traffic brings noise, exhaust, and lower quality of life. Additionally, all of Black Diamond, especially Ten Trails, is negatively impacted by road constraints as the city grows without Pipeline Road. There are safety concerns for pedestrians and drivers leaving side roads and driveways to Roberts. Emergency services also face road bottlenecks that could cost lives. Thank you for considering these comments. Margaret Anne Thawley-Hurd
28914 220th SE Black Diamond WA 98010

I am most concerned about getting run over crossing the street to get my mail;and for all the other issues brought up.

Exhibit 10:

COBD Police Comments



**Black Diamond Police Department
Jamey Kiblinger, Chief of Police**

**25510 Lawson Street / PO Box 309
Black Diamond, WA 98010
(360) 851-4450 ~ Fax (360) 851-4451**

To: Mr. Hearing Examiner

From: Chief Jamey Kiblinger

Date: December 10th, 2025

RE: Major Amendment/ Pipeline Road, PLN25-0006.

I am submitting this testimony as someone who has responded to emergencies on our roadways for nearly three decades. I have seen firsthand how traffic congestion directly affects both the public and public safety. Delaying Pipeline Road until 2,866 homes are built is not in the best interest of this community. It benefits the developer, but it creates long-term risks for the people who live here and for the first responders who protect them.

Infrastructure should come before the problems it is designed to prevent, not after. Pipeline Road was originally required early, in place by 1,746 homes, because the City, its consultants, the hearing examiner during that time, and elected officials all determined that a second east-west corridor was necessary to preserve roadway capacity and protect public safety. Pipeline Road was not just another building project; it was a core mitigation measure built into the Development Agreement. Changing the construction timing weakens the very reason the condition existed: to prevent the existing road network from being overwhelmed.

The original trigger, as described in the exhibits, was based on traffic modeling and safety standards, not developer convenience. Moving the requirement to 2,866 homes invites exactly the problems the Development Agreement was designed to prevent: heavier congestion, more chokepoints on Roberts Drive, slower response times, and lower quality of life for residents, even if the "Level of Service" (LOS) still meets technical minimums.

While I am not an engineer, I have reviewed the staff report and its exhibits trying to understand the rationale. I found more concerns than answers.

Concerns With the Traffic Modeling

The City continues to rely heavily on developer-funded modeling and on a schedule shaped by the developer's buildout plan. While the City's consultants reviewed the updated model required under Conditions 10–17 (Report, Introduction; Conditions 11–17), the analysis is still built on assumptions that limit reliability.

- **2022 assumptions do not match reality.**

The model assumes 1,375 homes existed in Ten Trails in 2022 per the Mid-Point Monitoring Report (Transpo Group 2021). In reality, only about 1,000 homes were completed, a 27% difference. This directly affects trip generation and undermines model accuracy.

- **Buildout year assumptions stretch beyond actual approvals.**

The model uses 2032 as the “full buildout” year, even though the development agreements expire in 2025 (Report, §Development Agreements). Calling the 2032 assumption “conservative” is misleading, it is speculative and not tied to any approved vesting schedule.

- **Existing road failures are dismissed instead of analyzed.**

The 2022 results show SR 169/SR 516 and SR 169/SE Wax Road already operating at LOS E, below Maple Valley's LOS D standard (Report, 2022 Analysis Results). Rather than analyze the real-world impacts of these failures, the report simply states that a prior mitigation agreement overrides several Conditions of Approval (Report, §12.10.1). This removes a known real-world problem from meaningful review.

- **2032 forecasts show widespread failures.**

Under 2032 conditions, the model forecasts LOS E or F at multiple intersections across Maple Valley, Covington, and unincorporated King County (Report, Table 6).

- Covington has four intersections expected to fail, and its plan allows this only after SR 516 is widened, an improvement with no committed timeline (Report, Covington LOS Standards).

- SE Auburn Black Diamond Road/218th Avenue SE and Kent Kangley Road/Landsburg Road are forecast at LOS F. A roundabout is proposed at the former, but the latter has no funding, relying instead on a future proportional-share contribution that isn't guaranteed (Report, 2032 Mitigation Discussion).

- **Future road alignments are uncertain.**

The model includes Pipeline Road, the North Connector, South Connector, SE Loop Connector, and Lawson Parkway for 2032, but the report notes these alignments may change and would require new modeling (Report, Roadway Assumptions). This highlights that the model is tied to developer plans, not independent traffic conditions.

These modeling limitations have real consequences for emergency response. When a model uses optimistic assumptions, including unfunded future improvements, or ignoring intersections already operating below standard, it underestimates the actual conditions first responders face.

Emergency vehicles don't move through "average LOS." They move through real congestion:

- school traffic,
- special events,
- construction backups,
- seasonal weather, and
- regional growth outside the MPDs.

None of these are fully reflected in the model. And because emergency response is a life-safety issue, not just a planning metric, ignoring these conditions creates a major gap in evaluating whether the developments can maintain adequate public-safety performance in the future.

If this amendment is approved, the developer benefits while residents absorb the impacts.

Developer gains:

- Ability to build hundreds more homes before spending tens of millions on Pipeline Road
- Lower upfront costs and improved cash flow
- Delayed major infrastructure obligations

Residents get:

- More traffic on the few existing roads
- Higher delays and longer queues
- More cut-through traffic
- More wear on Roberts Drive
- No new east-west route until far later

LOS does not measure:

- emergency response delays,
- risks to officers or firefighters when roads are gridlocked,
- collision risk,
- impacts to school pedestrian safety,
- neighborhood frustration,
- long queues blocking driveways and side streets,
- or lack of evacuation routes during weather or major incidents.

From both a residents' and a public-safety perspective, "LOS is acceptable" does not mean the roads are safe or functional.

Black Diamond is not growing in isolation.

- Enumclaw is expanding.
- Maple Valley continues adding homes and commercial traffic to SR-169.
- Covington is building dense housing and major commercial centers.
- Unincorporated King County continues to grow.
- Buckley and Bonney Lake are expanding industrial and commercial activity, adding freight, delivery, and commuter traffic to SR-410 and the regional network that feeds into SR-169.

Every one of these adds cars and trucks to the same system our residents rely on. The amendment fails to account for this regional reality.

Staff evaluated whether the amendment is legal, not whether it is wise or in the public interest. They reviewed compliance, not the reasons why Pipeline Road was required early in the first place.

After nearly three decades serving this community, I cannot support a decision that increases risks for residents and first responders while offering no public benefit. The original requirement protected the community. Delaying Pipeline Road does not. I urge you to uphold the original condition and keep the safety of our residents, officers, firefighters, and EMS personnel at the forefront of your decision. Please do not approve this amendment.

Exhibit 11:

MVFR

Comments



December 15, 2025

Hearing Examiner
City of Black Diamond
24301 Roberts Drive
Black Diamond, WA 98010

Subject: Opposition to Major Amendment Request – PLN25-0006 (Pipeline Road Construction Delay)

Dear Hearing Examiner,

Mountain View Fire and Rescue (MVFR) respectfully submits this letter in opposition to the proposed Major Amendment to The Villages Master Planned Development (MPD) Development Agreement (PLN25-0006), which seeks to delay the construction of Pipeline Road from the originally required 1,746 dwelling units to 2,866 dwelling units.

As the City of Black Diamond's fire/emergency services provider, MVFR is deeply concerned about the public safety implications of this proposed delay. Pipeline Road is a vital east-west connector that would significantly improve emergency response times by providing direct access between Lake Sawyer Road SE / Ten Trails Parkway SE and State Route 169. The absence of this connection limits our ability to respond efficiently to emergencies, particularly in the rapidly growing Ten Trails and surrounding communities.

Our concerns include:

1. **Delayed Emergency Response Times:** The current road network lacks redundancy and direct routes, which can result in longer travel times for fire, EMS, and rescue units. In emergency situations, every minute counts. Delaying Pipeline Road's construction until nearly 3,000 homes are built could compromise our ability to respond promptly and effectively.
2. **Increased Traffic Congestion:** The staff report acknowledges that Level of Service (LoS) standards can be met without Pipeline Road until 2,866 units are built. However, this analysis does not account for the operational



realities of emergency vehicle movement through congested corridors. Increased traffic on Roberts Drive and surrounding roads will hinder our ability to navigate safely and quickly.

3. **Limited Evacuation Routes:** In the event of a large-scale emergency—such as a wildfire, hazardous materials incident, or natural disaster—having multiple evacuation and access routes is essential. Pipeline Road would provide a critical alternative route for both emergency ingress and community egress.
4. **Community Safety and Risk Mitigation:** The safety of residents must be the foremost priority in planning decisions. As population density increases, so does the risk of fire, medical emergencies, and traffic-related incidents. Delaying the construction of Pipeline Road removes a key infrastructure component that would help mitigate these risks. The road is not just a transportation feature—it is a lifeline for public safety services and a safeguard for the community.
5. **Public Trust and Planning Integrity:** The original Development Agreement recognized the importance of Pipeline Road as a transportation mitigation measure. Altering its timeline undermines the collaborative strategic planning that occurred with the original Agreement, which acknowledged ongoing regular infrastructure improvement intervals needed for public safety access.

MVFR urges the Hearing Examiner to uphold the original requirement for Pipeline Road construction at 1,746 dwelling units. Public safety must remain a top priority as the City of Black Diamond continues to grow.

Thank you for your attention to this matter and for your continued commitment to the safety of our community.

Respectfully,

Dawn Judkins, Fire Chief
Mountain View Fire and Rescue
djudkins@mvfire.org
253-735-0284

Exhibit 12:

Public

Comments

Day of Hearing

Alex Campbell

From: Bonnie Scott <blscott60_3@q.com>
Sent: Monday, December 15, 2025 2:19 PM
To: Alex Campbell
Subject: Oakpointe Pipeline Road

Follow Up Flag: Follow up
Flag Status: Completed

Alex

I moved to the Ten Trails 55+ community 5 months ago. I understood traffic could be bad but that new side roads would be built to accommodate the traffic as more houses are built. Now I find out Oakpointe is wanting to delay the building of Pipeline Road--they want to wait till an extra 1,000 homes are built. It is all about money--roads don't make money, only building houses does. It is not fair to those of us who have moved here already and are now being told Pipeline Road would be delayed longer.

I do not understand how the Black Diamond council can say it isn't a problem. Do all of you live in Black Diamond? You know the traffic will just keep getting worse. We need extra hook up roads.

You need to hold Oakpointe accountable and make them build Pipeline Road at 1,746 built homes, not 2,866.

And what about the road that is supposed to head south and hook up with hwy 169? I hope that will happen.

Bonnie Scott
Black Diamond

Alex Campbell

From: t.walker12@comcast.net
Sent: Monday, December 15, 2025 2:28 PM
To: Alex Campbell
Cc: Kristen Bryant; Gbowie2014@gmail.com; Alyson Guadalupe; TOM ☆
Subject: Pipeline road public hearing Dec 15th 2025

Follow Up Flag: Follow up
Flag Status: Completed

Hi Alex,
Can you please incorporate my comments into the public record in support of the public hearing 12/15/25? I understand the meeting will be at 6pm tonight at the police station.
Thank you for your cooperation.
Tom

Full Written Public Comment

Subject: Developer's Pattern of Broken Commitments and Harmful Impacts on Neighborhoods

Dear Councilmembers,

I am writing to express my deep concern about the developer's repeated failure to honor commitments made to this community.

Fifteen years ago, a new access road was approved to serve development. Instead of building that road, the developer now proposes routing traffic through established neighborhoods. This will cause gridlock, strip away front yards, lower property values, and severely compromise emergency egress.

We have already seen the consequences of allowing this developer to cut corners. A recent road project left homeowners staring at a 12-foot hay wall covered in tarps for 3–5 years. Even worse, the hay used harbored rattlesnakes that escaped into neighborhoods where children play. Despite being notified, the builder did nothing. This demonstrates complete indifference to community safety.

There is also a troubling conflict of interest: the developer is funding salaries for city planning commission employees, with the city reimbursing those salaries. On top of that, the developer paid for their own impact analysis, which unsurprisingly claimed there would be no negative effects. Such a self-funded study cannot be considered objective.

Now, the developer is attempting to abandon yet another obligation — the pipeline road for the Ten Trails development. This road was approved 15 years ago as the proper access route. Not building it will cause major impacts to neighborhoods and will not support future traffic demands, especially with a shopping center that will bring outside traffic. Trading a major infrastructure project for insufficient neighborhood access highlights the same conflicts of interest and disregard for residents.

The motive is clear: financial pressure. After two school bonds failed, the developer is trying to cut costs by backing out of obligations. But residents should not bear the burden of these financial challenges through unsafe traffic routing and diminished infrastructure.

I urge the council to:

- Enforce the original road and pipeline road commitments.

- Halt any attempts to reroute traffic through neighborhoods.
- Require independent, third-party impact studies.
- Investigate conflicts of interest between the developer and city staff.
- Put community safety, property values, and quality of life ahead of developer profits.

The community deserves accountability, transparency, and leadership that protects citizens rather than enabling developers to disregard commitments.

Thank you for your attention.

Sincerely,

Alex Campbell

From: gbowie2014 <gbowie2014@gmail.com>
Sent: Monday, December 15, 2025 3:44 PM
To: Alex Campbell
Subject: FW: Villages M.P.D. Major Amendment Comments PLN25-0006
Attachments: Villages M.P.D. Major Amendment Comments.docx; 20251212141906822.pdf; 20251215144302409.pdf

Follow Up Flag: Follow up
Flag Status: Completed

Sent from my T-Mobile 5G Device

----- Original message -----

From: Geoff Bowie <geoff@cascadeutilities.com>
Date: 12/15/25 3:34 PM (GMT-08:00)
To: gbowie2014@gmail.com
Subject: Villages M.P.D. Major Amendment Comments

Comments on The Villages Master Planned Development (MPD) -
Major Amendment to the Development Agreement, City File
Number: PLN25-0006. 12/15/2025

Dear City of Black Diamond Hearing Examiner,

This Major Amendment request to modify the Dwelling Unit trigger for the construction and dedication timing of Pipeline Road from 1,746 Dwelling Units to 2,866 Dwelling Units should be denied.

Since the beginning of time the speculation in real estate always has been and continues to be a risky venture to invest in.

Trying to change the Historic City of Black Diamond for the project is just a grab for cash by all involved, as least amount of work equals least amount of money spent.

The entire City has had to live with all of the increased traffic and the impact it creates on Roberts Drive, the Lake Sawyer Road, 228th Avenue S.E., 224th Avenue S.E., 224th Avenue S.E., S.E. 296th Street, 216th Avenue S.E., S.E. 288th Street, and 241st Avenue S.E. as traffic finds its way Ten Trails/The Villages M.P.D. from Hwy 169 and the reverse.

Recently local residents living on the Northwest side of the Lake Sawyer area are seeing an increase of traffic as drivers are find shorter ways to get to S.E. 288th Street. Traffic is now ducking onto S.E. 295th Place, 218th Place S.E., S.E. 289th Place S.E., 22nd Place S.E., & S.E. 290th Street all to get into and out of Ten Trails/The Villages M.P.D. from S.E. 288th Street, all to access Hwy 169.

Comments on The Villages Master Planned Development (MPD) -
Major Amendment to the Development Agreement, City File
Number: PLN25-0006. 12/15/2025

Adding to all this traffic is the huge gaffe on approving of required intersection at 216th Avenue S.E. & S.E. 288 Street and allowing improvements to be constructed only to have the project brought to a stop by a King County Stop Work Order. City Staff ignored the fact the North side of the work/project was outside the City Limits and had no permit authority for that area.

All of these traffic problems that City residents are having to suffer thru and live with are because the Pipeline has not been constructed and put into service this this Ten Trail/Villages M.P.D.

The way that the City is funding the Master Development review Team is also creates the a troubling look of a conflict of interest, the City pays the employees and the developer then is funding salaries for city employees by reimbursing those Salaries, Benefits, Office Supplies & Charges for Service to the tune of \$ 1,121.637.00 in 2025. While at the same time same funding arrangement is true for all of the "Cities" consultants that work on the M.P.D. projects including the hearing Examiner to the tune of \$ 1,855,00.00 in 2025. See Exhibit "A", "A-1", "A-2", "A-3", & "A-4". This pay to play arrangement raises serious questions and whether decisions are being made in the public's best interest.

A very troubling serious issue just arose with the Cities sanitary sewer system that is served by our Central Jones Lake Sewer Pump Station. Last Thursday the 11th & Friday the 12th the first two days of this new Atmospheric River had major trouble. This Pump Station and the 7 miles of Sewer Main/Line from it are maintain and operated by King County Metro under contract with the City of Black Diamond.

Comments on The Villages Master Planned Development (MPD) -
Major Amendment to the Development Agreement, City File
Number: PLN25-0006. 12/15/2025

Designed to replace our “Failed” Sewer Treatment Plant this new system was designed for a population of 3,600.

King County Metro Sewer Crews were notified of a “High Wet Well Alarm” at the Pump Station last Thursday morning. Upon investigation the both of the large sewer pumps were running wide open and not keeping up with the incoming flows from this sewer system. To avoid a Massive Environmental Cleanup and problem which would be caused by sewer flows gushing up out of the sewer pump station wet well into the adjacent Wetlands and Jones Lake. Six Vactor/Eductor Trucks were called into to work 24 hours a day to lower flows. By Friday afternoon both of the pumps were finally able to keep up with the incoming flows. The City Public Work crews spent those two days scoring the Cities sewer system that flows to this pump station without finding a cause for these massive flows. Thankfully K.C. Metro crews avoid a monster Environmental Spill and Clean-up caused by Black diamond. The City I’m certain will be seeing a bill from Metro for this work in the tune of \$ 70,000.00 to \$ 125,000.00 for the work they did during these two days.

Last Summer senior City Staff brought to the City Council a plan to have Oakpointe paying to raise/elevate the Rims(tops) of a handful of sewer hand holes in the Jones Lake Wetland and installing a berm around the Jones Lake Wet well to prevent inflow of water to it. The belief was this work would buy Oakpointe capacity in this sewer system. As it turns out the system appears to be way too broken. The Cities Sewer Sewer was never designed to take flows from 1250ish units on Lawson Hill. See Attached Exhibit “B”, “B-1”, “B-2”, “B-3”, “B-4”, “B-5”, “B-6”, B-7”, “B-8”, “B-9”, “B-10”, “B-11.

Comments on The Villages Master Planned Development (MPD) -
Major Amendment to the Development Agreement, City File
Number: PLN25-0006. 12/15/2025

When Pipe Road is constructed it needs to include a Tightline sewer main from the Lawson Hills M.P.D. See attached Exhibit "C", "C-1", "C-2".

When the City Council next meets it needs to Immediately Impose an Emergency Moratorium on Any Additional/New Sewer Flows into the Sewer System That Flows to the Jones Lake Pump Station.

At the same time the City needs undertake a review of the City Sewer System by an outside entity that truly understands sanitary sewer systems such as Soos Creek Water & Sewer District.

In closing this Major Amendment only makes sense to some City Staff, City Consultants, Oakpointe, The Crown Family, and Crown Community Development.

Deny This Major Amendment Request and Require Pipeline Road uphold the Dwelling Unit trigger for the construction and dedication timing of Pipeline Road 1,746 Dwelling Units.

Sincerely,

Geoff Bowie

26052 Lawson Street

Black Diamond, Wa. 98010

Preliminary
Black
Diamond
Budget

2026



Black Diamond's Gateway Entrance Sign

Exhibit "A"

2026 Employee Allocations by Funding Source

2026 Employee Allocations by Funding Source							
Positions	Full Time Equivalent (FTE)	Funding Agreement	General Fund	Street Fund	Water Fund	Sewer Fund	Storm water Fund
1 City Administrator	1.00		0.60	0.10	0.10	0.10	0.10
2 Total Court	1.00	0.00	0.60	0.10	0.10	0.10	0.10
3 Court Administrator	1.00		1.00				
4 Judicial Specialist II	2.75		2.75				
5 Judicial Specialist I	0.00						
6 Total Court	3.75	0.00	3.75	0.00	0.00	0.00	0.00
7 City Clerk/HR Manager	1.00		0.60	0.10	0.10	0.10	0.10
8 Deputy City Clerk	1.00		0.50	0.13	0.13	0.12	0.12
9 Administrative Assistant III	0.75		0.75				
10 Finance Director	1.00		0.60	0.10	0.10	0.10	0.10
11 Deputy Finance Director	1.00		0.60	0.10	0.10	0.10	0.10
12 Senior Accountant	2.00		1.04	0.24	0.24	0.24	0.24
13 Accounting Clerk/Utility Billing Specialist	1.00		0.15		0.50	0.20	0.15
14 Administrative Assistant II	1.00		0.25	0.10	0.30	0.25	0.10
15 Information Service Manager	1.00		0.65	0.06	0.11	0.11	0.07
16 Communications & Info Svcs/Admins Sup Tech I	1.00		0.65	0.06	0.11	0.11	0.07
17 Total Administration	10.75	0.00	5.79	0.89	1.69	1.33	1.05
18 Police Chief	1.00		1.00				
19 Police Commander	1.00		1.00				
20 Sergeant	2.00		2.00				
21 Police Officers	10.00		10.00				
22 Police Records Coordinator	1.00		1.00				
23 Police Clerk	1.00		1.00				
24 Total Police Department	16.00	0.00	16.00	0.00	0.00	0.00	0.00
25 MDRT & Economic Dev Director	1.00	1.00					
26 Construction Inspector Supervisor	1.00	1.00					
27 Construction Inspector	1.00	1.00					
28 Senior Accountant	0.75	0.75					
29 Total MDRT Review Team	3.75	3.75	0.00	0.00	0.00	0.00	0.00
30 Community Dev/Nat Resources Director	1.00		1.00				
31 Building Official	1.00		1.00				
32 Code Compliance Officer/Building Inspector	1.00		1.00				
32 Senior Planner	1.00		1.00				
33 Associate Planner	1.00		1.00				
33 Permit Technician	2.00		2.00				
34 Assistant Planner/Permit Technician	1.00		1.00				
35 Total Community Development	8.00	0.00	8.00	0.00	0.00	0.00	0.00
36 Public Works Director	1.00		0.10	0.225	0.225	0.225	0.225
37 Capital Project/Program Manager	1.00			0.25	0.25	0.25	0.25
38 Stormwater Coordinator	1.00						1.00
39 Facilities Equipment Coordinator	1.00		0.52	0.12	0.12	0.12	0.12
40 Management Analyst	1.00		0.15	0.20	0.40	0.10	0.15
41 Operations & Maintenance Superintendent	1.00		0.10	0.22	0.24	0.23	0.21
42 Utilities Operator	1.00		0.03	0.06	0.55	0.30	0.06
43 Utility Worker II	3.00		0.45	0.60	0.66	0.69	0.60
44 Utility Worker I	2.00		0.50	0.40	0.40	0.34	0.36
45 Gym Maintenance (hourly)	0.17		0.17				
46 Utility Worker Seasonal (hourly)	0.75		0.35	0.14	0.14	0.03	0.11
47 Total Public Works	12.92	0.00	2.37	2.21	2.98	2.29	3.08
48 Total Budget Positions (FTE's)	56.17	3.75	36.51	3.20	4.77	3.72	4.23

Exhibit "A-11"

Master Development Review Team – Expenditures

The Master Development Review Team (MDRT) was established to provide dedicated oversight and coordination for Black Diamond's two Master Planned Developments: Ten Trails and Lawson Hills. This team is fully funded by the developers, with 100% of expenditures reimbursed through developer contributions.

The MDRT works closely with specialized consultants in the areas of: financial analysis; civil and traffic engineering; environmental review; surveying; and geotechnical services. These consultants support the City's staff in reviewing and managing development activities in accordance with the approved development agreements.

MDRT Review Team: Funding Agreement Expenditures	Actual 2023	Actual 2024	Budget 2025	Actual 2025 thru June	Budget 2026	Budget \$ Change	Budget % Change
1 Wages	574,851	681,352	720,211	331,254	748,443	28,232	3.9%
2 Benefits	190,050	206,243	223,061	106,501	211,982	(11,079)	-5.0%
3 Salaries and Benefits	764,901	887,594	943,272	\$437,756	\$960,426	17,154	1.8%
4 Office and Operating Supplies	10,489	7,703	14,000	4,359	14,000	0	0.0%
5 Charges for Service	168,018	105,078	164,365	85,425	202,082	37,717	22.9%
6 Total MDRT Expenditures	\$943,407	\$1,000,376	\$1,121,637	\$527,539	\$1,176,508	\$54,871	4.9%
MDRT Consultants: Funding Agreement Expenditures	Actual 2023	Actual 2024	Budget 2025	Actual 2025 thru June	Budget 2026	Budget \$ Change	Budget % Change
1 MDRT Legal Services	113,271	78,449	200,000	35,446	200,000	0	0.0%
2 MDRT Fiscal Analysis	24,195	4,981	50,000	645	50,000	0	0.0%
3 MDRT Civil Engineering	602,619	649,449	575,000	232,128	575,000	0	0.0%
4 MDRT Traffic Engineering	95,497	72,441	400,000	7,793	400,000	0	0.0%
5 MDRT Environmental Consultant	31,615	46,847	50,000	7,193	50,000	0	0.0%
6 MDRT Geotech	15,450	40,433	100,000	7,210	100,000	0	0.0%
7 MDRT Surveyor	11,036	25,030	80,000	6,198	80,000	0	0.0%
8 Hearing Examiner	11,213	10,263	100,000	-	100,000	0	0.0%
9 MDRT- Prof Svcs - Planning	222,593	306,365	300,000	167,262	300,000	0	0.0%
10 MDRT Building Inspector	-	-	-	-	-	0	N/A
11 Total MDRT Consultant Expenditures	\$695,402	\$1,234,257	\$1,855,000	\$463,874	\$1,855,000	\$0	0.0%



Roundabout with Mt. Rainier
Courtesy of Craig Goodwin

Exhibit "A-Z"

Exhibit A: City of Black Diamond Salary Schedule

Budgeted 2026 Positions	2026 Salary Schedule	Step 1	Step 2	Step 3	Step 4	Step 5
✓	City Administrator	14,734	15,472	16,245	17,057	17,910
	Assistant City Administrator	9,058	9,512	9,965	10,418	10,871
	City Attorney	9,203	9,663	10,146	10,653	11,185
✓	Court Administrator	9,231	9,692	10,178	10,686	11,223
✓	Judicial Specialist II	4,968	5,381	4,851	6,211	6,624
	Judicial Specialist I (hourly)	26.04	28.25	30.40	32.58	34.73
	Human Resources Director	9,654	10,169	10,686	11,200	11,721
✓	City Clerk/HR Manager	9,654	10,169	10,686	11,200	11,721
✓	Deputy City Clerk	5,791	6,197	6,602	7,006	7,412
✓	Administrative Assistant III	5,747	6,036	6,339	6,654	6,989
✓	Finance Director	10,543	11,069	11,624	12,204	12,815
✓	Deputy Finance Director	8,650	9,027	9,519	10,013	10,506
✓	Senior Accountant	6,520	6,846	7,189	7,548	7,923
✓	Accounting Clerk/Utility Billing Specialist	5,381	5,654	5,935	6,231	6,542
✓	Administrative Assistant II	4,870	5,112	5,369	5,637	5,920
	Administrative Assistant I	2,656	2,868	3,079	3,292	3,502
	Accounts Payable Clerk (hourly)	25.75	27.04	28.39	29.80	31.30
	Accountant I Journey (hourly)	18.73	19.66	20.63	21.67	22.76
✓	Information Services Manager	9,416	9,961	10,504	11,046	11,591
✓	Comm. & Infor. Svs/Admin Sup. Tech II	6,520	6,846	7,189	7,548	7,923
	Comm. & Infor. Svs/Admin Sup. Tech I	4,870	5,112	5,369	5,637	5,920
✓	Police Chief	14,159	14,641	15,226	15,611	16,172
✓	Police Commander	12,717	13,161	13,547	13,935	14,382
✓	Police Sergeant	10,923	11,536	-	-	-
✓	Police Officer	7,436	8,240	9,041	9,801	-
✓	Police Records Coordinator	5,791	6,197	6,602	7,006	7,412

✓	Police Clerk	4,983	5,233	5,494	5,769	6,056
	Police Clerk (hourly)	28.76	30.18	31.69	33.29	34.94
✓	MDRT & Economic Director	10,398	10,919	11,466	12,037	12,640
✓	Construction Inspector Supervisor	8,964	9,480	9,998	10,513	11,032
✓	Construction Inspector	7,534	7,968	8,405	8,837	9,271
✓	MDRT Senior Accountant (hourly)	37.62	39.50	41.48	43.54	45.71
	MDRT Planner (hourly)	29.26	31.31	33.37	35.41	37.45
✓	Community Dev/Nat Resources Director	10,398	10,919	12,037	12,038	12,640
✓	Building Official	8,964	9,480	9,998	10,513	11,032
✓	Code Compliance Officer/Building Inspector	6,382	6,701	7,037	7,388	7,756
✓	Senior Planner	8,452	8,875	9,319	9,784	10,274
✓	Associate Planner	7,220	7,581	7,960	8,358	8,776
	Permit Technician Supervisor	7,416	7,754	8,091	8,429	8,765
✓	Permit Technician	6,084	6,512	6,936	7,364	7,786
	Permit Technician (hourly)	35.10	37.58	40.02	42.49	44.92
✓	Assistant Planner / Permit Technician	5,791	6,197	6,602	7,006	7,412
	Parks Department Director	8,455	8,907	9,361	9,814	10,266
✓	Public Works Director	10,398	10,924	11,472	12,046	12,648
✓	Operations & Maintenance Superintendent	8,964	9,480	9,998	10,513	11,032
✓	Capital Projects Program Manager	8,626	9,058	9,509	9,986	10,485
✓	Stormwater Coordinator	7,307	7,563	7,827	8,101	8,427
✓	Facilities Equipment Coordinator	6,111	6,512	6,936	7,364	7,786
✓	Management Analyst	7,760	8,148	9,583	9,011	9,432
	Public Works Administrative Asst. III	5,747	6,036	6,339	6,654	6,989
✓	Utilities Lead	7,241	7,604	7,984	8,383	8,802
✓	Utility Worker II	5,812	6,104	6,408	6,730	7,066
✓	Utility Worker I	4,938	5,184	5,444	5,712	6,001
✓	Utility Worker Seasonal (hourly)	20.20	24.45	-	-	-

Exhibit "A-4"

CITY OF BLACK DIAMOND

GENERAL SEWER PLAN

Prepared by:
Public Works Department
City of Black Diamond
Seth Boettcher, P.E.
PO Box 599
Black Diamond, WA 98010
(360) 886-5700



December 2012

Exhibit "C"

6.0 EXISTING SYSTEM EVALUATION

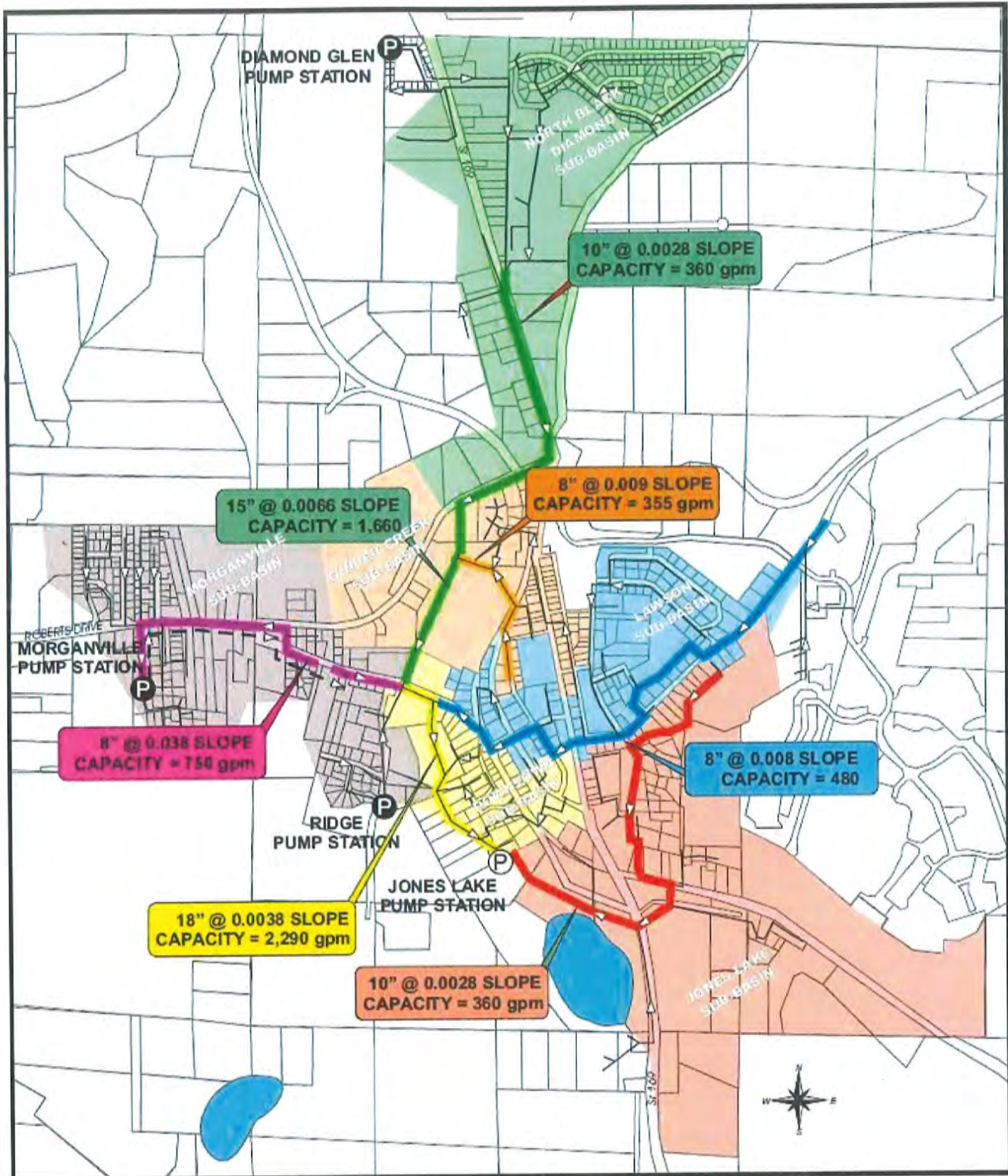


Figure 6.1 Existing Sewer Trunk Line Capacity and Sub-basins

"Exhibit C-1"

7.0 EVALUATION OF FUTURE CONDITIONS

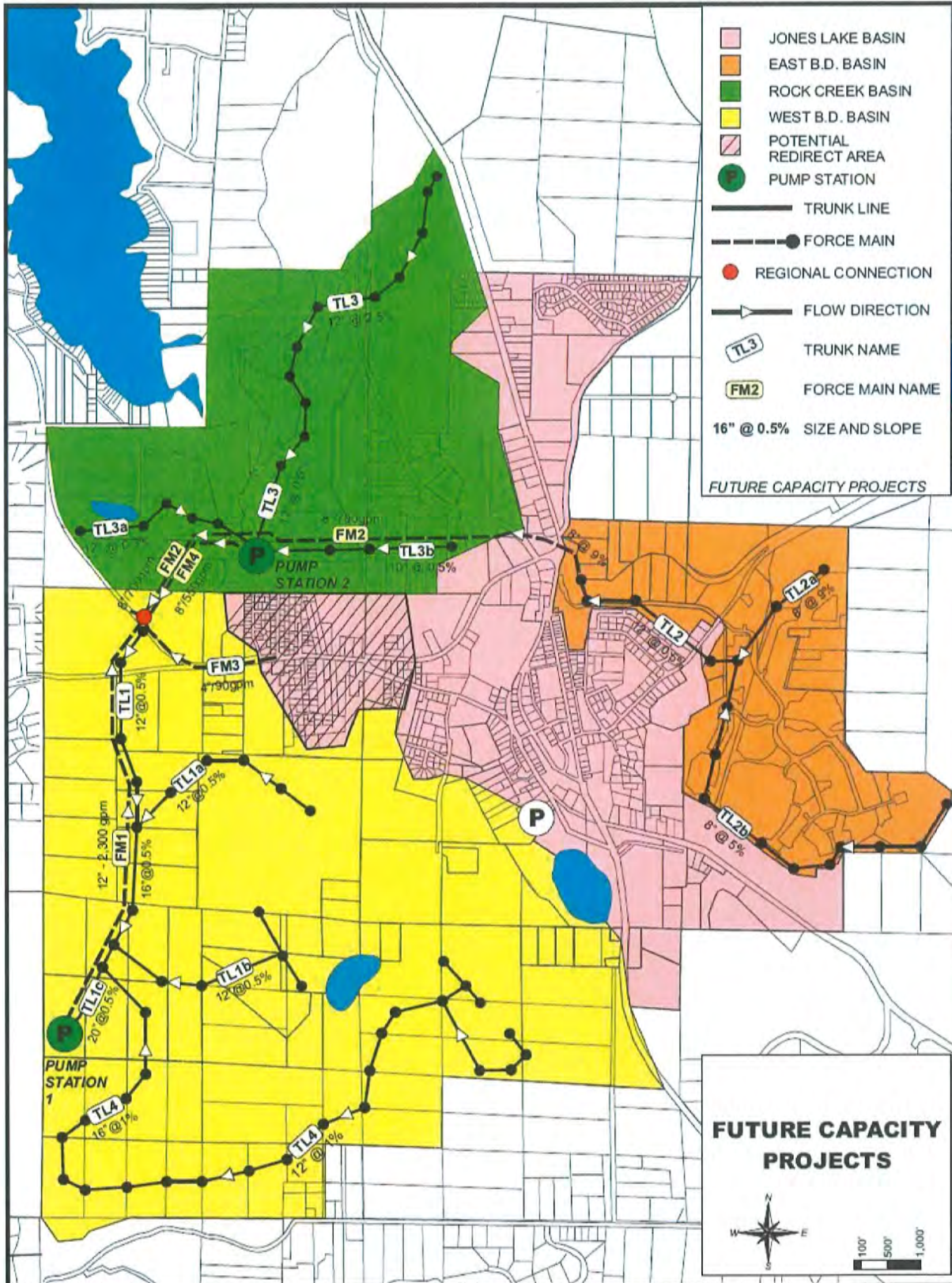


Figure 7.3 Future Capacity Projects

Exhibit "GZ"

Alex Campbell

From: Philip Acosta <philamatic@comcast.net>
Sent: Monday, December 15, 2025 4:17 PM
To: Alex Campbell
Subject: PLN25-0006 Pipeline Road

Follow Up Flag: Follow up
Flag Status: Completed

Dear Mr Campbell

I am a member of Friends of Black Diamond. I incorporate the Friends comments as my own.

We need OakPointe to build the Pipeline Road as soon as possible because our existing residential roads, and residents, are suffering the impacts of increased traffic.

TRAFFIC ISSUES ON SE 288TH STREET

There are serious safety concerns on SE 288th St, an east-west road that is often used to get to and from Highway 169 and Ten Trails. These concerns have gotten much worse with the additional traffic since OakPointe began building houses in Ten Trails.

I live on a side street, 229th Ave, that intersects SE 288th St. Everyone who lives in Black Diamond near where I do, and south and east of Lake Sawyer must drive out onto 288th Street to go anywhere. There are no other access roads besides SE 288th Street.

At busy times, it can take a few minutes to turn left onto 288th.

Families run and walk and bike on 288th and it is increasingly noisy and dangerous with no traffic control or useable crosswalks on it's entire length

INTERSECTION AT SE 288TH STREET AND STATE ROUTE 169

The intersection at SR 169 and SE 288th is stop-controlled, and traffic on SR 169 travels at high speeds. My grand-daughter was t-boned at this intersection in a very serious collision a few years ago. We need this intersection fixed

INTERSECTION AT SE 288th STREET AND 216th AVE

Examiner has previously heard testimony from Friends of Black Diamond regarding this intersection at SE 288th Street/216th Avenue where there is a partially installed traffic signal with a stop work order from King County. The developer said more than a year ago at one of their Plat hearings ago that they had proceeded to start work on this intersection that straddles the city limit of Black Diamond and unincorporated King County, even though they had not gotten a permit from King County. That explains why King County issued a "stop work."

More than a year ago, probably 2 or 3 years, the developer exceeded the number of houses by which they were required to fix this intersection. It is dangerous. There is a "T" at the end of 288th with a stop sign to

turn left or right onto 216th. 216th is wide with turn lanes and wide shoulders, and traffic comes fast, especially from the north traveling south.

Some months ago in 2025, city staff reported that King County has now issued a permit for this intersection.

However the traffic light is not functioning and it's only partly installed, as of this photo taken November 21st, 2025. Philip Acosta of Black Diamond

Please don't continue to give in to this developer who has tried to set aside so much of what was agreed to prior to the building of Ten Trails

Best Regards

Philip N Acosta
Black Diamond Wa
206 406 4404



Alex Campbell

From: jnetnub@aol.com
Sent: Monday, December 15, 2025 4:23 PM
To: Alex Campbell
Subject: Re: Pipeline Road PLN25-006 for December 15, 2025 hearing
Attachments: John Bunten's comments on Pipeline Road PLN25-006 for December 15, 2025.docx;
Bunten comments on Pipeline Rd PLN25-006 December 15 Hearing.docx

December 15, 2025

Re: Bunten comments on Pipeline Road PLN25-006 for December 15, 2025 hearing

Dear Mr. Campbell,

Attached are mine and my husband's comments for tonight's hearing.

Thank-you,

Nancy & John Bunten

December 14, 2025

John Bunten's comments on Pipeline Road PLN25-006 for December 15, 2025

My wife and I have lived on Roberts Drive just west of the library for 18 years. I am here speaking in opposition of letting Oakpointe postpone the building of the Pipeline Road.

First, I want to state;

That the increased traffic is real

The safety concerns are real

The noise is real

Every morning by 5:30 the commute starts outside our bedroom window, which is 50 feet from the sidewalk. Roberts Drive is comprised of 20 foot concrete slabs that make car tires clip clop along. Along with the engine noise, this makes it very hard to sleep.

The increased traffic makes crossing the street very dangerous. Prior to Ten Trails construction, everyone – kids, older people, neighbors - could easily cross the street where ever we needed to. This contributed to our quality of life and was part of our neighborhood, small-town feel.

At our house, and others on Roberts, the mailbox is across the street. Once at our mailbox you must stand to the side, hold on, and reach around into the box to stay out of the lanes of traffic. With increased traffic comes increased speeders. This last Thursday while standing to the side of my mailbox, a very large box truck came speeding around the curve from the east. The truck had to be going 45 miles per hour or more. I raised my hands and motioned for it to slow down as it flew by just feet from me. The truck sped west and through the green light at Morgan and through the red flashing speed indicator in front of Mama's old restaurant. I was in disbelief, but this is all too real and common.

What's going on here seems very similar to when I worked at Boeing back in 2014. We had a contract with 2 years left on it. Yet the company said they needed an 8 year extension to know the cost of building the new 777X and 737MAX. It also was around Christmastime while many senior workers were out of town on extended vacations. Management talked the union into allowing a vote, and presented a proposal to those still in town. The company had recently hired a bunch of newbies. They dangled a bonus and a ratification bonus in front of the newbies. In that vote we all lost our pensions. We thought we had a contract in place that needed to be honored, but people were swayed by short term money instead of something that was worth more in the long run. In that vote I lost about \$700.00 a month in retirement.

Another contract is the one PSE delivered a week and a half ago wanting an easement across the front of my property. They are offering some money for the right to run wires above my yard and the control of what I can do there. The deadline to act is before the end of the year or the money offered is reduced. Here we are at Christmastime again, and I can only surmise that they think maybe people will jump at their offer to pay for their Christmas spending, for short term gain again.

Now it is December 15th, and we are having a very important hearing just ten days before Christmas. This is just a week after the Lawson Hills SE Connector hearing. I ask myself, "Is there a playbook somewhere?"

I find it very odd that the City of Black Diamond hasn't done more to let the residents know about this hearing. Those of us on Roberts Drive and SE 288th Street are directly impacted and are within 300 feet of the "proposal." The code requires notice to be given to people within 300 feet of a project. The developer measured the traffic on Roberts Drive in their Traffic Analysis documents and very clearly used that as an argument that Pipeline Road is not needed. Therefore, everyone on Roberts Drive should have received a notice. It would have been very easy to slip a notice in with the water bill like they have for other notices in the

past. But I received nothing informing me of this hearing even though the impact is huge.

I want to know why this hearing isn't being held after the first of the year and why the city didn't want to give ample notice to those that will be affected most. I recommend the examiner hold this hearing open until the end of January with a second date added after public notice is mailed to everyone on the roads that are impacted.

I ask myself, "Who at the city is getting something out of this?" All I am getting out of it is an **extra** three to four years or more of having to endure what the city calls acceptable traffic.

You know what is acceptable? When you have an agreement in place, you honor it.

The noise is real.

The traffic is real.

The speeders and safety concerns are real.

Oakpointe's present agreement is real.

There is still another kind of contract I will speak about. That is the contract of public trust. Oakpointe needed it to get their developments off the ground. Now with the Lawson Hills SE Connector and Pipeline Road changes, they have broken that trust. The City of Black Diamond also has a public trust problem. They want us to believe we can trust that they are doing what is best for us, and we want to trust the City, but public trust is a two-way street. This time that street has a name - Pipeline Road. Hold Oakpointe to their original agreement.

SUBJECT: Bunten Comments for Pipeline Rd PLN25-006 December 15 Hearing

Date: December 14, 2025

We are Black Diamond residents at 24611 Roberts Drive near the library. We have lived at this address since 2007 and are familiar with Roberts Drive and its traffic and uses.

As development has increased, Roberts Drive has seen increased traffic. Years ago, traffic was very light. We never had to wait to get out of our driveway. There were very few trucks, and traffic speeds were generally within the posted limit. We felt safe driving and walking.

Now, however, we have much more traffic. During rush hour we might see cars continuously for most of the hour (estimate only). With increased traffic, the number of speeders also seems to have increased.

Getting our mail has become dangerous, with cars speeding by just inches away from us while we reach into our mail box and then wait to cross the street.

There are far more trucks on the road too. The heavy construction vehicles sometimes literally shake our house. Noise levels have increased, and we breathe in more exhaust fumes. Walking on the sidewalk is no longer pleasant, due to the noise and fumes.

We often must wait to get out of our driveway. During dark, rainy conditions it can feel unsafe, especially with the rate of speed at which many drivers are traveling.

There is also a huge increase in the number of people using our driveway as a turn-around.

The delay of Pipeline Road will make these problems worse.

Roberts Drive has sensitive areas along it, including Ginder Creek and wetlands. More traffic will harm these. Additionally, the road was probably not built to withstand much higher traffic loads, especially heavily laden construction vehicles.

Deterioration of the roadway leads to potholes on the gravel shoulders and other problems.

Please take our concerns into account as you review this proposal. We do not believe that Roberts Drive should be the primary access road for Ten Trails. When the MPD was approved, traffic was planned to be directed onto a newly constructed Pipeline Road. There has been no discussion of public benefit of changing this.

It appears that we are being asked to suffer impacts while the developer reaps an economic benefit....at our expense!

Roberts Drive is wholly inadequate to handle this much additional volume of traffic.

Please include us as a Party of Record for all subsequent notices about this Plan.

Thank-you,

John and Nancy Bunten

Alex Campbell

From: Friends BlackDiamond <friendsofblackdiamond@comcast.net>
Sent: Monday, December 15, 2025 4:40 PM
To: Alex Campbell
Cc: kristenbry@gmail.com; Angela Rossman Fettig; r.mixdog4@comcast.net; karen@bryantstractorandmower.com; t.walker12@comcast.net; dougostgard@gmail.com; carolynwi@yahoo.com; linda.a.heather@hotmail.com; Philip Acosta; argangl52@gmail.com; tekberg@gmail.com; dgwbk@msn.com
Subject: Comments on PLN25-0006 from Friends of Black Diamond
Attachments: PLN25-0051 Exhibit 4 - Phase 3A Traffic Impact Study.pdf; Schedule for Phase 1 Regional Infrastructure.pdf; FIA_Report_Text_Phase_1A 1B 2 3 1.3.24 (1).pdf; Traffic Engineer Comments 12-12-25 Gary Norris .pdf; PLN25-006 comments Friends on Pipeline Road 2025-12-15.pdf; PLN25-0006 Friends Photos part2- of Roberts Drive.pdf; PLN25-006 Friends Photos of SE 288th St and LakeSawyerRd.pdf; PLN25-0006 Friends Photos of Roberts Drive.pdf

Hello Mr. Campbell,
Please accept the attached comments for the Public Hearing on PLN25-0006.

Higher resolution photos are available if the city requests it, however, the photos have been compressed into PDF files due to the large file size.

Please note Friends is submitting 4 comment letters, a main letter, and then 3 that have photos of the affected streets and additional comments.

We've also attached four files that are exhibits referenced in the comments.

Thank you,
Friends of Black Diamond

TECHNICAL MEMORANDUM

Date:	May 9, 2025	TG:	1.16450.00
To:	Brian Ross and Justin Wortman – Oakpointe		
From:	Mike Swenson, P.E., PTOE and Maris Fry, P.E., RSP1 – Transpo Group		
Subject:	Ten Trails MPD – Phase 3A Traffic Impact Study		

This memo serves as a Traffic Impact Study (TIS) for Plat A of Phase 3 (“Plat 3A”) of the Ten Trails Master Planned Development¹ (MPD) and supplements the analyses conducted in the *Ten Trails and Lawson Hills MPDs – Phase 1A Mid-Point Traffic Monitoring Report* (the “*Phase 1A MP TMR*”) prepared in February 2022 and the *Ten Trails and Lawson Hills MPDs – Phase 3 Traffic Monitoring Report* (the “*Phase 3 TMR*”) prepared in January 2024. It provides a description of Plat 3A as well as estimates of weekday PM peak hour vehicle trip generation. It also determines the off-site improvements that would be triggered by build-out of Plat 3A, discloses potential impacts to traffic safety, addresses anticipated traffic impacts associated with construction activities, and describes the traffic calming measures internal to Plat 3A.

Exhibit F of The Villages MPD Development Agreement requires the preparation of a TMR for each phase of the combined Ten Trails and Lawson Hills MPDs prior to submittal of implementing project applications for such phase. The *Phase 3 TMR* was submitted to the City of Black Diamond in January 2024. As such, this Exhibit F requirement for Phase 3 implementing projects has been satisfied.

As required by Exhibit F, the *Phase 3 TMR* identified Phase 3 traffic impacts and the improvements triggered by such impacts along with their equivalent residential unit (ERU) thresholds necessary to maintain the City of Black Diamond, King County and Washington State Department of Transportation (WSDOT) adopted level of service (LOS) standards. The *Phase 1A MP TMR* analyzes the cumulative impacts of Phase 1A, 1B, and 2 of the combined MPDs through build-out of Phase 1A (~2026) while the *Phase 3 TMR* analyzes the cumulative impacts of Phase 1A, 1B, 2, and 3 of the combined MPDs beginning in 2025 (the first year of Phase 3 development) through build-out of all MPDs. This TIS analyzes how the weekday PM peak hour vehicles trips generated by the cumulative Ten Trails and Lawson Hills MPDs through build-out of Plat 3A trigger any of the ERU thresholds for improvements set forth in the *Phase 1A MP TMR* (for required improvements identified prior to the start of Phase 3 construction) and the *Phase 3 TMR* (for required improvements identified after construction of Phase 3 of the MPDs commences).

This study contemplates the cumulative development of Phases 1A, 1B, 2 and 3 of the Ten Trails and Lawson Hills MPDs at build-out of Plat 3A, which is expected to occur in 2028. Through 2028, the cumulative Ten Trails and Lawson Hills MPDs are projected to generate approximately 3,194 net new weekday PM peak hour trips, with approximately 277 of those peak hour trips resulting from Plat 3A. These trip generation projections are less than those assumed as part of the *Phase 3 TMR*, which projected 4,325 net new PM peak hour vehicle trips through the end of 2028. This is primarily due to updated development information in which more refined land uses have been determined and slower build-out than previously anticipated.

Project Description

The subject plat is located within Phase 3 of the Ten Trails MPD, which is located south of Ten Trails Phase 1A and Phase 2, south of Roberts Drive and west of SR 169. Vehicular access to

¹ Ten Trails MPD was formerly known as The Villages MPD until September 2016.

Plat 3A would be provided via Ten Trails Parkway SE from Roberts Drive. Ultimately Ten Trails Parkway would connect to SR 169, but this connection would not be open to general purpose traffic by build-out of Plat 3A. The subject plat would construct a mix of 202 single-family dwelling units, 33 multi-family dwelling units, and 94 age-qualified dwelling units.

In relation to the age-qualified units, the federal Housing for Older Persons Act (HOPA) exempts senior housing against familial status discrimination provided at least eighty (80) percent of the homes in a community are occupied by at least one person aging from 55 and above. To better align with HOPA and other fair housing laws, non-age-qualified occupants may occupy an age-qualified unit within the Ten Trails MPD if, at the time of application, at least 85% of the remaining occupied units are occupied by at least one age-qualified occupant. The proposed development program for Plat 3A includes a total of 94 age-qualified dwelling units and 202 single-family dwelling units, but to reflect the proposed 85% threshold, it is assumed that Plat 3A will effectively include 80 age-qualified dwelling units and 216 single-family dwelling units. As the age-qualified units will be marketed as a 55+ community and the CCRs require at least the initial occupation of all units within the community by an age-qualified occupant, this is a very conservative assumption that will likely never be realized.

A site plan for Plat 3A is provided in Attachment 1.

Project Trip Generation

Weekday PM peak hour vehicle trip generation for Plat 3A was estimated based on the size and type of development and assumptions outlined in the *Trip Generation Manual* (Institute of Transportation Engineers (ITE), 11th Edition) and *Trip Generation Handbook* (ITE, 3rd Edition). This methodology was chosen as it is consistent with the approach used to estimate trips for *The Villages Transportation Technical Report (TTR)* (Parametrix, December 2009), the subsequent *Transportation Model Update* (Parametrix, August 2023), and the *Phase 3 TMR*.

Weekday PM peak hour trip regression equations from the most recent edition of the *Trip Generation Manual* were used in estimating vehicle trip generation, consistent with the approach and methodology used for the *Villages TTR*. Only when regression equations were not available for a particular land use were average trip rates used. Where trip regression equations were used, the number of trips per dwelling unit generally decreases as the level of development increases; an effective trip rate was back-calculated based on the trip regression equation.

The land use assumptions and trip generation estimates for the Plat 3A land use proposal is summarized in Table 1. As shown, Plat 3A is expected to generate a total of 277 net new weekday PM peak hour vehicle trips, approximately 277 ERUs². Detailed trip generation calculation worksheets are included in Attachment 2.

Table 1. PM Peak Hour Project Trip Generation Estimates – Plat 3A

Land Use	Unit ¹	Size	Net New Trips
			Total (In/Out) ²
Single-Family Residential	DUs	216	205 (129/76)
Multi-Family Residential	DUs	33	35 (22/13)
Age-Qualified Residential	DUs	80	37 (23/14)
Total		329	277 (174/103)

1. DUs= dwelling units

2. Net new trips take into account internal trip capture within the Ten Trails MPD and pass-by trip reductions.

² One ERU was assumed to be equal to one weekday PM peak hour trip, consistent with the rate used to identify the thresholds for the off-site intersection improvements in previous studies.

Timing of Off-Site Improvements

This section describes the timing of improvements based on the ERU thresholds for improvements outlined in the *Phase 1A MP TMR* and the *Phase 3 TMR*. As described previously, the *Phase 1A MP TMR* outlines improvements for all intersections expected to operate below the applicable LOS standard by build-out of Phase 1A (2026; inclusive of Phase 1A, 1B, and 2) and the *Phase 3 TMR* outlines improvements for all intersections expected to operate below the applicable standard by build-out of Phase 3 (inclusive of Phase 1A, 1B, 2, and 3).

The timing of improvements outlined in the *Phase 1A MP TMR* and the *Phase 3 TMR* describe the transportation-related improvements which the Master Developer is conditioned to commence construction at certain ERU thresholds. The ERU thresholds represent the cumulative ERUs for Phases 1A, 1B, 2, and 3 of the overall Ten Trails and Lawson Hills MPDs. To determine which improvements would be necessary by build-out of Plat 3A, the combined trip generation of Phases 1A, 1B, 2, and 3 was determined for the year in which Plat 3A is expected to be complete (2028). The same trip generation methodology and assumptions were used to determine the cumulative trip generation as described above for the Plat 3A trip generation. Detailed trip generation calculation worksheets are included in Attachment 2.

The cumulative trip generation for Phase 1A, 1B, 2, and 3 was based on up-to-date development program information and timing for each phase, as established in April of 2025. The development assumptions through Plat 3A build-out for each phase are as follows:

- Ten Trails Phase 1A would include 489 single-family residential units, 262 multi-family residential units, a 600-student elementary school, 7,000 square feet of drive-thru fast food restaurant space, 5,000 square feet of high turnover sit-down restaurant space, 10,000 square feet of drive-thru pharmacy space, 10,000 square feet of daycare space, 9,352 square feet of quality restaurant space, 2,482 square feet of coffee shop space, 59,817 square feet of supermarket space, 2,700 square feet of drive-thru bank space, 8,000 square feet of medical/dental office space, and 57,649 square feet of general retail space.
- Ten Trails Phase 1B would include 245 single-family residential units, 134 multi-family residential units, 4,335 square feet of gas station/convenience store space, 2,378 square feet of drive-thru fast food restaurant space, a one-tunnel automated car wash, 25,000 square feet of general office space, and 56,058 square feet of general retail space.
- Ten Trails Phase 2 would include 506 single-family residential units, 258 age-qualified residential units, and 42 multifamily residential units.
- Ten Trails Phase 3 would include 591 single-family residential units, 80 age-qualified residential units, and 209 multifamily residential units.
- Lawson Hills Phase 2 would include 106 single-family residential units and 72 multi-family residential units.
- Lawson Hills Phase 3 would include 96 multi-family dwelling units.
- North Triangle Phase 1B would include 65,000 square feet of retail space.

The proposed development program for Ten Trails Phase 2 and Phase 3 combined (through build-out of Plat 3A) includes a total of 399 age-qualified dwelling units and 1,484 single-family dwelling units, but to reflect the proposed 85% threshold, it is assumed that Ten Trails Phase 2 and Phase 3 will effectively include 338 age-qualified dwelling units and 1,097 single-family dwelling units. As

the age-qualified units will be marketed as a 55+ community and the CCRs require at least the initial occupation of all units within the community by an age-qualified occupant, this is a very conservative assumption that will likely never be realized.

As shown in Table 2, Phases 1A, 1B, 2, and 3 at the build-out of Plat 3A would generate 3,194 net new weekday PM peak hour trips (3,194 ERUs).

Table 2. 2028 PM Peak Hour Cumulative Trip Generation Estimates – Phase 1A, 1B, 2, and 3

Land Use	Unit ¹	Size	Gross Trips	Internal Trips	Pass-by Trips	Net New Trips
			Total (In/Out)	Total (In/Out)	Total (In/Out)	Total (In/Out)
<u>Ten Trails²</u>						
Single-Family Residential	DUs	1,831	1,528 (963/565)	277 (178/99)	-	1,251 (785/466)
Multi-Family Residential	DUs	647	299 (188/111)	48 (32/16)	-	251 (156/95)
Age-Qualified Residential	DUs	338	115 (70/45)	19 (12/7)	-	96 (58/38)
Elementary School	Students	600	96 (44/52)	31 (15/16)	-	65 (29/36)
Conv. Store w/ Gas Stn	SF	4,335	236 (118/118)	-	178 (89/89)	58 (29/29)
Car Wash	Tunnels	1	78 (39/39)	-	44 (22/22)	34 (17/17)
Supermarket	SF	59,817	510 (255/255)	171 (69/102)	82 (41/41)	257 (145/112)
Drive-Thru Bank	SF	2,700	57 (29/28)	-	20 (10/10)	37 (19/18)
Fast Food w/ Drive Thru	SF	9,378	310 (161/149)	162 (71/91)	82 (41/41)	66 (49/17)
High Turnover Sit Down Rest	SF	5,000	45 (27/18)	23 (12/11)	10 (5/5)	12 (10/2)
Pharmacy w/ Drive Thru	SF	10,000	103 (52/51)	35 (14/21)	34 (17/17)	34 (21/13)
Day Care	SF	10,000	111 (52/59)	-	48 (24/24)	63 (28/35)
Quality Restaurant	SF	9,352	73 (49/24)	37 (22/15)	16 (8/8)	20 (19/1)
Coffee Shop	SF	2,482	80 (40/40)	42 (18/24)	-	38 (22/16)
Medical/Dental Office	SF	8,000	29 (20/9)	13 (8/5)	-	16 (1/15)
General Office	SF	25,000	53 (9/44)	20 (8/12)	-	33 (1/32)
General Retail	SF	113,697	619 (297/322)	208 (84/124)	78 (39/39)	333 (174/159)
Ten Trails Total			4,342 (2,402/1,940)	1,086 (543/543)	592 (296/296)	2,664 (1,563/1,101)
<u>Lawson Hills³</u>						
Single-Family Residential	DUs	106	105 (66/39)	-	-	105 (66/39)
Multi-Family Residential	DUs	168	93 (59/34)	-	-	93 (59/34)
Lawson Hills Total			198 (125/73)	-	-	198 (125/73)
<u>North Triangle⁴</u>						
General Retail	SF	65,000	414 (199/215)	-	82 (41/41)	332 (158/174)
North Triangle Total			414 (199/215)	-	82 (41/41)	332 (158/174)
Total			4,954 (2,726/2,228)	1,086 (543/543)	674 (337/337)	3,194 (1,846/1,348)

1. DUs= dwelling units; SF=square feet

2. The Ten Trails MPD would include development associated with Phase 1A, 2, 1B, and 3 at build-out of Plat 3A.

3. The Lawson Hills MPD would include development associated with Phase 2 at build-out of Plat 3A

4. The North Triangle is representative of portions of both the Ten Trails and Lawson Hills MPDs

Based on timing of improvements outlined in the *Phase 1A MP TMR* and the *Phase 3 TMR*, the following intersections would be triggered for improvement prior to build-out of Plat 3A. An overview of the proposed improvements and ERU triggers at these intersections is included in Table 3.

- SE 288th Street/216th Street
- SE Covington-Sawyer Road/216th Avenue SE
- SR 169/Baker Street
- SR 169/Lawson Street
- Auburn-Black Diamond Road/218th Avenue SE
- Roberts Drive/Ten Trails Place
- Roberts Drive/Morgan Street
- SR 169/SE 288th Street
- SE Kent-Kangley Road/Landsburg Road SE
- SR 169/Jones Lake Road
- SR 169/North Connector
- SR 169/SE Green Valley Road

As outlined in the *Phase 3 TMR*, the next intersection improvement would be triggered at the 3,559th ERU and therefore would not need to commence prior to build-out of Plat 3A. This intersection improvement includes a traffic signal at SE Auburn-Black Diamond Road/SE Green Valley Road.

Table 3. Summary of Intersection Improvements and Construction Timing

Intersection	Improvement	Commence construction prior to City's issuance of a certificate of occupancy for ¹
SE 288th St/216th Ave SE	Traffic Signal + NBR Turn Lane	827th ERU
SE Covington-Sawyer Rd/216th Ave SE (<i>First Phase</i>)	NBL Turn Lane	1,089th ERU
SR 169/Baker St (<i>First Phase</i>)	EB-to-NB Refuge/Merge Lane + NBL Turn Lane	1,089th ERU
SR 169/Lawson St (<i>First Phase</i>)	NBL/SBL Turn Lanes	1,089th ERU
SE Auburn-Black Diamond Rd/218th Ave SE (<i>First Phase</i>)	Single-Lane Roundabout	1,394th ERU
Roberts Dr/Ten Trails Pl SE	Traffic Signal	1,422nd ERU
SR 169/Baker St (<i>Final Phase</i>)	Traffic Signal	1,422nd ERU
SR 169/Lawson St (<i>Final Phase</i>)	Traffic Signal	1,422nd ERU
SE Covington-Sawyer Rd/216th Ave SE (<i>Final Phase</i>)	EBR Turn Lane	2,176th ERU
Roberts Drive/Morgan Street	Traffic Signal	2,176th ERU
SR 169/SE 288th Street (<i>First Phase</i>)	Single-Lane RAB + SBR Turn Lane	2,176th ERU
SE Kent-Kangley Rd/Landsburg Rd SE	Traffic Signal or Pro-Rata Share Contribution to Functionally Equivalent Improvement	2,176th ERU
SR 169/Jones Lake Road	Traffic Signal + NBL Turn Lane ²	2,716th ERU
SR 169/North Connector	Single-Lane RAB + SBR and EBR Turn Lanes ²	2,716th ERU ³
SR 169/SE Green Valley Road	Traffic Signal ²	2,716th ERU

Note: ERU = equivalent residential unit; NBR = northbound right; NBL = northbound left; SBL = southbound left

1. The number of ERUs reflects the combination of Phases 1A, 1B, 2, and 3 within the Ten Trails and Lawson Hills MPDs

2. Ultimate improvement will be determined in coordination with WSDOT as part of the required Intersection Control Evaluation and design review processes.

3. Or at which point the intersection is constructed to provide access to the North Triangle

To date, construction of the necessary improvements have commenced at SE Covington-Sawyer Road/216th Avenue SE and E 288th Street/216th Avenue SE. Additionally, construction of the necessary improvement has been completed at Roberts Drive/Morgan Street.

As it relates to SR 169/Baker Street and SR 169/Lawson Street, the Master Developer began conversations with the Washington State Department of Transportation (WSDOT) and the City to develop a series of intersection improvement alternatives at the two intersections to be evaluated as part of WSDOT's Intersection Control Evaluation (ICE) process. Due to a total of four (4) varying alternatives evaluated and WSDOT's preference for roundabout-controlled intersections, it was determined that the previously identified first phase improvement may not be appropriate in the event that a roundabout-controlled intersection improvement was required. Given the many complexities of constructing improvements at these intersections, it was determined that the ICE should include a full build-out analysis of the MPDs, inclusive of Phase 3. As such, submission of the ICE was delayed until completion of the Phase 3 TMR which in turn required completion of the City's new 850-unit transportation model update.

This 850-building permit threshold has been met and the corresponding Transportation Model Update was prepared by Parametrix in August 2023. Using that model, the Phase 3 TMR has been completed and the ICE has been submitted to WSDOT and is currently undergoing review.

Furthermore, the updated existing conditions analysis completed as part of the Phase 3 TMR indicates that the intersection of SR 169/Baker operates at acceptable level of service, but the intersection of SR 169/Lawson Street operates at LOS E (below WSDOT's LOS D standard). However, it should be noted that it is the eastbound approach of Lawson Street that operates at LOS E under existing conditions, which only observed a total of three (3) vehicles during the PM peak hour. All other approaches and movements operate at LOS C or better during the PM peak hour. Therefore the LOS E conditions impact less than one (1) percent of vehicles passing through this intersection.

Additionally, it should be noted that the intersection of SR 169/North Connector has a construction threshold of 2,716 ERUs, but this trigger is only applicable in the event that development in the North Triangle has commenced and should be tied to the first plat within the North Triangle development area, rather than Plat 3A.

Additional Transportation Improvements

As it relates to the timeline of Plat 3A, Section 6.4.3 of *The Villages MPD Development Agreement* provides that the preliminary design and alignment of Pipeline Road shall be completed by the Master Developer and the right of way dedicated to the City prior to the City's approval of a building permit for the 1,200th building permit within the Ten Trails MPD. This section further provides that Pipeline Road shall be constructed by the Master Developer and open for traffic prior the City's approval of a building permit for the 1,746th dwelling unit of the Ten Trails MPD or when the Traffic Monitoring Plan shows that construction is necessary to prevent a significantly adverse degradation of Level of Service on Roberts Drive.

Through build-out of Plat 3A, the Ten Trails MPD would total 2,816 dwelling units, surpassing this defined dwelling unit threshold. As such, dedication of right of way for and construction of Pipeline Road would be complete prior to build-out of Plat 3A. This study does not preclude the City from developing and approving an updated construction trigger for Pipeline Road provided that the new construction trigger adequately addresses impacts to intersections along Roberts Drive and the accompanying mitigation strategies. In the event that a new construction trigger is established for Pipeline Road, the construction timeline of Pipeline Road and any impacted intersections would be adjusted accordingly.

Traffic Safety

Collision data for the most recent five-year period were obtained from WSDOT and summarized at each intersection and along each roadway segment evaluated in the previous traffic studies for the Ten Trails and Lawson Hills MPDs.

Intersection Collision Analysis

Collisions at study intersections were determined using WSDOT's classification of the "Junction Relationship" of the collision as well as by reviewing collisions that were noted to occur within 200 feet of intersections. All collisions that were classified as "At Intersection and Related" or "Intersection Related but Not at Intersection" were included. Collisions adjacent to intersections were also reviewed to determine whether the cause was related to the intersection (e.g., rear-end type collisions) or related to the roadway (e.g., fixed-object collisions) and included in the collision summaries. The number of collisions reported at these intersections are summarized in Table 4.

Table 4. Five-Year Collision Summary at Intersections – 2019 to 2023

Intersection	2019	2020	2021	2022	2023	Total	Annual Collisions Average per MEV ¹	
SE 288th St/216th Ave SE	2	2	1	2	4	11	2.20	0.55
SE 288th St/232nd Ave SE	0	0	0	0	0	0	0.00	0.00
SE Covington-Sawyer Rd/216th Ave SE	3	0	2	6	4	15	3.00	0.67
SE Auburn-Black Diamond Rd/218th Ave SE	0	1	2	2	1	6	1.20	0.41
Roberts Dr/Lake Sawyer Rd SE	0	2	0	0	0	2	0.40	0.14
Roberts Dr/Morgan St	1	0	0	0	0	1	0.20	0.09
SR 169/SE 288th St	4	4	2	4	1	15	3.00	0.55
SR 169/SE Black Diamond-Ravensdale Rd	3	7	2	1	3	16	3.20	0.60
SR 169/Roberts Dr	2	1	1	0	0	4	0.80	0.15
SR 169/Baker St	1	1	3	2	1	8	1.60	0.37
SR 169/Lawson Rd	0	2	0	2	1	5	1.00	0.24
SR 169/Jones Lake Rd	0	0	1	2	0	3	0.60	0.15
SR 169/SE Green Valley Rd	1	1	0	0	1	3	0.60	0.15
SE Kent-Kangley Rd/Landsburg Rd SE	6	3	0	1	1	11	2.20	0.60
SE Auburn-Black Diamond Rd/SE Green Valley Rd	0	1	0	0	0	1	0.20	0.05

Source: WSDOT, 2024.

Note: Under 23 U.S. Code § 409 and 23 U.S. Code § 148, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

1. Collisions per one million entering vehicles (No. of reported collisions x 1,000,000) / (Average daily traffic volumes x 365 x 5 years)

As shown in Table 4, the majority of intersections experienced an average of two collisions or fewer during this five-year period. Based on a review of collision severity of the 101 total collisions, 81 involved no injuries, 19 resulted in injury, and one collision led to a fatality. The fatality occurred at the SR 169/Baker Street intersection and involved a vehicle turning left onto SR 169 from Baker Street and failing to yield right of way to a vehicle traveling southbound along SR 169. Angle collisions, such as this one, are the most common type of collision at this intersection.

Within the study area there was one bicyclist collision and zero pedestrian collisions reported in the study area. The bicyclist collision also occurred at the SR 169/Baker Street intersection and did not result in any injuries.

The number of collisions per one million entering vehicles was also evaluated to provide a comparable rate between locations and determine if further evaluation of traffic safety is necessary. *The Transportation Impact Analyses for Site Development, An ITE Recommended Practice* (ITE, 2010) recommends the following procedure in evaluating traffic safety at intersections:

The initial review of existing data within a study area should include recent (within 3 years) collision experience. This review should identify locations where transportation safety should be given extra consideration. High-collision locations (based on number, rate and severity) on roadways serving the study site should be analyzed. Collision rates vary, but any intersection with more than one collision per million entering vehicles (MEV) may be worthy of additional analysis. (page 74)

Based on the data summarized in Table 4 above, no intersections in the study area experienced a collision rate over 1.0 collisions pre MEV. It should be noted that the intersection of SE Kent-Kangley Road/Landsburg Road SE previously experienced a collision rate over 1.0 collisions per MEV. To help address the elevated collision rate at this intersection, King County converted the intersection to all-way stop-controlled in the spring of 2021 and later constructed an eastbound right-turn channelized right-turn lane and a traffic island with a new crosswalk. As the data indicates, these measures have proven to be effective in reducing the number of crashes at the intersection. The County will continue monitoring operations and safety at this intersection, with the intention to install a permanent traffic calming safety improvement, such as a roundabout or traffic signal, in the future.

Roadway Collision Analysis

Collision data along roadway segments in the City of Black Diamond from 2019-2023 was also obtained from WSDOT and analyzed. A summary of collision data during the most recent three-year period is summarized in Table 5.

Table 5. Five-Year Collision Summary for Roadway Segment – 2019 to 2023

Roadway Segments	2019	2020	2021	2022	2023	Total	Annual Average	Collisions per MVM ¹
SE ABD Rd (218th Ave SE to Lake Sawyer Rd SE)	1	1	1	1	1	5	1.00	0.37
Roberts Dr (Lake Sawyer Rd SE to Morgan St)	1	2	0	1	1	5	1	1.03
Roberts Dr (Morgan St to SR 169)	0	1	0	0	0	1	0.20	0.16
Morgan St (Roberts Dr to Baker St)	0	1	1	0	0	2	0.40	2.06
216th Ave SE (SE 288th St to SE 304th St)	3	3	3	3	3	15	3.00	1.38
Lake Sawyer Rd SE (SE 304th St to Roberts Dr)	1	0	0	1	1	3	0.60	0.37
SR 169 (SE 288th St to Roberts Dr)	3	6	7	4	3	23	4.60	0.49
SR 169 (Roberts Dr to Lawson St)	3	2	4	2	2	13	2.60	0.91
SR 169 (Lawson St to Jones Lake Rd)	4	1	2	1	0	8	1.60	1.25
SR 169 (Jones Lake Rd to SE Green Valley Rd)	2	3	3	2	6	16	3.20	0.66

Source: WSDOT, 2024.

Note: ABD = Auburn-Black Diamond

Note: Under 23 U.S. Code § 409 and 23 U.S. Code § 148, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

1. Collisions per one million vehicle-miles traveled (No. of reported collisions x 1,000,000) / (Segment length x Average daily traffic volumes x 365 x 3 years)

As shown in Table 5, on average, approximately 5 collisions per year or less were reported along the roadway segments during the most recent five-year period. Based on a review of collision severity of the 91 total collisions, 58 resulted in property damage only and 33 resulted in some type of injury. Thus, a majority of all reported collisions resulted in no or no apparent injuries. There were no pedestrian or bicycle-related collisions reported along the roadway segments.

In addition to the annual collision data, the number of collisions occurring per one million vehicle miles (MVM) traveled was calculated for each segment and ranged from 0.00 to 2.06 collisions per MVM traveled. Four roadway segments experienced more than one collision per MVM traveled, including Roberts Drive between Lake Sawyer Road SE and Morgan Street, Morgan Street between Roberts Drive and Baker Street, 216th Avenue SE between SE 288th Street and SE 304th Street, and SR 169 between Lawson Street and Jones Lake Road. Common collision types for each roadway segment are as follows:

- Roberts Drive segment between Lake Sawyer Road SE and Morgan Street: All of the collisions along this corridor resulted in property damage only, with 4 of the 5 collisions reported being between a vehicle and a fixed object.
- Morgan Street segment: only 2 collisions occurred along this corridor, with one collision being with a fixed object and one head-on collision. A high collision per MVM is observed along this corridor due to low average daily traffic along the segment.
- 216th Avenue SE segment: Collisions between vehicles and a fixed object made up 7 of the 15 collisions reported along the segment.
- SR 169 segment between Lawson Street and Jones Lake Road: Of the 8 collisions reported along this roadway segment, a majority of collisions were either with fixed objects (4) or rear end collisions (2).

By comparison, based on the rates presented in the King County's *Road Services Division 2022 Collision Data Report*, the average collision rate along roadways in unincorporated King County was 1.46 collisions per MVM travelled, while statewide the average collision rate in 2022 was 1.77 collisions per MVM travelled. While the Morgan Street segment does show a collision rate above these averages, with only two collisions reported along the segment, there is not enough evidence to suggest a safety concern along the corridor. As a state route, the SR 169 segment between Lawson Street and Jones Lake Road shows a collision rate below the statewide average. The Collision rates along the 216th Avenue SE segment are also well below the Countywide and Statewide averages which capture collisions in urban, suburban and rural areas.

New traffic generated by Plat 3A would likely result in a proportionate increase in the probability of traffic collisions. It is unlikely, however, that this traffic would create a safety hazard or significantly increase the number of reported collisions. It is unlikely project traffic would exacerbate an existing traffic safety hazard because no roadway segments in and around Black Diamond experienced an unusually high collision rate during the most recent five-year period.

Construction Impacts

This section addresses the anticipated traffic impacts associated with the construction activities for Plat 3A.

Construction Phasing and Timing

Construction traffic associated with the development of Plat 3A would be affected by phasing and timing of construction. Initial construction activities would include earthwork, construction of in-plat and off-site roads and utilities, and construction of the Ten Trails regional lift station. Following initial construction activities, the vertical construction would occur.

The schedule for Plat 3A will vary based on the duration and type of work being completed. A summary of the tentative schedule for Plat 3A is shown in Table 6. A more detailed analysis of the construction phasing and timing is included in a memorandum prepared by David Evans and Associates and included as Attachment 3.

Table 6. Planned Construction Schedule – Plat 3A

<u>Earthwork</u>		<u>Road and Utilities</u>		<u>Access and Utilities</u>		<u>Ten Trails Lift Station</u>		<u>Vertical Construction</u>	
Dates	Duration	Dates	Duration	Dates	Duration	Dates	Duration	Dates	Duration
Apr.-Oct '25	7 months	Aug. '25 – Mar. '26	8 months	May – Sep. '25	5 months	July '25 – Feb. '26	8 months	June '26 – Nov. '28	30 months

Source: David Evans and Associates

As shown in Table 6, earthwork activities for Plat 3A will begin in April 2025 and are expected to be complete in October 2025, over a period of 7 months. In-plat road and utilities construction is expected to begin in August 2025 and is expected to be complete in March 2026, over a period of 8 months. Off-site access and utilities construction is expected to begin in May 2025 and is expected to be complete in September 2025, over a period of 5 months. Construction of the Ten Trails regional lift station is expected to begin in July 2025 and be completed in February 2026, over a course of 8 months. Vertical construction is expected to take place from June 2026 to November 2028, over a period of 30 months.

Construction Trip Generation

The amount of construction traffic associated with Plat 3A was estimated for the number of truck trips as well as employee or crew trips. The construction timeline and schedule were also reviewed to understand the anticipated volume of daily construction traffic as well as during the weekday PM peak hour at adjacent street traffic (one-hour period of greatest demand between the hours of 4:00 p.m. and 6:00 p.m.).

The primary hours for construction are between 7:00 a.m. and 3:00 p.m. with most truck traffic avoiding delays associated with traffic congestion during the PM peak hour of adjacent street traffic; however, these calculations conservatively assume that some construction traffic would occur during the weekday PM peak hour as summarized below. In addition, it was assumed that each construction worker would arrive and depart in a single-occupant vehicle even though it is likely that some construction workers would carpool to/from the project site, effectively reducing the trip generation estimates identified in this memo.

A summary of the daily and weekday PM peak hour construction trips anticipated for Plat 3A is provided in Table 7. This data was derived from detailed trip generation calculations and construction assumptions provided in the construction memorandum provided by David Evans and Associates (Attachment 3). It should be noted that the data related to daily traffic from the David Evans Associates memorandum represents round trips, which were doubled in the table below to account for each entering and exiting trip end associated with daily trips.

Table 7. Construction Trip Generation Summary – Ten Trails MPD Plat 3A

Construction Type	<u>Weekday Daily Trips¹</u>			<u>Weekday PM Peak Hour Trips</u>		
	Crew	Truck	Total	Crew	Truck	Total
Earthwork	32	16	48	3	1	4
Road and Utilities	24	22	44	2	1	3
Access and Utilities	24	4	28	2	1	3
Ten Trails Regional Lift Station	16	2	18	2	1	3
Vertical	128	10	138	11	1	12

1. Daily trips identified in the David Evans and Associates memorandum represent round trips / individual trip ends at the project site and were doubled in this memorandum to account for each entering and exiting trip end associated with a daily trip.

During earthwork construction, it is estimated that Plat 3A would generate approximately 32 daily crew trips and 16 daily truck trips with up to three crew trips and one truck trip occurring during the weekday PM peak hour of adjacent street traffic.

During in-plat road and utilities construction, it is estimated that Plat 3A would generate approximately 24 daily crew trips and 22 daily truck trips, with up to two crew trips and one truck trip occurring during the weekday PM peak hour.

During off-site access and utilities construction, it is estimated that Plat 3A would generate approximately 24 daily crew trips and 4 daily truck trips, with up to two crew trips and one truck trip occurring during the weekday PM peak hour.

During construction of the Ten Trails regional lift station, it is estimated that Plat 3A would generate approximately 16 daily crew trips and 2 daily truck trips with up to two crew trips and one truck trip occurring during the weekday PM peak hour.

During the vertical construction, it is estimated that Plat 3A would generate approximately 128 daily crew trips and 10 daily truck trips with up to 11 crew trips and one truck trip occurring during the weekday PM peak hour.

Construction Impacts

As shown in the previous sections, the highest weekday PM peak hour trip generation for Plat 3A would be during vertical construction. During this time, the project is estimated to generate approximately 12 trips during the PM peak hour. As the impacts for the buildout have been identified and the trip generation estimated for the construction traffic is significantly lower, no additional off-site mitigation should be necessary to mitigate traffic operations during the construction of Plat 3A.

Construction Management Plan

A construction management plan will be developed by the Master Developer in coordination with the City of Black Diamond to provide for a safe and efficient construction site and minimize the impacts to traffic operations in the area as required by Section 1.17 of the City of Black Diamond Engineering Design and Construction Standards. This plan will minimize off-site construction impacts through containing equipment, materials, and workers on-site as much as possible and accommodating staging, construction facilities and parking on-site. Specific transportation-related items anticipated to be addressed in a construction management plan include:

- **Truck Routes** – identifying specific haul routes for trucks, which will avoid impacts to local residential streets.
- **Noise** – minimizing noise impacts associated with construction on-site as well as from haul trucks on the roads.
- **Parking** – identifying parking areas for employees as well as staging areas for trucks and materials.
- **Access** – Identifying specific areas for access that would likely require safe controlled access for large trucks to and from the site.
- **Compute Trip Reduction** – encouraging carpooling and other ride sharing by employees to minimize the number of single occupant vehicle trips on site.

In addition, Sheet UA1 of the “Utility Availability” plan for Plat 3A includes preliminary haul route plans that have two plat notes that provide additional mitigation to minimize construction impacts

to SE Green Valley Road and allow the City an opportunity to review and approve construction traffic control designs. The notes read as follows:

1. Master Developer shall include the following provision in clearing, grading and construction contracts: "Except for the westerly 1,000 feet of SE Green Valley Road, SE Green Valley Road shall not be used as a construction haul route by contractors or its agents."
2. Construction traffic control design will be provided as part of final engineering plans for review and approval by the City of Black Diamond.

Traffic Calming Measures

A variety of traffic calming measures will be incorporated within Plat 3A to calm traffic and help minimize excessive vehicle speeds.

Curb bulb-outs are one traffic calming measure which would narrow the roadway width by providing a physical constraint requiring motorists to travel through intersections and along residential streets at lower speeds. Curb bulb-outs would be designed to provide 10 foot-foot travel lanes and are typically located leading up to and at the intersection of two roadways, at the intersection of alleys and auto courts (access driveways) with roadways, and along small radius curves. Curb bulb-outs also increase safety for people walking and bicycling as they provide increased visibility and shorter crossing distances of streets while narrowing the streets as vehicles approach the crossing location.

In addition to curb bulb-outs at intersections, on-street parking would be provided along internal roadways within Plat 3A. On-street parking has a measurable effect on vehicle speeds. For many reasons, motorists generally travel at slower speeds in the presence of on-street parking³. For example, parked vehicles present the possibility of motorists entering/exiting the flow of traffic which requires more attentive driving behavior and slower speeds. Parked vehicles also give the perception of narrow travel lanes which reduce vehicle speeds.

Summary and Conclusions

- This traffic impact study analyzes the impacts of Plat 3A of the Ten Trails MPD. Plat 3A would include construction of 202 single-family dwelling units, 33 multi-family dwelling units, and 94 age-qualified dwelling units. To better align with HOPA, it is assumed that at least 85% of age-qualified units are occupied by at least one age-qualified occupant such that trip generation projections were based on a unit mix of 216 single-family dwelling units, 33 multi-family dwelling units, and 80 age-qualified units. It is estimated these land uses would generate approximately 277 net new weekday PM peak hour vehicle trips. This is equivalent to 277 ERUs.
- With consideration of Phase 1A, 1B, 2, and 3 of the Ten Trails and Lawson Hills MPDs combined, a total of 1,937 single-family residential dwelling units, 815 multifamily residential dwelling unit, 338 senior adult detached dwelling units, a 600-student elementary school, 4,335 square feet of convenience store space, a one-tunnel car wash, 59,817 square feet of supermarket space, 2,700 square feet of drive-

³ This is supported in (1) Marshall, W., N. Garrick and G. Hansen. "Reassessing On-Street Parking." *Transportation Research Record*, No. 2046 (2008): 45-52 and (2) Morrison, B. "Residential Street Width, On-Street Parking and Accident Frequency." 22nd Conference Proceedings of the Australian Road Research Board, 2006. It is also worth noting that lower-speed streets with on-street parking also have some of the lowest collision rates with respect to serious accidents. Likewise, pedestrian safety is enhanced as on-street parking provides a buffer or barrier between pedestrian traffic and vehicular traffic. Therefore, facilities with on-street parking tend to be safer and more walkable than facilities without on-street parking.

thru bank space, 9,378 square feet of drive-thru fast food restaurant space, 5,000 square feet of high turnover sit-down restaurant space, 10,000 square feet of drive-thru pharmacy space, 10,000 square feet of day care space, 9,352 square feet of quality restaurant space, 2,482 square feet of coffee shop space, 8,000 square feet of medical/dental office, 25,000 square feet of general office space, and 178,697 square feet of retail would be constructed through build-out of Plat 3A (~2028). It is estimated these land uses would generate approximately 3,194 net new weekday PM peak hour vehicle trips. This is equivalent to 3,194 ERUs.

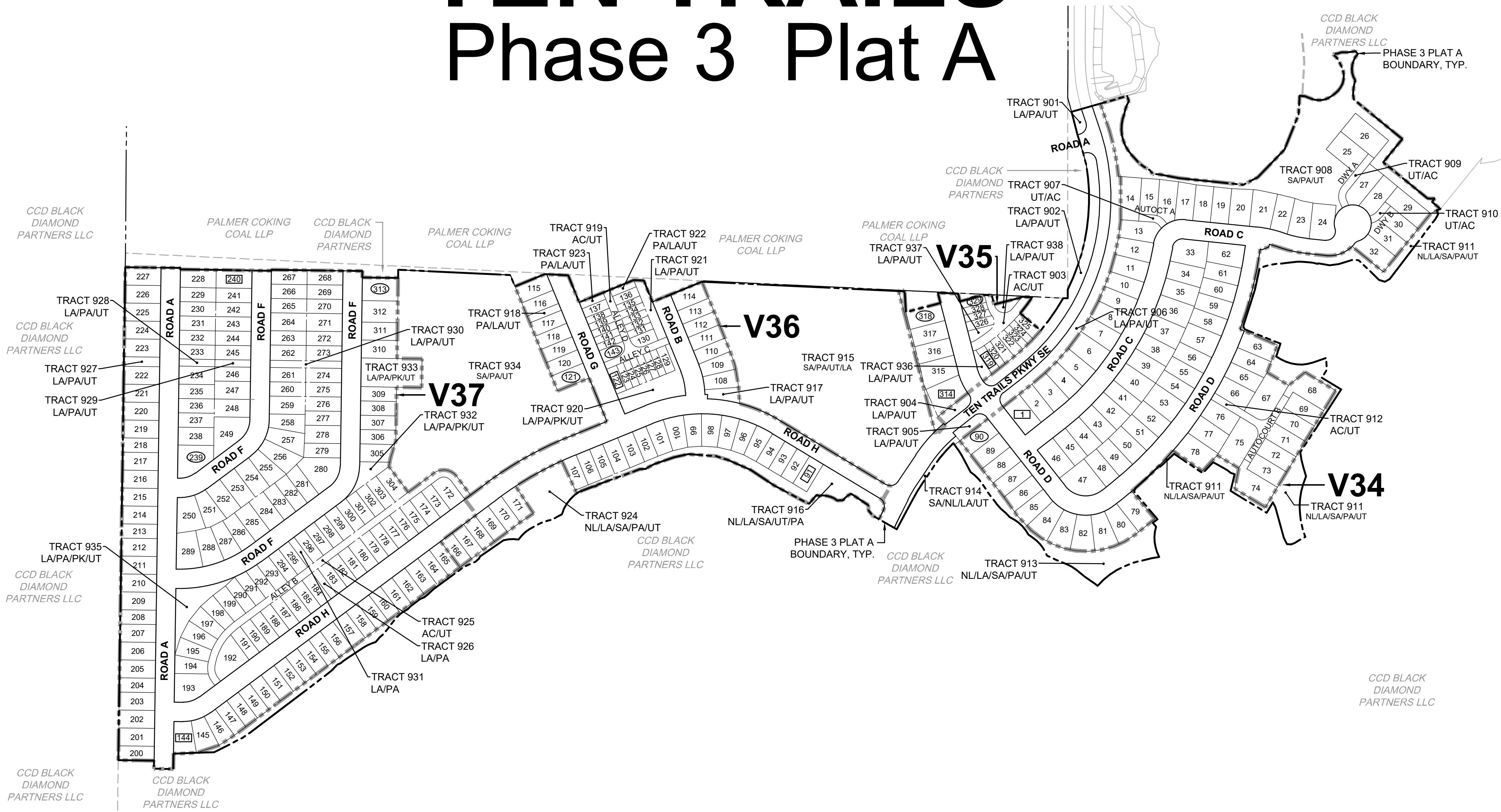
- With the development of Plat 3A and other MPD development anticipated to be complete by build-out of Plat 3A, off-site improvements would be triggered at twelve intersections. This would include a traffic signal and northbound right turn lane at SE 288th Street/216th Street SE, channelization improvements at SE Covington-Sawyer Road/216th Avenue SE, channelization improvements and traffic signals at SR 169/Baker Street and SR 169/Lawson Street, a roundabout at SE Auburn-Black Diamond Road/218th Avenue SE, a traffic signal at Roberts Drive/Ten Trails Place SE, a traffic signal at Roberts Drive/Morgan Street, a roundabout at SR 169/SE 288th Street, a traffic signal or pro-rata share contribution to a functionally equivalent improvement at SE Kent-Kangley Road/Landburg Road SE, a traffic signal at SR 169/Jones Lake Road, a single-lane roundabout with turn lanes at SR 169/North Connector, and a traffic signal at SR 169/Green Valley Road. Of note, construction of the identified intersection improvements has commenced at two intersections (SE Covington-Sawyer Road/216th Avenue SE and SE 288th Street/216th Street SE).
- Historical collision data at the study intersections and roadways was reviewed for the most recent five-year period. All intersections had a collision rate of less than 1.0 collisions per MEV and the majority of roadways had collision rates less than the average collision rate along roadways in both King County and Washington State.
- Construction of Plat 3A is estimated to begin in April 2025 and continue through November 2028 in separate phases. The vertical construction is anticipated to generate the most weekday daily and PM peak hour trips. During this time, the project is estimated to generate approximately 12 combined trips during the PM peak hour, significantly less than the Plat 3A build-out. As such, no construction mitigation measures are deemed necessary.
- Traffic calming measures would be implemented throughout Plat 3A. This would include providing curb bulb-outs, small radius curves, and on-street parking on the neighborhood roads to encourage lower vehicle speeds.

Attachments 1-3

Attachment 1: Conceptual and Preliminary Site Plans

TEN TRAILS

Phase 3 Plat A



LOT SUMMARY

REFER TO SHEET CV3 FOR DIVISIONS

	LOT NUMBERS	LOTS	UNITS	PRODUCT TYPE	GARAGE
DIVISION 1	NONE	0	0	NOT APPLICABLE	NOT APPLICABLE
DIVISION 2	1-90	90	90	SF DETACHED	FRONT
DIVISION 3	NONE	0	0	NOT APPLICABLE	NOT APPLICABLE
DIVISION 4	91-121	31	31	SF DETACHED	FRONT
DIVISION 5	122-143	22	22	MF ATTACHED	ALLEY
DIVISION 6	144-171	28	28	SF DETACHED	FRONT
	172-199	28	28	SF DETACHED	ALLEY
	200-239	40	40	SF DETACHED	FRONT
		96	96		
DIVISION 7	240-289	50	50	SF DETACHED	FRONT
	290-304	15	15	SF DETACHED	ALLEY
	305-313	9	9	SF DETACHED	FRONT
		74	74		
DIVISION 8	NONE	0	0	NOT APPLICABLE	NOT APPLICABLE
DIVISION 9	314-318	5	5	SF DETACHED	FRONT
DIVISION 10	319-329	11	11	SF ATTACHED	FRONT
TOTAL		329	329		

LOT SIZE INFORMATION

RESIDENTIAL LOT INFORMATION

MINIMUM PROPOSED LOT SIZE (RESIDENTIAL-SINGLE FAMILY DETACHED)	3,131 SF
MINIMUM PROPOSED LOT SIZE (RESIDENTIAL) (RESIDENTIAL-MULTI FAMILY ATTACHED)	1,403 SF
MAXIMUM PROPOSED LOT SIZE (RESIDENTIAL)	8,576 SF
AVERAGE LOT SIZE (RESIDENTIAL) (1,430,781 SF/329 LOTS)	4,349 SF

LAND USE CAPACITY TABLE

	GROSS DEVELOPMENT PARCEL AREA (ACRES)	NET DEVELOPMENT PARCEL AREA (ACRES)	MPD ZONING	RANGE OF RESIDENTIAL UNITS FOR PARCEL	SQUARE FEET RANGE FOR COMMERCIAL / OFFICE / RETAIL PARCEL	MULTI FAMILY RESIDENTIAL (UNITS)	SINGLE FAMILY RESIDENTIAL (UNITS)	COMMERCIAL / OFFICE / RETAIL SQUARE FOOTAGE	GROSS RESIDENTIAL PARCEL DENSITY	NET RESIDENTIAL PARCEL DENSITY
AUTHORIZED BY THE VILLAGES MPD PERMIT AND DEVELOPMENT AGREEMENT						1200	3600	775,000		
PREVIOUS PLATS/PROJECTS										
PHASE 1 PLAT A						245	455	190,000		
PHASE 2 PLAT A						0	211	0		
PHASE 2 PLAT C						0	201	0		
PHASE 2 PLAT E						0	43	0		
PHASE 2 PLAT D						0	232	0		
PHASE 1B PLAT A (MOUNTAIN VIEW)						25	233	205,000		
PHASE 2 PLAT F						42	81			
V12-DIV. 1 (VILLAGE TOWNS)						37	16			
(MOUNTAIN VIEW-MIXED USE)						27	46			
TOTAL PREVIOUS PLATS/PROJECTS						376	1518	395,000		
CURRENTLY REMAINING VILLAGES MPD						824	2,082	380,000		
PHASE 3 PLAT A										
V-34 (MPD-L 4-8 DU/AC)	16.83	13.33	MPD-L	67-135		0	90	0	5.35	6.75
V-35 (MPD-M 7-12 DU/AC)	1.81	1.30	MPD-M	13-22		0	16	0	8.84	12.31
V-36 (MPD-M 7-12 DU/AC)	7.92	5.40	MPD-M	55-95		22	37	0	7.45	10.93
V-37 (MPD-L 4-8 DU/AC)	22.87	17.08	MPD-L	91-183		0	164	0	7.17	9.60
TOTAL RESIDENTIAL DEVELOPMENT PARCEL AREAS (PHASE 3 PLAT A)	49.43	37.11				22	307	0	6.66	8.87
TOTAL ALL DEVELOPMENT PARCEL AREAS	49.43	37.11								
REMAINING VILLAGES MPD						802	1,775	380,000		

- GROSS RESIDENTIAL PARCEL DENSITY = RESIDENTIAL UNITS / GROSS DEVELOPMENT PARCEL AREA
- NET RESIDENTIAL PARCEL DENSITY = RESIDENTIAL UNITS / NET DEVELOPMENT PARCEL AREA (EXCLUDES STREETS, ROADS, AND ALLEYS, PUBLIC OR PRIVATE)

OVERALL PHASE 3 PLAT A GROSS RESIDENTIAL PARCEL DENSITY = 6.66 UNITS/ACRE (329 UNITS /49.43)

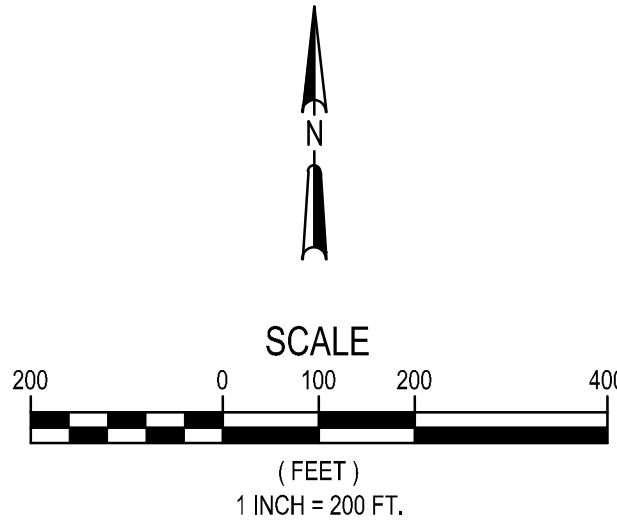
OVERALL PHASE 3 PLAT A NET RESIDENTIAL PARCEL DENSITY = 8.87 UNITS/ACRE (329 UNITS /37.11)

LOT NUMBERING NOTE

- ☒ LOWEST LOT NUMBER IN EACH DIVISION
- ☒ HIGHEST LOT NUMBER IN EACH DIVISION

SHEET REFERENCES

SEE SHEET CV1 FOR TRANSFER OF DEVELOPMENT RIGHTS CALCULATION.
SEE SHEET CV2 FOR SITE BOUNDARY EXHIBIT.
SEE SHEET CV3 FOR TRACT AND OPEN SPACE TRACT TABLES.
SEE SHEET CV3 FOR PLAN SHOWING PROJECT DIVISIONS.
SEE SHEET CV4 FOR PLAN SHOWING V PARCEL LOCATIONS.
SEE SHEET CV4 FOR LAND USE CAPACITY TABLE.
SEE SHEET CV4 FOR LOT SUMMARY TABLE.
SEE SHEET CV4 FOR LOT SIZE INFORMATION.
SEE SHEET CV5 FOR THE PROJECT OPEN SPACE TABLE AND THE MPD OPEN SPACE TABLE.
SEE SHEET CV5 FOR GENERAL NOTES.
SEE SHEET CV5 FOR TITLE EXCEPTIONS.



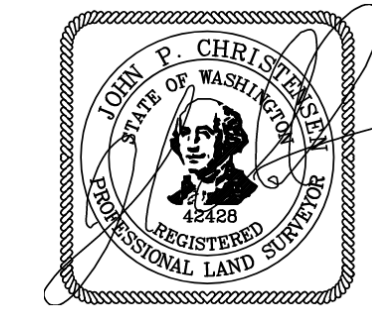
DAVID EVANS AND ASSOCIATES INC.
20300 Woodinville Snohomish Rd NE
Woodinville, Washington 98072
Phone: 425.415.2000

TEN TRAILS
PRELIMINARY PLAT
PHASE 3 - PLAT A
V PARCELS

CITY OF BLACK DIAMOND,

DATE:	BY: CK
REVIEWED BY:	
NO. DATE REVISION	

PRELIMINARY



CHECKED BY: BJW
DESIGNED BY: JAP
DRAWN BY: JAP

FIRST SUBMITTAL DATE: 4/22/25

PROJECT NO.
OAKPCBDP6001

SHEET NO.

CV4

Attachment 2: Trip Generation Calculations



**DAVID EVANS
AND ASSOCIATES INC.**

March 6, 2025

Andy Williamson, MDRT/Economic Development Director
City of Black Diamond – P.O. Box 599
24301 Roberts Drive
Black Diamond, WA 98010-0559

SUBJECT: Ten Trails Phase 3 Plat A Clear & Grade Construction Trips

Dear Mr. Williamson,

At the request of CCD Black Diamond Partners LLC we have investigated opportunities for reducing the amount of construction traffic associated with Ten Trails Phase 3 Plat A Clear & Grade plans (AKA Plat 3A).

The Villages MPD Condition of Approval No. 110 (set forth in Exhibit C of The Villages MPD Development Agreement on page 23 of 29) states: “Prior to approval of the first implementing plat or site development permit within a phase, the applicant shall submit an overall grading plan that will balance the cut or fill so that the amount of cut or fill does not exceed the other by more than 20%.” In compliance with this condition, DEA prepared and submitted a memorandum “Ten Trails and Lawson Hills - Phase 3 Overall Grading Plan” dated February 5, 2024. We were tasked with coming up with implementable strategies to further reduce construction trips.

In reviewing Phase 3 Plat A’s site grades and typical construction methods, DEA is confident the following additional construction techniques and conditions will further limit construction traffic on the off-site adjoining street network:

- Screen Phase Plat 3A’s strippings onsite to obtain topsoil for re-use onsite.
- Rocks obtained through the screening of topsoil on Plat 3A are to be used as fill or crushed for use as base material onsite.
- Sticks obtained through the screening of topsoil on Plat 3A are to be “chipped” and used for soft surface trails or erosion protection onsite.
- Stockpile any excess material generated through construction of Plat 3A within the Ten Trails MPD site for use on future phases.

Based on implementation of these strategies, DEA has estimated construction truck and vehicle trips associated with Plat 3A Clear & Grade plans. The trip generation estimates have been broken down between crew trips and truck delivery trips for clearing and grading of Plat 3A. The attached spreadsheets show how assumptions and calculations were used to generate trip estimates for Plat 3A Clear & Grade. And, the attached graphs show the estimated trip distribution along the proposed construction timeline for Plat 3A Clear & Grade.



Clear & Grade construction crews are estimated to generate 2,240 round trips. Clear and Grade construction truck trips are estimated to generate 1,026 round trips. Clear & Grade construction is anticipated to occur over 7 months from April through October 2025.

These average crew and truck trips have been graphed based on average trips per day as well as by average PM peak hour trips (*see attached graphs*).

Please let me know if you have any follow-up questions regarding these construction trip generation calculations.

Sincerely,

DAVID EVANS AND ASSOCIATES, INC.

Thomas P. Matt, P.E.
Senior Project Engineer

Copies: Justin Wortman
Attachments/Enclosures: Trip calcs & graphs
Project Number: OAKPCBDP6001
File Path: Document1

TEN TRAILS PLAT 3A CLEAR & GRADE - DAILY TRIPS

	2024												2025												2026												2027												2028											
11 12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12

EW - Crew
EW - Truck

16 Trips/day
7.3 Trips/day



TEN TRAILS PLAT 3A CLEAR & GRADE - PEAK HR TRIPS

2024												2025												2026												2027												2028													
11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12

EW - Crew
EW - Truck

2.7 Trips/Hr
0.37 Trips/Hr



Crew Trip Estimate for Construction of Ten trails - Plat 3A Clear & Grade

Earthwork Construction Crew Trips - Plat 3A

Earthwork =	7 months, 20 work days per month, 16 crew trucks per day average
-------------	--

Earthwork Crew Trips =	(7 months)*(20 work days/month)*(16 crew trucks/day) =	2,240 Trips
------------------------	--	-------------

Construction Crew Trip Summary

Earthwork Crew Trips	2,240
----------------------	-------

2,240	Total Crew Trips
-------	------------------

Truck Trip Estimate for Phase 3A Clear & Grade

Logging truck trips have been estimated at 680
--

Subtotal	680 Trips
----------	-----------

Import for Arch Culverts

Truck trips for construction of arch culverts has been estimated at 75

Subtotal	75 Trips
----------	----------

Import for Wall Construction During Earthwork

Assumed 1 delivery truck per 100 Sq Ft of rockery face

Approx. 14,200 Sq Ft/100 Sq Ft = 142 Trips

Subtotal	142 Trips
----------	-----------

Assumed 1 delivery truck per 300 Sq Ft of MSE wall face

Approx. 38,500 Sq/Ft/300 Sq Ft = 129 Trips

Subtotal	129 Trips
----------	-----------

Total Trips for earthwork phase

Total	1,026 Trips
-------	-------------

Trip Distribution

Earthwork Construction - Plat 3A

Earthwork construction to occur over 7 months, 20 weekdays/month

(Estimated to occur April through October 2025)

Crew Vehicle Trips total 1200

$2,240/(7*20) = 16$ Trips/day

Allowable Work Hours 7AM to 7PM

Assume 1/3 leave before 4PM

Assume 1/3 leave after 6PM

Assume 1/3 leaving between 4PM and 6PM $16/3 = 5.3$ trips

Hourly Peak Crew Trips = $5.3/2\text{hrs} = 2.7$ trips/hr

Truck Trips

$1026/(7*20) = 7.3$ Trips/day

Deliveries occur throughout the work day 7AM to 7PM

Assume 10% of truck trips occur between 4PM and 6PM $(7.3)(0.1) = 0.73$ trips

Hourly Peak Truck Trips = $0.73\text{ trips}/2\text{hrs} = 0.37$ trips/hr

Note the calculated trips were conservatively assumed to all occur on weekdays, Monday through Friday



**DAVID EVANS
AND ASSOCIATES INC.**

March 11, 2025

Andy Williamson, MDRT/Economic Development Director
City of Black Diamond – P.O. Box 599
24301 Roberts Drive
Black Diamond, WA 98010-0559

SUBJECT: Ten Trails Plat 3A Construction Trips

Dear Mr. Williamson,

At the request of CCD Black Diamond Partners LLC we have investigated opportunities for reducing the amount of construction traffic associated with Ten Trails Plat 3A.

The Villages MPD Condition of Approval No. 110 (set forth in Exhibit C of The Villages MPD Development Agreement on page 23 of 29) states: “Prior to approval of the first implementing plat or site development permit within a phase, the applicant shall submit an overall grading plan that will balance the cut or fill so that the amount of cut or fill does not exceed the other by more than 20%.” In compliance with this condition, David Evans and Associates, Inc. (DEA) prepared and submitted a memorandum “Ten Trails and Lawson Hills – Phase 3 Overall Grading Plan” dated February 5, 2024. We were tasked with coming up with implementable strategies to further reduce construction trips.

In reviewing Ten Trails Plat 3A site grades and typical construction methods, DEA is confident the following additional construction techniques and conditions will further limit construction traffic on the off-site adjoining street network:

- Screen Plat 3A’s strippings onsite to obtain topsoil for re-use onsite.
- Rocks obtained through the screening of topsoil on Plat 3A are to be used as fill or crushed for use as base material onsite.
- Sticks obtained through the screening of topsoil on Plat 3A are to be “chipped” and used for soft surface trails or erosion protection onsite.
- Stockpile any excess material generated through construction of Plat 3A within the Ten Trails MPD site for use on future phases.

Based on implementation of these strategies, DEA has estimated construction truck and crew trips associated with the build out of Plat 3A. The trip generation estimates have been broken down between crew trips and truck delivery trips as well as In-Plat Road & Utility, Offsite Utility Improvements, Ten Trails Regional Lift Station and Vertical construction (buildings). The attached spreadsheets show how assumptions and calculations were used to generate trip estimates for Plat 3A. And, the attached graphs show the estimated trip distribution along the proposed construction timeline for Plat 3A.



In-Plat Road & Utility construction crews are estimated to generate 1,920 round trips. In-Plat Road & Utility construction truck trips are estimated to generate 1,686 round trips. In-Plat Road & Utility construction is anticipated to occur over 8 months from August 2025 through March 2026. Offsite Utility construction is anticipated to occur over 5 months from May through September 2025. Offsite Utility construction is estimated to generate 1,200 crew trips and 150 Truck Trips. Construction of the Ten Trails Regional Lift Station is estimated to occur over 8 months from July 2025 through February 2026. Lift Station construction trips have been estimated at 1,280 crew trips and 80 truck trips. Vertical (building) construction crews were estimated to generate 38,160 round trips. Vertical construction truck deliveries were estimated to generate 2,544 round trips. Vertical construction is currently anticipated to begin in June of 2026 and continue through November of 2028.

These average crew and truck trips have been graphed based on average trips per day as well as by average PM peak hour trips (see attached graphs).

Please let me know if you have any follow-up questions regarding these construction trip generation calculations.

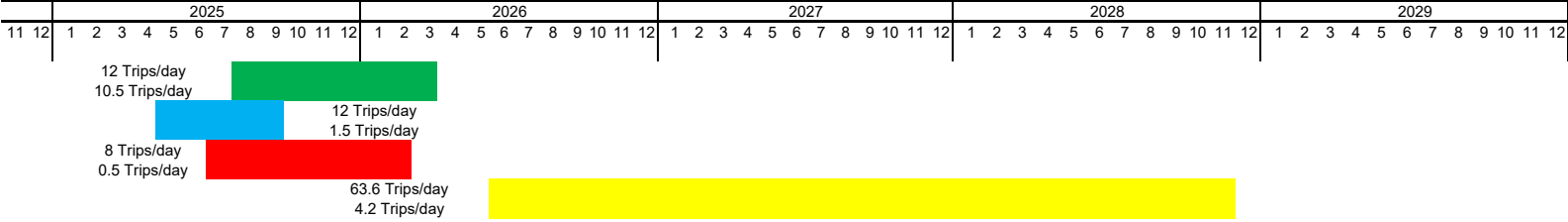
Sincerely,

DAVID EVANS AND ASSOCIATES, INC.

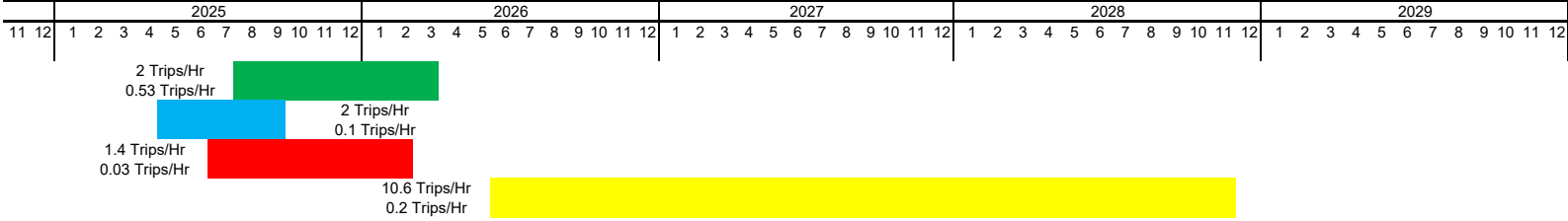
Thomas P. Matt, P.E.
Senior Project Engineer

Copies: Justin Wortman
Attachments/Enclosures: Trip calcs & graphs
Project Number: OAKPCBDP6001
File Path: Document1

	2025												2026												2027												2028												2029											
11 12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12



	2025												2026												2027												2028												2029											
11 12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12



Crew Trip Estimate for Construction of Ten trails - Plat 3A In Plat

Road and Utility Construction Crew Trips -Plat 3A

Road and Utilities =	8 months, 20 work days per month, 12 crew trucks per day average
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Road and Utility Crew Trips =	(8 months)*(20 work days/month)*(12 crew trucks/day) =	1,920 Trips
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Vertical Construction Crew Trips - Plat 3A

Single Family Residence - Detached (SFR-D) construction - assumed 3 months, 20 work days per month, 2 crew trucks per day

SFR-D = 120 trips per SFR-D

Single Family Residential - Attached (SFR-A) and MF assumed at 2/3 of SFR-D, SFR-A and MF = 80 trips per unit

Vertical Construction Crew Trips

	Units	Trips EA.	Trips
SFR-D	296	120	35,520
SFR-A	11	80	880
MF	22	80	1,760

Subtotal	38,160 Trips
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Construction Crew Trip Summary

Road & Utility Crew Trips	1,920
Vertical Const. Crew Trips	38,160

40,080 Total Crew Trips

Truck Trip Estimate for Phase 3A - In Plat

Import for Road & Alley Construction - Plat 3A

	LF of Street	Avg Width	Avg Depth	CY	CY/Load	Trips
Ten Trails Parkway	1740	30	2.58	4988	20	249
TTPW Sidewalks	1740	8	0.33	170	10	17
TTPW Sidewalks	950	6	0.33	70	10	7
TTPW Temp Access	2710	20	0.33	662	20	33
Roads A & H	3630	27	1.83	6643	20	332
Roads B-D, F & G	5640	27	1.33	7501	20	375
Autocourts, Alleys & Driveways	2680	20	1.33	2640	20	132
Temp Access Roads	920	20	1.33	906	20	45
Sidewalks	17,860	5	0.42	1389	10	139
		5	0.33	0	10	0
					Total =	1330

Import for Road & Utility Construction - Plat 3A

Other Import Items as Noted

Stripping the site assumed at 9" of stripping depth

$$(47.2 \text{ acres}) * (43,560 \text{ sf/acre}) * (.75 \text{ ft}) / 27 = 57,112 \text{ CY}$$

1/2 of stripping volume assumed to be sticks and rocks

Sticks to be chipped on site for use on trails

Rock assumed to be placed as fill or crushed and used on site

1/2 of stripping volume assumed to be topsoil that can be used on-site with 20% import volume for mixing

$$\text{Topsoil Import} = (.5) * (57,112 \text{ CY}) * (0.2) = 5,711 \text{ CY}$$

$$\text{Topsoil Import Trips} = 5,711 \text{ CY} / (25 \text{ CY/trip}) = 228 \text{ Trips}$$

Utility Trips - Deliveries of Pipe, Structures, and Bedding

Assume 1 truck trip per 100' of road construction

Alleys, Autocourts & driveways assumed at half of road construction

$$\text{Trips} = ((1,740\text{LF} + 3,630\text{LF} + 5,640\text{LF}) / 100\text{LF/trip}) + .5(2,680\text{LF} + 920\text{LF}) / 100\text{LF/trip} = 128 \text{ Trips}$$

Subtotal	356 Trips
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Vertical Construction Delivery Truck Trips for Construction of Plat 3A

Single Family Residential - Detached (SFR-D) Construction = 8 Trips per unit

Single Family Residential - Attached (SFR-A) and MF assumed at 2/3 of SFR-D

$$(296 \text{ SFR-D})(8 \text{ trips}) + (2/3)(33 \text{ MF \& SFR-A})(8 \text{ trips}) = 2,544 \text{ Trips}$$

Truck Trip Summary

Road & Utility Truck Trips In-Plat 1,686

Vertical Crew Trips Res. 2,544

4,230 Total Truck Trips

Trip Distribution

Road and Utility Construction - Plat 3A

Road and Utility construction to occur over 8 months, 20 weekdays/month

(Estimated to occur August 2025 to March 2026)

Crew Vehicle Trips total 1,920

$$1,920 / (8 * 20) = 12 \text{ Trips/day}$$

Allowable Work Hours 7AM to 7PM

Assume 1/3 leave before 4PM

Assume 1/3 leave after 6PM

Assume 1/3 leaving between 4PM and 6PM $12/3 = 4 \text{ trips}$

Hourly Peak Crew Trips = $4/2\text{hrs} = 2\text{ trips/hr}$

Truck Trips

$1,686/(8*20) = 10.5\text{ Trips/day}$

Deliveries occur throughout the work day 7AM to 7PM

Assume 10% of truck trips occur between 4PM and 6PM $(10.5)(0.1) = 1.05\text{ trips}$

Hourly Peak Truck Trips = $1.05\text{ trips}/2\text{hrs} = 0.53\text{ trips/hr}$

Vertical Construction - Plat 3A

Vertical Construction to occur over 30 months, 20 weekdays/month

(estimated to occur June 2026 through November 2028)

Crew Vehicle Trips total 38,160 trips

$38,160/(30*20) = 63.6\text{ Trips/day}$

Allowable Work Hours 7AM to 7PM

Assume 1/3 leave before 4PM

Assume 1/3 leave after 6PM

Assume 1/3 leaving between 4PM and 6PM $63.6/3 = 21.2\text{ trips}$

Hourly Peak Crew Trips = $21.2/2\text{hrs} = 10.6\text{ trips/hr}$

Truck Trips

$2,544/(30*20) = 4.2\text{ Trips/day}$

Delivers occur throughout the work day 7AM to 7PM

Assume 10% of truck trips occur between 4PM and 6PM $(4.2)(0.1) = 0.42\text{ trips}$

Hourly Peak Truck Trips = $0.42\text{ trips}/2\text{ hrs} = 0.21\text{ trips/hr}$

Note the calculated trips were conservatively assumed to all occur on weekdays, Monday through Friday

Crew Trip Estimate for Construction of Ten trails - Plat 3A Offsite Imp

Access and Utility Construction Crew Trips -Plat 3A Offsite

Access and Utilities =	5 months, 20 work days per month, 12 crew trucks per day average
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Access and Utility Crew Trips =	(5 months)*(20 work days/month)*(12 crew trucks/day) =	1,200 Trips
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Construction Crew Trip Summary

Access & Utility Crew Trips 1,200

1,200 Total Crew Trips

Truck Trip Estimate for Phase 3A - Offsite

Import for Access Road Construction - Plat 3A Offsite

	LF of Street	Avg Width	Avg Depth	CY	CY/Load	Trips
Road A	4660	20	0.33	1139	20	57
Road F	1480	20	0.33	362	20	18
Road T	580	20	0.33	142	20	7
			0.33	0	10	0
					Total =	82

Import for Road & Utility Construction - Plat 3A Offsite

Utility Trips - Deliveries of Pipe, Structures, and Bedding

Assume 1 truck trip per 100' of road construction

Alleys, Autocourts & driveways assumed at half of road construction

Trips = ((4,660LF + 1,480LF +580))/100LF/trip) = 68

68 Trips

Subtotal	150 Trips
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Trip Distribution

Access and Utility Construction - Plat 3A Offsite

Access and Utility construction to occur over 5 months, 20 weekdays/month

(Estimated to occur May to Sept 2025)

Crew Vehicle Trips total 1,200

1200/(5*20) = 12 Trips/day

Allowable Work Hours 7AM to 7PM

Assume 1/3 leave before 4PM

Assume 1/3 leave after 6PM

Assume 1/3 leaving between 4PM and 6PM $12/3 = 4$ trips

Hourly Peak Crew Trips = $4/2\text{hrs} = 2$ trips/hr

Truck Trips

$150/(5*20) = 1.5$ Trips/day

Deliveries occur throughout the work day 7AM to 7PM

Assume 10% of truck trips occur between 4PM and 6PM $(1.5)(0.1) = 0.15$ trips

Hourly Peak Truck Trips = $0.15 \text{ trips}/2\text{hrs} = 0.08$ trips/hr

Note the calculated trips were conservatively assumed to all occur on weekdays, Monday through Friday

Crew Trip Estimate for Construction of Ten Trails Regional Lift station

Construction Crew Trips - Ten Trails LS Construction

Ten trail LS =	8 months, 20 work days per month, 8 crew trucks per day average
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Ten trails LS Crew Trips =	(8 months)*(20 work days/month)*(8 crew trucks/day) =	1,280 Trips
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Import for Lift Station Construction

Assumed 80 truck trips for Lift Station construction

Trip Distribution

Construction Crew Trips- Lift Station

Construction to occur over 8 months, 20 weekdays/month

(Estimated to occur July 2025 through February 2026)

Crew Vehicle Trips total 1280

$1280/(8*20) = 8$ Trips/day

Allowable Work Hours 7AM to 7PM

Assume 1/3 leave before 4PM

Assume 1/3 leave after 6PM

Assume 1/3 leaving between 4PM and 6PM $8/3 = 2.7$ trips

Hourly Peak Crew Trips = $2.7/2\text{hrs} = 1.4$ trips/hr

Truck Trips

$80/8*20 = 0.5$ Trips/day

Deliveries occur throughout the work day 7AM to 7PM

Assume 10% of truck trips occur between 4PM and 6PM $(0.5)(0.1) = 0.05$ trips

Hourly Peak Truck Trips = $0.05\text{ trips}/2\text{hrs} = 0.03$ trips/hr

Note the calculated trips were conservatively assumed to all occur on weekdays, Monday through Friday

Attachment 3: Construction Traffic Memorandum

2028 PM Peak Hour Trip Generation – Ten Trails (Phase 3, Plat A)

Weekday PM Peak Hour - Plat 3A					Gross Trips ¹				Internal Trips ²				Pass-By Trips ³				Net Trips ⁴		
Land Use	ITE LU ⁵	Size ⁶	Ave or Eqn	Trip Rate ⁷	Total Trips	% Inbound ⁸	In	Out	Rate	In	Out	Total	Rate	Total	In	Out	Total	In	Out
Single Family	210	216 DUs	Eqn	0.95	205	63%	129	76	0%	0	0	0	0%	0	0	0	205	129	76
Multifamily	220	33 DUs	Eqn	1.05	35	63%	22	13	0%	0	0	0	0%	0	0	0	35	22	13
Senior Adult Housing	251	80 DUs	Eqn	0.47	37	61%	23	14	0%	0	0	0	0%	0	0	0	37	23	14
Total					277		174	103		0	0	0		0	0	0	277	174	103

2028 PM Peak Hour Trip Generation – Ten Trails (All Phases)

Weekday PM Peak Hour - All Phases					Gross Trips ¹				Internal Trips ²				Pass-By Trips ³				Net Trips ⁴		
Land Use	ITE LU ⁵	Size ⁶	Ave or Eqn	Trip Rate ⁷	Total Trips	% Inbound ⁸	In	Out	Rate	In	Out	Total	Rate	Total	In	Out	Total	In	Out
Single Family	210	1,831 DUs	Eqn	0.83	1528	63%	963	565	16%	178	99	277	0%	0	0	0	1251	785	466
Multifamily	220	647 DUs	Eqn	0.46	299	63%	188	111	16%	32	16	48	0%	0	0	0	251	156	95
Senior Adult Housing	251	338 DUs	Eqn	0.34	115	61%	70	45	17%	12	7	19	0%	0	0	0	96	58	38
Elementary School	520	600 DUs	Ave	0.16	96	46%	44	52	30%	15	16	31	0%	0	0	0	65	29	36
Conv. Store w/ Gas Stn ⁹	945	4,335 SF	Ave	54.52	236	50%	118	118	0%	0	0	0	75%	178	89	89	58	29	29
Car Wash ¹⁰	948	1 Tunnel	Ave	77.50	78	50%	39	39	0%	0	0	0	57%	44	22	22	34	17	17
Supermarket	850	59,817 SF	Eqn	8.52	510	50%	255	255	34%	69	102	171	24%	82	41	41	257	145	112
Drive-Thru Bank	912	2,700 SF	Ave	21.01	57	50%	29	28	0%	0	0	0	35%	20	10	10	37	19	18
Fast Food w/ Drive Thru	934	9,378 SF	Ave	33.03	310	52%	161	149	52%	71	91	162	55%	82	41	41	66	49	17
High Turnover Sit Down Rest	932	5,000 SF	Ave	9.05	45	61%	27	18	51%	12	11	23	43%	10	5	5	12	10	2
Pharmacy w/ Drive Thru	881	10,000 SF	Ave	10.25	103	50%	52	51	34%	14	21	35	49%	34	17	17	34	21	13
Day Care	565	10,000 SF	Ave	11.12	111	47%	52	59	0%	0	0	0	44%	48	24	24	63	28	35
Quality Restaurant	931	9,352 SF	Ave	7.80	73	67%	49	24	51%	22	15	37	44%	16	8	8	20	19	1
Coffee Shop	936	2,482 SF	Ave	32.29	80	50%	40	40	53%	18	24	42	0%	0	0	0	38	22	16
Medical/Dental Office	720	8,000 SF	Eqn	3.67	29	30%	9	20	45%	8	5	13	0%	0	0	0	16	1	15
Office	710	25,000 SF	Eqn	2.10	53	17%	9	44	38%	8	12	20	0%	0	0	0	33	1	32
Retail	820	113,697 SF	Eqn	5.44	619	48%	297	322	34%	84	124	208	19%	78	39	39	333	174	159
Total					4,342		2,402	1940		543	543	1086		592	296	296	2,664	1563	1101

2028 PM Peak Hour Trip Generation – Lawson Hills

Weekday PM Peak Hour - All Phases					Gross Trips ¹				Internal Trips ²			Pass-By Trips ³				Net Trips ⁴		
Land Use	ITE LU ⁵	Size ⁶	Ave or Eqn	Trip Rate ⁷	Total Trips	% Inbound ⁸	In	Out	In	Out	Total	Rate	Total	In	Out	Total	In	Out
Single Family	210	106 DUs	Eqn	0.99	105	63%	66	39	0	0	0	0%	0	0	0	105	66	39
Multifamily	220	168 DUs	Eqn	0.55	93	63%	59	34	0	0	0	0%	0	0	0	93	59	34
Total					198		125	73	0	0	0		0	0	0	198	125	73

2028 PM Peak Hour Trip Generation – North Triangle

Weekday PM Peak Hour - All Phases					Gross Trips ¹				Internal Trips ²			Pass-By Trips ³				Net Trips ⁴		
Land Use	ITE LU ⁵	Size ⁶	Ave or Eqn	Trip Rate ⁷	Total Trips	% Inbound ⁸	In	Out	In	Out	Total	Rate	Total	In	Out	Total	In	Out
Office	710	SF	Eqn	0.00	0	17%	0	0	0	0	0	0%	0	0	0	0	0	0
Retail	820	65,000 SF	Eqn	6.37	414	48%	199	215	0	0	0	20%	82	41	41	332	158	174
Total					414		199	215	0	0	0		82	41	41	332	158	174

Note: DU = dwelling unit, SF= square feet

1. Total vehicle trips generated by the proposed land uses during the weekday PM peak hour based on rates from Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017).

2. Trips that are anticipated to remain internal to the proposed land uses and would not use roads external to the MPD calculated using the methodology and rates from ITE *Trip Generation Handbook* (3rd Edition, 2017).

3. Vehicle trips that would already be on the adjacent street system and would make an intermediate stop at the proposed land uses before continuing to their final destination based on rates from *Trip Generation Handbook*.

4. The overall new vehicle trip to the street system anticipated to be generated by the proposed land uses which would travel externally to the proposed land uses.

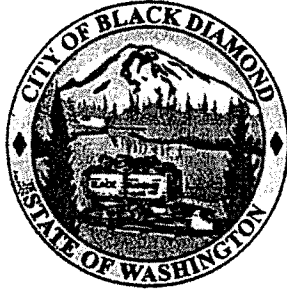
5. Land use code used in the ITE *Trip Generation Manual*.

6. Proposed land use size.

7. Trip generation rate based on either the average trip rate or regression equation from the *Trip Generation Manual*.

8. Percentage of trips travelling into the development during the weekday PM peak hour based on rates from the *Trip Generation Manual*.

10. Phase 1A Regional Infrastructure Schedule.
See traffic Intersections on page 7 and 8.



CITY OF BLACK DIAMOND

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M E M O R A N D U M

Date: August 27, 2012

To: Files PLN11-0001, PLN 11-0002

From: Andy Williamson, Steve Pilcher

Re: Approval of Regional Facilities Implementation Schedule for Phase 1A, The Villages MPD

Pursuant to Conditions of Approval Nos. 29 and 164 of The Villages MPD approval (Ordinance 10-946) and Sections 11.2 and 11.4.A of The Villages Master Planned Development Development Agreement (adopted by Ordinance 11-970), the Master Developer submitted a final "Detailed Implementation Schedule – Phase 1A Regional Infrastructure Improvements (August 25, 2012)". This document has been reviewed by the Designated Officials and by the contracted Major Development Review Team (MDRT) civil engineering (RH2) and traffic (Parametrix) consultants.

The undersigned Designated Officials hereby approve the implementation schedule for Phase 1A.

Andrew Williamson, Designated Official
Public Works and Traffic

Steve Pilcher, Designated Official
Parks

Detailed Implementation Schedule
Phase 1A Regional Infrastructure Improvements
(revised August 25, 2012)

Pursuant to Conditions of Approval of The Villages MPD (Nos. 29 and 164) and Lawson Hills MPD (Nos. 27 and 169) and consistent with Sections 11.2 – 11.5 of The Villages and Lawson Hills MPD Development Agreements, the following provides a list of both on-site and off-site regional infrastructure and its timing necessary to serve Phase 1A. Acceptable engineering alternatives or equivalents may be proposed by the Master Developer during final engineering for the following list of on-site and off-site regional infrastructure improvements. Model home permits shall be excluded from associated triggers noted below.

1. The Villages MPD Community Connector

Construction Threshold

The Villages MPD Community Connector through Phase 1A is proposed to be constructed in two phases: (1) the first phase will be constructed or bonded prior to recording Division 1A of Preliminary Plat 1A; and (2) the second phase will be constructed prior to occupancy of the 726th Dwelling Unit in Phase 1A or if necessary to provide dual emergency access routes to any developed lots within Phase 1A.

Improvement Details

The first phase of The Villages MPD Community Connector will be constructed from a point approximately 500 feet south of SE Auburn – Black Diamond Road to the intersection with the Ring Road (aka Neighborhood Street with Bike Lane). Sidewalks will be replaced with a meandering path on either side of the roadway. This section of the Community Connector will consist of a single travel lane in each direction with 5 foot bike lanes. This first phase will include construction of a roundabout in which a future park will be developed. The roundabout will be designed in accordance with City of Black Diamond Engineering Design and Construction Standards and Chapter 915 of the WSDOT design manual.

The second phase of The Villages MPD Community Connector will connect the first phase with SE Auburn – Black Diamond Road. The Community Connector through Phase 1A will consist of a single travel lane in each direction with 5 foot wide bike lanes. The Cross Community Trail will be constructed along both the first and second phase of the Community Connector, and will consist of an 8 foot wide multi-use hard surface on the east side. Utilities will be installed with construction of the Community Connector to serve Phase 1A and future phases of The Villages MPD.

A portion of stormwater runoff from the Community Connector will be collected and routed to the Phase 1A stormwater treatment and infiltration facility. The remainder of stormwater from the Community Connector will be treated in rain gardens and infiltrated to maintain water balance to Horseshoe Lake. A stormwater conveyance line will be installed within the Community Connector and will provide conveyance capacity to the Phase 1A stormwater facility. Stormwater conveyance capacity will be provided for adaptive management techniques to allow flexibility to maintain water balance to Horseshoe Lake. A second water main (850

pressure zone main) will be installed either within the Community Connector or the Ring Road to serve future phases of The Villages MPD. The Interim Sewer Force Main may be installed either in the Community Connector or the Ring Road through the Phase 1A site from the Interim Wastewater Pumping Station up to SE Auburn-Black Diamond Road. The Master Developer may elect to install a purple pipe system within the Community Connector for future use in the event that water for reuse is available.

2. The Ring Road (aka Neighborhood Street with Bike Lane)

Construction Threshold

The Ring Road (aka Neighborhood Street with Bike Lane) will be constructed in two phases: (1) the first phase will be constructed or bonded prior to recording Division 1A of Preliminary Plat 1A, but must also be completed and accepted by the City of Black Diamond's Master Development Review Team ("MDRT") / Public Works prior to the issuance of the first certificate of occupancy in Division 1A of Preliminary Plat 1A; and (2) the second phase will be constructed prior to occupancy within Divisions G, J and K of Preliminary Plat 1A.

Improvement Details

The first phase of the Ring Road will include the section from SE Auburn – Black Diamond Road south to the intersection with the Community Connector. The second phase of the Ring Road will extend to the west from the intersection with the Community Connector to Road G.

The Ring Road will consist of a single lane in each direction with bike lanes and rain gardens/landscaping and a sidewalk on both sides. Utilities will be installed with construction of the Ring Road to serve Phase 1A and future phases of The Villages MPD.

Stormwater runoff from the Ring Road is proposed to be treated within rain gardens primarily located within the Right-of-Way and infiltrated where infiltratable soils exist. A second water main (850 pressure zone main) will be installed either within the Community Connector or the Ring Road to serve future phases of The Villages MPD. The Interim Sewer Force Main may be installed either in the Community Connector or the Ring Road through the Phase 1A site from the Interim Wastewater Pumping Station up to SE Auburn-Black Diamond Road.

3. Frontage Improvements on SE Auburn – Black Diamond Road

Construction Threshold

SE Auburn – Black Diamond Road frontage improvements will be constructed in three phases as Phase 1A develops: (1) the first phase will be constructed or bonded prior to recording Division 1A of Preliminary Plat 1A; (2) the second phase will be constructed prior to occupancy of the 726th Dwelling Unit in Preliminary Plat 1A; and (3) the third phase of frontage improvements will be constructed concurrent with the development of the adjacent multi-family parcel 1H of Preliminary Plat 1A.

Improvement Details

The first phase of the SE Auburn – Black Diamond Road frontage improvements will include improvements from the east project frontage limits westward to the west side of the Main Street

intersection. The first phase of improvements will consist of: (1) a single lane roundabout at the intersection of SE Auburn – Black Diamond Road, Lake Sawyer Road and the Ring Road with deflector islands tapered back to match into the existing roadways; and (2) initially a stop control installed at the intersection of SE Auburn – Black Diamond Road and Main Street for Main Street entering to SE Auburn – Black Diamond Road, followed by a signal prior to the 726th Dwelling Unit in Preliminary Plat 1A. The ultimate signalized intersection improvement at SE Auburn-Black Diamond Road and Main Street will have a single through lane in each direction along with left turn lanes and turn pockets on SE Auburn-Black Diamond Road. Bike lanes (5 feet wide) will be constructed along SE Auburn – Black Diamond Road between proposed roundabouts concurrent with construction of these frontage improvements. The roundabouts will be designed in accordance with City of Black Diamond Engineering Design and Construction Standards and Chapter 915 of the WSDOT design manual.

The second phase of construction includes intersection improvements at SE Auburn – Black Diamond Road and the Community Connector. This intersection improvement will consist of a single lane roundabout. The second phase also completes frontage improvements between the Community Connector and Main Street and Main Street signal installation.

The third phase includes completion of frontage improvements from the roundabout at the intersection with the Community Connector to the west property line. This phase includes extending curb and gutter, sidewalks, bike lane and planter strips to the west property line of The Villages MPD.

The two roundabouts to be constructed with SE Auburn-Black Diamond Road frontage improvements are proposed to be constructed such that a second lane could be added to the inside of the roundabout by reducing the size of the interior island if warranted in the future. The sidewalk along the south side of SE Auburn-Black Diamond Road is proposed to be located such that a second eastbound lane could be added between the two roundabouts if warranted in the future by traffic counts.

All stormwater runoff from SE Auburn – Black Diamond Road frontage improvements is proposed to be treated and infiltrated in rain gardens within the right-of-way with the exception of the area near the roundabout at the Community Connector. A stormwater conveyance pipe will be stubbed across SE – Auburn Black Diamond Road at the Community Connector and at Main Street for future phases of The Villages MPD north of SE Auburn – Black Diamond Road.

4. Intersection of Community Connector and SE Auburn-Black Diamond Road

Construction Threshold

This intersection will be constructed as a single lane roundabout prior to occupancy of the 726th Dwelling Unit within Preliminary Plat 1A, with the second phase of the SE Auburn – Black Diamond Road frontage improvements.

Improvement Details

This single lane roundabout is proposed to be designed and constructed so that a second lane could be added to the interior of this roundabout in the future, if required. The roundabout will

be designed and constructed in accordance with City of Black Diamond Engineering Design and Construction Standards and Chapter 915 of the WSDOT design manual.

5. Intersection Improvements at SE Auburn-Black Diamond Road and Ring Road

Construction Threshold

This intersection improvement (single lane roundabout) will be constructed or bonded prior to recording Division 1A of Preliminary Plat 1A, with the first phase of SE Auburn – Black Diamond Road frontage improvements.

Improvement Details

The single lane roundabout is proposed to be designed and constructed so that a second lane could be added to the interior of this roundabout in the future, if required. The roundabout will be designed and constructed in accordance with City of Black Diamond Engineering Design and Construction Standards and Chapter 915 of the WSDOT design manual.

6. The Villages MPD Small Interim Wastewater Pumping Station

Construction Threshold

The Small Interim Wastewater Pumping Station must be completed and operational before issuance of the first building permit within Preliminary Plat 1A for which a sewer connection would be required.

Improvement Details

The Small Interim Wastewater Pumping Station will be designed and constructed in accordance with the City of Black Diamond Engineering Design and Construction Standards as though the facility was intended to be a permanent facility. Prior to design of this facility, the Master Developer will submit a plan showing the interim service area boundary and maximum number of units (in ERUs) that can be served by this interim facility. Additional capacity created through an oversized wet well may be provided for off-peak pumping.

7. The Villages MPD Interim Sewer Force Main

Construction Threshold

The Interim Sewer Force Main must be complete and operational before issuance of the first building permit within Preliminary Plat 1A for which a sewer connection would be required.

Improvement Details

The Interim Sewer Force Main will be constructed from The Villages MPD Small Interim Wastewater Pump Station to City manhole 118 or other approved alternative connection point. City manhole 118 is located approximately 1800 feet east of the eastern boundary of the Phase 1A Preliminary Plat and requires construction within the Roberts Drive right-of-way for this length. A formal request has been submitted to the City for consideration of an alternative sewer connection location. The proposed alternative sewer connection location is superior from a reliability and power conservation standpoint. The preferred alternative proposes to connect to the Black Diamond Trunk operated by King County Metro. Design and construction of the Interim Sewer Force Main will be in accordance with The City of Black Diamond Engineering

Design and Construction Standards. The Interim Sewer Force Main will be installed through the Phase 1A site either within the Community Connector or the Ring Road.

8. Interim Stormwater Pond and Infiltration Facility

Construction Threshold

The Interim Stormwater Pond and Infiltration Facility will be constructed in phases as determined necessary by the MDRT / Public Works through final engineering review of each division within Preliminary Plat Phase 1A.

Improvement Details

The infiltration facility of the interim stormwater pond for Phase 1A will be constructed with a minimum factor of safety of 40% for Phase 1A. This factor of safety is being provided for Phase 1A to provide an additional level of conservatism. The performance of the Phase 1A infiltration facility will be monitored to confirm design parameters. The project's Geotechnical Engineer will monitor flows into the infiltration facility, water depth within the infiltration facility, ground water elevation and ground water mounding to verify facility performance compared to design parameters. This factor of safety may be reduced for future phases of The Villages MPD and design parameters may be adjusted based on performance monitoring. Areas within Phase 1A that are not tributary to Horseshoe Lake can be developed and stormwater treated and infiltrated without this facility being constructed. If practical, recreational facilities may be provided within portions of the infiltration area.

9. Village Green (Park at Roundabout) in The Villages MPD

Construction Threshold

Construction of the Village Green will be commenced or bonded prior to recording Division 1A of Preliminary Plat 1A and will be completed no later than when Certificates of Occupancy or final inspection has been issued for 60% of the Dwelling Units located within ¼ mile of this park.

Improvement Details

The approximately 1.17-acre centrally located Village Green will consist of a large open lawn area for civic gatherings, a small function outdoor open lawn space and park structures for pedestrian gatherings. A bike lane encircles the park and pedestrian connections across the park link with the north/south Cross Community Trail that runs through The Villages MPD Phase 1A Preliminary Plat. Connectivity between this park and the Civic Park to the northeast will be accomplished with a special pedestrian road crossing. Vegetation in the park will vary from open expansive lawn spaces to more densely planted areas that will include a mix of native and naturalized vegetation. Vegetation around the park will provide separation between vehicles and pedestrians. Rain gardens will also be incorporated into the Village Green.

10. Civic Park in The Villages MPD

Construction Threshold

Construction of Civic Park will be commenced or bonded prior to recording Division 1A of Preliminary Plat 1A and will be completed no later than when Certificates of Occupancy or final inspection has been issued for 60% of the Dwelling Units located within ¼ mile of this park.

Improvement Details

The approximately 1.65-acre Civic Park includes open lawn areas, children's gathering and play spaces, performance areas, viewpoints and park structures for civic gatherings. Lushly planted areas, rain gardens and open lawn areas will provide variety along the park pedestrian ways. Bike lanes and a Cross Community Trail run adjacent to this park. Connectivity to the Village Green to the south and retail core to the north will be accomplished with special pedestrian road crossings. A stormwater infiltration facility is proposed to be constructed under this park to allow adaptive management techniques to maintain water balance to Horseshoe Lake during construction and at full build-out.

11. SR 169/ Roberts Drive (Interim Improvement)

Construction Threshold

Completed engineering, design and construction drawings and related application materials necessary for permit issuance for this interim improvement will be submitted to WSDOT prior to the City of Black Diamond's issuance of the first residential or commercial building permit associated with Division 1A of Preliminary Plat 1A. The Master Developer shall diligently pursue issuance of all permits for this interim improvement, by taking such actions including but not limited to promptly responding to requests for additional information and/or promptly submitting permit application revisions requested by the permitting agencies. Construction of this improvement will commence as soon as reasonably practicable following issuance of all necessary permits, but in any event prior to issuance of the building permit for the 327th Equivalent Residential Unit (ERU) within Preliminary Plat 1A plus any additional time demonstrated to the reasonable satisfaction of the City's Designated Official to be necessary due to action, inaction, or events outside of the Master Developer's control.

Interim Improvement Details

This intersection will be improved by shifting Roberts Drive to the south to provide approximately 500 feet separation between it and SE Black Diamond – Ravensdale Road. The SR169 / Roberts Drive intersection will be reconfigured to form a tee intersection instead of the currently existing Y configuration to improve safety and operation. This intersection improvement will include installation of a signal to control the intersection. Intersection improvements will include construction of a right turn lane on southbound SR 169. Roberts Drive behind the stop bar location at SR 169 will be designed per City of Black Diamond standards. The ultimate design is a roundabout – this is only an interim improvement.

12. SR 169/SE Black Diamond – Ravensdale Road (Interim Improvement)

Construction Threshold

Completed engineering, design and construction drawings and related application materials necessary for permit issuance for this interim improvement will be submitted to WSDOT prior to the City of Black Diamond's issuance of the first residential or commercial building permit associated with Division 1A of Preliminary Plat 1A. The Master Developer shall diligently pursue issuance of all permits for this interim improvement, by taking such actions including but not limited to promptly responding to requests for additional information and/or promptly submitting permit application revisions requested by the permitting agencies. Construction of this improvement will commence as soon as reasonably practicable following issuance of all necessary permits, but in any event prior to issuance of the building permit for the 327th Equivalent Residential Unit (ERU) within Preliminary Plat 1A plus any additional time demonstrated to the reasonable satisfaction of the City's Designated Official to be necessary due to action, inaction, or events outside of the Master Developer's control.

Interim Improvement Details

This intersection improvement includes a four way signalized intersection to maintain access to the Palmer Coking Coal property at this location. Black Diamond – Ravensdale Road SE behind the stop bar location at SR 169 will be designed per City of Black Diamond standards. The ultimate design is a roundabout – this is only an interim improvement.

13. SE 288th Street/216th Avenue SE

Construction Threshold

Rechannelization shall occur no later than recording of Division 1A of Preliminary Plat 1A.

Improvement Details

This intersection will be improved through rechannelizing the south leg of the intersection to provide a refuge/merge area for westbound left-turning vehicles.

14. Water Main Extension (from near Black Diamond Library to The Villages MPD)

Construction Threshold

Construction of a dual 12-inch water main from near the Black Diamond Library westerly to The Villages MPD property (or engineering equivalent) will occur prior to recording Division 1A of Preliminary Plat 1A. The dual 12-inch water main must be completed, tested and in-service prior to the first occupancy permit being issued for a Dwelling Unit or a commercial use within Preliminary Plat 1A.

Improvement Details

The Water Main Extension that connects The Villages MPD Phase 1A to the existing water system will have the following general design characteristics:

- The water main is currently proposed to consist of stacked 12-inch water lines (one located above the other in a single trench) to meet flow requirements and serve as redundant supply sources for The Villages MPD Phase 1A.

- The stacked water main configuration is proposed to minimize the width of construction trench and minimize disturbance to existing features and facilities. Deviation from the vertically stacked configuration will be required in isolated instances such as the Rock Creek Bridge crossing and where valves are required in the lower main.
- The stacked water main will be installed along the edge of the existing roadway system where feasible to minimize traffic impacts and facilitate future maintenance.
- There will be no service connections to the lower water main in order to maximize its integrity and minimize the potential for leakage.
- Valves will be installed to facilitate periodic flushing and routine maintenance.
- Initially, both water lines will operate on the 750 pressure zone but will be interconnected such that they can be isolated in the future. This isolation is proposed so that the lower main can be converted to the 850 pressure zone in the future. The lower line will have blocking and thrust restraint designed and installed for its ultimate intended use to serve the 850 pressure zone.
- Per the City of Black Diamond Engineering Design and Construction Standards, water velocity in mains shall not exceed 10 feet per second during highest demand and fireflow.
- Minimum system pressure is required to be 20 psi during fireflow analysis throughout the system.

The number of ERUs permitted prior to construction of a second supply line will be based on the City's water system computer simulated model.

Regional Infrastructure Improvement	Construction Threshold	Funding Responsibility
The Villages MPD Community Connector	The first phase will be constructed or bonded prior to recording Division 1A of Preliminary Plat 1A. The second phase will be constructed prior to occupancy of the 726th Dwelling Unit in Phase 1A or if necessary to provide dual emergency access routes to any developed lots within Phase 1A.	Master Developer
The Ring Road	The first phase will be constructed or bonded prior to recording Division 1A of Preliminary Plat 1A, but must also be completed and accepted by the MDRT / Public Works prior to the issuance of the first certificate of occupancy in Division 1A of Preliminary Plat 1A. The second phase will be constructed prior to occupancy within Divisions G, J and K of Preliminary Plat 1A.	Master Developer
Frontage Improvements on SE Auburn – Black Diamond Road	The first phase will be constructed or bonded prior to recording Division 1A of Preliminary Plat 1A. The second phase will be constructed prior to occupancy of the 726th Dwelling Unit in Preliminary Plat 1A. The third phase will be constructed concurrent with the development of the adjacent multi-family parcel 1H of Preliminary Plat 1A.	Master Developer
Intersection of Community Connector and SE Auburn – Black Diamond Road	Constructed as a single lane roundabout prior to occupancy of the 726th Dwelling Unit within Preliminary Plat 1A, with the second phase of SE Auburn – Black Diamond Road frontage improvements.	Master Developer
Intersection Improvements at SE Auburn – Black Diamond Road and Ring Road	Single lane roundabout will be constructed or bonded prior to recording Division 1A of Preliminary Plat 1A, with the first phase of SE Auburn – Black Diamond Road frontage improvements.	Master Developer
The Villages MPD Small Interim Wastewater Pumping Station	This must be completed and operational before issuance of the first building permit within Preliminary Plat 1A for which a sewer connection would be required.	Master Developer
The Villages MPD Interim Sewer Force Main	This must be completed and operational before issuance of the first building permit within Preliminary Plat 1A for which a sewer connection would be required.	Master Developer

Interim Stormwater Pond and Infiltration Facility	Constructed in phases as determined necessary by the MDRT / Public Works through final engineering review of each division within Preliminary Plat 1A.	Master Developer
Village Green (Park at Roundabout) in The Villages MPD	Construction of this park will be commenced or bonded prior to recording Division 1A of Preliminary Plat 1A and will be completed no later than when Certificates of Occupancy or final inspection has been issued for 60% of the Dwelling Units located within ¼ mile of this park.	Master Developer
Civic Park in The Villages MPD	Construction of this park will be commenced or bonded prior to recording Division 1A of Preliminary Plat 1A and will be completed no later than when Certificates of Occupancy or final inspection has been issued for 60% of the Dwelling Units located within ¼ mile of this park.	Master Developer
SR 169/Roberts Drive	Completed engineering, design and construction drawings and related application materials necessary for permit issuance for this interim improvement will be submitted to WSDOT prior to the City of Black Diamond's issuance of the first residential or commercial building permit associated with Division 1A of Preliminary Plat 1A. The Master Developer shall diligently pursue issuance of all permits for this interim improvement, by taking such actions including but not limited to promptly responding to requests for additional information and/or promptly submitting permit application revisions requested by the permitting agencies. Construction of this improvement will commence as soon as reasonably practicable following issuance of all necessary permits, but in any event prior to issuance of the building permit for the 327 th Equivalent Residential Unit (ERU) within Preliminary Plat 1A plus any additional time demonstrated to the reasonable satisfaction of the City's Designated Official to be necessary due to action, inaction, or events outside of the Master Developer's control.	Master Developer
SR 169/SE Black Diamond – Ravensdale Road	Completed engineering, design and construction drawings and related application materials necessary for permit issuance for this interim improvement will be submitted to WSDOT prior to the City of Black Diamond's issuance of the first residential or commercial building permit associated with Division 1A of Preliminary Plat 1A. The Master Developer shall diligently pursue issuance of all permits for this interim improvement, by taking such actions including but not limited to promptly responding to requests for additional information and/or promptly submitting permit application revisions requested by the permitting agencies.	Master Developer

	Construction of this improvement will commence as soon as reasonably practicable following issuance of all necessary permits, but in any event prior to issuance of the building permit for the 327 th Equivalent Residential Unit (ERU) within Preliminary Plat 1A plus any additional time demonstrated to the reasonable satisfaction of the City's Designated Official to be necessary due to action, inaction, or events outside of the Master Developer's control.	
SE 288th Street/216th Avenue SE	Rechannelization shall occur no later than recording of Division 1A of Preliminary Plat 1A.	Master Developer
Water Main Extension	Constructed prior to recording Division 1A of Preliminary Plat 1A, and available prior to the first occupancy permit being issued for a Dwelling Unit or a commercial use within Preliminary Plat 1A.	WSFFA Funding Responsibility or Master Developer

**PHASE 1A & 1B & 2 & 3 FISCAL IMPACT ANALYSIS
FOR THE TEN TRAILS AND LAWSON HILLS
MASTER PLANNED DEVELOPMENTS**

~~October 6, 2023~~
January 3, 2024

**Prepared for:
CCD BLACK DIAMOND PARTNERS, LLC**

Prepared By:



**2281 LAVA RIDGE COURT
ROSEVILLE, CALIFORNIA 95661**

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Appendix A:	Fiscal Impact Tables 2017 2023 to 2033; <i>for each year:</i>
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Executive Summary

This report was prepared for CCD Black Diamond Partners, LLC (“Developer”) by Development Planning & Financing Group, LLC in order to provide an updated, comprehensive and cumulative Phase 1A & 1B & 2 & 3 Fiscal Impact Analysis (“Phase 1A & 1B & 2 & 3 FIA”) to determine the estimated short and long term revenue surpluses and deficits on the City of Black Diamond (“City”) in connection with Phase 1A & 1B & 2 & 3 of the Master Planned Developments (“MPDs”), known as The Ten Trails and Lawson Hills, approved by Black Diamond Ordinance No. 10-946 and 10-947, respectively, on September 20, 2010. This Phase 1A & 1B & 2 & 3 FIA was drafted to satisfy the requirements of the City’s MPD Ordinance (BDMC Ch. 18.98), conditions of approval contained in Black Diamond Ordinance No. 10-946 and Ordinance No. 10-947 (“MPD Permit Approvals”), and the Development Agreements for the Ten Trails MPD (previously known as The Villages MPD) and the Lawson Hills MPD both dated December 12, 2011 (“Development Agreements”). Pursuant to the MPD Permit Approvals and Section 13.6 of the Development Agreements, the Phase 1A fiscal analysis for the MPDs dated February 1, 2022 was approved by the City on October 23, 2012. The MPDs’ Phase 1A & 2 FIA dated December 31, 2013, was revised April 28, 2014, and approved by the City on June 16, 2014. An update to the Phase 1A & 2 FIA was submitted by the Developer on September 27, 2019. The MPDs’ Phase 1A & 2 & 1B FIA dated August 20, 2021, was approved by the City on September 21, 2021.

This Phase 1A & 1B & 2 & 3 FIA covers Phase 1A, Phase 1B, Phase 2 and Phase 3 of The Ten Trails MPD and Lawson Hills MPD consisting of approximately 1,440 acres – currently designed with 6,050 residential units and 1,054,000 square feet of retail and office space. An estimate of the total number of residential units, average non-residential square footage, and initial unit values for Phases 1A & 1B & 2 & 3 is identified in *Table 1A*.

At Buildout, Phases 1A & 1B & 2 & 3 provide:

- *Annual surplus of approximately \$4.4 million in 2033*
- *A General Fund balance of approximately \$62.9 million (\$33.5 million in Phase 1A & 2 & 1B FIA)*
- *REET revenues of over \$38.6 million (\$10.1 million in Phase 1A & 2 & 1B FIA)*

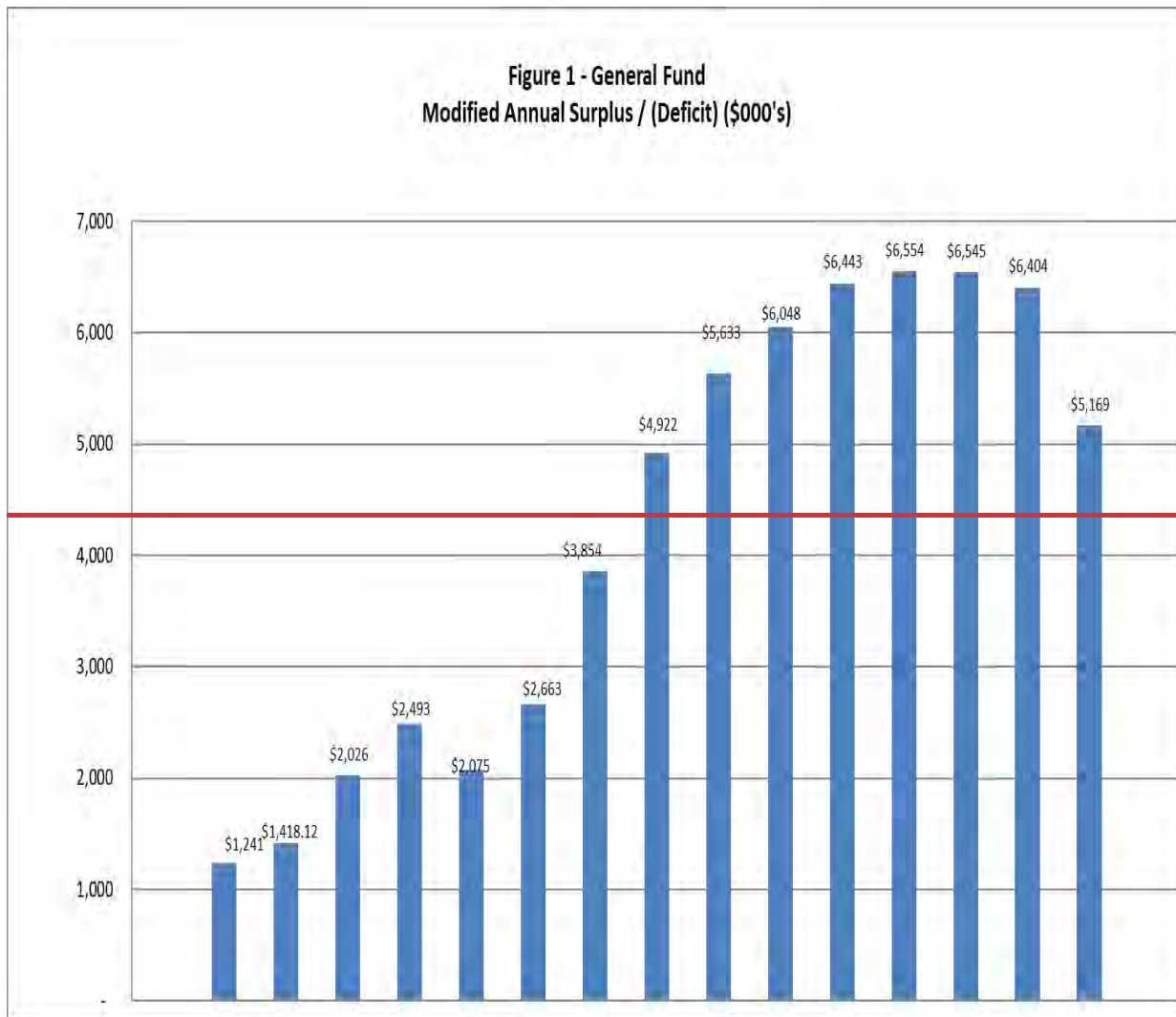
Development of Phases 1A & 1B & 2 & 3 is anticipated to occur over an approximate sixteen (16) year time period, starting in 2016 and ending approximately in 2032. The Developer has caused to occur substantial research regarding the absorption schedule for Phases 1A & 1B & 2 & 3 and hereby submits the absorption schedules summarized herein and detailed in *Table 1A* and *Table 1L* as the most likely buildout scenario for Phases 1A & 1B & 2 & 3.

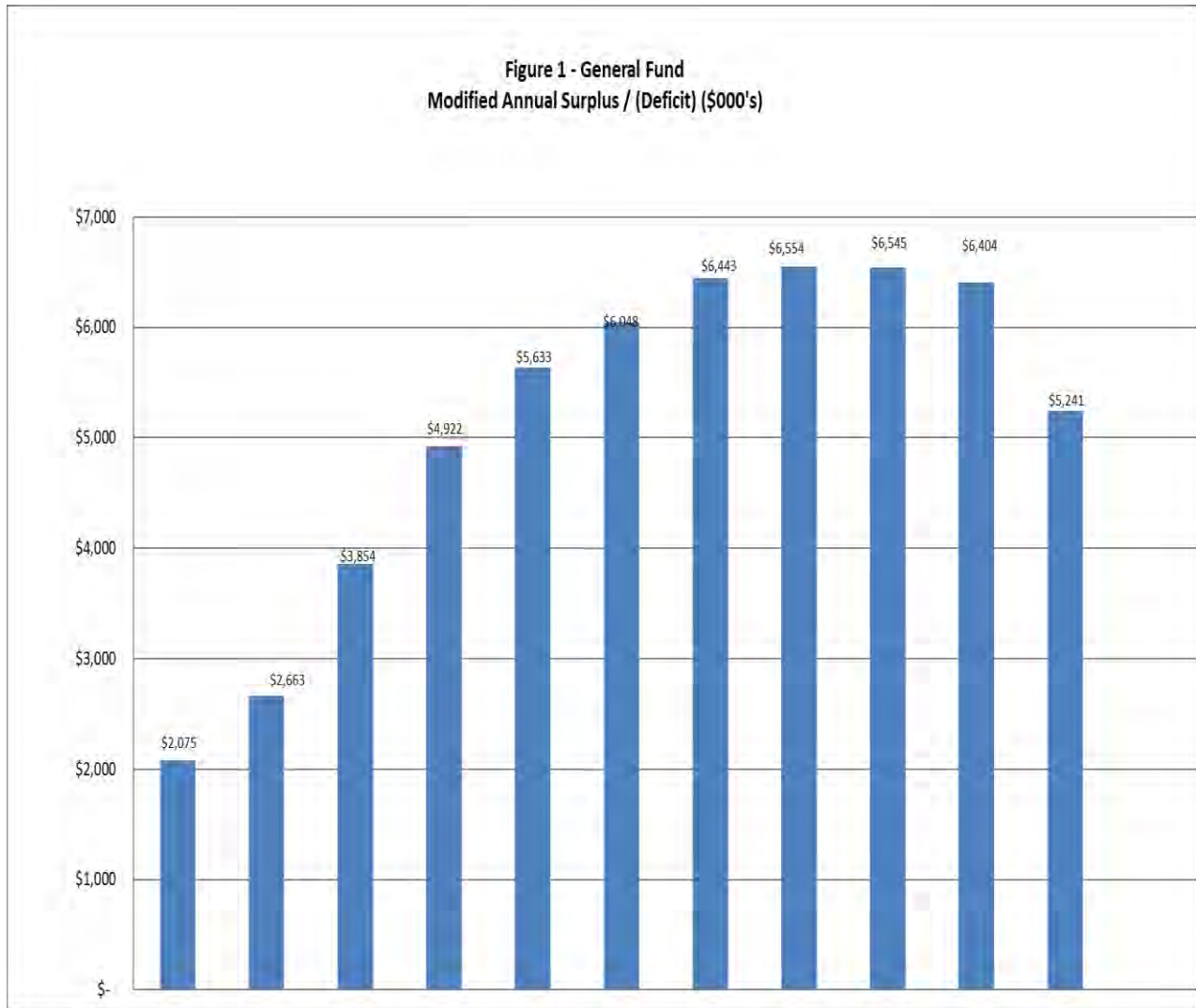
Table 1B – 1F, and *Table 1F – 1L* provide a more detailed breakdown of the individual absorption of Phases 1A & 1B & 2 & 3 for both lot sales and home closings.

Based on conversations with the Developer and the City of Black Diamond, DPFG has designed many aspects of this FIA to produce a conservative result while maintaining the most reasonably accurate report possible. To this end and consistent with Section 13.6 of the Development Agreements, all one-time revenue generators (e.g. permit and impact fees) associated with Phases 1A & 1B & 2 & 3 have been excluded from this analysis of the City’s General Fund. This analysis further assumes all phases of development within the MPDs Phases 1A & 1B & 2 & 3 is occurring within the 2032 timeline.

Additionally, Phases 1A & 1B & 2 & 3 will generate approximately \$38.6 million in new Real Estate Excise Tax (“REET”) for the City’s capital improvement and project funds. These REET revenues generated by Phases 1A & 1B & 2 & 3 can be used by the City to provide additional facilities and infrastructure that may serve Phases 1A & 1B & 2 & 3, and the remainder of the City. Although REET revenues are calculated by the FIA, they are not included in the tables and graphs describing Phases 1A & 1B & 2 & 3 surpluses or deficits because it is assumed that all REET will be utilized by the appropriate City special funds to finance additional City infrastructure not associated with Phases 1A & 1B & 2 & 3.

Presented below in *Figure 1* is the General Fund Modified Annual Surplus / (Deficit) (revenue less expenditures) for each year. One-time revenue generators, secondary economic benefits and REET are not shown in *Figure 1*.





The Fiscal Impact Analysis Summary, attached as *Table 2*, shows that Phases 1A & 1B & 2 & 3 are fiscally positive with a General Fund surplus for the City of Black Diamond of approximately \$4.4 million annually in 2033, following the residential build-out and occupancy of Phases 1A & 1B & 2 & 3. From Fiscal Year 2023 through 2033, Phases 1A & 1B & 2 & 3 will generate approximately \$144.0 million (including \$10.25 million from the Funding Agreement) in revenues and incur \$106.1 million (including \$3.4 million in general fund reserves) in costs for the City's General Fund, thereby generating a net fiscal surplus for the City of Black Diamond.

The reader should be aware that any FIA is only as accurate as the assumptions and methodologies used to calculate its results, and actual results may vary from these estimates as events and circumstances occur in a manner different than described in the FIA. As such, this

FIA is intended to be a living document, being updated with current data and assumptions on a case-by-case basis.

City Information

The City of Black Diamond was incorporated on January 20, 1959. The City is 7.19 square miles, located east of Kent and Covington, and approximately 30 miles southeast of Seattle.

The City of Black Diamond is currently home to approximately 6,145 residents. Per the US Census Bureau 2021 American Community Survey 5-Year Estimates, the median home value in the City is \$609,200, the median household income is \$118,140, and per the US Census Bureau On The Map website there are 537 employees within the City. The largest employment industry sectors include health care and social assistance, educational services, and construction.

I. Introduction

Purpose of Report

This report was prepared for the Developer by Development Planning & Financing Group, LLC in order to provide an updated, comprehensive and cumulative Phase 1A & 1B & 2 & 3 FIA to determine the estimated short and long term revenue surpluses and deficits on the City in connection with Phase 1A & 1B & 2 & 3 of the MPDs, known as The Ten Trails and Lawson Hills, approved by Black Diamond Ordinance No. 10-946 and 10-947, respectively, on September 20, 2010. This Phase 1A & 1B & 2 & 3 FIA was drafted to satisfy the requirements of the City's MPD Ordinance (BDMC Ch. 18.98), conditions of approval contained in Black the MPD Permit Approvals and the Development Agreements. Pursuant to the MPD Permit Approvals and Section 13.6 of the Development Agreements, the Phase 1A fiscal analysis for the MPDs dated February 1, 2022 was approved by the City on October 23, 2012. The MPDs' Phase 1A & 2 FIA dated December 31, 2013, was revised April 28, 2014, and approved by the City on June 16, 2014. An update to the Phase 1A & 2 FIA was submitted by the Developer on September 27, 2019. The MPDs' Phase 1A & 2 & 1B FIA dated August 20, 2021, was approved by the City on September 21, 2021.

Organization of Report

The report describes Phases 1A & 1B & 2 & 3 and related development absorption, scope, methodology and assumptions applied in the FIA; a description of the FIA methods for calculating revenues and expenditures; and the conclusions of the FIA during and after the projected buildout timeline.

II. Phases 1A & 1B & 2 & 3 Description

Locations, Land Uses and Assumptions

Phases 1A & 1B & 2 & 3 of The Ten Trails MPD and Lawson Hills MPD consists of approximately 1,440 acres of property as identified in Exhibit K of the Development Agreements.

Residential Development

Phase 1A is anticipated to yield 751 residential units, Phase 1B is anticipated to yield 379 units, Phase 2 is anticipated to yield 988 units, Phase 3 is anticipated to yield 3,932 units, of various product types. Pursuant to buildout and phasing information prepared by the Developer, product types will range from for-rent apartment buildings to single-family homes on approximately 5,000 square foot lots. Pursuant to information provided by the Developer, the report estimates these units will range in price from \$400,000 to \$1,750,000 in 2023.

Non-Residential Development

Phase 1A is anticipated to yield approximately 172,000 square feet of non-residential development, with 164,000 square feet of retail and 8,000 square feet of office space. Phase 1B is anticipated to yield approximately 619,000 square feet of non-residential development, with 324,000 square feet of retail and 295,000 square feet of office space. Phase 2 does not have any planned non-residential development. Phase 3 is anticipated to yield approximately 263,000 square feet of non-residential development, with 27,000 square feet of retail and 236,000 square feet of office space.

Absorption / Phasing

Phases 1A & 1B & 2 & 3

The Developer provided absorption by phase for both land sales and individual residential units (*See Table 1A-1L*). The first land sale occurred in 2017, and the first residential units closed in 2018.

Phase 1A non-residential development is expected to absorb from 2023 to 2026 (*See Table 1B*). Phase 1B non-residential development is expected to absorb from 2024 to 2032 (*See Table 1C*). Phase 3 non-residential development is expected to absorb from 2030 to 2032 (*See Table 1E*).

III. Fiscal Impact Analysis

Summary

Phases 1A & 1B & 2 & 3 encompass approximately 1,440 acres of land in the City and the Ten Trails and Lawson Hills MPDs. An initial estimate of the total number of residential units, average non-residential square footage, and initial unit values for Phases 1A & 1B & 2 & 3 is identified in *Table 1A-1J*.

The Developer has caused to occur substantial research regarding the absorption schedule for Phases 1A & 1B & 2 & 3 and hereby submits the absorption schedule summarized herein and detailed in *Table 1A-1J* as the most likely buildout scenario for Phases 1A & 1B & 2 & 3.

Sources of Information and Methodology Used in FIA

Data Sources

Information used in preparing the FIA was obtained from the following sources: (1) the 2023, City budget, (2) Conversations with the Developer, (3) the MPD Ordinance (BDMC Ch. 18.98), (4) Comparable cities selection and analysis from the City, (5) the MPD Permit Approvals and Development Agreements, (6) Developer's anticipated unit count and product mix for Phases 1A & 1B & 2 & 3, and (7) the Washington State Department of Revenue ("DOR"), the Washington

State Department of Financial Management (“DOFM”), and those data sources referenced by the PSRC, including the Federal Bureau of Labor Statistics (“BLS”) and the US Census.

Methodology – Revenues & Expenditures

The methodology utilized in the FIA was chosen based on a careful review of the requirements of the MPD Ordinance, the City’s Comprehensive Plan, The Ten Trails MPD and Lawson Hills MPD Development Agreements, and discussions with the Developer and City staff. While there are alternative methods available to prepare a FIA for Phase 1A & 1B & 2 & 3, a combination of per capita analysis, case study, and comparable cities analysis were used to determine the impact of Phase 1A & 1B & 2 & 3 in accordance with Section 13.6 of the Development Agreements. In the case of Street Funds, Real Estate Excise Tax, and the Stormwater Fund, DPFG used the case study method in accordance with Section 13.6 of the Development Agreements. For example, REET are directly influenced by unit and land prices, and DPFG used the case study methodology to estimate these revenue sources.

With the exception of property taxes, sales taxes and the previously mentioned special revenue funds, a majority of the revenues and expenditures have been calculated on a per-capita basis. The per-capita methodology assigns revenues or costs per person served based on the 2023 City budget and City population. At this time, DPFG and the Developer do not have knowledge of the City’s future staffing and levels of service for any departments, and future updates to this FIA could incorporate updates to the City’s Comprehensive Plan or other City planning documents. The FIA assumes the City provides services to 6,145 residents and 537 employees. An employee is assumed to generate 50% of the revenue and have 50% of the impact of a resident, so the persons served by the City is calculated as: $6,145 + [50\% \times 537] = 6,414$.

For the Phase 1A & 2 & 1B FIA, the City and Developer agreed to use the budgeted expenditures for the City of Sumner (Police and Public Works) and the City of Poulsbo (Fire and Parks & Recreation) as comparable cities. For the preparation of the Phase 1A & 1B & 2 & 3 FIA, the Developer and the City worked together to evaluate comparable cities that would match the level of service required to serve the City at buildout of Phase 1A & 1B & 2 & 3. Through this evaluation it was determined and agreed to by the City and Developer that the City of Covington (Police and Parks and Recreation and Public Works) and Mukilteo (Fire) be used as comparable cities.

As property taxes are dependent on the market value of each new residential unit or non-residential building, the FIA has calculated property tax revenue based on the estimated taxable value of development multiplied by the levy rate for each applicable property tax paid to the City, including any levy lid lifts that have been authorized. The FIA has calculated sales tax revenue as follows: (i) Sales tax from businesses in the City is calculated based on typical retail sales per square foot or per employee from the type(s) of businesses expected in the new development, in an effort to stay conservative, and because exact square footage of restaurants and taverns is unknown at this time, we have applied average sales per square foot to all retail; (ii) Sales tax from sales to residents and businesses in the City from businesses outside the City is calculated based on typical sales tax per capita and per employee or square foot in the new development from sales from businesses outside the City; (iii) Sales tax from sales to new residents in the City from existing businesses in the City is calculated based on the lesser of (a) typical sales taxes per capita and per employee of

new development from sales from existing businesses in the City or (b) the percentage of household income spent on retail goods captured by the existing businesses in the City; and (iv) Sales tax from new construction is calculated based on value of taxable materials for construction of the new development. In an effort to be conservative, the FIA also calculates a per-capita amount based on the 2023 budget and retail opportunities of sales taxes per resident, and only the lower amount of sales taxes generated by either one of these methods is utilized in any particular year examined by the FIA.

Methodology– Levels of Service

Pursuant to a review of the City’s budget and staffing levels, as well as a review of the current MPD Funding Agreement between the City and the Developer as set forth in Exhibit N of the Development Agreement (“Funding Agreement”), DPFG and the Developer have prepared the FIA with level of service adjustment assumptions. See [TableTables 5 - 9](#) for level of service adjustments by department expenditure.

Methodology – Efficiency Factors

One common method of estimating future expenditures is to apply an efficiency factor to the per-capita costs to account for the incrementally decreased costs associated with adding each additional resident or employee. To be conservative, all of these efficiency factors are shown at 100% in the FIA (i.e., zero efficiencies). [See Tables E-1 – E11 for efficiency factor adjustments by department expenditure.](#)

Methodology – Land Use

The FIA combines all types of residential land uses, from apartments to single-family homes as well as office and retail development planned for Phases 1A & 1B & 2 & 3.

IV. General Assumptions

A more comprehensive overview of the general assumptions utilized in the FIA is summarized below in Figure 2:

Figure 2
Phases 1A & 1B & 2 & 3 Combined Data

<u>Anticipated Development Totals</u>		
Residential	(a)	6,050 units
Retail	(a)	515,000 sq. ft.
Office	(a)	539,000 sq. ft.

Anticipated Absorption

Residential	(b)	As shown in <i>Table 1A-1J</i>
Retail / Office	(b)	As shown in <i>Table 1A-1J</i>

Unit Pricing**Residential – 2023 Values**

<u>Product</u>		<u>Finished Lot</u>	<u>Finished House</u>
Apartments	(c)	\$60,000	\$400,000
Condos/Stacked Flats	(c)	\$105,000	\$450,000
Townhomes	(c)	\$185,000	\$700,000
Duplex/Duets/30x80 Alley	(c)	\$230,000	\$750,000
35x75 Alley Bungalows	(c)	\$239,201	\$780,004
35x90 Alley	(c)	\$255,093	\$780,004
40x85 Alley	(c)	\$289,085	\$885,531
45x85 Alley	(c)	\$300,000	\$926,400
50x80 Alley	(c)	\$316,526	\$970,000
45x110 Alley w/Carriage	(c)	\$300,000	\$925,000
40x90 - 100	(c)	\$318,108	\$918,264
45x90 - 100	(c)	\$350,022	\$1,007,640
50x90 - 100	(c)	\$360,037	\$1,047,661
55x90 - 100	(c)	\$387,750	\$1,175,000
60x90 - 100	(c)	\$441,731	\$1,338,580
AA 45'	(c)	\$279,000	\$900,000
AA 50'	(c)	\$294,500	\$950,000
AA 60'	(c)	\$317,440	\$1,024,000
AA Auto Court	(c)	\$255,750	\$825,000
Cluster/Auto Court	(c)	\$260,000	\$775,000
Cottage	(c)	\$200,000	\$575,000

Non-Residential – 2023 Values

<u>Product</u>		<u>Per Sq. Ft.</u>
Retail	(d)	\$179
Office	(d)	\$179

Fiscal Modeling Inputs**Initial Property Tax Rate to Black Diamond**

\$ Per \$1,000 Assessed Value levy rate	(e)	\$1.379
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Annual Turnover Rate

Single Family	(f)	Once per 14 Years (7.14%)
Multi Family	(f)	Once per 20 Year (5.00%)

Sales Tax Assumptions

Household Income as a % of Unit Value	(g)	28.1%
Retail Expenditures as a % of Income	(g)	30.0%
% of Retail Expenditures Captured in City	(g)	30.0%
Taxable Sales per Sq. Ft. / Retail	(h)	\$327
Taxable Sales per Sq. Ft. / Office	(h)	\$0

Population & Employment Data**Population**

Resident Population	(i)	6,145
Employee	(i)	537

Resident per Household

Single Family	(j)	2.70
Multi Family	(j)	1.85

Employee Data

Retail sq. ft./employee	(k)	1,246
Office sq. ft./employee	(k)	434

Footnotes:

- (a) Based on Developer information.
- (b) Based on Developer information.
- (c) Based on Developer information.
- (d) DPFG estimate.
- (e) Based on 2023 City of Black Diamond Budget.
- (f) Based on average residential turnover rate statistics.
- (g) Estimates based on Federal Bureau of Labor Statistics “Consumer Expenditure Survey” for 2002 for the West Region.
- (h) Taxable Sales per Square Foot based on “Estimating Retail Sales per Square Foot” reported by Center for Community Economic Development. CPI adjusted to 2023 dollars.
- (i) Washington State Office of Financial Management April 1, 2022 Population of Cities, Towns and Counties 2022 population estimate. City employee data sourced from onthemap.census.gov for the year 2020.
- (j) Section 9.5.4 of The Ten Trails and Lawson Hills MPD Development Agreements.
- (k) Per Energy Information Administration (2003 Office Energy Statistics from the U.S. Government).

V. Projected General Fund Revenues

Summary of Revenues

Phases 1A & 1B & 2 & 3 are estimated to generate approximately \$ \$3,539,543 in revenue for the City's General Fund in 2023. In 2033 Phases 1A & 1B & 2 & 3 are estimated to generate \$ \$19,782,448 in revenues. The FIA utilizes property tax, sales and use tax, solid waste tax, TV cable tax, telephone tax, electrical tax, water utility tax, wastewater utility tax, stormwater tax, gas tax, pull tabs and punch board tax, licenses and permits, intergovernmental, community development revenue, police revenue, municipal court revenue, cable franchise fees, and other general fund revenue generated specifically for the General Fund (*See Table 3*). The calculations of estimated revenue for property and real estate excise tax, and sales and use tax, are presented in *Appendix A: Tables A through C*. The calculations of estimated solid waste tax, TV cable tax, telephone tax, electrical tax, water utility tax, wastewater utility tax, stormwater tax, gas tax, gambling pull tabs and punch board tax, licenses and permits, intergovernmental, charges for services, community development revenue, police revenue, municipal court revenue, cable franchise fees, and miscellaneous other general fund are presented in *Appendix A: Table D*. The FIA assumes a 0.00% escalation rate for all per-capita revenues and expenditures. All General Fund revenues are calculated in *Appendix A: Table D*, and are shown in General Fund summary in *Table 2*. A summary description of the funds is explained below.

The development of new homes and retail space will generate jobs in the construction field and generate demand for a variety of inputs (e.g., building materials, architectural and design services, etc.), many of which may be purchased locally. These revenue generators and secondary economic multipliers resulting from and associated with construction activity during build-out of Phases 1A & 1B & 2 & 3 are estimated to provide an additional \$22.8 million in sales tax revenue to the City (*See Table 11*).

Real Property Tax

As shown in *Appendix A: Table A-16*, by 2033 Phases 1A & 1B & 2 & 3 are estimated to have an assessed value of approximately \$5.697 billion. The City has a maximum levy rate of \$3.10 per \$1,000 of assessed valuation. The FIA assumes the City will receive property taxes at \$1.37927 per \$1,000 of assessed valuation for Phases 1A & 1B & 2 & 3 starting in 2023. For purposes of this FIA, it was assumed the levy rate would be held constant, and did not assume any new construction other than Phases 1A & 1B & 2 & 3 from 2018 through 2033. Detailed yearly calculations are on *Table 4*. Each year the new levy limit calculated based on the following formula:

- 2023 assessed values based upon actual tax roll assessed values
- 1% increase in the prior year levy, plus (starting in 2024)
- New construction assessed value times last year's levy rate, equals
- Total levy limit factor;
- If there is a levy lift, this may also adjust the levy limit as follows:
 - Regular levy less annexations assessed value divided by 1,000 times levy lift rate, plus
 - Total levy limit factor levy from above, equals;
 - Total allowable levy

- New Levy Rate = Total allowable levy divided by regular levy less annexations assessed value times 1,000.

Example:

Normal Years

- (a) Prior year levy of \$100,000 + 1% increase = \$101,000
- (b) Last year levy rate of \$1.175 per \$1000 x New Construction of \$50,000 = \$58.75
- (c) \$101,000 + \$58.75 = \$101,058.75 = Current Year Total Tax Levy

The FIA assumes a 0% market value escalation rate for the current assessed value of property within the City. Pursuant to Washington State Property Tax Law, revenues may only increase on existing development by 1% per year. Under these assumptions, the revenue is approximately \$1,363,898 in property taxes in 2023 and \$7,858,395 in property taxes in 2033.

Personal Property Tax

The City receives Personal Property Taxes that services the incorporated area and including Phases 1A & 1B & 2 & 3. Personal Property taxes are based on the assessed value of the personal property, such as boats and recreational vehicles for residential and furniture and equipment for businesses. Based on the assessed valuation information from the County, it is anticipated Phases 1A & 1B & 2 & 3 will generate approximately \$12,741 in personal property taxes in 2023 and \$60,289 in 2033.

Sales and Use Tax

The sales tax revenue was calculated per Section 13.6.2 of The Ten Trails MPD and Lawson Hills MPD Development Agreements for: (i) sales by businesses in the Project, (ii) sales to residents and businesses in the City from businesses outside the City, and (iii) sales to new development by existing businesses in the City, and (iv) sales of construction materials for new construction. Sales tax from businesses in the City was calculated based on typical retail sales per square foot or per employee, in an effort to stay conservative, and because exact square footage of restaurants and taverns is unknown at this time, we have applied average sales per square foot to all retail. Sales taxes from sales to residents and businesses in the City from businesses outside the City was calculated based on typical sales taxes per capita and per square foot in the Project from businesses outside the City. Sales taxes from sales to new residents in the City from existing businesses in the City was calculated based on the lesser of (i) typical sales taxes per capita and per employee of new development from sales from existing businesses in the City, or (ii) the percentage of household income spent on retail goods captured by the existing businesses in the City. *See Appendix A, Tables C-1 through C-16.* Sales tax revenue from construction materials for new construction was calculated separately in *Table 11*.

Gambling Taxes

The City receives a Pull Tabs and Punch Boards Tax that services the incorporated area including Phases 1A & 1B & 2 & 3. Pull Tabs and Punch Boards taxes are assessed on permitted gambling activities that occur within the City. Based on the Budget, it is anticipated Phases 1A & 1B & 2 & 3 will generate approximately \$2,574 in 2023 and \$12,688 in 2033.

Utility Taxes

The City receives Utility Taxes that services the incorporated area including Phases 1A & 1B & 2 & 3. Utility taxes are the taxes imposed on telephone, cable television , electrical energy, natural gas, solid waste, and water. Storm water utility tax is calculated separately in the storm water fund portion of the FIA. Based on the Budget, it is anticipated Phases 1A & 1B & 2 & 3 will generate approximately \$475,457 in 2023 and \$2,343,368 in 2033.

Intergovernmental Revenue

The City receives revenue from the State, other than grants, for taxes collected by the State that are distributed to cities and other governmental entities on a per capita basis. A major portion of this revenue is from the street gas tax and local criminal justice funds. Additional sources of revenue are allocated from the Liquor Excise Tax and Profits, Vessel Registration Fees and Fire District 17 contract fees, which are distributed on a per capita basis. Based on the Budget, it is anticipated Phases 1A & 1B & 2 & 3 will generate approximately \$67,177 in 2023 and \$331,094 in 2033.

Community Development Revenues

The City receives revenue from various fees related to land use and construction activities, as identified in the City's budget, which service the incorporated area including Phases 1A & 1B & 2 & 3. Based on the Budget, it is anticipated Phases 1A & 1B & 2 & 3 will generate approximately \$657,249 in 2023 and \$3,239,356 in 2033.

Police Revenue

The City receives revenue from intergovernmental funding including grants, shared revenues, criminal justice funds and payments for goods and services provided to the City from the State or other governmental entities. Other revenue includes traffic school, gun permits and fingerprinting. It is anticipated Phases 1A & 1B & 2 & 3 will generate approximately \$207,725 in 2023 and \$1,023,805 in 2033.

Municipal Court Revenue

The City receives revenue from police issued fines for various infractions and violations. The City retains approximately 35 percent of the total amount paid in fines and forfeits pursuant to the Budget. It is anticipated Phases 1A & 1B & 2 & 3 will generate approximately \$47,796 in 2023 and \$235,572 in 2033.

Cable Franchise Fee Revenue

The City receives revenue from collecting a cable franchise fee. It is anticipated Phases 1A & 1B & 2 & 3 will generate approximately \$49,448 in 2023 and \$243,712 in 2033.

Other General Fund Revenue

The City receives revenue from various unique sources that include parking fees at Lake Sawyer, passport revenue, gym rental, the cemetery, and allocation of revenue from other city funds, for General Fund services and supplies. Based on the Budget, it is anticipated Phases 1A & 1B & 2 & 3 will generate approximately \$73,637 in 2023 and \$362,934 in 2033.

VI. Projected General Fund Expenditures

Phases 1A & 1B & 2 & 3 is estimated to create approximately \$3,245,636 in costs for the City's General Fund in 2023. In 2033 Phases 1A & 1B & 2 & 3 are estimated to create \$15,371,559 in costs. The summary estimates and calculations are presented in *Table 2*. A summary description of the expenditures is explained below.

General Fund

General Fund expenditures are utilized to establish and maintain the Legislative, Executive, Administration, Administration Services, Facilities, Legal, Municipal Court, Emergency Management (EMS), Community Development, Cemetery, Police, Fire, and Parks and Recreation. The FIA anticipates the City spending \$1,046.73 per person served in General Fund costs. The General Fund Costs are not assumed to increase.

Police

Police Department expenditures were determined by using a comparable cities analysis. Through discussions with the City the City of Covington was determined as the comparable city for the police department. The Covington Police Department costs are assigned a level of service factor of 100%. The per capita cost of Covington's police services are applied to Phases 1A & 1B & 2 & 3. Based on the Budget, it is anticipated Phases 1A & 1B & 2 & 3 will spend approximately \$254.61 per person served.

Fire

The Fire Department is currently funded and served through a contract with Mountain View Fire & Rescue, for this FIA the comparable cities analysis was used. Through discussions with the City, the City of Mukilteo was determined as the comparable city for the Fire Department. The per capita cost of Mukilteo fire services are applied to Phases 1A & 1B & 2 & 3. Based on the Budget, it is anticipated Phases 1A & 1B & 2 & 3 will generate costs of approximately \$199.50 per person served.

Parks & Recreation

The Parks & Recreation Department expenditures were determined by using a comparable cities analysis. Through discussions with the City, the City of Covington was determined as the comparable city for the fire department. The City of Covington Parks Maintenance Division is responsible for routine and preventative maintenance of parks, trails and open space within the City limits. The Parks and Recreation Department provides the community with affordable educational and recreational programs, parks, and services to all residents and visitors. The Covington Parks Maintenance Department costs are assigned a level of service factor of 100%. The Covington Parks & Recreation Department costs have been reduced by user fees that offset these costs. Based on the Budget, it is anticipated Phases 1A & 1B & 2 & 3 will generate costs of approximately \$45.60 per person served. Per Section 9.9.2 of The Ten Trails and Lawson Hills Development Agreements, the Developer or the HOAs will maintain all parks within Phases 1A & 1B & 2 & 3, so the funding for parks & recreation will go to funding other park maintenance throughout the City. These funds will help to maintain community parks and facilities that the development's residents benefit from.

Public Works

The Public Works Department expenditures were determined by the comparable cities analysis. Through discussions with the City the City of Covington was determined as the comparable city for the police department. Based on the Budget, it is anticipated Phases 1A & 1B & 2 & 3 will generate costs of approximately \$41.74 per person served. Per Section 13.6.5(a)(i) of the Ten Trails and Lawson Hills Development Agreements, the Master Developer or HOAs may request to perform all right-of-way landscape maintenance within the Project. Although the Master Developer and HOAs intend to perform all right-of-way landscape maintenance within the MPDs' Phases 1A & 1B & 2 & 3, for purposes of conservatism, this fiscal analysis assumes that the City will maintain all right-of-way in Phases 1A & 1B & 2 & 3, with both costs and revenues going to the City for this service.

VII. Special Fund Impacts

City Special Fund

Per Section 13.6(1)(b) of the Development Agreements, DPGF has included the following special fund revenues within the FIA. These Special Funds include the Street, Real Estate Excise Tax I & II, Stormwater Funds, and Criminal Justice. This FIA uses the case study method to calculate revenues for the Special Funds.

Street Funds

Phases 1A & 1B & 2 & 3 will construct several new public streets that will become the maintenance responsibility of the City. In order to maintain public streets the City receives revenue from various unique sources. The FIA estimates Phases 1A & 1B & 2 & 3 will generate \$74,658 in 2023 and \$367,962 in 2033. City maintenance duties on public roadways begin 2 years after construction, after the Developer's maintenance bond expires. The FIA anticipates street maintenance costs, as described from the City of Sumner Public Works comparable cities approach. The detailed revenue calculations are shown in *Table 12*.

Capital Improvement and Capital Projects Funds (REET)

The Capital Improvement and Capital Projects Funds consist of REET revenue divided equally between these separate funds into two separate portions. The first half, within the Capital Improvement Fund, may be used for any facilities identified within the Capital Improvement Plan (CIP). The second half, within the Capital Projects Fund, must also be used for CIP facilities but may not be used for the acquisition of parkland. The City receives this tax at the time in which new or existing property is sold and ownership is transferred. REET is collected upon the sale of property at a rate of 0.5000% on the selling price of the property. For instance, when a property sells for \$300,000, the City collects \$1,500. The FIA calculates the REET re-sale by using a residential and non-residential turnover rate of 7.14% and 5% of total assessed value per year respectively. Based on our calculations, Phases 1A & 1B & 2 & 3 anticipate generating \$1,290,751 in 2023 and \$2,442,900 in 2033 in revenues within the Capital Improvements and Capital Projects Funds. The total REET generated from 2017 to 2033 is approximately \$38.6 million. The capital facility expenditures separate from Phases 1A & 1B & 2 & 3 will be determined by the City consistent with adopted levels of service. The REET revenue from Phases 1A & 1B & 2 & 3 is

expected to fund additional facilities and infrastructure identified in the CIP in a timely and fiscally responsible manner.

Storm Water Fund

The Storm Water Fund is calculated based on the monthly storm water utility rate charged to all residential and nonresidential developments. Per the City of Black Diamond's website, these funds are used to promote public health, safety and welfare by minimizing uncontrolled surface and stormwater erosion and water pollution to preserve and utilize the many values of the City's natural drainage system including water quality, open space, fish and wildlife habitat, recreation, education, urban separation and drainage facilities and to provide for the comprehensive management and administration of surface and storm water. The residential monthly rate is \$19.5/ERU. The storm water utility rate for Phases 1A & 1B & 2 & 3 anticipates generating \$301,974 in 2023 and \$1,653,012 in 2033. Storm water expenditures are estimated using a per person served calculation and anticipate costing \$488,373 in 2023 and \$2,201,458 in 2033.

Table 1A
Fiscal Impact Analysis
Land Sale Build Out and Absorption Schedule
All Phases Combined

	2023 Value		Year																	Total	
	Finished Lot	Finished Unit	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
Residential																					
Apartments	\$60,000	\$400,000	-	176	-	-	-	-	-	-	6	37	30	-	23	23	23	-	-	318	
Condos/Stacked Flats	\$105,000	\$450,000	-	-	-	-	-	-	-	-	1	8	6	-	5	5	5	-	-	30	
Townhomes	\$185,000	\$700,000	-	7	29	59	-	-	106	273	185	203	185	77	139	112	72	-	-	1,447	
Duplex/Duets/30x80 Alley	\$230,000	\$750,000	-	14	14	-	-	-	-	13	18	24	24	23	23	22	17	-	-	192	
35x75 Alley Bungalows	\$239,201	\$780,004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
35x90 Alley	\$255,093	\$780,004	-	32	73	18	-	-	-	12	27	24	25	21	19	18	6	-	-	275	
40x85 Alley	\$289,085	\$885,531	16	35	29	17	-	-	-	10	24	25	25	24	21	20	17	-	-	263	
45x85 Alley	\$300,000	\$926,400	9	11	1	16	-	-	-	7	14	21	21	21	21	21	21	-	-	184	
50x80 Alley	\$316,526	\$970,000	2	13	3	13	-	-	-	11	14	11	11	11	11	11	11	-	-	122	
45x110 Alley w/Carriage	\$300,000	\$925,000	-	-	-	-	-	-	-	5	7	14	14	14	14	14	14	-	-	96	
40x90 - 100	\$318,108	\$918,264	-	93	64	62	19	-	-	104	127	128	131	116	113	73	24	-	-	1,054	
45x90 - 100	\$350,022	\$1,007,640	-	3	6	2	2	-	-	12	20	9	8	8	8	7	6	-	-	91	
50x90 - 100	\$360,037	\$1,047,661	-	96	52	64	18	-	-	41	85	121	124	110	109	84	43	-	-	947	
55x90 - 100	\$387,750	\$1,175,000	-	-	-	1	8	-	-	11	16	33	33	33	33	33	33	-	-	234	
60x90 - 100	\$441,731	\$1,338,580	-	22	-	39	17	-	-	19	31	53	54	47	48	34	13	-	-	377	
AA 45'	\$279,000	\$900,000	-	-	-	-	15	22	12	13	22	-	-	-	-	-	-	-	-	84	
AA 50'	\$294,500	\$950,000	-	-	-	-	30	35	29	24	50	-	-	-	-	-	-	-	-	168	
AA 60'	\$317,440	\$1,024,000	-	-	-	-	16	12	11	8	18	-	-	-	-	-	-	-	-	65	
AA Auto Court	\$255,750	\$825,000	-	-	-	-	20	-	30	32	-	-	-	-	-	-	-	-	-	82	
Cluster/Auto Court	\$260,000	\$775,000	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	-	-	7	
Cottage	\$200,000	\$575,000	-	-	-	-	-	-	-	1	1	2	2	2	2	2	2	-	-	14	
Annual Total Units			27	502	271	291	145	69	188	596	667	714	694	508	590	480	308	-	-	6,050	
Cumulative Units			27	529	800	1,091	1,236	1,305	1,493	2,089	2,756	3,470	4,164	4,672	5,262	5,742	6,050	6,050	6,050	6,050	
Non-Residential																					
Retail			-	-	-	-	-	-	50,000	89,000	95,000	37,000	65,000	65,000	60,000	-	-	54,000	-	515,000	
Office			-	-	-	-	-	-	-	-	-	8,000	25,000	64,000	65,000	140,000	152,000	85,000	-	539,000	
Annual Total Square Feet			-	-	-	-	-	-	50,000	89,000	95,000	45,000	90,000	129,000	125,000	140,000	152,000	139,000	-	1,054,000	
Cumulative Total Square Footage			-	-	-	-	-	-	50,000	139,000	234,000	279,000	369,000	498,000	623,000	763,000	915,000	1,054,000	1,054,000	1,054,000	

Source: Developer

Table 1B
Fiscal Impact Analysis
Land Sale Build Out and Absorption Schedule
Phase 1A Only

	2023 Value		Year																	Total
	Finished Lot	Finished Unit	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
<u>Residential</u>																				
Apartments	\$60,000	\$400,000	-	176	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	176
Condos/Stacked Flats	\$105,000	\$450,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Townhomes	\$185,000	\$700,000	-	7	29	59	-	-	51	-	-	-	-	-	-	-	-	-	-	146
Duplex/Duets/30x80 Alley	\$230,000	\$750,000	-	14	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28
35x75 Alley Bungalows	\$239,201	\$780,004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35x90 Alley	\$255,093	\$780,004	-	32	73	2	-	-	-	-	-	-	-	-	-	-	-	-	-	107
40x85 Alley	\$289,085	\$885,531	16	35	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80
45x85 Alley	\$300,000	\$926,400	9	11	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21
50x80 Alley	\$316,526	\$970,000	2	13	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
45x110 Alley w/Carriage	\$300,000	\$925,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40x90 - 100	\$318,108	\$918,264	-	35	47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	82
45x90 - 100	\$350,022	\$1,007,640	-	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
50x90 - 100	\$360,037	\$1,047,661	-	45	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	66
55x90 - 100	\$387,750	\$1,175,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60x90 - 100	\$441,731	\$1,338,580	-	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22
AA 45'	\$279,000	\$900,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA 50'	\$294,500	\$950,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA 60'	\$317,440	\$1,024,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA Auto Court	\$255,750	\$825,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cluster/Auto Court	\$260,000	\$775,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cottage	\$200,000	\$575,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual Total Units			27	391	221	61	-	-	51	-	-	-	-	-	-	-	-	-	-	751
Cumulative Units			27	418	639	700	700	700	751	751	751	751	751	751	751	751	751	751	751	751
<u>Non-Residential</u>																				
Retail			-	-	-	-	-	-	50,000	54,000	60,000	-	-	-	-	-	-	-	-	164,000
Office			-	-	-	-	-	-	-	-	-	8,000	-	-	-	-	-	-	-	8,000
Annual Total Square Feet			-	-	-	-	-	-	50,000	54,000	60,000	8,000	-	-	-	-	-	-	-	172,000
Cumulative Total Square Footage			-	-	-	-	-	-	50,000	104,000	164,000	172,000	172,000	172,000	172,000	172,000	172,000	172,000	172,000	172,000

Source: Developer

Table 1C
Fiscal Impact Analysis
Land Sale Build Out and Absorption Schedule
Phase 1B Only

	2023 Value		Year																			Total	
	Finished Lot	Finished Unit	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033				
<u>Residential</u>																							
Apartments	\$60,000	\$400,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Condos/Stacked Flats	\$105,000	\$450,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Townhomes	\$185,000	\$700,000	-	-	-	-	-	-	-	55	92	87	-	-	-	-	-	-	-	-	-	234	
Duplex/Duets/30x80 Alley	\$230,000	\$750,000	-	-	-	-	-	-	-	-	7	7	-	-	-	-	-	-	-	-	-	14	
35x75 Alley Bungalows	\$239,201	\$780,004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
35x90 Alley	\$255,093	\$780,004	-	-	-	-	-	-	-	-	7	7	-	-	-	-	-	-	-	-	-	14	
40x85 Alley	\$289,085	\$885,531	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
45x85 Alley	\$300,000	\$926,400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
50x80 Alley	\$316,526	\$970,000	-	-	-	-	-	-	-	7	8	-	-	-	-	-	-	-	-	-	-	15	
45x110 Alley w/Carriage	\$300,000	\$925,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
40x90 - 100	\$318,108	\$918,264	-	-	-	-	-	-	-	52	30	-	-	-	-	-	-	-	-	-	-	82	
45x90 - 100	\$350,022	\$1,007,640	-	-	-	-	-	-	-	9	9	-	-	-	-	-	-	-	-	-	-	18	
50x90 - 100	\$360,037	\$1,047,661	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	2	
55x90 - 100	\$387,750	\$1,175,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
60x90 - 100	\$441,731	\$1,338,580	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
AA 45'	\$279,000	\$900,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
AA 50'	\$294,500	\$950,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
AA 60'	\$317,440	\$1,024,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
AA Auto Court	\$255,750	\$825,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cluster/Auto Court	\$260,000	\$775,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cottage	\$200,000	\$575,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Annual Total Units			-	-	-	-	-	-	55	175	149	-	-	-	-	-	-	-	-	-	-	379	
Cumulative Units			-	-	-	-	-	-	55	230	379	379	379	379	379	379	379	379	379	379	379	379	
<u>Non-Residential</u>																							
Retail			-	-	-	-	-	-	-	35,000	35,000	37,000	65,000	65,000	60,000	-	-	27,000	-	-	324,000	-	
Office			-	-	-	-	-	-	-	-	-	-	25,000	64,000	65,000	65,000	52,000	24,000	-	-	295,000	-	
Annual Total Square Feet			-	-	-	-	-	-	-	35,000	35,000	37,000	90,000	129,000	125,000	65,000	52,000	51,000	-	-	619,000	-	
Cumulative Total Square Footage			-	-	-	-	-	-	-	35,000	70,000	107,000	197,000	326,000	451,000	516,000	568,000	619,000	619,000	619,000	619,000	619,000	

Source: Developer

Table 1D
Fiscal Impact Analysis
Land Sale Build Out and Absorption Schedule
Phase 2 Only

	2023 Value		Year																	Total
	Finished Lot	Finished Unit	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
<u>Residential</u>																				
Apartments	\$60,000	\$400,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Condos/Stacked Flats	\$105,000	\$450,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Townhomes	\$185,000	\$700,000	-	-	-	-	-	-	-	146	20	-	-	-	-	-	-	-	-	166
Duplex/Duets/30x80 Alley	\$230,000	\$750,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35x75 Alley Bungalows	\$239,201	\$780,004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35x90 Alley	\$255,093	\$780,004	-	-	-	16	-	-	-	-	8	-	-	-	-	-	-	-	-	24
40x85 Alley	\$289,085	\$885,531	-	-	-	17	-	-	-	-	10	-	-	-	-	-	-	-	-	27
45x85 Alley	\$300,000	\$926,400	-	-	-	16	-	-	-	-	4	-	-	-	-	-	-	-	-	20
50x80 Alley	\$316,526	\$970,000	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	13
45x110 Alley w/Carriage	\$300,000	\$925,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40x90 - 100	\$318,108	\$918,264	-	58	17	62	19	-	-	-	16	-	-	-	-	-	-	-	-	172
45x90 - 100	\$350,022	\$1,007,640	-	2	2	2	2	-	-	-	6	-	-	-	-	-	-	-	-	14
50x90 - 100	\$360,037	\$1,047,661	-	51	31	64	18	-	-	-	14	-	-	-	-	-	-	-	-	178
55x90 - 100	\$387,750	\$1,175,000	-	-	-	1	8	-	-	-	-	-	-	-	-	-	-	-	-	9
60x90 - 100	\$441,731	\$1,338,580	-	-	-	39	17	-	-	-	-	-	-	-	-	-	-	-	-	56
AA 45'	\$279,000	\$900,000	-	-	-	-	15	22	12	13	-	-	-	-	-	-	-	-	-	62
AA 50'	\$294,500	\$950,000	-	-	-	-	30	35	29	24	-	-	-	-	-	-	-	-	-	118
AA 60'	\$317,440	\$1,024,000	-	-	-	-	16	12	11	8	-	-	-	-	-	-	-	-	-	47
AA Auto Court	\$255,750	\$825,000	-	-	-	-	20	-	30	32	-	-	-	-	-	-	-	-	-	82
Cluster/Auto Court	\$260,000	\$775,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cottage	\$200,000	\$575,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual Total Units			-	111	50	230	145	69	82	223	78	-	-	-	-	-	-	-	-	988
Cumulative Units			-	111	161	391	536	605	687	910	988	988	988	988	988	988	988	988	988	988
<u>Non-Residential</u>																				
Retail			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Office			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual Total Square Feet			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cumulative Total Square Footage			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: Developer

Table 1E
Fiscal Impact Analysis
Land Sale Build Out and Absorption Schedule
Phase 3 Only

	2023 Value		Year																	Total	
	Finished Lot	Finished Unit	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
<u>Residential</u>																					
Apartments	\$60,000	\$400,000	-	-	-	-	-	-	-	-	6	37	30	-	23	23	23	-	-	142	
Condos/Stacked Flats	\$105,000	\$450,000	-	-	-	-	-	-	-	-	1	8	6	-	5	5	5	-	-	30	
Townhomes	\$185,000	\$700,000	-	-	-	-	-	-	-	-	35	78	203	185	77	139	112	72	-	901	
Duplex/Duets/30x80 Alley	\$230,000	\$750,000	-	-	-	-	-	-	-	-	6	11	24	24	23	23	22	17	-	150	
35x75 Alley Bungalows	\$239,201	\$780,004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
35x90 Alley	\$255,093	\$780,004	-	-	-	-	-	-	-	-	5	12	24	25	21	19	18	6	-	130	
40x85 Alley	\$289,085	\$885,531	-	-	-	-	-	-	-	-	10	14	25	25	24	21	20	17	-	156	
45x85 Alley	\$300,000	\$926,400	-	-	-	-	-	-	-	-	7	10	21	21	21	21	21	21	-	143	
50x80 Alley	\$316,526	\$970,000	-	-	-	-	-	-	-	-	4	6	11	11	11	11	11	11	-	76	
45x110 Alley w/Carriage	\$300,000	\$925,000	-	-	-	-	-	-	-	-	5	7	14	14	14	14	14	14	-	96	
40x90 - 100	\$318,108	\$918,264	-	-	-	-	-	-	-	-	52	81	128	131	116	113	73	24	-	718	
45x90 - 100	\$350,022	\$1,007,640	-	-	-	-	-	-	-	-	3	5	9	8	8	8	7	6	-	54	
50x90 - 100	\$360,037	\$1,047,661	-	-	-	-	-	-	-	-	40	70	121	124	110	109	84	43	-	701	
55x90 - 100	\$387,750	\$1,175,000	-	-	-	-	-	-	-	-	11	16	33	33	33	33	33	33	-	225	
60x90 - 100	\$441,731	\$1,338,580	-	-	-	-	-	-	-	-	19	31	53	54	47	48	34	13	-	299	
AA 45'	\$279,000	\$900,000	-	-	-	-	-	-	-	-	-	22	-	-	-	-	-	-	-	22	
AA 50'	\$294,500	\$950,000	-	-	-	-	-	-	-	-	-	50	-	-	-	-	-	-	-	50	
AA 60'	\$317,440	\$1,024,000	-	-	-	-	-	-	-	-	-	18	-	-	-	-	-	-	-	18	
AA Auto Court	\$255,750	\$825,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cluster/Auto Court	\$260,000	\$775,000	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	-	7	
Cottage	\$200,000	\$575,000	-	-	-	-	-	-	-	-	1	1	2	2	2	2	2	2	-	14	
Annual Total Units			-	-	-	-	-	-	-	-	198	440	714	694	508	590	480	308	-	-	3,932
Cumulative Units			-	-	-	-	-	-	-	-	198	638	1,352	2,046	2,554	3,144	3,624	3,932	3,932	3,932	3,932
<u>Non-Residential</u>																					
Retail			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27,000	-	27,000	
Office			-	-	-	-	-	-	-	-	-	-	-	-	-	-	75,000	100,000	61,000	-	236,000
Annual Total Square Feet			-	-	-	-	-	-	-	-	-	-	-	-	-	-	75,000	100,000	88,000	-	263,000
Cumulative Total Square Footage			-	-	-	-	-	-	-	-	-	-	-	-	-	-	75,000	175,000	263,000	263,000	263,000

Source: Developer

Table 1F
Fiscal Impact Analysis
Unit Sale Build Out and Absorption Schedule
All Phases Combined

	2023 Value		Year																	Total
	Finished Lot	Finished Unit	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
<u>Residential</u>																				
Apartments	\$60,000	\$400,000	-	-	-	17	88	71	-	-	-	6	37	30	-	23	23	23	-	318
Condos/Stacked Flats	\$105,000	\$450,000	-	-	-	-	-	-	-	-	-	1	8	6	-	5	5	5	-	30
Townhomes	\$185,000	\$700,000	-	-	7	29	59	-	-	106	273	185	203	185	77	139	112	72	-	1,447
Duplex/Duets/30x80 Alley	\$230,000	\$750,000	-	-	14	14	-	-	-	-	13	18	24	24	23	23	22	17	-	192
35x75 Alley Bungalows	\$239,201	\$780,004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35x90 Alley	\$255,093	\$780,004	-	-	10	47	29	36	1	-	12	27	24	25	21	19	18	6	-	275
40x85 Alley	\$289,085	\$885,531	-	1	10	29	25	32	-	-	10	24	25	25	24	21	20	17	-	263
45x85 Alley	\$300,000	\$926,400	-	9	11	1	2	12	2	-	7	14	21	21	21	21	21	21	-	184
50x80 Alley	\$316,526	\$970,000	-	2	12	3	3	6	5	-	11	14	11	11	11	11	11	11	-	122
45x110 Alley w/Carriage	\$300,000	\$925,000	-	-	-	-	-	-	-	-	5	7	14	14	14	14	14	14	-	96
40x90 - 100	\$318,108	\$918,264	-	-	40	70	85	43	-	-	104	127	128	131	116	113	73	24	-	1,054
45x90 - 100	\$350,022	\$1,007,640	-	-	3	4	3	2	1	-	12	20	9	8	8	8	7	6	-	91
50x90 - 100	\$360,037	\$1,047,661	-	-	36	40	89	50	15	-	41	85	121	124	110	109	84	43	-	947
55x90 - 100	\$387,750	\$1,175,000	-	-	-	-	-	2	7	-	11	16	33	33	33	33	33	33	-	234
60x90 - 100	\$441,731	\$1,338,580	-	-	2	-	25	23	28	-	19	31	53	54	47	48	34	13	-	377
AA 45'	\$279,000	\$900,000	-	-	-	-	-	15	22	12	13	22	-	-	-	-	-	-	-	84
AA 50'	\$294,500	\$950,000	-	-	-	-	-	30	35	29	24	50	-	-	-	-	-	-	-	168
AA 60'	\$317,440	\$1,024,000	-	-	-	-	-	16	12	11	8	18	-	-	-	-	-	-	-	65
AA Auto Court	\$255,750	\$825,000	-	-	-	-	-	19	1	30	32	-	-	-	-	-	-	-	-	82
Cluster/Auto Court	\$260,000	\$775,000	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	-	7
Cottage	\$200,000	\$575,000	-	-	-	-	-	-	-	-	1	1	2	2	2	2	2	2	-	14
Annual Total Units			-	12	145	254	408	357	129	188	596	667	714	694	508	590	480	308	-	6,050
Cumulative Units			-	12	157	411	819	1,176	1,305	1,493	2,089	2,756	3,470	4,164	4,672	5,262	5,742	6,050	6,050	6,050
<u>Non-Residential</u>																				
Retail			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Office			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual Total Square Feet			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cumulative Total Square Footage			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: Developer

Table 1G
Fiscal Impact Analysis
Unit Sale Build Out and Absorption Schedule
Phase 1A Only

	2023 Value		Year																	Total
	Finished Lot	Finished Unit	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
<u>Residential</u>																				
Apartments	\$60,000	\$400,000	-	-	-	17	88	71	-	-	-	-	-	-	-	-	-	-	-	176
Condos/Stacked Flats	\$105,000	\$450,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Townhomes	\$185,000	\$700,000	-	-	7	29	59	-	-	51	-	-	-	-	-	-	-	-	-	146
Duplex/Duets/30x80 Alley	\$230,000	\$750,000	-	-	14	14	-	-	-	-	-	-	-	-	-	-	-	-	-	28
35x75 Alley Bungalows	\$239,201	\$780,004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35x90 Alley	\$255,093	\$780,004	-	-	10	47	25	25	-	-	-	-	-	-	-	-	-	-	-	107
40x85 Alley	\$289,085	\$885,531	-	1	10	29	20	20	-	-	-	-	-	-	-	-	-	-	-	80
45x85 Alley	\$300,000	\$926,400	-	9	11	1	-	-	-	-	-	-	-	-	-	-	-	-	-	21
50x80 Alley	\$316,526	\$970,000	-	2	12	3	1	-	-	-	-	-	-	-	-	-	-	-	-	18
45x110 Alley w/Carriage	\$300,000	\$925,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40x90 - 100	\$318,108	\$918,264	-	-	10	47	25	-	-	-	-	-	-	-	-	-	-	-	-	82
45x90 - 100	\$350,022	\$1,007,640	-	-	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	5
50x90 - 100	\$360,037	\$1,047,661	-	-	13	21	25	7	-	-	-	-	-	-	-	-	-	-	-	66
55x90 - 100	\$387,750	\$1,175,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60x90 - 100	\$441,731	\$1,338,580	-	-	2	-	11	9	-	-	-	-	-	-	-	-	-	-	-	22
AA 45'	\$279,000	\$900,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA 50'	\$294,500	\$950,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA 60'	\$317,440	\$1,024,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA Auto Court	\$255,750	\$825,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cluster/Auto Court	\$260,000	\$775,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cottage	\$200,000	\$575,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual Total Units			-	12	90	212	254	132	-	51	-	-	-	-	-	-	-	-	-	751
Cumulative Units			-	12	102	314	568	700	700	751	751	751	751	751	751	751	751	751	751	751
<u>Non-Residential</u>																				
Retail			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Office			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual Total Square Feet			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cumulative Total Square Footage			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: Developer

Table 1H
Fiscal Impact Analysis
Unit Sale Build Out and Absorption Schedule
Phase 1B Only

	2023 Value		Year																		Total
	Finished Lot	Finished Unit	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
<u>Residential</u>																					
Apartments	\$60,000	\$400,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Condos/Stacked Flats	\$105,000	\$450,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Townhomes	\$185,000	\$700,000	-	-	-	-	-	-	-	55	92	87	-	-	-	-	-	-	-	-	234
Duplex/Duets/30x80 Alley	\$230,000	\$750,000	-	-	-	-	-	-	-	-	7	7	-	-	-	-	-	-	-	-	14
35x75 Alley Bungalows	\$239,201	\$780,004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35x90 Alley	\$255,093	\$780,004	-	-	-	-	-	-	-	-	7	7	-	-	-	-	-	-	-	-	14
40x85 Alley	\$289,085	\$885,531	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45x85 Alley	\$300,000	\$926,400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50x80 Alley	\$316,526	\$970,000	-	-	-	-	-	-	-	-	7	8	-	-	-	-	-	-	-	-	15
45x110 Alley w/Carriage	\$300,000	\$925,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40x90 - 100	\$318,108	\$918,264	-	-	-	-	-	-	-	-	52	30	-	-	-	-	-	-	-	-	82
45x90 - 100	\$350,022	\$1,007,640	-	-	-	-	-	-	-	-	9	9	-	-	-	-	-	-	-	-	18
50x90 - 100	\$360,037	\$1,047,661	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	2
55x90 - 100	\$387,750	\$1,175,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60x90 - 100	\$441,731	\$1,338,580	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA 45'	\$279,000	\$900,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA 50'	\$294,500	\$950,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA 60'	\$317,440	\$1,024,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA Auto Court	\$255,750	\$825,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cluster/Auto Court	\$260,000	\$775,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cottage	\$200,000	\$575,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual Total Units			-	-	-	-	-	-	-	55	175	149	-	-	-	-	-	-	-	-	379
Cumulative Units			-	-	-	-	-	-	-	55	230	379	379	379	379	379	379	379	379	379	379
<u>Non-Residential</u>																					
Retail			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Office			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual Total Square Feet			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cumulative Total Square Footage			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: Developer

Table 11
Fiscal Impact Analysis
Unit Sale Build Out and Absorption Schedule
Phase 2 Only

	2023 Value		Year																	Total
	Finished Lot	Finished Unit	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
<u>Residential</u>																				
Apartments	\$60,000	\$400,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Condos/Stacked Flats	\$105,000	\$450,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Townhomes	\$185,000	\$700,000	-	-	-	-	-	-	-	-	146	20	-	-	-	-	-	-	-	166
Duplex/Duets/30x80 Alley	\$230,000	\$750,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35x75 Alley Bungalows	\$239,201	\$780,004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35x90 Alley	\$255,093	\$780,004	-	-	-	-	4	11	1	-	-	8	-	-	-	-	-	-	-	24
40x85 Alley	\$289,085	\$885,531	-	-	-	-	5	12	-	-	-	10	-	-	-	-	-	-	-	27
45x85 Alley	\$300,000	\$926,400	-	-	-	-	2	12	2	-	-	4	-	-	-	-	-	-	-	20
50x80 Alley	\$316,526	\$970,000	-	-	-	-	2	6	5	-	-	-	-	-	-	-	-	-	-	13
45x110 Alley w/Carriage	\$300,000	\$925,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40x90 - 100	\$318,108	\$918,264	-	-	30	23	60	43	-	-	-	16	-	-	-	-	-	-	-	172
45x90 - 100	\$350,022	\$1,007,640	-	-	2	-	3	2	1	-	-	6	-	-	-	-	-	-	-	14
50x90 - 100	\$360,037	\$1,047,661	-	-	23	19	64	43	15	-	-	14	-	-	-	-	-	-	-	178
55x90 - 100	\$387,750	\$1,175,000	-	-	-	-	-	2	7	-	-	-	-	-	-	-	-	-	-	9
60x90 - 100	\$441,731	\$1,338,580	-	-	-	-	14	14	28	-	-	-	-	-	-	-	-	-	-	56
AA 45'	\$279,000	\$900,000	-	-	-	-	-	15	22	12	13	-	-	-	-	-	-	-	-	62
AA 50'	\$294,500	\$950,000	-	-	-	-	-	30	35	29	24	-	-	-	-	-	-	-	-	118
AA 60'	\$317,440	\$1,024,000	-	-	-	-	-	16	12	11	8	-	-	-	-	-	-	-	-	47
AA Auto Court	\$255,750	\$825,000	-	-	-	-	-	19	1	30	32	-	-	-	-	-	-	-	-	82
Cluster/Auto Court	\$260,000	\$775,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cottage	\$200,000	\$575,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual Total Units			-	-	55	42	154	225	129	82	223	78	-	-	-	-	-	-	-	988
Cumulative Units			-	-	55	97	251	476	605	687	910	988	988	988	988	988	988	988	988	988
<u>Non-Residential</u>																				
Retail			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Office			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual Total Square Feet			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cumulative Total Square Footage			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: Developer

Table 1J
Fiscal Impact Analysis
Unit Sale Build Out and Absorption Schedule
Phase 3 Only

	2023 Value		Year																		Total
	Finished Lot	Finished Unit	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
<u>Residential</u>																					
Apartments	\$60,000	\$400,000	-	-	-	-	-	-	-	-	-	6	37	30	-	23	23	23	-	142	
Condos/Stacked Flats	\$105,000	\$450,000	-	-	-	-	-	-	-	-	-	1	8	6	-	5	5	5	-	30	
Townhomes	\$185,000	\$700,000	-	-	-	-	-	-	-	-	35	78	203	185	77	139	112	72	-	901	
Duplex/Duets/30x80 Alley	\$230,000	\$750,000	-	-	-	-	-	-	-	-	6	11	24	24	23	23	22	17	-	150	
35x75 Alley Bungalows	\$239,201	\$780,004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
35x90 Alley	\$255,093	\$780,004	-	-	-	-	-	-	-	-	5	12	24	25	21	19	18	6	-	130	
40x85 Alley	\$289,085	\$885,531	-	-	-	-	-	-	-	-	10	14	25	25	24	21	20	17	-	156	
45x85 Alley	\$300,000	\$926,400	-	-	-	-	-	-	-	-	7	10	21	21	21	21	21	21	-	143	
50x80 Alley	\$316,526	\$970,000	-	-	-	-	-	-	-	-	4	6	11	11	11	11	11	11	-	76	
45x110 Alley w/Carriage	\$300,000	\$925,000	-	-	-	-	-	-	-	-	5	7	14	14	14	14	14	14	-	96	
40x90 - 100	\$318,108	\$918,264	-	-	-	-	-	-	-	-	52	81	128	131	116	113	73	24	-	718	
45x90 - 100	\$350,022	\$1,007,640	-	-	-	-	-	-	-	-	3	5	9	8	8	8	7	6	-	54	
50x90 - 100	\$360,037	\$1,047,661	-	-	-	-	-	-	-	-	40	70	121	124	110	109	84	43	-	701	
55x90 - 100	\$387,750	\$1,175,000	-	-	-	-	-	-	-	-	11	16	33	33	33	33	33	33	-	225	
60x90 - 100	\$441,731	\$1,338,580	-	-	-	-	-	-	-	-	19	31	53	54	47	48	34	13	-	299	
AA 45'	\$279,000	\$900,000	-	-	-	-	-	-	-	-	-	22	-	-	-	-	-	-	-	22	
AA 50'	\$294,500	\$950,000	-	-	-	-	-	-	-	-	-	50	-	-	-	-	-	-	-	50	
AA 60'	\$317,440	\$1,024,000	-	-	-	-	-	-	-	-	-	18	-	-	-	-	-	-	-	18	
AA Auto Court	\$255,750	\$825,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cluster/Auto Court	\$260,000	\$775,000	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	-	7	
Cottage	\$200,000	\$575,000	-	-	-	-	-	-	-	-	1	1	2	2	2	2	2	2	-	14	
Annual Total Units			-	-	-	-	-	-	-	-	198	440	714	694	508	590	480	308	-	3,932	
Cumulative Units			-	-	-	-	-	-	-	-	198	638	1,352	2,046	2,554	3,144	3,624	3,932	3,932	3,932	
<u>Non-Residential</u>																					
Retail			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Office			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Annual Total Square Feet			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cumulative Total Square Footage			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Source: Developer

Table 2
Fiscal Impact Analysis Summary
All Phases Combined

	Ref. Table	Year										
		2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Modified General Fund Beginning Balance		\$ 2,492,829	\$ 2,074,981	\$ 2,662,719	\$ 3,853,791	\$ 4,921,579	\$ 5,633,204	\$ 6,048,280	\$ 6,442,579	\$ 6,553,562	\$ 6,544,922	\$ 6,403,738
<u>Annual General Fund Revenues</u>												
Taxes												
Property Tax - Normal Levy	Appendix A	\$ 1,363,898	\$ 1,747,518	\$ 2,361,327	\$ 3,188,647	\$ 4,091,826	\$ 4,975,525	\$ 5,811,561	\$ 6,573,512	\$ 7,252,523	\$ 7,654,497	\$ 7,858,395
EMS Levy	Appendix A	206,888	265,079	358,187	483,682	620,685	754,732	881,550	997,129	1,100,128	1,161,102	1,192,032
Property Tax - Personal Property	Appendix A	12,741	14,317	17,988	24,139	30,970	37,890	43,966	49,561	54,891	58,782	60,289
Sales Tax - Indirect Residential	Appendix A	215,696	252,046	332,407	467,127	618,574	774,392	914,691	1,046,219	1,172,356	1,267,943	1,312,894
Sales Tax - Indirect Employee	Appendix A	3,742	10,478	17,588	22,078	32,369	51,080	69,603	99,727	132,471	132,471	132,471
Sales Tax - Direct Retail/Business	Appendix A	155,514	432,329	727,805	842,885	1,045,053	1,247,221	1,433,838	1,433,838	1,433,838	1,433,838	1,433,838
Pull Tabs and Punch Board Tax	Appendix A	2,574	2,920	3,689	4,944	6,360	7,832	9,134	10,390	11,605	12,386	12,688
Utility Taxes	Appendix A	475,457	539,347	681,273	913,001	1,174,654	1,446,457	1,686,842	1,918,879	2,143,235	2,143,235	2,343,368
Intergovernmental Revenue	Appendix A	67,177	76,204	96,257	128,998	165,966	204,369	238,333	271,118	302,817	323,200	331,094
Community Development Revenue	Appendix A	657,249	745,567	941,759	1,262,088	1,623,783	1,999,510	2,331,806	2,652,563	2,962,702	3,162,123	3,239,356
Police Revenue	Appendix A	207,725	235,638	297,645	398,885	513,200	631,949	736,972	838,348	936,368	999,395	1,023,805
Municipal Court Revenue	Appendix A	47,796	54,219	68,486	91,781	118,085	145,408	192,899	215,453	229,956	239,956	235,572
Cable Franchise Fees	Appendix A	49,448	56,092	70,853	94,953	122,165	150,432	175,433	199,565	222,898	237,901	243,712
Other General Fund Revenue	Appendix A	73,637	83,533	105,514	141,403	181,927	224,023	261,253	297,191	331,938	354,281	362,934
Total General Fund Revenues		\$ 3,539,543	\$ 4,515,286	\$ 6,080,777	\$ 8,064,611	\$ 10,345,618	\$ 12,650,821	\$ 14,764,556	\$ 16,580,938	\$ 18,273,223	\$ 19,171,109	\$ 19,782,448
<u>Annual General Fund Costs</u>												
Executive-Mayor	Appendix A	\$ 5,792	\$ 6,570	\$ 8,299	\$ 11,122	\$ 14,309	\$ 17,620	\$ 20,548	\$ 23,374	\$ 26,107	\$ 27,865	\$ 28,545
Legislative-Council	Appendix A	8,941	10,142	12,811	17,168	22,089	27,200	31,720	36,083	40,302	43,015	44,066
City Administrator	Appendix A	75,174	85,276	107,715	144,354	185,723	228,698	266,705	303,392	338,864	361,673	370,507
Administration Services	Appendix A	285,851	324,262	409,590	548,907	706,216	869,627	1,014,150	1,153,653	1,288,539	1,375,271	1,408,861
Facilities	Appendix A	55,630	63,105	79,711	106,823	137,437	169,239	197,364	224,513	250,763	267,642	274,179
Legal	Appendix A	134,427	152,491	192,618	258,135	332,113	408,960	476,925	542,530	605,962	646,750	662,547
Municipal Court/Court Legal Services	Appendix A	208,668	236,707	298,996	400,696	515,529	634,817	740,317	842,153	940,618	1,003,931	1,028,452
EMS/Recyl/Anim Cont/Mental Helath	Appendix A	44,518	50,500	63,788	85,485	109,984	135,434	157,941	179,667	200,674	214,181	219,412
Community Development	Appendix A	744,609	844,667	1,066,936	1,429,843	1,839,615	2,265,283	2,641,748	3,005,139	3,356,502	3,582,429	3,669,928
Cemetery	Appendix A	10,471	11,878	15,003	20,107	25,869	31,855	37,148	42,258	47,199	50,376	51,607
Police (Comparable Cities)	Appendix A	793,186	899,771	1,136,541	1,523,123	1,959,627	2,413,065	2,814,089	3,201,187	3,575,472	3,816,138	3,816,138
Fire (Comparable Cities)	Appendix A	621,497	705,011	890,531	1,193,435	1,535,456	1,890,745	2,204,966	2,508,275	2,801,543	2,990,116	2,990,116
Parks & Recreation (Comparable Cities)	Appendix A	142,045	161,132	203,533	272,763	350,933	432,135	503,951	573,273	640,301	683,400	683,400
General Fund Reserve		114,829	197,594	317,021	401,738	461,918	466,818	428,044	367,828	342,698	181,827	123,800
Total General Fund Costs		\$ 3,245,636	\$ 3,749,104	\$ 4,803,093	\$ 6,413,700	\$ 8,196,818	\$ 9,991,495	\$ 11,535,616	\$ 13,003,326	\$ 14,455,546	\$ 15,244,616	\$ 15,371,559
Net Annual General Fund Surplus (Deficit)		\$ 293,907	\$ 766,182	\$ 1,277,683	\$ 1,650,911	\$ 2,148,800	\$ 2,659,327	\$ 3,228,939	\$ 3,577,611	\$ 3,817,677	\$ 3,926,493	\$ 4,410,890
Ending Balance		\$ 2,786,736	\$ 2,841,163	\$ 3,940,403	\$ 5,504,702	\$ 7,070,379	\$ 8,292,531	\$ 9,277,220	\$ 10,020,190	\$ 10,371,240	\$ 10,471,415	\$ 10,814,627
<u>Modified General Fund</u>												
<u>One-Time General Fund Revenues by Year</u>												
Annual Construction Taxes	Table 11	\$ 892,817	\$ 1,003,085	\$ 1,689,323	\$ 2,424,192	\$ 2,675,614	\$ 2,611,188	\$ 2,464,937	\$ 2,259,151	\$ 2,036,060	\$ 2,036,060	\$ 438,585
<u>Special Revenue Funds</u>												
Street Fund Surplus (Deficit)	Table 12	\$ 74,658	\$ 84,690	\$ 106,975	\$ 143,362	\$ 184,447	\$ 227,126	\$ 264,872	\$ 301,307	\$ 336,536	\$ 336,536	\$ 367,962
Stormwater Fund Surplus (Deficit)	Table 13	(186,400)	(191,237)	(220,191)	(296,886)	(375,657)	(449,361)	(516,169)	(584,507)	(645,352)	(645,352)	(476,374)
Criminal Justice Fund ¹		-	-	-	-	-	-	-	-	-	-	-
MPD Funding Agreement ²		\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 750,000	\$ 500,000
Modified Annual General Fund Surplus (Deficit)		\$ 2,074,981	\$ 2,662,719	\$ 3,853,791	\$ 4,921,579	\$ 5,633,204	\$ 6,048,280	\$ 6,442,579	\$ 6,553,562	\$ 6,544,922	\$ 6,403,738	\$ 5,241,062
Modified Cumulative General Fund		\$ 11,036,094	\$ 13,698,813	\$ 17,552,604	\$ 22,474,183	\$ 28,107,387	\$ 34,155,667	\$ 40,598,246	\$ 47,151,808	\$ 53,696,730	\$ 53,555,546	\$ 58,937,792
Cumulative General Fund Reserve		\$ 716,779	\$ 914,373	\$ 1,231,394	\$ 1,633,132	\$ 2,095,050	\$ 2,561,868	\$ 2,989,912	\$ 3,357,740	\$ 3,700,438	\$ 3,882,265	\$ 4,006,065
Modified Cumulative General Fund Net of General Fund Reserve		\$ 11,752,872	\$ 14,613,186	\$ 18,783,998	\$ 24,107,315	\$ 30,202,437	\$ 36,717,535	\$ 43,588,157	\$ 50,509,548	\$ 57,397,168	\$ 57,437,811	\$ 62,943,857

¹After 2010 Budget year, Criminal Justice Fund has been included in the Police Budget.

²Does not include funding for Legal for MPD and Other MPD Reimbursements as the costs are not included in expenses above.

Table 3
Fiscal Impact Analysis
Revenues

Revenues	2023 Budget	LOS Adjustment	Fiscal Year										
			2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
General Fund													
B & O Tax	-	100%	-	-	-	-	-	-	-	-	-	-	-
Utility Taxes													
Electrical Tax	\$390,500	100%	\$390,500	\$390,500	\$390,500	\$390,500	\$390,500	\$390,500	\$390,500	\$390,500	\$390,500	\$390,500	\$390,500
Telephone Tax	\$41,300	100%	\$41,300	\$41,300	\$41,300	\$41,300	\$41,300	\$41,300	\$41,300	\$41,300	\$41,300	\$41,300	\$41,300
Wastewater Utility Tax	\$125,500	100%	\$125,500	\$125,500	\$125,500	\$125,500	\$125,500	\$125,500	\$125,500	\$125,500	\$125,500	\$125,500	\$125,500
Stormwater Utility Tax	\$151,600	100%	\$151,600	\$151,600	\$151,600	\$151,600	\$151,600	\$151,600	\$151,600	\$151,600	\$151,600	\$151,600	\$151,600
Water Utility Tax	\$110,240	100%	\$110,240	\$110,240	\$110,240	\$110,240	\$110,240	\$110,240	\$110,240	\$110,240	\$110,240	\$110,240	\$110,240
Solid Waste Tax	\$74,600	100%	\$74,600	\$74,600	\$74,600	\$74,600	\$74,600	\$74,600	\$74,600	\$74,600	\$74,600	\$74,600	\$74,600
Cable TV Utility Tax	\$85,000	100%	\$85,000	\$85,000	\$85,000	\$85,000	\$85,000	\$85,000	\$85,000	\$85,000	\$85,000	\$85,000	\$85,000
Gas Utility Tax	\$100	100%	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100
Subtotal Utility Taxes	\$978,840		\$978,840	\$978,840	\$978,840	\$978,840	\$978,840	\$978,840	\$978,840	\$978,840	\$978,840	\$978,840	\$978,840
Pull Tabs and Punch Board Tax	\$5,300	100%	\$5,300	\$5,300	\$5,300	\$5,300	\$5,300	\$5,300	\$5,300	\$5,300	\$5,300	\$5,300	\$5,300
Total General Fund	\$984,140		\$984,140	\$984,140	\$984,140	\$984,140	\$984,140	\$984,140	\$984,140	\$984,140	\$984,140	\$984,140	\$984,140
Licenses and Permits	\$0	100%	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Intergovernmental Revenue	\$138,300	100%	\$138,300	\$138,300	\$138,300	\$138,300	\$138,300	\$138,300	\$138,300	\$138,300	\$138,300	\$138,300	\$138,300
Community Development Revenue	\$1,353,100	100%	\$1,353,100	\$1,353,100	\$1,353,100	\$1,353,100	\$1,353,100	\$1,353,100	\$1,353,100	\$1,353,100	\$1,353,100	\$1,353,100	\$1,353,100
Police Revenue	\$427,650	100%	\$427,650	\$427,650	\$427,650	\$427,650	\$427,650	\$427,650	\$427,650	\$427,650	\$427,650	\$427,650	\$427,650
Municipal Court Revenue	\$98,400	100%	\$98,400	\$98,400	\$98,400	\$98,400	\$98,400	\$98,400	\$98,400	\$98,400	\$98,400	\$98,400	\$98,400
Cable Franchise Fees	\$101,800	100%	\$101,800	\$101,800	\$101,800	\$101,800	\$101,800	\$101,800	\$101,800	\$101,800	\$101,800	\$101,800	\$101,800
Other General Fund Revenue	\$151,600	100%	\$151,600	\$151,600	\$151,600	\$151,600	\$151,600	\$151,600	\$151,600	\$151,600	\$151,600	\$151,600	\$151,600
Subtotal Operating Revenue	\$3,254,990		\$3,254,990	\$3,254,990	\$3,254,990	\$3,254,990	\$3,254,990	\$3,254,990	\$3,254,990	\$3,254,990	\$3,254,990	\$3,254,990	\$3,254,990

Source: City of Black Diamond 20223 Budget.

Table 4
Fiscal Impact Analysis
Property Tax Calculation

Calculation of Limit Factor Levy	Year											
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Regular Levy Base	\$ 2,467,477	\$ 2,815,290	\$ 3,190,946	\$ 3,794,642	\$ 4,624,401	\$ 5,517,602	\$ 6,379,875	\$ 7,194,582	\$ 7,929,835	\$ 8,577,395	\$ 9,231,431	
1% Increase	\$ 24,675	\$ 28,153	\$ 31,909	\$ 37,946	\$ 46,244	\$ 55,176	\$ 63,799	\$ 71,946	\$ 79,298	\$ 85,774	\$ 92,314	
Local new construction (Project)	\$ -	\$ 251,947,038	\$ 414,557,876	\$ 574,080,698	\$ 614,061,898	\$ 585,162,309	\$ 544,424,426	\$ 480,911,487	\$ 412,001,882	\$ 412,001,882	\$ 412,001,882	
Local new construction (Non-Project)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Annexations	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Adjustments	\$ 6,954	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Total New Construction/Annex/Adjust.	\$ 6,954	\$ 251,947,038	\$ 414,557,876	\$ 574,080,698	\$ 614,061,898	\$ 585,162,309	\$ 544,424,426	\$ 480,911,487	\$ 412,001,882	\$ 412,001,882	\$ 412,001,882	
Last Years Levy Rate	1.37927	1.37927	1.37927	1.37927	1.37927	1.37927	1.37927	1.37927	1.37927	1.37927	1.37927	
New Construction/Annex/Adjust. Levy	\$ 316,184	\$ 347,503	\$ 571,787	\$ 791,812	\$ 846,957	\$ 807,097	\$ 750,908	\$ 663,307	\$ 568,262	\$ 568,262	\$ 568,262	
Total Property Tax	\$ 2,815,290	\$ 3,190,946	\$ 3,794,642	\$ 4,624,401	\$ 5,517,602	\$ 6,379,875	\$ 7,194,582	\$ 7,929,835	\$ 8,577,395	\$ 9,231,431	\$ 9,892,007	
Assessed Value	\$ 2,041,141,237	\$ 2,293,088,275	\$ 2,707,646,151	\$ 3,281,726,849	\$ 3,895,788,747	\$ 4,480,951,057	\$ 5,025,375,483	\$ 5,506,286,970	\$ 5,918,288,852	\$ 6,330,290,734	\$ 6,742,292,615	
Levy Rate	1.37927	1.37927	1.37927	1.37927	1.37927	1.37927	1.37927	1.37927	1.37927	1.37927	1.37927	
EMS Levy Rate	0.20922	0.20922	0.20922	0.20922	0.20922	0.20922	0.20922	0.20922	0.20922	0.20922	0.20922	
Total EMS Levy Property Tax	\$ 427,048	\$ 479,760	\$ 566,494	\$ 686,603	\$ 815,077	\$ 937,505	\$ 1,051,409	\$ 1,152,025	\$ 1,238,224	\$ 1,324,423	\$ 1,410,622	

Source: City of Black Diamond 2023 Budget.

Table 5
Fiscal Impact Analysis
Expenses

Expenses	2023 Budget	LOS Adjustment	Year										
			2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Expenditures by Department													
Executive-Mayor	\$15,898	75%	\$11,924	\$11,924	\$11,924	\$11,924	\$11,924	\$11,924	\$11,924	\$11,924	\$11,924	\$11,924	\$11,924
Legislative-Council	\$24,542	75%	\$18,407	\$18,407	\$18,407	\$18,407	\$18,407	\$18,407	\$18,407	\$18,407	\$18,407	\$18,407	\$18,407
City Administrator	\$206,351	75%	\$154,763	\$154,763	\$154,763	\$154,763	\$154,763	\$154,763	\$154,763	\$154,763	\$154,763	\$154,763	\$154,763
Administration Services	\$784,654	75%	\$588,491	\$588,491	\$588,491	\$588,491	\$588,491	\$588,491	\$588,491	\$588,491	\$588,491	\$588,491	\$588,491
Facilities	\$152,702	75%	\$114,527	\$114,527	\$114,527	\$114,527	\$114,527	\$114,527	\$114,527	\$114,527	\$114,527	\$114,527	\$114,527
Legal	\$369,000	75%	\$276,750	\$276,750	\$276,750	\$276,750	\$276,750	\$276,750	\$276,750	\$276,750	\$276,750	\$276,750	\$276,750
Municipal Court/Court Legal Services	\$572,788	75%	\$429,591	\$429,591	\$429,591	\$429,591	\$429,591	\$429,591	\$429,591	\$429,591	\$429,591	\$429,591	\$429,591
EMS/Recyl/Anim Cont/Mental Helath	\$122,200	75%	\$91,650	\$91,650	\$91,650	\$91,650	\$91,650	\$91,650	\$91,650	\$91,650	\$91,650	\$91,650	\$91,650
Community Development	\$2,043,937	75%	\$1,532,953	\$1,532,953	\$1,532,953	\$1,532,953	\$1,532,953	\$1,532,953	\$1,532,953	\$1,532,953	\$1,532,953	\$1,532,953	\$1,532,953
Cemetery	\$28,742	75%	\$21,557	\$21,557	\$21,557	\$21,557	\$21,557	\$21,557	\$21,557	\$21,557	\$21,557	\$21,557	\$21,557
Central Services	\$0	75%	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Police (Comparable Cities)	Table 6	-	-	-	-	-	-	-	-	-	-	-	-
Fire (Comparable Cities)	Table 7	-	-	-	-	-	-	-	-	-	-	-	-
Parks & Recreation (Comparable Cities)	Table 8	-	-	-	-	-	-	-	-	-	-	-	-
Public Works (Comparable Cities)	Table 9	-	-	-	-	-	-	-	-	-	-	-	-
Total Operating Expenses	\$4,320,814		\$3,240,611	\$3,240,611	\$3,240,611	\$3,240,611	\$3,240,611	\$3,240,611	\$3,240,611	\$3,240,611	\$3,240,611	\$3,240,611	\$3,240,611

Source: City of Black Diamond 2023 Budget.

Table 6
Fiscal Impact Analysis
Comparable Cities - Police (Covington)

	2023 Budget	LOS Adjustment	Year (Cost Per Person Served)										
			2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
<i>Model Year</i>			5	6	7	8	9	10	11	12	13	14	15
<i>Population [1]</i>	21,200												
<i>Employees [2]</i>	4,456												
<i>Persons Served (Population + 50% Employees)</i>	23,428												
Police (Covington)													
Supplies	\$ 13,075	100.0%	\$ 0.56	\$ 0.56	\$ 0.56	\$ 0.56	\$ 0.56	\$ 0.56	\$ 0.56	\$ 0.56	\$ 0.56	\$ 0.56	\$ 0.56
Police Services	\$ 5,875,400	100.0%	\$ 250.79	\$ 250.79	\$ 250.79	\$ 250.79	\$ 250.79	\$ 250.79	\$ 250.79	\$ 250.79	\$ 250.79	\$ 250.79	\$ 250.79
Other Services and Charges	\$ 75,293	100.0%	\$ 3.21	\$ 3.21	\$ 3.21	\$ 3.21	\$ 3.21	\$ 3.21	\$ 3.21	\$ 3.21	\$ 3.21	\$ 3.21	\$ 3.21
Capital Lease Principal Payment	\$ 1,300	100.0%	\$ 0.06	\$ 0.06	\$ 0.06	\$ 0.06	\$ 0.06	\$ 0.06	\$ 0.06	\$ 0.06	\$ 0.06	\$ 0.06	\$ 0.06
			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Police Expenses Per Capita	\$ 5,965,068		\$ 254.61	\$ 254.61	\$ 254.61	\$ 254.61	\$ 254.61	\$ 254.61	\$ 254.61	\$ 254.61	\$ 254.61	\$ 254.61	\$ 254.61

Source: City of Covington 2023 Budget.

[1] Source: Washington State Office of Financial Management April 1, 2022 Population of Cities, Towns and Counties 2022 population estimate.

[2] Data sourced from onthemap.census.gov for the year 2020.

Table 7
Fiscal Impact Analysis
Comparable Cities - Fire (Mukilteo)

	2023 Budget	LOS Adjustment	Year (Cost Per Person Served)										
			2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
<i>Model Year</i>			<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>14</i>	<i>15</i>
<i>Population [1]</i>	<i>21,590</i>												
<i>Employees [2]</i>	<i>9,761</i>												
<i>Persons Served</i>	<i>26,471</i>												
Fire (Mukilteo)													
Salaries & Wages	\$ 3,885,600	100%	\$ 146.79	\$ 146.79	\$ 146.79	\$ 146.79	\$ 146.79	\$ 146.79	\$ 146.79	\$ 146.79	\$ 146.79	\$ 146.79	\$ 146.79
Benefits	\$ 970,200	100%	\$ 36.65	\$ 36.65	\$ 36.65	\$ 36.65	\$ 36.65	\$ 36.65	\$ 36.65	\$ 36.65	\$ 36.65	\$ 36.65	\$ 36.65
Supplies	\$ 168,350	100%	\$ 6.36	\$ 6.36	\$ 6.36	\$ 6.36	\$ 6.36	\$ 6.36	\$ 6.36	\$ 6.36	\$ 6.36	\$ 6.36	\$ 6.36
Other Services and Charges	\$ 256,730	100%	\$ 9.70	\$ 9.70	\$ 9.70	\$ 9.70	\$ 9.70	\$ 9.70	\$ 9.70	\$ 9.70	\$ 9.70	\$ 9.70	\$ 9.70
EMS Levy	\$ -	100%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Fire Expenses Per Capita	\$ 5,280,880	100%	\$ 199.50	\$ 199.50	\$ 199.50	\$ 199.50	\$ 199.50	\$ 199.50	\$ 199.50	\$ 199.50	\$ 199.50	\$ 199.50	\$ 199.50

Source: City of Mukilteo 2023 Budget.

[1] Source: Washington State Office of Financial Management April 1, 2022 Population of Cities, Towns and Counties 2022 population estimate.

[2] Data sourced from onthemap.census.gov for the year 2020.

Table 8
Fiscal Impact Analysis
Comparable Cities - Parks & Recreation (Covington)

	2023 Budget	LOS Adjustment [3]	Year (Cost Per Person Served)										
			2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
<i>Model Year</i>			<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>14</i>	<i>15</i>
<i>Population [1]</i>	21,200												
<i>Employees [2]</i>	4,456												
<i>Persons Served (Population + 50% Employees)</i>	23,428												
Parks & Recreation & Cultural Arts (Covington)													
Salaries and Wages (Parks)	\$ 311,303	100%	\$ 13.29	\$ 13.29	\$ 13.29	\$ 13.29	\$ 13.29	\$ 13.29	\$ 13.29	\$ 13.29	\$ 13.29	\$ 13.29	\$ 13.29
Benefits (Parks)	\$ 92,358	100%	\$ 3.94	\$ 3.94	\$ 3.94	\$ 3.94	\$ 3.94	\$ 3.94	\$ 3.94	\$ 3.94	\$ 3.94	\$ 3.94	\$ 3.94
Supplies (Parks)	\$ 5,740	100%	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25
Other Services & Charges (Parks)	\$ 141,620	100%	\$ 6.04	\$ 6.04	\$ 6.04	\$ 6.04	\$ 6.04	\$ 6.04	\$ 6.04	\$ 6.04	\$ 6.04	\$ 6.04	\$ 6.04
Debt Service (Parks)	\$ 1,800	0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Offsetting Revenues (Parks)	\$ (200,069)	100%	\$ (8.54)	\$ (8.54)	\$ (8.54)	\$ (8.54)	\$ (8.54)	\$ (8.54)	\$ (8.54)	\$ (8.54)	\$ (8.54)	\$ (8.54)	\$ (8.54)
Total Parks	\$ 352,752												
Salaries and Wages (Recreation and Cultural Arts)	\$ 541,849	100%	\$ 23.13	\$ 23.13	\$ 23.13	\$ 23.13	\$ 23.13	\$ 23.13	\$ 23.13	\$ 23.13	\$ 23.13	\$ 23.13	\$ 23.13
Benefits (Recreation and Cultural Arts)	\$ 165,106	100%	\$ 7.05	\$ 7.05	\$ 7.05	\$ 7.05	\$ 7.05	\$ 7.05	\$ 7.05	\$ 7.05	\$ 7.05	\$ 7.05	\$ 7.05
Supplies (Recreation and Cultural Arts)	\$ 120,445	100%	\$ 5.14	\$ 5.14	\$ 5.14	\$ 5.14	\$ 5.14	\$ 5.14	\$ 5.14	\$ 5.14	\$ 5.14	\$ 5.14	\$ 5.14
Other Services & Charges (Recreation and Cultural Arts)	\$ 296,698	100%	\$ 12.66	\$ 12.66	\$ 12.66	\$ 12.66	\$ 12.66	\$ 12.66	\$ 12.66	\$ 12.66	\$ 12.66	\$ 12.66	\$ 12.66
Debt Service (Recreation and Cultural Arts)	\$ -	0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Offsetting Revenues (Recreation and Cultural Arts)	\$ (406,817)	100%	\$ (17.36)	\$ (17.36)	\$ (17.36)	\$ (17.36)	\$ (17.36)	\$ (17.36)	\$ (17.36)	\$ (17.36)	\$ (17.36)	\$ (17.36)	\$ (17.36)
Total Recreation & Cultural Arts	\$ 717,281												
Total Parks & Recreation & Cultural Arts Expenses Per Capita	\$ 1,070,033	100%	\$ 45.60	\$ 45.60	\$ 45.60	\$ 45.60	\$ 45.60	\$ 45.60	\$ 45.60	\$ 45.60	\$ 45.60	\$ 45.60	\$ 45.60

Source: City of Covington 2023 Budget Workbook.

[1] Source: Washington State Office of Financial Management April 1, 2022 Population of Cities, Towns and Counties 2022 population estimate.

[2] Data sourced from onthemap.census.gov for the year 2020.

[3] Per the City of Covington Budget Workbook, Aquatics (not included in P&R expenditures), Recreation and Cultural Arts, and Parks general fund expenditures generates user fees that will offset these expenditures. The total fees budgeted to be collected is \$1.224M. The budget workbook does not identify what fees collected are for each category. For purposes of this analysis DPFG pro rated the fees collected based upon the expenditure in each category to estimate the offset for just Recreation and Cultural Arts and Parks. The estimated fee revenue offset is \$606K.

Table 9
Fiscal Impact Analysis
Comparable Cities - Public Works (Covington)

	2023 Budget	LOS Adjustment	Year (Cost Per Person Served)										
			2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
<i>Model Year</i>			<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>14</i>	<i>15</i>
<i>Population [1]</i>	<i>21,200</i>												
<i>Employees [2]</i>	<i>4,456</i>												
	<u>23,428</u>												
Public Works (Covington)													
Salaries and Wages	\$ 338,316	100%	\$ 14.44	\$ 14.44	\$ 14.44	\$ 14.44	\$ 14.44	\$ 14.44	\$ 14.44	\$ 14.44	\$ 14.44	\$ 14.44	\$ 14.44
Personnel Benefits	\$ 166,953	100%	\$ 7.13	\$ 7.13	\$ 7.13	\$ 7.13	\$ 7.13	\$ 7.13	\$ 7.13	\$ 7.13	\$ 7.13	\$ 7.13	\$ 7.13
Supplies	\$ 45,990	100%	\$ 1.96	\$ 1.96	\$ 1.96	\$ 1.96	\$ 1.96	\$ 1.96	\$ 1.96	\$ 1.96	\$ 1.96	\$ 1.96	\$ 1.96
Other Services and Charges	\$ 414,763	100%	\$ 17.70	\$ 17.70	\$ 17.70	\$ 17.70	\$ 17.70	\$ 17.70	\$ 17.70	\$ 17.70	\$ 17.70	\$ 17.70	\$ 17.70
Capital Outlays	\$ 18,000	100%	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25
Debt Service	\$ 5,930	100%	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25
Total Public Works Expenses Per Capita:	\$ 989,952	100%	\$ 41.74	\$ 41.74	\$ 41.74	\$ 41.74	\$ 41.74	\$ 41.74	\$ 41.74	\$ 41.74	\$ 41.74	\$ 41.74	\$ 41.74

Source: City of Covington 2023 Budget Workbook.

[1] Source: Washington State Office of Financial Management April 1, 2022 Population of Cities, Towns and Counties 2022 population estimate.

[2] Data sourced from onthemap.census.gov for the year 2020.

Table 10
Fiscal Impact Analysis
Real Estate Excise Tax (REET)

	Ref. Table	Year										
		2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Beginning Balance		\$3,762,729	\$5,053,480	\$6,750,428	\$ 9,366,477	\$12,892,851	\$16,879,618	\$20,997,262	\$25,138,323	\$29,196,274	\$33,121,895	\$36,192,490
<u>Annual Real Estate Excise Taxes Generated</u>												
Real Estate Excise Tax	Table B0 - B9	\$1,290,751	\$1,696,948	\$2,616,049	\$ 3,526,374	\$ 3,986,767	\$ 4,117,644	\$ 4,141,061	\$ 4,057,951	\$ 3,925,621	\$ 3,070,595	\$ 2,442,900
Total		<u>\$1,290,751</u>	<u>\$1,696,948</u>	<u>\$2,616,049</u>	<u>\$ 3,526,374</u>	<u>\$ 3,986,767</u>	<u>\$ 4,117,644</u>	<u>\$ 4,141,061</u>	<u>\$ 4,057,951</u>	<u>\$ 3,925,621</u>	<u>\$ 3,070,595</u>	<u>\$ 2,442,900</u>
Cumulative REET Generated		5,053,480	6,750,428	9,366,477	12,892,851	16,879,618	20,997,262	25,138,323	29,196,274	33,121,895	36,192,490	38,635,390

Table 11
Fiscal Impact Analysis
One Time Construction Tax

		Year										
		2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Value of New Construction												
Vertical Residential Construction												
Apartments	50%	\$ 12,070,000	\$ -	\$ -	\$ 1,020,000	\$ 7,310,000	\$ 11,390,000	\$ 5,100,000	\$ 3,910,000	\$ 7,820,000	\$ 7,820,000	\$ 3,910,000
Condos/Stacked Flats	50%	\$ -	\$ -	\$ -	\$ 172,500	\$ 1,552,500	\$ 2,415,000	\$ 1,035,000	\$ 862,500	\$ 1,725,000	\$ 1,725,000	\$ 862,500
Townhomes	50%	\$ -	\$ 27,295,000	\$ 97,592,500	\$ 117,935,000	\$ 99,910,000	\$ 99,910,000	\$ 67,465,000	\$ 55,620,000	\$ 64,632,500	\$ 47,380,000	\$ 18,540,000
Duplex/Duets/30x80 Alley	50%	\$ -	\$ -	\$ 3,380,000	\$ 8,060,000	\$ 10,920,000	\$ 12,480,000	\$ 12,220,000	\$ 11,960,000	\$ 11,700,000	\$ 10,140,000	\$ 4,420,000
35x75 Alley Bungalows	50%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
35x90 Alley	50%	\$ 9,710,856	\$ 262,456	\$ 3,149,467	\$ 10,235,767	\$ 13,385,234	\$ 12,860,322	\$ 12,072,956	\$ 10,498,222	\$ 9,710,856	\$ 6,298,933	\$ 1,574,733
40x85 Alley	50%	\$ 9,543,137	\$ -	\$ 2,982,230	\$ 10,139,583	\$ 14,612,929	\$ 14,911,152	\$ 14,612,929	\$ 13,420,037	\$ 12,227,145	\$ 11,034,253	\$ 5,069,792
45x85 Alley	50%	\$ 4,384,800	\$ 626,400	\$ 2,192,400	\$ 6,577,200	\$ 10,962,000	\$ 13,154,400	\$ 13,154,400	\$ 13,154,400	\$ 13,154,400	\$ 13,154,400	\$ 6,577,200
50x80 Alley	50%	\$ 3,594,105	\$ 1,633,684	\$ 3,594,105	\$ 8,168,421	\$ 8,168,421	\$ 7,188,211	\$ 7,188,211	\$ 7,188,211	\$ 7,188,211	\$ 7,188,211	\$ 3,594,105
45x110 Alley w/Carriage	50%	\$ -	\$ -	\$ 1,562,500	\$ 3,750,000	\$ 6,562,500	\$ 8,750,000	\$ 8,750,000	\$ 8,750,000	\$ 8,750,000	\$ 8,750,000	\$ 4,375,000
40x90 - 100	50%	\$ 12,903,352	\$ -	\$ 31,208,106	\$ 69,318,005	\$ 76,519,876	\$ 77,720,188	\$ 74,119,252	\$ 68,717,849	\$ 55,814,498	\$ 29,107,561	\$ 7,201,871
45x90 - 100	50%	\$ 986,427	\$ 328,809	\$ 3,945,706	\$ 10,521,883	\$ 9,535,456	\$ 5,589,750	\$ 5,260,941	\$ 5,260,941	\$ 4,932,133	\$ 4,274,515	\$ 1,972,853
50x90 - 100	50%	\$ 22,347,788	\$ 5,157,182	\$ 14,096,297	\$ 43,320,328	\$ 70,825,299	\$ 84,233,972	\$ 80,452,038	\$ 75,294,856	\$ 66,355,741	\$ 43,664,140	\$ 14,783,922
55x90 - 100	50%	\$ 3,542,625	\$ 2,755,375	\$ 4,329,875	\$ 10,627,875	\$ 19,287,625	\$ 25,979,250	\$ 25,979,250	\$ 25,979,250	\$ 25,979,250	\$ 25,979,250	\$ 12,989,625
60x90 - 100	50%	\$ 22,869,639	\$ 12,555,880	\$ 8,520,062	\$ 22,421,215	\$ 37,667,641	\$ 47,981,400	\$ 45,290,854	\$ 42,600,309	\$ 36,770,793	\$ 21,075,942	\$ 5,829,516
AA 45'	50%	\$ 11,488,500	\$ 10,557,000	\$ 7,762,500	\$ 10,867,500	\$ 6,831,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
AA 50'	50%	\$ 21,303,750	\$ 20,976,000	\$ 17,370,750	\$ 24,253,500	\$ 16,387,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
AA 60'	50%	\$ 9,891,840	\$ 8,125,440	\$ 6,712,320	\$ 9,185,280	\$ 6,359,040	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
AA Auto Court	50%	\$ 5,692,500	\$ 8,823,375	\$ 17,646,750	\$ 9,108,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Cluster/Auto Court	50%	\$ -	\$ -	\$ -	\$ 257,500	\$ 515,000	\$ 515,000	\$ 515,000	\$ 515,000	\$ 515,000	\$ 515,000	\$ 257,500
Cottage	50%	\$ -	\$ -	\$ 187,500	\$ 375,000	\$ 562,500	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000	\$ 375,000
-	50%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Vertical Non-Residential Construction												
Retail Buildings	50%	\$ 8,950,000	\$ 16,297,413	\$ 17,796,226	\$ 7,090,578	\$ 12,742,919	\$ 13,036,006	\$ 12,310,001	\$ -	\$ -	\$ -	\$ -
Office Buildings	50%	\$ -	\$ -	\$ -	\$ 1,533,098	\$ 4,901,123	\$ 12,835,452	\$ 13,335,834	\$ 29,383,972	\$ 32,636,358	\$ -	\$ -
Hard Construction Costs												
Phase 1A Hard Costs [1]	50%	\$ 7,780,789	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Phase 2 Hard Costs [1]	50%	\$ 12,510,288	\$ 36,138,042	\$ 13,072,345	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Phase 1B Hard Costs [1]	50%	\$ 8,391,047	\$ 27,982,997	\$ 24,971,531	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Phase 3 Hard Costs [1]	50%	\$ -	\$ 31,660,762	\$ 73,573,838	\$ 125,417,987	\$ 127,768,503	\$ 98,023,627	\$ 119,322,348	\$ 101,745,155	\$ 67,982,424	\$ -	\$ -
Total Taxable Value of New Construction		\$ 93,980,721	\$ 105,587,907	\$ 177,823,504	\$ 255,178,111	\$ 281,643,533	\$ 274,861,865	\$ 259,467,007	\$ 237,805,351	\$ 214,322,154	\$ 119,428,602	\$ 46,166,808
Construction Taxes												
Sales Tax	Rate 0.9500%	0.9500%	0.9500%	0.9500%	0.9500%	0.9500%	0.9500%	0.9500%	0.9500%	0.9500%	0.9500%	0.9500%
B&O Tax	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
(other)	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
Beginning Balance		\$ 3,183,124	\$ 4,075,941	\$ 5,079,026	\$ 6,768,349	\$ 9,192,541	\$ 11,868,155	\$ 14,479,343	\$ 16,944,279	\$ 19,203,430	\$ 21,239,490	\$ 22,374,062
Annual Construction Taxes												
Sales Tax		\$ 892,817	\$ 1,003,085	\$ 1,689,323	\$ 2,424,192	\$ 2,675,614	\$ 2,611,188	\$ 2,464,937	\$ 2,259,151	\$ 2,036,060	\$ 1,134,572	\$ 438,585
B&O Tax		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
(other)		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Construction Taxes		\$ 892,817	\$ 1,003,085	\$ 1,689,323	\$ 2,424,192	\$ 2,675,614	\$ 2,611,188	\$ 2,464,937	\$ 2,259,151	\$ 2,036,060	\$ 1,134,572	\$ 438,585
Ending Balance		\$ 4,075,941	\$ 5,079,026	\$ 6,768,349	\$ 9,192,541	\$ 11,868,155	\$ 14,479,343	\$ 16,944,279	\$ 19,203,430	\$ 21,239,490	\$ 22,374,062	\$ 22,812,647

[1] Estimate provided by developer.

Table 12
Fiscal Impact Analysis
Street Fund (Fund 101)

Model Year No.	Assumption	Year										
		2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
<u>Street Fund (Fund 101)</u>												
Street Fund (101)	\$153,700											
Per Person Served	\$23.97											
Total Project Street Fund Revenues		\$ 74,658	\$ 84,690	\$ 106,975	\$ 143,362	\$ 184,447	\$ 227,126	\$ 264,872	\$ 301,307	\$ 336,536	\$ 359,189	\$ 367,962
<u>Public Works (Comparable Cities)</u>												
Total Project Public Works Costs	Appendix A	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Net Annual Street Fund Surplus (Deficit)		\$ 74,658	\$ 84,690	\$ 106,975	\$ 143,362	\$ 184,447	\$ 227,126	\$ 264,872	\$ 301,307	\$ 336,536	\$ 359,189	\$ 367,962
Ending Balance		193,460	278,150	385,125	528,487	712,934	940,061	1,204,933	1,506,240	1,842,776	1,865,429	2,210,738

Note: It is assumed that CCD Black Diamond Partners LLC will fund the first two years of maintenance as street improvements are completed within the project.

**Table 13
Fiscal Impact Analysis
Stormwater Fund**

	2023 Budget	Year										
		2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Monthly Rate		\$19.50	\$19.50	\$19.50	\$19.50	\$19.50	\$19.50	\$19.50	\$19.50	\$19.50	\$19.50	\$19.50
Population [1]	6,145											
Employees [1]	537											
Persons Served (Population + 50% Employees)	6,414											
Beginning Balance		\$ (314,846)	\$ (501,246)	\$ (692,484)	\$ (912,675)	\$ (1,209,561)	\$ (1,585,218)	\$ (2,034,578)	\$ (2,550,748)	\$ (3,135,255)	\$ (3,780,607)	\$ (4,293,017)
Annual Stormwater Utility Charge Generated												
Residential		\$ 290,277	\$ 327,366	\$ 419,094	\$ 566,865	\$ 728,442	\$ 893,178	\$ 1,033,812	\$ 1,162,278	\$ 1,287,468	\$ 1,379,664	\$ 1,415,700
Nonresidential		\$ 11,697	\$ 35,395	\$ 60,496	\$ 74,052	\$ 102,466	\$ 143,212	\$ 182,685	\$ 224,221	\$ 268,638	\$ 309,384	\$ 309,384
Total		\$ 301,974	\$ 362,761	\$ 479,590	\$ 640,917	\$ 830,908	\$ 1,036,390	\$ 1,216,497	\$ 1,386,499	\$ 1,556,106	\$ 1,689,048	\$ 1,725,084
Annual Stormwater Expenditures												
Stormwater Expenditures / Per Person Served	\$ 1,005,431	\$ 156.77	\$ 156.77	\$ 156.77	\$ 156.77	\$ 156.77	\$ 156.77	\$ 156.77	\$ 156.77	\$ 156.77	\$ 156.77	\$ 156.77
Total		\$ 488,373	\$ 553,999	\$ 699,781	\$ 937,804	\$ 1,206,564	\$ 1,485,751	\$ 1,732,666	\$ 1,971,007	\$ 2,201,458	\$ 2,201,458	\$ 2,201,458
Net Surplus/(Shortfall)		\$ (186,400)	\$ (191,237)	\$ (220,191)	\$ (296,886)	\$ (375,657)	\$ (449,361)	\$ (516,169)	\$ (584,507)	\$ (645,352)	\$ (512,410)	\$ (476,374)
Cumulative Stormwater Utility Funds		(501,246)	(692,484)	(912,675)	(1,209,561)	(1,585,218)	(2,034,578)	(2,550,748)	(3,135,255)	(3,780,607)	(4,293,017)	(4,769,390)

[1] Data sourced from onthemap.census.gov for the year 2020.

Table 14
Fiscal Impact Analysis
Utility Taxes

	Ref. Table	Year										
		2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Model Year		6	7	8	9	10	11	12	13	14	15	15
Utility Tax												
Electrical Tax	Appendix A	189,680	215,168	271,788	364,234	468,618	577,052	672,951	765,521	855,026	912,578	934,867
Telephone Tax	Appendix A	20,061	22,757	28,745	38,522	49,562	61,030	71,173	80,963	90,429	96,516	98,873
Wastewater Utility Tax	Appendix A	60,960	69,151	87,348	117,059	150,606	185,455	216,275	246,025	274,791	293,287	300,450
Stormwater Utility Tax	Appendix A	73,637	83,533	105,514	141,403	181,927	224,023	261,253	297,191	331,938	354,281	362,934
Water Utility Tax	Appendix A	53,547	60,743	76,727	102,825	132,293	162,904	189,977	216,110	241,378	257,625	263,917
Solid Waste Tax	Appendix A	36,236	41,105	51,922	69,582	89,523	110,238	128,559	146,243	163,342	174,336	178,594
Cable TV Utility Tax	Appendix A	41,288	46,836	59,160	79,283	102,004	125,607	146,481	166,631	186,113	198,640	203,492
Gas Utility Tax	Appendix A	49	55	70	93	120	148	172	196	219	234	239
Total Utility Tax Revenues		\$ 475,457	\$ 539,347	\$ 681,273	\$ 913,001	\$ 1,174,654	\$ 1,446,457	\$ 1,686,842	\$ 1,918,879	\$ 2,143,235	\$ 2,287,497	\$ 2,343,368

Table A-1
Fiscal Impact Analysis
Land Use and Phasing 2023

Product Type	Bulk Land Sale Value New Land Value per Unit		Unit Sale Value ¹ Building Value Only		Total New Land Values	Total New Building Value	Total New Valuation
	Value	No. Lots	Value	No. Units			
Residential	(a)	(b)	(c)	(d)	(e)=(a)*(b)	(f)=(c)*(d)	(g)=(e)+(f)
New Construction							
Apartments	\$ 60,000	-	\$ 340,000	36	\$ -	\$ 12,070,000	\$ 12,070,000
Condos/Stacked Flats	\$ 105,000	-	\$ 345,000	-	\$ -	\$ -	\$ -
Townhomes	\$ 185,000	106	\$ 515,000	-	\$ 19,610,000	\$ -	\$ 19,610,000
Duplex/Duets/30x80 Alley	\$ 230,000	-	\$ 520,000	-	\$ -	\$ -	\$ -
35x75 Alley Bungalows	\$ 239,201	-	\$ 540,803	-	\$ -	\$ -	\$ -
35x90 Alley	\$ 255,093	-	\$ 524,911	19	\$ -	\$ 9,710,856	\$ 9,710,856
40x85 Alley	\$ 289,085	-	\$ 596,446	16	\$ -	\$ 9,543,137	\$ 9,543,137
45x85 Alley	\$ 300,000	-	\$ 626,400	7	\$ -	\$ 4,384,800	\$ 4,384,800
50x80 Alley	\$ 316,526	-	\$ 653,474	6	\$ -	\$ 3,594,105	\$ 3,594,105
45x110 Alley w/Carriage	\$ 300,000	-	\$ 625,000	-	\$ -	\$ -	\$ -
40x90 - 100	\$ 318,108	-	\$ 600,156	22	\$ -	\$ 12,903,352	\$ 12,903,352
45x90 - 100	\$ 350,022	-	\$ 657,618	2	\$ -	\$ 986,427	\$ 986,427
50x90 - 100	\$ 360,037	-	\$ 687,624	33	\$ -	\$ 22,347,788	\$ 22,347,788
55x90 - 100	\$ 387,750	-	\$ 787,250	5	\$ -	\$ 3,542,625	\$ 3,542,625
60x90 - 100	\$ 441,731	-	\$ 896,849	26	\$ -	\$ 22,869,639	\$ 22,869,639
AA 45'	\$ 279,000	12	\$ 621,000	19	\$ 3,348,000	\$ 11,488,500	\$ 14,836,500
AA 50'	\$ 294,500	29	\$ 655,500	33	\$ 8,540,500	\$ 21,303,750	\$ 29,844,250
AA 60'	\$ 317,440	11	\$ 706,560	14	\$ 3,491,840	\$ 9,891,840	\$ 13,383,680
AA Auto Court	\$ 255,750	30	\$ 569,250	10	\$ 7,672,500	\$ 5,692,500	\$ 13,365,000
Cluster/Auto Court	\$ 260,000	-	\$ 515,000	-	\$ -	\$ -	\$ -
Cottage	\$ 200,000	-	\$ 375,000	-	\$ -	\$ -	\$ -
0	\$ 650,000	-	\$ 1,100,000	-	\$ -	\$ -	\$ -
		<u>188</u>		<u>243</u>			<u>192,992,159</u> (A)
Product Type	Existing Developed Lots Existing Land Value per Unit		Existing Unit Value ¹ Building Value Only		Total Existing Land Value	Total Existing Building Value	Total Existing Valuation
	Value	No. Lots	Value	No. Units			
Residential							(h)=(prior yrs)*1.01
From Prior Years							
Total							<u>786,912,741</u> (B)
Non-Residential							
	Mix		Building Sq. Ft.			Assessed Value Per Sq. Ft.	
New Construction							
Retail Buildings	100%		50,000			\$ 179	\$ 8,950,000
Office Buildings	0%		-			\$ 179	\$ -
	<u>100%</u>		<u>50,000</u>				<u>8,950,000</u> (C)
From Prior Years							
Retail Buildings	0%		-				
Office Buildings	0%		-				
Total	<u>0%</u>		<u>-</u>				<u>-</u> (D)
Raw Land	Raw Land Acreage		Percentage of Total Land			Assessed Value Per Acre (i)	
Raw Land for Residential						\$ -	\$ -
Raw Land for Non-Residential						\$ -	\$ -
Total Value for Raw Land	<u>-</u>		<u>-</u>				<u>-</u> (E)
Total Project Assessed Valuation = (A) + (B) + (C) + (D) + (E)							<u><u>\$ 988,854,900</u></u>

¹The market values shown for the final unit sale price per unit do not include the lot value for the lot on which each new unit is constructed. Half of the units from the prior year will be sold before July 31st of each year and will be counted on the assessment roll for that year. The other half will be counted on the following year.

Table B-1
Fiscal Impact Analysis
Property Tax Calculations 2023

Total Project Assessed Valuation				\$ 988,854,900	(A)
<u>Property Tax</u>					
City Share of Basic Tax ¹				\$ 1.38	(B)
City Tax Share				1,363,898	
City Tax Share-Rounded			(C) = (A)*(B)	\$ 1,363,898	(C)
<u>EMS Levy</u>					
City Share of Basic Tax ¹				\$ 0.21	
City Tax Share				206,888	
City Tax Share-Rounded				\$ 206,888	
<u>Personal Property Tax</u>					
	<u>Current Year Assessed Value</u>	<u>Per Resident</u>	<u>Residents</u>		
City Share of Basic Tax - New Construction ¹				\$ 1.38	
Personal Property Value ²	\$ 18,339,535	2,984	3,095	\$ 9,237,515	
Total City Share of Property Taxes, Levy Rate			(D) = (B)	1.38	(D)
City Tax Share, Dollars				12,741.03	
City Tax Share-Rounded				\$ 12,741	
Residents per SF HH ³				2.7000	
Residents per MF HH ³				1.8500	
Total Residents (Assumes 50% of residents for homes closed in current year)				3,095	
<u>Square Feet per Employee⁴</u>					
Retail	50,000			1,246	
Office	-			434	
Employees					
Retail				40	
Office				-	
Total Employees				40	
<u>Transfer Parameters</u>					
Turnover Rate ⁵					
Residential				7.14%	
Non-Residential				5.00%	
Assessed Valuation - New Construction / <i>Shown In Table 1, Letters (A) and (C)</i>				201,942,159	(E)
Assessed Valuation - Existing & Prior Years / <i>Shown In Table 1, Letters (B) and (D)</i>				786,912,741	(F)
AV of Transferred Real Estate (Resale and New Construction) / <i>Equal to Table A-6, (B)*7.14% and (D)*5.00%, Plus (A) and (C)</i>				\$ 258,150,212	
<u>Real Estate Excise Tax⁶</u>					
REET Rate				0.5000%	(G)
REET from New Construction			(H) = (E)*(G)	\$ 1,009,711	(H)
REET from Re-sale of Existing Property / <i>Equal to The Sum of Table 1, (B)*7.14% and (D)*5.00%, times (G)</i>				281,040	(I)
Total Amount, Rounded				\$ 1,290,751	

¹Estimated property tax levy rate based on rate of 1.38 per \$1,000 and EMS levy rate of .20922 in 2023 per City Budget.

²Assessed Value is estimated based on actual 2023 assessed value increased by 0% per year.

³The People per Household amounts pursuant to the Ten Trails Development Agreement and The Ten Trails Final EIS.

⁴Per Energy Information Administration (2003 Office Energy Statistics from the U.S. Government)

⁵Assumes existing homes are sold every 14 years and existing non-residential property is sold every 20 years. Please note REET revenue is not used for City General Fund operations.

⁶REET is not used for General Fund Operations, but is shown in this FIA for informational purposes.

Table C-1
Fiscal Impact Analysis
Sales and Use Tax Revenue Calculations 2023

Description						Amount
<u>Residential</u>						
Residential Building Valuation / (A) = Total AV of all New and Existing Residential Units as shown in Table 1D					\$	897,780,241 (A)
Household Income @28.1% ¹			(B) = (A)* 28.1%		\$	252,276,248 (B)
Retail Taxable Sales @30% ²			(C) = (B)* 30%		\$	75,682,874 (C)
Projected Off-Site Taxable Sales Captured in City @30%			(D) = (C)* 30%		\$	22,704,862 (D)
<u>Project Indirect Sales and Use Tax to City - New Residents</u>						
Sales tax calculated on the Lesser of the assessed valuation percentage (@0.95% of taxable sales) (1) or per capita (2)						
<u>Assessed Valuation Percentage</u>						
(1) Sales Tax (@0.9500% of taxable sales)					0.9500%	\$ 215,696
						<u>\$ 215,696</u>
<u>Per Capita</u>						
(2) Projected Sales tax per Capita (based on 2023 City Budget)	\$ 1,200,000	Factor 187.11	Resident Factor 100%	Units 3,095		<u>\$ 579,128</u>
<u>Project Indirect Sales and Use Tax to City - New Employees</u>						
<u>Per Capita</u>						
Projected Sales tax per Capita (based on City Budget) ³	\$ 1,200,000	Factor 187.11	Employee Factor 50%	Units 20		<u>\$ 3,742</u>
<u>Total Project Indirect Sales and Use Tax to City</u>						<u>\$ 219,438</u>
<u>Project Direct Sales and Use Tax to City - Businesses</u>						
Taxable Sales			Taxable Sales Per Square Feet	Square Footage		
Retail Buildings ⁴			\$ 327	50,000		16,369,881
Grocery						
Retail Pad Buildings						
Drug Store						
Main Street Retail						
Office Buildings			\$ -	-		-
Total Direct Taxable Sales				<u>50,000</u>		<u>16,369,881</u>
<u>Project Direct Sales and Use Tax to City</u>						
Sales Tax (@0.9500% of taxable sales)					0.9500%	\$ 155,514
<u>Total Project Direct Sales and Use Tax to City</u>						<u>\$ 155,514</u>

¹Housing is considered affordable when 30% of household income is spent on housing per King County Office of Management and Budget and US Census Data.

²Estimates based on Federal Bureau of Labor Statistics "Consumer Expenditure Survey" for 2002 for the West

³Assumes new employees make purchases in Black Diamond at 50% of the rate of residents.

⁴Taxable Sales per Square foot based on "Estimating Retail Sales per Square Foot" report by Center for Community Economic Development

Table D-1
Fiscal Impact Analysis
Other General Fund Revenue Calculations 2023

Revenue Source	Revenues (2023) ¹	Recurring Revenue	Percentage Rev Applied	Factor 2023	Measure ²	Equivalent Units	Revenue
	(a)		(b)	(c)		(d)	(e) = (c)*(d)
General Fund (Fund 001)							
Taxes							
B & O Tax	-	Y	100%	-	per person served	3,115	-
<u>Utility Taxes</u>							
Electrical Tax	\$ 390,500	Y	100%	60.89	per person served	3,115	189,680
Telephone Tax	\$ 41,300	Y	100%	6.44	per person served	3,115	20,061
Wastewater Utility Tax	\$ 125,500	Y	100%	19.57	per person served	3,115	60,960
Stormwater Utility Tax	\$ 151,600	Y	100%	23.64	per person served	3,115	73,637
Water Utility Tax	\$ 110,240	Y	100%	17.19	per person served	3,115	53,547
Solid Waste Tax	\$ 74,600	Y	100%	11.63	per person served	3,115	36,236
Cable TV Utility Tax	\$ 85,000	Y	100%	13.25	per person served	3,115	41,288
Gas Utility Tax	\$ 100	Y	100%	0.02	per person served	3,115	49
Pull Tabs and Punch Board Tax	\$ 5,300	Y	100%	0.83	per person served	3,115	2,574
Licenses and Permits	\$ -	Y	100%	-	per person served	3,115	-
Intergovernmental Revenue	\$ 138,300	Y	100%	21.56	per person served	3,115	67,177
Community Development Revenue	\$ 1,353,100	Y	100%	210.98	per person served	3,115	657,249
Police Revenue	\$ 427,650	Y	100%	66.68	per person served	3,115	207,725
Municipal Court Revenue	\$ 98,400	Y	100%	15.34	per person served	3,115	47,796
Cable Franchise Fees	\$ 101,800	Y	100%	15.87	per person served	3,115	49,448
Other General Fund Revenue	\$ 151,600	Y	100%	23.64	per person served	3,115	73,637
Total General Fund Revenue	<u>3,254,990</u>			<u>507.52</u>			<u>1,581,064</u>

¹Per 2023 City Budget.

²Equivalent Units are equal to one per Project resident and 0.5 per Project employee.

Table E-1
Fiscal Impact Analysis
General Fund Cost Calculations 2023

Cost	Expenses (2023) ¹	LoS Adjustment	Efficiency Factor	Factor 2023	Measure ²	Equivalent Units	Cost
	(a)	(b)	(c)	(d)		(e)	(f)=(e)*(d)
General Fund (Fund 001)							
Executive-Mayor	\$ 15,898	75%	100%	1.86	per person served	3,115	\$ 5,792
Legislative-Council	\$ 24,542	75%	100%	2.87	per person served	3,115	\$ 8,941
City Administrator	\$ 206,351	75%	100%	24.13	per person served	3,115	\$ 75,174
Administration Services	\$ 784,654	75%	100%	91.76	per person served	3,115	\$ 285,851
Facilities	\$ 152,702	75%	100%	17.86	per person served	3,115	\$ 55,630
Legal	\$ 369,000	75%	100%	43.15	per person served	3,115	\$ 134,427
Municipal Court/Court Legal Services	\$ 572,788	75%	100%	66.98	per person served	3,115	\$ 208,668
EMS/Recyl/Anim Cont/Mental Helath	\$ 122,200	75%	100%	14.29	per person served	3,115	\$ 44,518
Community Development	\$ 2,043,937	75%	100%	239.02	per person served	3,115	\$ 744,609
Cemetery	\$ 28,742	75%	100%	3.36	per person served	3,115	\$ 10,471
Police (Comparable Cities)	Comp. City	100%	100%	254.61	per person served	3,115	\$ 793,186
Fire (Comparable Cities)	Comp. City	100%	100%	199.50	per person served	3,115	\$ 621,497
Parks & Recreation (Comparable Cities)	Comp. City	100%	100%	45.60	per person served	3,115	\$ 142,045
Public Works (Comparable Cities)	Comp. City	0%	0%	41.74	per person served	3,115	\$ -
General Fund Total	\$ 4,320,814			\$ 1,046.73			\$ 3,130,807

¹Per 2023 City Budget.

²Based on total population and 50% employment

³Building, Planning and Code Enforcement are assumed to be funded via fee revenue.

Table A-2
Fiscal Impact Analysis
Land Use and Phasing 2024

	Bulk Land Sale Value New Land Value per Unit	Unit Sale Value ¹ Building Value Only	Total New Land Values	Total New Building Value	Total New Valuation
Product Type	Value	No. Lots	Value	No. Units	
Residential	(a)	(b)	(c)	(d)	(e)=(a)*(b)
New Construction					(f)=(c)*(d)
Apartments	\$ 60,000	- \$	340,000	- \$	- \$
Condos/Stacked Flats	\$ 105,000	- \$	345,000	- \$	- \$
Townhomes	\$ 185,000	273 \$	515,000	53 \$	27,295,000 \$
Duplex/Duets/30x80 Alley	\$ 230,000	13 \$	520,000	- \$	2,990,000 \$
35x75 Alley Bungalows	\$ 239,201	- \$	540,803	- \$	- \$
35x90 Alley	\$ 255,093	12 \$	524,911	1 \$	3,061,115 \$
40x85 Alley	\$ 289,085	10 \$	596,446	- \$	2,890,849 \$
45x85 Alley	\$ 300,000	7 \$	626,400	1 \$	2,100,000 \$
50x80 Alley	\$ 316,526	11 \$	653,474	3 \$	3,481,789 \$
45x110 Alley w/Carriage	\$ 300,000	5 \$	625,000	- \$	1,500,000 \$
40x90 - 100	\$ 318,108	104 \$	600,156	- \$	33,083,243 \$
45x90 - 100	\$ 350,022	12 \$	657,618	1 \$	4,200,268 \$
50x90 - 100	\$ 360,037	41 \$	687,624	8 \$	14,761,506 \$
55x90 - 100	\$ 387,750	11 \$	787,250	4 \$	4,265,250 \$
60x90 - 100	\$ 441,731	19 \$	896,849	14 \$	8,392,897 \$
AA 45'	\$ 279,000	13 \$	621,000	17 \$	3,627,000 \$
AA 50'	\$ 294,500	24 \$	655,500	32 \$	7,068,000 \$
AA 60'	\$ 317,440	8 \$	706,560	12 \$	2,539,520 \$
AA Auto Court	\$ 255,750	32 \$	569,250	16 \$	8,184,000 \$
Cluster/Auto Court	\$ 260,000	- \$	515,000	- \$	- \$
Cottage	\$ 200,000	1 \$	375,000	- \$	200,000 \$
0	\$ 650,000	- \$	1,100,000	- \$	- \$
		596		159	251,947,038 (A)
	Existing Developed Lots Existing Land Value per Unit	Existing Unit Value ¹ Building Value Only	Total Existing Land Value	Total Existing Building Value	Total Existing Valuation
Product Type	Value	No. Lots	Value	No. Units	
Residential					(h)=(prior yrs)*1.01
From Prior Years					989,703,949 (B)
Total					
Non-Residential	Mix	Building Sq. Ft.	Assessed Value Per Sq. Ft.		
New Construction					
Retail Buildings	100%	89,000	\$ 183		16,297,413
Office Buildings	0%	-	\$ 183		-
	100%	89,000			16,297,413 (C)
From Prior Years					
Retail Buildings	100%	50,000			
Office Buildings	0%	-			
Total	100%	50,000			9,039,500 (D)
Raw Land	Raw Land Acreage	Percentage of Total Land	Assessed Value Per Acre (i)		
Raw Land for Residential			\$ -	\$ -	-
Raw Land for Non-Residential			\$ -	\$ -	-
Total Value for Raw Land	-		\$ -	\$ -	- (E)
Total Project Assessed Valuation = (A) + (B) + (C) + (D) + (E)					\$ 1,266,987,901

1The market values shown for the final unit sale price per unit do not include the lot value for the lot on which each new unit is constructed. Half of the units from the prior year will be sold before July 31st of each year and will be counted on the assessment roll for that year. The other half will be counted on the following year.

Table B-2
Fiscal Impact Analysis
Property Tax Calculations 2024

Total Project Assessed Valuation				\$ 1,266,987,901	(A)
<u>Property Tax</u>					
City Share of Basic Tax ¹				\$ 1.38	(B)
City Tax Share				1,747,518	
City Tax Share-Rounded			(C) = (A)*(B)	\$ 1,747,518	(C)
<u>EMS Levy</u>					
City Share of Basic Tax ¹				\$ 0.21	
City Tax Share				265,079	
City Tax Share-Rounded				\$ 265,079	
<u>Personal Property Tax</u>					
	<u>Current Year Assessed Value</u>	<u>Per Resident</u>	<u>Residents</u>		
City Share of Basic Tax - New Construction ¹				\$ 1.38	
Personal Property Value ²	\$ 18,339,535	2,984	3,478	\$ 10,380,266	
Total City Share of Property Taxes, Levy Rate			(D) = (B)	1.38	(D)
City Tax Share, Dollars				14,317.19	
City Tax Share-Rounded				\$ 14,317	
Residents per SF HH ³				2.7000	
Residents per MF HH ³				1.8500	
Total Residents (Assumes 50% of residents for homes closed in current year)				3,478	
<u>Square Feet per Employee⁴</u>					
Retail	<u>Square Footage</u>			1,246	
Office	139,000			434	
Employees	-				
Retail				112	
Office				-	
Total Employees				112	
<u>Transfer Parameters</u>					
Turnover Rate ⁵					
Residential				7.14%	
Non-Residential				5.00%	
Assessed Valuation - New Construction / <i>Shown In Table 1, Letters (A) and (C)</i>				268,244,451	(E)
Assessed Valuation - Existing & Prior Years / <i>Shown In Table 1, Letters (B) and (D)</i>				998,743,449	(F)
AV of Transferred Real Estate (Resale and New Construction) / <i>Equal to Table A-7, (B)*7.14% and (D)*5.00%, Plus (A) and (C)</i>				\$ 339,389,566	
<u>Real Estate Excise Tax⁶</u>					
REET Rate				0.5000%	(G)
REET from New Construction			(H) = (E)*(G)	\$ 1,341,222	(H)
REET from Re-sale of Existing Property / <i>Equal to The Sum of Table 1, (B)*7.14% and (D)*5.00%, times (G)</i>				355,726	(I)
Total Amount, Rounded				\$ 1,696,948	

¹Estimated property tax levy rate based on rate of 1.38 per \$1,000 and EMS levy rate of .20922 in 2023 per City Budget.

²Assessed Value is estimated based on actual 2023 assessed value increased by 0% per year.

³The People per Household amounts pursuant to the Ten Trails Development Agreement and The Ten Trails Final EIS.

⁴Per Energy Information Administration (2003 Office Energy Statistics from the U.S. Government)

⁵Assumes existing homes are sold every 14 years and existing non-residential property is sold every 20 years. Please note REET revenue is not used for City General Fund operations.

⁶REET is not used for General Fund Operations, but is shown in this FIA for informational purposes.

Table C-2
Fiscal Impact Analysis
Sales and Use Tax Revenue Calculations 2024

Description						Amount
<u>Residential</u>						
Residential Building Valuation / (A) = Total AV of all New and Existing Residential Units as shown in Table 1D					\$	1,049,076,843 (A)
Household Income @28.1% ¹				(B) = (A)* 28.1%	\$	294,790,593 (B)
Retail Taxable Sales @30% ²				(C) = (B)* 30%	\$	88,437,178 (C)
Projected Off-Site Taxable Sales Captured in City @30%				(D) = (C)* 30%	\$	26,531,153 (D)
<u>Project Indirect Sales and Use Tax to City - New Residents</u>						
Sales tax calculated on the Lesser of the assessed valuation percentage (@0.95% of taxable sales) (1) or per capita (2)						
<u>Assessed Valuation Percentage</u>						
(1) Sales Tax (@0.9500% of taxable sales)					0.9500%	\$ 252,046
						\$ 252,046
<u>Per Capita</u>						
(2) Projected Sales tax per Capita (based on 2023 City Budget)	\$	Budget 1,200,000	Factor 187.11	Resident Factor 100%	Units 3,478	\$ 650,771
<u>Project Indirect Sales and Use Tax to City - New Employees</u>						
<u>Per Capita</u>						
Projected Sales tax per Capita (based on City Budget) ³	\$	Budget 1,200,000	Factor 187.11	Employee Factor 50%	Units 56	\$ 10,478
						\$ 262,524
<u>Total Project Indirect Sales and Use Tax to City</u>						
<u>Project Direct Sales and Use Tax to City - Businesses</u>						
Taxable Sales				Taxable Sales Per Square Feet	Square Footage	
Retail Buildings ⁴	\$		327		139,000	45,508,268
Grocery						
Retail Pad Buildings						
Drug Store						
Main Street Retail						
Office Buildings	\$		-		-	-
Total Direct Taxable Sales					139,000	45,508,268
<u>Project Direct Sales and Use Tax to City</u>						
Sales Tax (@0.9500% of taxable sales)					0.9500%	\$ 432,329
						\$ 432,329
<u>Total Project Direct Sales and Use Tax to City</u>						

¹Housing is considered affordable when 30% of household income is spent on housing per King County Office of Management and Budget and US Census Data.

²Estimates based on Federal Bureau of Labor Statistics "Consumer Expenditure Survey" for 2002 for the West

³Assumes new employees make purchases in Black Diamond at 50% of the rate of residents.

⁴Taxable Sales per Square foot based on "Estimating Retail Sales per Square Foot" report by Center for Community Economic Development

Table D-2
Fiscal Impact Analysis
Other General Fund Revenue Calculations 2024

Revenue Source	Revenues (2024) ¹	Recurring Revenue	Percentage Rev Applied	Factor 2024	Measure ²	Equivalent Units	Revenue
	(a)		(b)	(c)		(d)	(e) = (c)*(d)
General Fund (Fund 001)							
Taxes							
B & O Tax	-	Y	100%	-	per person served	3,533.88	-
Utility Taxes							
Electrical Tax	\$ 390,500	Y	100%	60.89	per person served	3,534	215,168
Telephone Tax	\$ 41,300	Y	100%	6.44	per person served	3,534	22,757
Wastewater Utility Tax	\$ 125,500	Y	100%	19.57	per person served	3,534	69,151
Stormwater Utility Tax	\$ 151,600	Y	100%	23.64	per person served	3,534	83,533
Water Utility Tax	\$ 110,240	Y	100%	17.19	per person served	3,534	60,743
Solid Waste Tax	\$ 74,600	Y	100%	11.63	per person served	3,534	41,105
Cable TV Utility Tax	\$ 85,000	Y	100%	13.25	per person served	3,534	46,836
Gas Utility Tax	\$ 100	Y	100%	0.02	per person served	3,534	55
Pull Tabs and Punch Board Tax	\$ 5,300	Y	100%	0.83	per person served	3,534	2,920
Licenses and Permits	\$ -	Y	100%	-	per person served	3,534	-
Intergovernmental Revenue	\$ 138,300	Y	100%	21.56	per person served	3,534	76,204
Community Development Revenue	\$ 1,353,100	Y	100%	210.98	per person served	3,534	745,567
Police Revenue	\$ 427,650	Y	100%	66.68	per person served	3,534	235,638
Municipal Court Revenue	\$ 98,400	Y	100%	15.34	per person served	3,534	54,219
Cable Franchise Fees	\$ 101,800	Y	100%	15.87	per person served	3,534	56,092
Other General Fund Revenue	\$ 151,600	Y	100%	23.64	per person served	3,534	83,533
Total General Fund Revenue	<u>3,254,990</u>			<u>507.52</u>			<u>1,793,520</u>

¹Per 2023 City Budget.

²Equivalent Units are equal to one per Project resident and 0.5 per Project employee.

Table E-2
Fiscal Impact Analysis
General Fund Cost Calculations 2024

Cost	Expenses (2024) ¹	LoS Adjustment	Efficiency Factor	Factor 2024	Measure ²	Equivalent Units	Cost
<u>General Fund (Fund 001)</u>	(a)	(b)	(c)	(d)		(e)	(f)=(e)*(d)
Executive-Mayor	\$ 15,898	75%	100%	1.86	per person served	3,534	\$ 6,570
Legislative-Council	\$ 24,542	75%	100%	2.87	per person served	3,534	\$ 10,142
City Administrator	\$ 206,351	75%	100%	24.13	per person served	3,534	\$ 85,276
Administration Services	\$ 784,654	75%	100%	91.76	per person served	3,534	\$ 324,262
Facilities	\$ 152,702	75%	100%	17.86	per person served	3,534	\$ 63,105
Legal	\$ 369,000	75%	100%	43.15	per person served	3,534	\$ 152,491
Municipal Court/Court Legal Services	\$ 572,788	75%	100%	66.98	per person served	3,534	\$ 236,707
EMS/Recyl/Anim Cont/Mental Helath	\$ 122,200	75%	100%	14.29	per person served	3,534	\$ 50,500
Community Development	\$ 2,043,937	75%	100%	239.02	per person served	3,534	\$ 844,667
Cemetery	\$ 28,742	75%	100%	3.36	per person served	3,534	\$ 11,878
Police (Comparable Cities)	Comp. City	100%	100%	254.61	per person served	3,534	\$ 899,771
Fire (Comparable Cities)	Comp. City	100%	100%	199.50	per person served	3,534	\$ 705,011
Parks & Recreation (Comparable Cities)	Comp. City	100%	100%	45.60	per person served	3,534	\$ 161,132
Public Works (Comparable Cities)	Comp. City	0%	0%	41.74	per person served	3,534	\$ -
General Fund Total	<u>\$ 4,320,814</u>			<u>\$ 1,046.73</u>			<u>\$ 3,551,510</u>

¹Per 2023 City Budget.

²Based on total population and 50% employment

³Building, Planning and Code Enforcement are assumed to be funded via fee revenue.

Table A-3
Fiscal Impact Analysis
Land Use and Phasing 2025

Product Type	Bulk Land Sale Value New Land Value per Unit		Unit Sale Value ¹ Building Value Only		Total New Land Values	Total New Building Value	Total New Valuation
	Value	No. Lots	Value	No. Units			
Residential	(a)	(b)	(c)	(d)	(e)=(a)*(b)	(f)=(c)*(d)	(g)=(e)+(f)
New Construction							
Apartments	\$ 60,000	6	\$ 340,000	-	\$ 360,000	\$ -	\$ 360,000
Condos/Stacked Flats	\$ 105,000	1	\$ 345,000	-	\$ 105,000	\$ -	\$ 105,000
Townhomes	\$ 185,000	185	\$ 515,000	190	\$ 34,225,000	\$ 97,592,500	\$ 131,817,500
Duplex/Duets/30x80 Alley	\$ 230,000	18	\$ 520,000	7	\$ 4,140,000	\$ 3,380,000	\$ 7,520,000
35x75 Alley Bungalows	\$ 239,201	-	\$ 540,803	-	\$ -	\$ -	\$ -
35x90 Alley	\$ 255,093	27	\$ 524,911	6	\$ 6,887,508	\$ 3,149,467	\$ 10,036,974
40x85 Alley	\$ 289,085	24	\$ 596,446	5	\$ 6,938,038	\$ 2,982,230	\$ 9,920,268
45x85 Alley	\$ 300,000	14	\$ 626,400	4	\$ 4,200,000	\$ 2,192,400	\$ 6,392,400
50x80 Alley	\$ 316,526	14	\$ 653,474	6	\$ 4,431,368	\$ 3,594,105	\$ 8,025,474
45x110 Alley w/Carriage	\$ 300,000	7	\$ 625,000	3	\$ 2,100,000	\$ 1,562,500	\$ 3,662,500
40x90 - 100	\$ 318,108	127	\$ 600,156	52	\$ 40,399,730	\$ 31,208,106	\$ 71,607,836
45x90 - 100	\$ 350,022	20	\$ 657,618	6	\$ 7,000,446	\$ 3,945,706	\$ 10,946,152
50x90 - 100	\$ 360,037	85	\$ 687,624	21	\$ 30,603,123	\$ 14,096,297	\$ 44,699,420
55x90 - 100	\$ 387,750	16	\$ 787,250	6	\$ 6,204,000	\$ 4,329,875	\$ 10,533,875
60x90 - 100	\$ 441,731	31	\$ 896,849	10	\$ 13,693,673	\$ 8,520,062	\$ 22,213,735
AA 45'	\$ 279,000	22	\$ 621,000	13	\$ 6,138,000	\$ 7,762,500	\$ 13,900,500
AA 50'	\$ 294,500	50	\$ 655,500	27	\$ 14,725,000	\$ 17,370,750	\$ 32,095,750
AA 60'	\$ 317,440	18	\$ 706,560	10	\$ 5,713,920	\$ 6,712,320	\$ 12,426,240
AA Auto Court	\$ 255,750	-	\$ 569,250	31	\$ -	\$ 17,646,750	\$ 17,646,750
Cluster/Auto Court	\$ 260,000	1	\$ 515,000	-	\$ 260,000	\$ -	\$ 260,000
Cottage	\$ 200,000	1	\$ 375,000	1	\$ 200,000	\$ 187,500	\$ 387,500
0	\$ 650,000	-	\$ 1,100,000	-	\$ -	\$ -	\$ -
		<u>667</u>		<u>392</u>			<u>414,557,876</u> (A)
Product Type	Existing Developed Lots Existing Land Value per Unit		Existing Unit Value ¹ Building Value Only		Total Existing Land Value	Total Existing Building Value	Total Existing Valuation
	Value	No. Lots	Value	No. Units			
Residential							(h)=(prior yrs)*1.01
From Prior Years							
Total							<u>1,254,067,497</u> (B)
Non-Residential							
	Mix		Building Sq. Ft.			Assessed Value Per Sq. Ft.	
New Construction							
Retail Buildings	0%		95,000		\$	187	17,796,226
Office Buildings	0%		-		\$	187	-
	<u>0%</u>		<u>95,000</u>				<u>17,796,226</u> (C)
From Prior Years							
Retail Buildings	100%		139,000				
Office Buildings	0%		-				
Total	<u>100%</u>		<u>139,000</u>				<u>25,590,282</u> (D)
Raw Land	Raw Land Acreage		Percentage of Total Land			Assessed Value Per Acre (i)	
Raw Land for Residential					\$	-	\$ -
Raw Land for Non-Residential					\$	-	\$ -
Total Value for Raw Land	<u>-</u>		<u>-</u>				<u>\$ -</u> (E)
Total Project Assessed Valuation = (A) + (B) + (C) + (D) + (E)							<u><u>\$ 1,712,011,881</u></u>

¹The market values shown for the final unit sale price per unit do not include the lot value for the lot on which each new unit is constructed. Half of the units from the prior year will be sold before July 31st of each year and will be counted on the assessment roll for that year. The other half will be counted on the following year.

Table B-3
Fiscal Impact Analysis
Property Tax Calculations 2025

Total Project Assessed Valuation				\$ 1,712,011,881	(A)
<u>Property Tax</u>					
City Share of Basic Tax ¹				\$ 1.38	(B)
City Tax Share				2,361,327	
City Tax Share-Rounded			(C) = (A)*(B)	\$ 2,361,327	(C)
<u>EMS Levy</u>					
City Share of Basic Tax ¹				\$ 0.21	
City Tax Share				358,187	
City Tax Share-Rounded				\$ 358,187	
<u>Personal Property Tax</u>					
	<u>Current Year Assessed Value</u>	<u>Per Resident</u>	<u>Residents</u>		
City Share of Basic Tax - New Construction ¹				\$ 1.38	
Personal Property Value ²	\$ 18,339,535	2,984	4,370	\$ 13,041,812	
Total City Share of Property Taxes, Levy Rate			(D) = (B)	1.38	(D)
City Tax Share, Dollars				17,988.18	
City Tax Share-Rounded				\$ 17,988	
Residents per SF HH ³				2.7000	
Residents per MF HH ³				1.8500	
Total Residents (Assumes 50% of residents for homes closed in current year)				4,370	
<u>Square Feet per Employee⁴</u>					
	<u>Square Footage</u>				
Retail	234,000			1,246	
Office	-			434	
Employees					
Retail				188	
Office				-	
Total Employees				188	
<u>Transfer Parameters</u>					
Turnover Rate ⁵					
Residential				7.14%	
Non-Residential				5.00%	
Assessed Valuation - New Construction / <i>Shown In Table 1, Letters (A) and (C)</i>				432,354,101	(E)
Assessed Valuation - Existing & Prior Years / <i>Shown In Table 1, Letters (B) and (D)</i>				1,279,657,780	(F)
AV of Transferred Real Estate (Resale and New Construction) / <i>Equal to Table A-8, (B)*7.14% and (D)*5.00%, Plus (A) and (C)</i>				\$ 523,209,865	
<u>Real Estate Excise Tax⁶</u>					
REET Rate				0.5000%	(G)
REET from New Construction			(H) = (E)*(G)	\$ 2,161,771	(H)
REET from Re-sale of Existing Property / <i>Equal to The Sum of Table 1, (B)*7.14% and (D)*5.00%, times (G)</i>				454,279	(I)
Total Amount, Rounded				\$ 2,616,049	

¹ Estimated property tax levy rate based on rate of 1.38 per \$1,000 and EMS levy rate of .20922 in 2023 per City Budget.

² Assessed Value is estimated based on actual 2023 assessed value increased by 0% per year.

³ The People per Household amounts pursuant to the Ten Trails Development Agreement and The Ten Trails Final EIS.

⁴ Per Energy Information Administration (2003 Office Energy Statistics from the U.S. Government)

⁵ Assumes existing homes are sold every 14 years and existing non-residential property is sold every 20 years. Please note REET revenue is not used for City General Fund operations.

⁶ REET is not used for General Fund Operations, but is shown in this FIA for informational purposes.

Table C-3
Fiscal Impact Analysis
Sales and Use Tax Revenue Calculations 2025

Description					Amount	
<u>Residential</u>						
Residential Building Valuation / (A) = Total AV of all New and Existing Residential Units as shown in Table 1E					\$	1,383,557,319 (A)
Household Income @28.1% ¹					(B) = (A)* 28.1%	\$ 388,779,607 (B)
Retail Taxable Sales @30% ²					(C) = (B)* 30%	\$ 116,633,882 (C)
Projected Off-Site Taxable Sales Captured in City @30%					(D) = (C)* 30%	\$ 34,990,165 (D)
<u>Project Indirect Sales and Use Tax to City - New Residents</u>						
Sales tax calculated on the Lesser of the assessed valuation percentage (@0.95% of taxable sales) (1) or per capita (2)						
<u>Assessed Valuation Percentage</u>						
(1) Sales Tax (@0.9500% of taxable sales)					0.9500%	\$ 332,407
						<u>\$ 332,407</u>
<u>Per Capita</u>						
(2) Projected Sales tax per Capita (based on 2023 City Budget)					Budget	Factor
					\$ 1,200,000	187.11
					Resident Factor	Units
					100%	4,370
						<u>\$ 817,632</u>
<u>Project Indirect Sales and Use Tax to City - New Employees</u>						
<u>Per Capita</u>						
Projected Sales tax per Capita (based on City Budget) ³					Budget	Factor
					\$ 1,200,000	187.11
					Employee Factor	Units
					50%	94
						<u>\$ 17,588</u>
<u>Total Project Indirect Sales and Use Tax to City</u>						<u>\$ 349,994</u>
<u>Project Direct Sales and Use Tax to City - Businesses</u>						
Taxable Sales					Taxable Sales Per Square Feet	Square Footage
Retail Buildings ⁴					\$ 327	234,000
Grocery						
Retail Pad Buildings						
Drug Store						
Main Street Retail						
Office Buildings					\$ -	-
Total Direct Taxable Sales						<u>234,000</u>
						<u>76,611,041</u>
<u>Project Direct Sales and Use Tax to City</u>						
Sales Tax (@0.9500% of taxable sales)					0.9500%	\$ 727,805
<u>Total Project Direct Sales and Use Tax to City</u>						<u>\$ 727,805</u>

¹Housing is considered affordable when 30% of household income is spent on housing per King County Office of Management and Budget and US Census Data.

²Estimates based on Federal Bureau of Labor Statistics "Consumer Expenditure Survey" for 2002 for the West

³Assumes new employees make purchases in Black Diamond at 50% of the rate of residents.

⁴Taxable Sales per Square foot based on "Estimating Retail Sales per Square Foot" report by Center for Community Economic Development

Table D-3
Fiscal Impact Analysis
Other General Fund Revenue Calculations 2025

Revenue Source	Revenues (2025) ¹	Recurring Revenue	Percentage Rev Applied	Factor 2025	Measure ²	Equivalent Units	Revenue
	(a)		(b)	(c)		(d)	(e) = (c)*(d)
General Fund (Fund 001)							
Taxes							
B & O Tax	-	Y	100%	-	per person served	4,464	-
Utility Taxes							
Electrical Tax	\$ 390,500	Y	100%	60.89	per person served	4,464	271,788
Telephone Tax	\$ 41,300	Y	100%	6.44	per person served	4,464	28,745
Wastewater Utility Tax	\$ 125,500	Y	100%	19.57	per person served	4,464	87,348
Stormwater Utility Tax	\$ 151,600	Y	100%	23.64	per person served	4,464	105,514
Water Utility Tax	\$ 110,240	Y	100%	17.19	per person served	4,464	76,727
Solid Waste Tax	\$ 74,600	Y	100%	11.63	per person served	4,464	51,922
Cable TV Utility Tax	\$ 85,000	Y	100%	13.25	per person served	4,464	59,160
Gas Utility Tax	\$ 100	Y	100%	0.02	per person served	4,464	70
Pull Tabs and Punch Board Tax	\$ 5,300	Y	100%	0.83	per person served	4,464	3,689
Licenses and Permits	\$ -	Y	100%	-	per person served	4,464	-
Intergovernmental Revenue	\$ 138,300	Y	100%	21.56	per person served	4,464	96,257
Community Development Revenue	\$ 1,353,100	Y	100%	210.98	per person served	4,464	941,759
Police Revenue	\$ 427,650	Y	100%	66.68	per person served	4,464	297,645
Municipal Court Revenue	\$ 98,400	Y	100%	15.34	per person served	4,464	68,486
Cable Franchise Fees	\$ 101,800	Y	100%	15.87	per person served	4,464	70,853
Other General Fund Revenue	\$ 151,600	Y	100%	23.64	per person served	4,464	105,514
Total General Fund Revenue	<u>3,254,990</u>			<u>507.52</u>			<u>2,265,475</u>

¹Per 2023 City Budget.

²Equivalent Units are equal to one per Project resident and 0.5 per Project employee.

Table E-3
Fiscal Impact Analysis
General Fund Cost Calculations 2025

Cost	Expenses (2025) ¹	LoS Adjustment	Efficiency Factor	Factor 2025	Measure ²	Equivalent Units	Cost
	(a)	(b)	(c)	(d)		(e)	(f)=(e)*(d)
General Fund (Fund 001)							
Executive-Mayor	\$ 15,898	75%	100%	1.86	per person served	4,464	\$ 8,299
Legislative-Council	\$ 24,542	75%	100%	2.87	per person served	4,464	\$ 12,811
City Administrator	\$ 206,351	75%	100%	24.13	per person served	4,464	\$ 107,715
Administration Services	\$ 784,654	75%	100%	91.76	per person served	4,464	\$ 409,590
Facilities	\$ 152,702	75%	100%	17.86	per person served	4,464	\$ 79,711
Legal	\$ 369,000	75%	100%	43.15	per person served	4,464	\$ 192,618
Municipal Court/Court Legal Services	\$ 572,788	75%	100%	66.98	per person served	4,464	\$ 298,996
EMS/Recyl/Anim Cont/Mental Helath	\$ 122,200	75%	100%	14.29	per person served	4,464	\$ 63,788
Community Development	\$ 2,043,937	75%	100%	239.02	per person served	4,464	\$ 1,066,936
Cemetery	\$ 28,742	75%	100%	3.36	per person served	4,464	\$ 15,003
Police (Comparable Cities)	Comp. City	100%	100%	254.61	per person served	4,464	\$ 1,136,541
Fire (Comparable Cities)	Comp. City	100%	100%	199.50	per person served	4,464	\$ 890,531
Parks & Recreation (Comparable Cities)	Comp. City	100%	100%	45.60	per person served	4,464	\$ 203,533
Public Works (Comparable Cities)	Comp. City	0%	0%	41.74	per person served	4,464	\$ -
General Fund Total	\$ 4,320,814			\$ 1,046.73			\$ 4,486,072

¹Per 2023 City Budget.

²Based on total population and 50% employment

³Building, Planning and Code Enforcement are assumed to be funded via fee revenue.

Table A-4
Fiscal Impact Analysis
Land Use and Phasing 2026

[illegible]

1The market values shown for the final unit sale price per unit do not include the lot value for the lot on which each new unit is constructed. Half of the units from the prior year will be sold before July 31st of each year and will be counted on the assessment roll for that year. The other half will be counted on the following year.

Table B-4
Fiscal Impact Analysis
Property Tax Calculations 2026

Total Project Assessed Valuation				\$ 2,311,836,374	(A)
<u>Property Tax</u>					
City Share of Basic Tax ¹				\$ 1.38	(B)
City Tax Share				3,188,647	
City Tax Share-Rounded			(C) = (A)*(B)	<u>\$ 3,188,647</u>	(C)
<u>EMS Levy</u>					
City Share of Basic Tax ¹				\$ 0.21	
City Tax Share				483,682	
City Tax Share-Rounded				<u>\$ 483,682</u>	
<u>Personal Property Tax</u>					
	<u>Current Year Assessed Value</u>	<u>Per Resident</u>	<u>Residents</u>		
City Share of Basic Tax - New Construction ¹				\$ 1.38	
Personal Property Value ²	\$ 18,339,535	2,984	5,864	\$ 17,501,348	
Total City Share of Property Taxes, Levy Rate			(D) = (B)	1.38	(D)
City Tax Share, Dollars				24,139.08	
City Tax Share-Rounded				<u>\$ 24,139</u>	
Residents per SF HH ³				2.7000	
Residents per MF HH ³				1.8500	
Total Residents (Assumes 50% of residents for homes closed in current year)				<u>5,864</u>	
<u>Square Feet per Employee⁴</u>					
	<u>Square Footage</u>				
Retail	271,000			1,246	
Office	8,000			434	
Employees					
Retail				217	
Office				18	
Total Employees				<u>236</u>	
<u>Transfer Parameters</u>					
Turnover Rate ⁵					
Residential				7.14%	
Non-Residential				5.00%	
Assessed Valuation - New Construction / <i>Shown In Table 1, Letters (A) and (C)</i>				582,704,374	(E)
Assessed Valuation - Existing & Prior Years / <i>Shown In Table 1, Letters (B) and (D)</i>				1,729,132,000	(F)
AV of Transferred Real Estate (Resale and New Construction) / <i>Equal to Table A-9, (B)*7.14% and (D)*5.00%, Plus (A) and (C)</i>				<u>\$ 705,274,795</u>	
<u>Real Estate Excise Tax⁶</u>					
REET Rate				0.5000%	(G)
REET from New Construction			(H) = (E)*(G)	\$ 2,913,522	(H)
REET from Re-sale of Existing Property / <i>Equal to The Sum of Table 1, (B)*7.14% and (D)*5.00%, times (G)</i>				612,852	(I)
Total Amount, Rounded				<u>\$ 3,526,374</u>	

¹Estimated property tax levy rate based on rate of 1.38 per \$1,000 and EMS levy rate of .20922 in 2023 per City Budget.

²Assessed Value is estimated based on actual 2023 assessed value increased by 0% per year.

³The People per Household amounts pursuant to the Ten Trails Development Agreement and The Ten Trails Final EIS.

⁴Per Energy Information Administration (2003 Office Energy Statistics from the U.S. Government)

⁵Assumes existing homes are sold every 14 years and existing non-residential property is sold every 20 years. Please note REET revenue is not used for City General Fund operations.

⁶REET is not used for General Fund Operations, but is shown in this FIA for informational purposes.

Table C-4
Fiscal Impact Analysis
Sales and Use Tax Revenue Calculations 2026

Description				Amount	
<u>Residential</u>					
Residential Building Valuation / (A) = Total AV of all New and Existing Residential Units as shown in Table 1E				\$	1,944,295,072 (A)
Household Income @28.1% ¹				(B) = (A)* 28.1%	\$ 546,346,915 (B)
Retail Taxable Sales @30% ²				(C) = (B)* 30%	\$ 163,904,075 (C)
Projected Off-Site Taxable Sales Captured in City @30%				(D) = (C)* 30%	\$ 49,171,222 (D)
<u>Project Indirect Sales and Use Tax to City - New Residents</u>					
Sales tax calculated on the Lesser of the assessed valuation percentage (@0.95% of taxable sales) (1) or per capita (2)					
<u>Assessed Valuation Percentage</u>					
(1) Sales Tax (@0.9500% of taxable sales)				0.9500%	\$ 467,127
					<u>\$ 467,127</u>
<u>Per Capita</u>					
(2) Projected Sales tax per Capita (based on 2023 City Budget)		Budget	Factor	Resident Factor	Units
	\$ 1,200,000	187.11	100%	5,864	<u>\$ 1,097,214</u>
<u>Project Indirect Sales and Use Tax to City - New Employees</u>					
<u>Per Capita</u>					
Projected Sales tax per Capita (based on City Budget) ³		Budget	Factor	Employee Factor	Units
	\$ 1,200,000	187.11	50%	118	<u>\$ 22,078</u>
<u>Total Project Indirect Sales and Use Tax to City</u>					<u>\$ 489,205</u>
<u>Project Direct Sales and Use Tax to City - Businesses</u>					
Taxable Sales		Taxable Sales Per Square Feet		Square Footage	
Retail Buildings ⁴		\$	327	271,000	88,724,753
Grocery					
Retail Pad Buildings					
Drug Store					
Main Street Retail					
Office Buildings		\$	-	8,000	-
Total Direct Taxable Sales				<u>279,000</u>	<u>88,724,753</u>
<u>Project Direct Sales and Use Tax to City</u>					
Sales Tax (@0.9500% of taxable sales)				0.9500%	\$ 842,885
<u>Total Project Direct Sales and Use Tax to City</u>					<u>\$ 842,885</u>

¹Housing is considered affordable when 30% of household income is spent on housing per King County Office of Management and Budget and US Census Data.

²Estimates based on Federal Bureau of Labor Statistics "Consumer Expenditure Survey" for 2002 for the West

³Assumes new employees make purchases in Black Diamond at 50% of the rate of residents.

⁴Taxable Sales per Square foot based on "Estimating Retail Sales per Square Foot" report by Center for Community Economic Development

Table D-4
Fiscal Impact Analysis
Other General Fund Revenue Calculations 2026

Revenue Source	Revenues (2026) ¹	Recurring Revenue	Percentage Rev Applied	Factor 2026	Measure ²	Equivalent Units	Revenue
	(a)		(b)	(c)		(d)	(e) = (c)*(d)
General Fund (Fund 001)							
Taxes							
B & O Tax	-	Y	100%	-	per person served	5,982	-
Utility Taxes							
Electrical Tax	\$ 390,500	Y	100%	60.89	per person served	5,982	364,234
Telephone Tax	\$ 41,300	Y	100%	6.44	per person served	5,982	38,522
Wastewater Utility Tax	\$ 125,500	Y	100%	19.57	per person served	5,982	117,059
Stormwater Utility Tax	\$ 151,600	Y	100%	23.64	per person served	5,982	141,403
Water Utility Tax	\$ 110,240	Y	100%	17.19	per person served	5,982	102,825
Solid Waste Tax	\$ 74,600	Y	100%	11.63	per person served	5,982	69,582
Cable TV Utility Tax	\$ 85,000	Y	100%	13.25	per person served	5,982	79,283
Gas Utility Tax	\$ 100	Y	100%	0.02	per person served	5,982	93
Pull Tabs and Punch Board Tax	\$ 5,300	Y	100%	0.83	per person served	5,982	4,944
Licenses and Permits	\$ -	Y	100%	-	per person served	5,982	-
Intergovernmental Revenue	\$ 138,300	Y	100%	21.56	per person served	5,982	128,998
Community Development Revenue	\$ 1,353,100	Y	100%	210.98	per person served	5,982	1,262,088
Police Revenue	\$ 427,650	Y	100%	66.68	per person served	5,982	398,885
Municipal Court Revenue	\$ 98,400	Y	100%	15.34	per person served	5,982	91,781
Cable Franchise Fees	\$ 101,800	Y	100%	15.87	per person served	5,982	94,953
Other General Fund Revenue	\$ 151,600	Y	100%	23.64	per person served	5,982	141,403
Total General Fund Revenue	<u>3,254,990</u>			<u>507.52</u>			<u>3,036,053</u>

¹Per 2023 City Budget.

²Equivalent Units are equal to one per Project resident and 0.5 per Project employee.

Table E-4
Fiscal Impact Analysis
General Fund Cost Calculations 2026

Cost	Expenses (2026) ¹	LoS Adjustment	Efficiency Factor	Factor 2026	Measure ²	Equivalent Units	Cost
	(a)	(b)	(c)	(d)		(e)	(f)=(e)*(d)
General Fund (Fund 001)							
Executive-Mayor	\$ 15,898	75%	100%	1.86	per person served	5,982	\$ 11,122
Legislative-Council	\$ 24,542	75%	100%	2.87	per person served	5,982	\$ 17,168
City Administrator	\$ 206,351	75%	100%	24.13	per person served	5,982	\$ 144,354
Administration Services	\$ 784,654	75%	100%	91.76	per person served	5,982	\$ 548,907
Facilities	\$ 152,702	75%	100%	17.86	per person served	5,982	\$ 106,823
Legal	\$ 369,000	75%	100%	43.15	per person served	5,982	\$ 258,135
Municipal Court/Court Legal Services	\$ 572,788	75%	100%	66.98	per person served	5,982	\$ 400,696
EMS/Recyl/Anim Cont/Mental Helath	\$ 122,200	75%	100%	14.29	per person served	5,982	\$ 85,485
Community Development	\$ 2,043,937	75%	100%	239.02	per person served	5,982	\$ 1,429,843
Cemetery	\$ 28,742	75%	100%	3.36	per person served	5,982	\$ 20,107
Police (Comparable Cities)	Comp. City	100%	100%	254.61	per person served	5,982	\$ 1,523,123
Fire (Comparable Cities)	Comp. City	100%	100%	199.50	per person served	5,982	\$ 1,193,435
Parks & Recreation (Comparable Cities)	Comp. City	100%	100%	45.60	per person served	5,982	\$ 272,763
Public Works (Comparable Cities)	Comp. City	0%	0%	41.74	per person served	5,982	\$ -
General Fund Total	\$ 4,320,814			\$ 1,046.73			\$ 6,011,961

¹Per 2023 City Budget.

²Based on total population and 50% employment

³Building, Planning and Code Enforcement are assumed to be funded via fee revenue.

**Table A-5
Fiscal Impact Analysis
Land Use and Phasing 2027**

Product Type	Bulk Land Sale Value New Land Value per Unit		Unit Sale Value ¹ Building Value Only		Total New Land Values	Total New Building Value	Total New Valuation
	Value	No. Lots	Value	No. Units			
Residential	(a)	(b)	(c)	(d)	(e)=(a)*(b)	(f)=(c)*(d)	(g)=(e)+(f)
New Construction							
Apartments	\$ 60,000	30	\$ 340,000	22	\$ 1,800,000	\$ 7,310,000	\$ 9,110,000
Condos/Stacked Flats	\$ 105,000	6	\$ 345,000	5	\$ 630,000	\$ 1,552,500	\$ 2,182,500
Townhomes	\$ 185,000	185	\$ 515,000	194	\$ 34,225,000	\$ 99,910,000	\$ 134,135,000
Duplex/Duets/30x80 Alley	\$ 230,000	24	\$ 520,000	21	\$ 5,520,000	\$ 10,920,000	\$ 16,440,000
35x75 Alley Bungalows	\$ 239,201	-	\$ 540,803	-	\$ -	\$ -	\$ -
35x90 Alley	\$ 255,093	25	\$ 524,911	26	\$ 6,377,322	\$ 13,385,234	\$ 19,762,556
40x85 Alley	\$ 289,085	25	\$ 596,446	25	\$ 7,227,123	\$ 14,612,929	\$ 21,840,052
45x85 Alley	\$ 300,000	21	\$ 626,400	18	\$ 6,300,000	\$ 10,962,000	\$ 17,262,000
50x80 Alley	\$ 316,526	11	\$ 653,474	13	\$ 3,481,789	\$ 8,168,421	\$ 11,650,211
45x110 Alley w/Carriage	\$ 300,000	14	\$ 625,000	11	\$ 4,200,000	\$ 6,562,500	\$ 10,762,500
40x90 - 100	\$ 318,108	131	\$ 600,156	128	\$ 41,672,162	\$ 76,519,876	\$ 118,192,038
45x90 - 100	\$ 350,022	8	\$ 657,618	15	\$ 2,800,179	\$ 9,535,456	\$ 12,335,635
50x90 - 100	\$ 360,037	124	\$ 687,624	103	\$ 44,644,556	\$ 70,825,299	\$ 115,469,855
55x90 - 100	\$ 387,750	33	\$ 787,250	25	\$ 12,795,750	\$ 19,287,625	\$ 32,083,375
60x90 - 100	\$ 441,731	54	\$ 896,849	42	\$ 23,853,496	\$ 37,667,641	\$ 61,521,137
AA 45'	\$ 279,000	-	\$ 621,000	11	\$ -	\$ 6,831,000	\$ 6,831,000
AA 50'	\$ 294,500	-	\$ 655,500	25	\$ -	\$ 16,387,500	\$ 16,387,500
AA 60'	\$ 317,440	-	\$ 706,560	9	\$ -	\$ 6,359,040	\$ 6,359,040
AA Auto Court	\$ 255,750	-	\$ 569,250	-	\$ -	\$ -	\$ -
Cluster/Auto Court	\$ 260,000	1	\$ 515,000	1	\$ 260,000	\$ 515,000	\$ 775,000
Cottage	\$ 200,000	2	\$ 375,000	2	\$ 400,000	\$ 562,500	\$ 962,500
0	\$ 650,000	-	\$ 1,100,000	-	\$ -	\$ -	\$ -
		<u>694</u>		<u>691</u>			<u>614,061,898</u> (A)
Product Type	Existing Developed Lots Existing Land Value per Unit		Existing Unit Value ¹ Building Value Only		Total Existing Land Value	Total Existing Building Value	Total Existing Valuation
	Value	No. Lots	Value	No. Units			
Residential							(h)=(prior yrs)*1.01
From Prior Years							
Total							<u>2,281,986,248</u> (B)
Non-Residential							
	Mix		Building Sq. Ft.			Assessed Value Per Sq. Ft.	
New Construction							
Retail Buildings	0%		65,000		\$	196	12,742,919
Office Buildings	0%		25,000		\$	196	4,901,123
	0%		90,000				<u>17,644,042</u> (C)
From Prior Years							
Retail Buildings	97%		271,000				
Office Buildings	3%		8,000				
Total	100%		279,000				<u>52,968,490</u> (D)
Raw Land	Raw Land Acreage		Percentage of Total Land			Assessed Value Per Acre (i)	
Raw Land for Residential					\$	-	\$ -
Raw Land for Non-Residential					\$	-	\$ -
Total Value for Raw Land	<u>-</u>		<u></u>				<u>\$ -</u> (E)
Total Project Assessed Valuation = (A) + (B) + (C) + (D) + (E)							<u><u>\$ 2,966,660,677</u></u>

¹The market values shown for the final unit sale price per unit do not include the lot value for the lot on which each new unit is constructed. Half of the units from the prior year will be sold before July 31st of each year and will be counted on the assessment roll for that year. The other half will be counted on the following year.

Table B-5
Fiscal Impact Analysis
Property Tax Calculations 2027

Total Project Assessed Valuation				<u><u>\$ 2,966,660,677</u></u>	(A)
<u>Property Tax</u>					
City Share of Basic Tax ¹				\$ 1.38	(B)
City Tax Share				4,091,826	
City Tax Share-Rounded			(C) = (A)*(B)	<u>\$ 4,091,826</u>	(C)
<u>EMS Levy</u>					
City Share of Basic Tax ¹				\$ 0.21	
City Tax Share				620,685	
City Tax Share-Rounded				<u>\$ 620,685</u>	
<u>Personal Property Tax</u>					
	<u>Current Year Assessed Value</u>	<u>Per Resident</u>	<u>Residents</u>		
City Share of Basic Tax - New Construction ¹				\$ 1.38	
Personal Property Value ²	\$ 18,339,535	2,984	7,524	\$ 22,454,067	
Total City Share of Property Taxes, Levy Rate			(D) = (B)	1.38	(D)
City Tax Share, Dollars				30,970.22	
City Tax Share-Rounded				<u>\$ 30,970</u>	
Residents per SF HH ³				2.7000	
Residents per MF HH ³				1.8500	
Total Residents (Assumes 50% of residents for homes closed in current year)				<u>7,524</u>	
<u>Square Feet per Employee⁴</u>					
	<u>Square Footage</u>				
Retail	336,000			1,246	
Office	33,000			434	
Employees					
Retail				270	
Office				76	
Total Employees				<u>346</u>	
<u>Transfer Parameters</u>					
Turnover Rate ⁵					
Residential				7.14%	
Non-Residential				5.00%	
Assessed Valuation - New Construction / <i>Shown In Table 1, Letters (A) and (C)</i>				631,705,939	(E)
Assessed Valuation - Existing & Prior Years / <i>Shown In Table 1, Letters (B) and (D)</i>				2,334,954,738	(F)
AV of Transferred Real Estate (Resale and New Construction) / <i>Equal to Table A-10, (B)*7.14% and (D)*5.00%, Plus (A) and (C)</i>				<u>\$ 797,353,382</u>	
<u>Real Estate Excise Tax⁶</u>					
REET Rate				0.5000%	(G)
REET from New Construction			(H) = (E)*(G)	\$ 3,158,530	(H)
REET from Re-sale of Existing Property / <i>Equal to The Sum of Table 1, (B)*7.14% and (D)*5.00%, times (G)</i>				828,237	(I)
Total Amount, Rounded				<u>\$ 3,986,767</u>	

¹Estimated property tax levy rate based on rate of 1.38 per \$1,000 and EMS levy rate of .20922 in 2023 per City Budget.

²Assessed Value is estimated based on actual 2023 assessed value increased by 0% per year.

³The People per Household amounts pursuant to the Ten Trails Development Agreement and The Ten Trails Final EIS.

⁴Per Energy Information Administration (2003 Office Energy Statistics from the U.S. Government)

⁵Assumes existing homes are sold every 14 years and existing non-residential property is sold every 20 years. Please note REET revenue is not used for City General Fund operations.

⁶REET is not used for General Fund Operations, but is shown in this FIA for informational purposes.

Table C-5
Fiscal Impact Analysis
Sales and Use Tax Revenue Calculations 2027

Description					Amount	
<u>Residential</u>						
Residential Building Valuation / (A) = Total AV of all New and Existing Residential Units as shown in Table 1E					\$	2,574,658,018 (A)
Household Income @28.1% ¹					(B) = (A)* 28.1%	\$ 723,478,903 (B)
Retail Taxable Sales @30% ²					(C) = (B)* 30%	\$ 217,043,671 (C)
Projected Off-Site Taxable Sales Captured in City @30%					(D) = (C)* 30%	\$ 65,113,101 (D)
<u>Project Indirect Sales and Use Tax to City - New Residents</u>						
Sales tax calculated on the Lesser of the assessed valuation percentage (@0.95% of taxable sales) (1) or per capita (2)						
<u>Assessed Valuation Percentage</u>						
(1) Sales Tax (@0.9500% of taxable sales)					0.9500%	\$ 618,574
						<u>\$ 618,574</u>
<u>Per Capita</u>						
(2) Projected Sales tax per Capita (based on 2023 City Budget)					<u>Budget</u>	<u>Factor</u>
					\$ 1,200,000	187.11
					<u>Resident Factor</u>	<u>Units</u>
					100%	7,524
						<u>\$ 1,407,715</u>
<u>Project Indirect Sales and Use Tax to City - New Employees</u>						
<u>Per Capita</u>						
Projected Sales tax per Capita (based on City Budget) ³					<u>Budget</u>	<u>Factor</u>
					\$ 1,200,000	187.11
					<u>Employee Factor</u>	<u>Units</u>
					50%	173
						<u>\$ 32,369</u>
<u>Total Project Indirect Sales and Use Tax to City</u>						<u>\$ 650,944</u>
<u>Project Direct Sales and Use Tax to City - Businesses</u>						
Taxable Sales					Taxable Sales Per Square Feet	Square Footage
Retail Buildings ⁴					\$ 327	336,000
Grocery						110,005,598
Retail Pad Buildings						
Drug Store						
Main Street Retail						
Office Buildings					\$ -	33,000
Total Direct Taxable Sales						<u>369,000</u>
						<u>110,005,598</u>
<u>Project Direct Sales and Use Tax to City</u>						
Sales Tax (@0.9500% of taxable sales)					0.9500%	\$ 1,045,053
<u>Total Project Direct Sales and Use Tax to City</u>						<u>\$ 1,045,053</u>

¹Housing is considered affordable when 30% of household income is spent on housing per King County Office of Management and Budget and US Census Data.

²Estimates based on Federal Bureau of Labor Statistics "Consumer Expenditure Survey" for 2002 for the West

³Assumes new employees make purchases in Black Diamond at 50% of the rate of residents.

⁴Taxable Sales per Square foot based on "Estimating Retail Sales per Square Foot" report by Center for Community Economic Development

Table D-5
Fiscal Impact Analysis
Other General Fund Revenue Calculations 2027

Revenue Source	Revenues (2027) ¹	Recurring Revenue	Percentage Rev Applied	Factor 2027	Measure ²	Equivalent Units	Revenue
	(a)		(b)	(c)		(d)	(e) = (c)*(d)
General Fund (Fund 001)							
Taxes							
B & O Tax	-	Y	100%	-	per person served	7,696	-
Utility Taxes							
Electrical Tax	\$ 390,500	Y	100%	60.89	per person served	7,696	468,618
Telephone Tax	\$ 41,300	Y	100%	6.44	per person served	7,696	49,562
Wastewater Utility Tax	\$ 125,500	Y	100%	19.57	per person served	7,696	150,606
Stormwater Utility Tax	\$ 151,600	Y	100%	23.64	per person served	7,696	181,927
Water Utility Tax	\$ 110,240	Y	100%	17.19	per person served	7,696	132,293
Solid Waste Tax	\$ 74,600	Y	100%	11.63	per person served	7,696	89,523
Cable TV Utility Tax	\$ 85,000	Y	100%	13.25	per person served	7,696	102,004
Gas Utility Tax	\$ 100	Y	100%	0.02	per person served	7,696	120
Pull Tabs and Punch Board Tax	\$ 5,300	Y	100%	0.83	per person served	7,696	6,360
Licenses and Permits	\$ -	Y	100%	-	per person served	7,696	-
Intergovernmental Revenue	\$ 138,300	Y	100%	21.56	per person served	7,696	165,966
Community Development Revenue	\$ 1,353,100	Y	100%	210.98	per person served	7,696	1,623,783
Police Revenue	\$ 427,650	Y	100%	66.68	per person served	7,696	513,200
Municipal Court Revenue	\$ 98,400	Y	100%	15.34	per person served	7,696	118,085
Cable Franchise Fees	\$ 101,800	Y	100%	15.87	per person served	7,696	122,165
Other General Fund Revenue	\$ 151,600	Y	100%	23.64	per person served	7,696	181,927
Total General Fund Revenue	<u>3,254,990</u>			<u>507.52</u>			<u>3,906,140</u>

¹Per 2023 City Budget.

²Equivalent Units are equal to one per Project resident and 0.5 per Project employee.

Table E-5
Fiscal Impact Analysis
General Fund Cost Calculations 2027

Cost	Expenses (2027) ¹	LoS Adjustment	Efficiency Factor	Factor 2027	Measure ²	Equivalent Units	Cost
	(a)	(b)	(c)	(d)		(e)	(f)=(e)*(d)
General Fund (Fund 001)							
Executive-Mayor	\$ 15,898	75%	100%	1.86	per person served	7,696	\$ 14,309
Legislative-Council	\$ 24,542	75%	100%	2.87	per person served	7,696	\$ 22,089
City Administrator	\$ 206,351	75%	100%	24.13	per person served	7,696	\$ 185,723
Administration Services	\$ 784,654	75%	100%	91.76	per person served	7,696	\$ 706,216
Facilities	\$ 152,702	75%	100%	17.86	per person served	7,696	\$ 137,437
Legal	\$ 369,000	75%	100%	43.15	per person served	7,696	\$ 332,113
Municipal Court/Court Legal Services	\$ 572,788	75%	100%	66.98	per person served	7,696	\$ 515,529
EMS/Recyl/Anim Cont/Mental Helath	\$ 122,200	75%	100%	14.29	per person served	7,696	\$ 109,984
Community Development	\$ 2,043,937	75%	100%	239.02	per person served	7,696	\$ 1,839,615
Cemetery	\$ 28,742	75%	100%	3.36	per person served	7,696	\$ 25,869
Police (Comparable Cities)	Comp. City	100%	100%	254.61	per person served	7,696	\$ 1,959,627
Fire (Comparable Cities)	Comp. City	100%	100%	199.50	per person served	7,696	\$ 1,535,456
Parks & Recreation (Comparable Cities)	Comp. City	100%	100%	45.60	per person served	7,696	\$ 350,933
Public Works (Comparable Cities)	Comp. City	0%	0%	41.74	per person served	7,696	\$ -
General Fund Total	\$ 4,320,814			\$ 1,046.73			\$ 7,734,900

¹Per 2023 City Budget.

²Based on total population and 50% employment

³Building, Planning and Code Enforcement are assumed to be funded via fee revenue.

Table A-6
Fiscal Impact Analysis
Land Use and Phasing 2028

Product Type	Bulk Land Sale Value New Land Value per Unit		Unit Sale Value ¹ Building Value Only		Total New Land Values	Total New Building Value	Total New Valuation
	Value	No. Lots	Value	No. Units			
Residential	(a)	(b)	(c)	(d)	(e)=(a)*(b)	(f)=(c)*(d)	(g)=(e)+(f)
New Construction							
Apartments	\$ 60,000	-	\$ 340,000	34	\$ -	\$ 11,390,000	\$ 11,390,000
Condos/Stacked Flats	\$ 105,000	-	\$ 345,000	7	\$ -	\$ 2,415,000	\$ 2,415,000
Townhomes	\$ 185,000	77	\$ 515,000	194	\$ 14,245,000	\$ 99,910,000	\$ 114,155,000
Duplex/Duets/30x80 Alley	\$ 230,000	23	\$ 520,000	24	\$ 5,290,000	\$ 12,480,000	\$ 17,770,000
35x75 Alley Bungalows	\$ 239,201	-	\$ 540,803	-	\$ -	\$ -	\$ -
35x90 Alley	\$ 255,093	21	\$ 524,911	25	\$ 5,356,950	\$ 12,860,322	\$ 18,217,273
40x85 Alley	\$ 289,085	24	\$ 596,446	25	\$ 6,938,038	\$ 14,911,152	\$ 21,849,190
45x85 Alley	\$ 300,000	21	\$ 626,400	21	\$ 6,300,000	\$ 13,154,400	\$ 19,454,400
50x80 Alley	\$ 316,526	11	\$ 653,474	11	\$ 3,481,789	\$ 7,188,211	\$ 10,670,000
45x110 Alley w/Carriage	\$ 300,000	14	\$ 625,000	14	\$ 4,200,000	\$ 8,750,000	\$ 12,950,000
40x90 - 100	\$ 318,108	116	\$ 600,156	130	\$ 36,900,541	\$ 77,720,188	\$ 114,620,729
45x90 - 100	\$ 350,022	8	\$ 657,618	9	\$ 2,800,179	\$ 5,589,750	\$ 8,389,929
50x90 - 100	\$ 360,037	110	\$ 687,624	123	\$ 39,604,042	\$ 84,233,972	\$ 123,838,013
55x90 - 100	\$ 387,750	33	\$ 787,250	33	\$ 12,795,750	\$ 25,979,250	\$ 38,775,000
60x90 - 100	\$ 441,731	47	\$ 896,849	54	\$ 20,761,376	\$ 47,981,400	\$ 68,742,776
AA 45'	\$ 279,000	-	\$ 621,000	-	\$ -	\$ -	\$ -
AA 50'	\$ 294,500	-	\$ 655,500	-	\$ -	\$ -	\$ -
AA 60'	\$ 317,440	-	\$ 706,560	-	\$ -	\$ -	\$ -
AA Auto Court	\$ 255,750	-	\$ 569,250	-	\$ -	\$ -	\$ -
Cluster/Auto Court	\$ 260,000	1	\$ 515,000	1	\$ 260,000	\$ 515,000	\$ 775,000
Cottage	\$ 200,000	2	\$ 375,000	2	\$ 400,000	\$ 750,000	\$ 1,150,000
0	\$ 650,000	-	\$ 1,100,000	-	\$ -	\$ -	\$ -
		<u>508</u>		<u>704</u>			<u>585,162,309</u> (A)
Product Type	Existing Developed Lots Existing Land Value per Unit		Existing Unit Value ¹ Building Value Only		Total Existing Land Value	Total Existing Building Value	Total Existing Valuation
	Value	No. Lots	Value	No. Units			
Residential							(h)=(prior yrs)*1.01
From Prior Years							
Total							<u>2,925,008,628</u> (B)
Non-Residential							
	Mix		Building Sq. Ft.			Assessed Value Per Sq. Ft.	
New Construction							
Retail Buildings	0%		65,000		\$	201	13,036,006
Office Buildings	0%		64,000		\$	201	12,835,452
	0%		129,000				<u>25,871,458</u> (C)
From Prior Years							
Retail Buildings	91%		336,000				
Office Buildings	9%		33,000				
Total	100%		369,000				<u>71,318,657</u> (D)
Raw Land	Raw Land Acreage		Percentage of Total Land			Assessed Value Per Acre (i)	
Raw Land for Residential					\$	-	\$ -
Raw Land for Non-Residential					\$	-	\$ -
Total Value for Raw Land	<u>-</u>		<u></u>				<u>\$ -</u> (E)
Total Project Assessed Valuation = (A) + (B) + (C) + (D) + (E)							<u><u>\$ 3,607,361,052</u></u>

¹The market values shown for the final unit sale price per unit do not include the lot value for the lot on which each new unit is constructed. Half of the units from the prior year will be sold before July 31st of each year and will be counted on the assessment roll for that year. The other half will be counted on the following year.

Table B-6
Fiscal Impact Analysis
Property Tax Calculations 2028

Total Project Assessed Valuation				\$ 3,607,361,052	(A)
<u>Property Tax</u>					
City Share of Basic Tax ¹				\$ 1.38	(B)
City Tax Share				4,975,525	
City Tax Share-Rounded			(C) = (A)*(B)	<u>\$ 4,975,525</u>	(C)
<u>EMS Levy</u>					
City Share of Basic Tax ¹				\$ 0.21	
City Tax Share				754,732	
City Tax Share-Rounded				<u>\$ 754,732</u>	
<u>Personal Property Tax</u>					
	<u>Current Year Assessed Value</u>	<u>Per Resident</u>	<u>Residents</u>		
City Share of Basic Tax - New Construction ¹				\$ 1.38	
Personal Property Value ²	\$ 18,339,535	2,984	9,205	\$ 27,471,176	
Total City Share of Property Taxes, Levy Rate			(D) = (B)	1.38	(D)
City Tax Share, Dollars				37,890.17	
City Tax Share-Rounded				<u>\$ 37,890</u>	
Residents per SF HH ³				2.7000	
Residents per MF HH ³				1.8500	
Total Residents (Assumes 50% of residents for homes closed in current year)				<u>9,205</u>	
<u>Square Feet per Employee⁴</u>					
	<u>Square Footage</u>				
Retail	401,000			1,246	
Office	97,000			434	
Employees					
Retail				322	
Office				224	
Total Employees				<u>545</u>	
<u>Transfer Parameters</u>					
Turnover Rate ⁵					
Residential				7.14%	
Non-Residential				5.00%	
Assessed Valuation - New Construction / <i>Shown In Table 1, Letters (A) and (C)</i>				611,033,768	(E)
Assessed Valuation - Existing & Prior Years / <i>Shown In Table 1, Letters (B) and (D)</i>				2,996,327,284	(F)
AV of Transferred Real Estate (Resale and New Construction) / <i>Equal to Table A-10, (B)*7.14% and (D)*5.00%, Plus (A) and (C)</i>				<u>\$ 823,528,888</u>	
<u>Real Estate Excise Tax⁶</u>					
REET Rate				0.5000%	(G)
REET from New Construction			(H) = (E)*(G)	\$ 3,055,169	(H)
REET from Re-sale of Existing Property / <i>Equal to The Sum of Table 1, (B)*7.14% and (D)*5.00%, times (G)</i>				1,062,476	(I)
Total Amount, Rounded				<u>\$ 4,117,644</u>	

¹Estimated property tax levy rate based on rate of 1.38 per \$1,000 and EMS levy rate of .20922 in 2023 per City Budget.

²Assessed Value is estimated based on actual 2023 assessed value increased by 0% per year.

³The People per Household amounts pursuant to the Ten Trails Development Agreement and The Ten Trails Final EIS.

⁴Per Energy Information Administration (2003 Office Energy Statistics from the U.S. Government)

⁵Assumes existing homes are sold every 14 years and existing non-residential property is sold every 20 years. Please note REET revenue is not used for City General Fund operations.

⁶REET is not used for General Fund Operations, but is shown in this FIA for informational purposes.

Table C-6
Fiscal Impact Analysis
Sales and Use Tax Revenue Calculations 2028

Description				Amount
<u>Residential</u>				
Residential Building Valuation / (A) = Total AV of all New and Existing Residential Units as shown in Table 1E				\$ 3,223,210,001 (A)
Household Income @28.1% ¹				(B) = (A)* 28.1% \$ 905,722,010 (B)
Retail Taxable Sales @30% ²				(C) = (B)* 30% \$ 271,716,603 (C)
Projected Off-Site Taxable Sales Captured in City @30%				(D) = (C)* 30% \$ 81,514,981 (D)
<u>Project Indirect Sales and Use Tax to City - New Residents</u>				
Sales tax calculated on the Lesser of the assessed valuation percentage (@0.95% of taxable sales) (1) or per capita (2)				
<u>Assessed Valuation Percentage</u>				
(1) Sales Tax (@0.9500% of taxable sales)				0.9500% \$ 774,392
				<u>\$ 774,392</u>
<u>Per Capita</u>				
(2) Projected Sales tax per Capita (based on 2023 City Budget)				
	<u>Budget</u>	<u>Factor</u>	<u>Resident Factor</u>	<u>Units</u>
	\$ 1,200,000	187.11	100%	9,205
				<u>\$ 1,722,253</u>
<u>Project Indirect Sales and Use Tax to City - New Employees</u>				
<u>Per Capita</u>				
Projected Sales tax per Capita (based on City Budget) ³				
	<u>Budget</u>	<u>Factor</u>	<u>Employee Factor</u>	<u>Units</u>
	\$ 1,200,000	187.11	50%	273
				<u>\$ 51,080</u>
				<u>\$ 825,472</u>
<u>Total Project Indirect Sales and Use Tax to City</u>				
<u>Project Direct Sales and Use Tax to City - Businesses</u>				
			<u>Taxable Sales</u>	<u>Square Footage</u>
			<u>Per Square Feet</u>	
Taxable Sales				
Retail Buildings ⁴	\$	327	401,000	131,286,443
Grocery				
Retail Pad Buildings				
Drug Store				
Main Street Retail				
Office Buildings	\$	-	97,000	-
Total Direct Taxable Sales			<u>498,000</u>	<u>131,286,443</u>
<u>Project Direct Sales and Use Tax to City</u>				
Sales Tax (@0.9500% of taxable sales)				0.9500% \$ 1,247,221
<u>Total Project Direct Sales and Use Tax to City</u>				<u>\$ 1,247,221</u>

¹Housing is considered affordable when 30% of household income is spent on housing per King County Office of Management and Budget and US Census Data.

²Estimates based on Federal Bureau of Labor Statistics "Consumer Expenditure Survey" for 2002 for the West

³Assumes new employees make purchases in Black Diamond at 50% of the rate of residents.

⁴Taxable Sales per Square foot based on "Estimating Retail Sales per Square Foot" report by Center for Community Economic Development

Table D-6
Fiscal Impact Analysis
Other General Fund Revenue Calculations 2028

Revenue Source	Revenues (2028) ¹	Recurring Revenue	Percentage Rev Applied	Factor 2028	Measure ²	Equivalent Units	Revenue
	(a)		(b)	(c)		(d)	(e) = (c)*(d)
General Fund (Fund 001)							
Taxes							
B & O Tax	-	Y	100%	-	per person served	9,477.39	-
Utility Taxes							
Electrical Tax	\$ 390,500	Y	100%	60.89	per person served	9,477	577,052
Telephone Tax	\$ 41,300	Y	100%	6.44	per person served	9,477	61,030
Wastewater Utility Tax	\$ 125,500	Y	100%	19.57	per person served	9,477	185,455
Stormwater Utility Tax	\$ 151,600	Y	100%	23.64	per person served	9,477	224,023
Water Utility Tax	\$ 110,240	Y	100%	17.19	per person served	9,477	162,904
Solid Waste Tax	\$ 74,600	Y	100%	11.63	per person served	9,477	110,238
Cable TV Utility Tax	\$ 85,000	Y	100%	13.25	per person served	9,477	125,607
Gas Utility Tax	\$ 100	Y	100%	0.02	per person served	9,477	148
Pull Tabs and Punch Board Tax	\$ 5,300	Y	100%	0.83	per person served	9,477	7,832
Licenses and Permits	\$ -	Y	100%	-	per person served	9,477	-
Intergovernmental Revenue	\$ 138,300	Y	100%	21.56	per person served	9,477	204,369
Community Development Revenue	\$ 1,353,100	Y	100%	210.98	per person served	9,477	1,999,510
Police Revenue	\$ 427,650	Y	100%	66.68	per person served	9,477	631,949
Municipal Court Revenue	\$ 98,400	Y	100%	15.34	per person served	9,477	145,408
Cable Franchise Fees	\$ 101,800	Y	100%	15.87	per person served	9,477	150,432
Other General Fund Revenue	\$ 151,600	Y	100%	23.64	per person served	9,477	224,023
Total General Fund Revenue	<u>3,254,990</u>			<u>507.52</u>			<u>4,809,981</u>

¹Per 2023 City Budget.

²Equivalent Units are equal to one per Project resident and 0.5 per Project employee.

Table E-6
Fiscal Impact Analysis
General Fund Cost Calculations 2028

Cost	Expenses (2028) ¹	LoS Adjustment	Efficiency Factor	Factor 2028	Measure ²	Equivalent Units	Cost
	(a)	(b)	(c)	(d)		(e)	(f)=(e)*(d)
General Fund (Fund 001)							
Executive-Mayor	\$ 15,898	75%	100%	1.86	per person served	9,477	\$ 17,620
Legislative-Council	\$ 24,542	75%	100%	2.87	per person served	9,477	\$ 27,200
City Administrator	\$ 206,351	75%	100%	24.13	per person served	9,477	\$ 228,698
Administration Services	\$ 784,654	75%	100%	91.76	per person served	9,477	\$ 869,627
Facilities	\$ 152,702	75%	100%	17.86	per person served	9,477	\$ 169,239
Legal	\$ 369,000	75%	100%	43.15	per person served	9,477	\$ 408,960
Municipal Court/Court Legal Services	\$ 572,788	75%	100%	66.98	per person served	9,477	\$ 634,817
EMS/Recyl/Anim Cont/Mental Helath	\$ 122,200	75%	100%	14.29	per person served	9,477	\$ 135,434
Community Development	\$ 2,043,937	75%	100%	239.02	per person served	9,477	\$ 2,265,283
Cemetery	\$ 28,742	75%	100%	3.36	per person served	9,477	\$ 31,855
Police (Comparable Cities)	Comp. City	100%	100%	254.61	per person served	9,477	\$ 2,413,065
Fire (Comparable Cities)	Comp. City	100%	100%	199.50	per person served	9,477	\$ 1,890,745
Parks & Recreation (Comparable Cities)	Comp. City	100%	100%	45.60	per person served	9,477	\$ 432,135
Public Works (Comparable Cities)	Comp. City	0%	0%	41.74	per person served	9,477	\$ -
General Fund Total	\$ 4,320,814			\$ 1,046.73			\$ 9,524,677

¹Per 2023 City Budget.

²Based on total population and 50% employment

³Building, Planning and Code Enforcement are assumed to be funded via fee revenue.

**Table A-7
Fiscal Impact Analysis
Land Use and Phasing 2029**

Product Type	Bulk Land Sale Value <i>New Land Value per Unit</i>		Unit Sale Value ¹ <i>Building Value Only</i>		Total New Land Values	Total New Building Value	Total New Valuation
	Value	No. Lots	Value	No. Units			
Residential	(a)	(b)	(c)	(d)	(e)=(a)*(b)	(f)=(c)*(d)	(g)=(e)+(f)
New Construction							
Apartments	\$ 60,000	23	\$ 340,000	15	\$ 1,380,000	\$ 5,100,000	\$ 6,480,000
Condos/Stacked Flats	\$ 105,000	5	\$ 345,000	3	\$ 525,000	\$ 1,035,000	\$ 1,560,000
Townhomes	\$ 185,000	139	\$ 515,000	131	\$ 25,715,000	\$ 67,465,000	\$ 93,180,000
Duplex/Duets/30x80 Alley	\$ 230,000	23	\$ 520,000	24	\$ 5,290,000	\$ 12,220,000	\$ 17,510,000
35x75 Alley Bungalows	\$ 239,201	-	\$ 540,803	-	\$ -	\$ -	\$ -
35x90 Alley	\$ 255,093	19	\$ 524,911	23	\$ 4,846,765	\$ 12,072,956	\$ 16,919,720
40x85 Alley	\$ 289,085	21	\$ 596,446	25	\$ 6,070,783	\$ 14,612,929	\$ 20,683,712
45x85 Alley	\$ 300,000	21	\$ 626,400	21	\$ 6,300,000	\$ 13,154,400	\$ 19,454,400
50x80 Alley	\$ 316,526	11	\$ 653,474	11	\$ 3,481,789	\$ 7,188,211	\$ 10,670,000
45x110 Alley w/Carriage	\$ 300,000	14	\$ 625,000	14	\$ 4,200,000	\$ 8,750,000	\$ 12,950,000
40x90 - 100	\$ 318,108	113	\$ 600,156	124	\$ 35,946,216	\$ 74,119,252	\$ 110,065,469
45x90 - 100	\$ 350,022	8	\$ 657,618	8	\$ 2,800,179	\$ 5,260,941	\$ 8,061,120
50x90 - 100	\$ 360,037	109	\$ 687,624	117	\$ 39,244,005	\$ 80,452,038	\$ 119,696,043
55x90 - 100	\$ 387,750	33	\$ 787,250	33	\$ 12,795,750	\$ 25,979,250	\$ 38,775,000
60x90 - 100	\$ 441,731	48	\$ 896,849	51	\$ 21,203,107	\$ 45,290,854	\$ 66,493,962
AA 45'	\$ 279,000	-	\$ 621,000	-	\$ -	\$ -	\$ -
AA 50'	\$ 294,500	-	\$ 655,500	-	\$ -	\$ -	\$ -
AA 60'	\$ 317,440	-	\$ 706,560	-	\$ -	\$ -	\$ -
AA Auto Court	\$ 255,750	-	\$ 569,250	-	\$ -	\$ -	\$ -
Cluster/Auto Court	\$ 260,000	1	\$ 515,000	1	\$ 260,000	\$ 515,000	\$ 775,000
Cottage	\$ 200,000	2	\$ 375,000	2	\$ 400,000	\$ 750,000	\$ 1,150,000
0	\$ 650,000	-	\$ 1,100,000	-	\$ -	\$ -	\$ -
		<u>590</u>		<u>601</u>			<u>544,424,426</u> (A)
Product Type	Existing Developed Lots <i>Existing Land Value per Unit</i>		Existing Unit Value ¹ <i>Building Value Only</i>		Total Existing Land Value	Total Existing Building Value	Total Existing Valuation
	Value	No. Lots	Value	No. Units			
Residential							(h)=(prior yrs)*1.01
From Prior Years							
Total							<u>3,545,272,646</u> (B)
Non-Residential							
	Mix		Building Sq. Ft.			Assessed Value Per Sq. Ft.	
New Construction							
Retail Buildings	0%		60,000		\$	205	12,310,001
Office Buildings	0%		65,000		\$	205	13,335,834
	0%		125,000				<u>25,645,835</u> (C)
From Prior Years							
Retail Buildings	81%		401,000				
Office Buildings	19%		97,000				
Total	100%		498,000				<u>98,162,016</u> (D)
Raw Land	Raw Land Acreage		Percentage of Total Land			Assessed Value Per Acre (i)	
Raw Land for Residential					\$	-	\$ -
Raw Land for Non-Residential					\$	-	\$ -
Total Value for Raw Land	<u>-</u>		<u></u>				<u>\$ -</u> (E)
Total Project Assessed Valuation = (A) + (B) + (C) + (D) + (E)							<u><u>\$ 4,213,504,924</u></u>

¹The market values shown for the final unit sale price per unit do not include the lot value for the lot on which each new unit is constructed. Half of the units from the prior year will be sold before July 31st of each year and will be counted on the assessment roll for that year. The other half will be counted on the following year.

Table B-7
Fiscal Impact Analysis
Property Tax Calculations 2029

Total Project Assessed Valuation				\$ 4,213,504,924	(A)
<u>Property Tax</u>					
City Share of Basic Tax ¹				\$ 1.38	(B)
City Tax Share				5,811,561	
City Tax Share-Rounded			(C) = (A)*(B)	<u>\$ 5,811,561</u>	(C)
<u>EMS Levy</u>					
City Share of Basic Tax ¹				\$ 0.21	
City Tax Share				881,550	
City Tax Share-Rounded				<u>\$ 881,550</u>	
<u>Personal Property Tax</u>					
	<u>Current Year Assessed Value</u>	<u>Per Resident</u>	<u>Residents</u>		
City Share of Basic Tax - New Construction ¹				\$ 1.38	
Personal Property Value ²	\$ 18,339,535	2,984	10,681	\$ 31,876,470	
Total City Share of Property Taxes, Levy Rate			(D) = (B)	1.38	(D)
City Tax Share, Dollars				43,966.26	
City Tax Share-Rounded				<u>\$ 43,966</u>	
Residents per SF HH ³				2.7000	
Residents per MF HH ³				1.8500	
Total Residents (Assumes 50% of residents for homes closed in current year)				<u>10,681</u>	
<u>Square Feet per Employee⁴</u>					
	<u>Square Footage</u>				
Retail	461,000			1,246	
Office	162,000			434	
Employees					
Retail				370	
Office				373	
Total Employees				<u>743</u>	
<u>Transfer Parameters</u>					
Turnover Rate ⁵					
Residential				7.14%	
Non-Residential				5.00%	
Assessed Valuation - New Construction / <i>Shown In Table 1, Letters (A) and (C)</i>				570,070,261	(E)
Assessed Valuation - Existing & Prior Years / <i>Shown In Table 1, Letters (B) and (D)</i>				3,643,434,663	(F)
AV of Transferred Real Estate (Resale and New Construction) / <i>Equal to Table A-10, (B)*7.14% and (D)*5.00%, Plus (A) and (C)</i>				<u>\$ 828,212,123</u>	
<u>Real Estate Excise Tax⁶</u>					
REET Rate				0.5000%	(G)
REET from New Construction			(H) = (E)*(G)	\$ 2,850,351	(H)
REET from Re-sale of Existing Property / <i>Equal to The Sum of Table 1, (B)*7.14% and (D)*5.00%, times (G)</i>				1,290,709	(I)
Total Amount, Rounded				<u>\$ 4,141,061</u>	

¹Estimated property tax levy rate based on rate of 1.38 per \$1,000 and EMS levy rate of .20922 in 2023 per City Budget.

²Assessed Value is estimated based on actual 2023 assessed value increased by 0% per year.

³The People per Household amounts pursuant to the Ten Trails Development Agreement and The Ten Trails Final EIS.

⁴Per Energy Information Administration (2003 Office Energy Statistics from the U.S. Government)

⁵Assumes existing homes are sold every 14 years and existing non-residential property is sold every 20 years. Please note REET revenue is not used for City General Fund operations.

⁶REET is not used for General Fund Operations, but is shown in this FIA for informational purposes.

Table C-7
Fiscal Impact Analysis
Sales and Use Tax Revenue Calculations 2029

Description					Amount
<u>Residential</u>					
Residential Building Valuation / (A) = Total AV of all New and Existing Residential Units as shown in Table 1E					\$ 3,807,168,454 (A)
Household Income @28.1% ¹					(B) = (A)* 28.1% \$ 1,069,814,335 (B)
Retail Taxable Sales @30% ²					(C) = (B)* 30% \$ 320,944,301 (C)
Projected Off-Site Taxable Sales Captured in City @30%					(D) = (C)* 30% \$ 96,283,290 (D)
<u>Project Indirect Sales and Use Tax to City - New Residents</u>					
Sales tax calculated on the Lesser of the assessed valuation percentage (@0.95% of taxable sales) (1) or per capita (2)					
<u>Assessed Valuation Percentage</u>					
(1) Sales Tax (@0.9500% of taxable sales)					0.9500% \$ 914,691
					<u>\$ 914,691</u>
<u>Per Capita</u>					
(2) Projected Sales tax per Capita (based on 2023 City Budget)					
	<u>Budget</u>	<u>Factor</u>	<u>Resident Factor</u>	<u>Units</u>	
	\$ 1,200,000	187.11	100%	10,681	<u>\$ 1,998,435</u>
<u>Project Indirect Sales and Use Tax to City - New Employees</u>					
<u>Per Capita</u>					
Projected Sales tax per Capita (based on City Budget) ³					
	<u>Budget</u>	<u>Factor</u>	<u>Employee Factor</u>	<u>Units</u>	
	\$ 1,200,000	187.11	50%	372	<u>\$ 69,603</u>
<u>Total Project Indirect Sales and Use Tax to City</u>					<u>\$ 984,294</u>
<u>Project Direct Sales and Use Tax to City - Businesses</u>					
Taxable Sales		<u>Taxable Sales Per Square Feet</u>		<u>Square Footage</u>	
Retail Buildings ⁴		\$ 327		461,000	150,930,299
Grocery					
Retail Pad Buildings					
Drug Store					
Main Street Retail					
Office Buildings		\$ -		162,000	-
Total Direct Taxable Sales				<u>623,000</u>	<u>150,930,299</u>
<u>Project Direct Sales and Use Tax to City</u>					
Sales Tax (@0.9500% of taxable sales)					0.9500% \$ 1,433,838
<u>Total Project Direct Sales and Use Tax to City</u>					<u>\$ 1,433,838</u>

¹Housing is considered affordable when 30% of household income is spent on housing per King County Office of Management and Budget and US Census Data.

²Estimates based on Federal Bureau of Labor Statistics "Consumer Expenditure Survey" for 2002 for the West

³Assumes new employees make purchases in Black Diamond at 50% of the rate of residents.

⁴Taxable Sales per Square foot based on "Estimating Retail Sales per Square Foot" report by Center for Community Economic Development

Table D-7
Fiscal Impact Analysis
Other General Fund Revenue Calculations 2029

Revenue Source	Revenues (2029) ¹	Recurring Revenue	Percentage Rev Applied	Factor 2029	Measure ²	Equivalent Units	Revenue
	(a)		(b)	(c)		(d)	(e) = (c)*(d)
General Fund (Fund 001)							
Taxes							
B & O Tax	-	Y	100%	-	per person served	11,052	-
Utility Taxes							
Electrical Tax	\$ 390,500	Y	100%	60.89	per person served	11,052	672,951
Telephone Tax	\$ 41,300	Y	100%	6.44	per person served	11,052	71,173
Wastewater Utility Tax	\$ 125,500	Y	100%	19.57	per person served	11,052	216,275
Stormwater Utility Tax	\$ 151,600	Y	100%	23.64	per person served	11,052	261,253
Water Utility Tax	\$ 110,240	Y	100%	17.19	per person served	11,052	189,977
Solid Waste Tax	\$ 74,600	Y	100%	11.63	per person served	11,052	128,559
Cable TV Utility Tax	\$ 85,000	Y	100%	13.25	per person served	11,052	146,481
Gas Utility Tax	\$ 100	Y	100%	0.02	per person served	11,052	172
Pull Tabs and Punch Board Tax	\$ 5,300	Y	100%	0.83	per person served	11,052	9,134
Licenses and Permits	\$ -	Y	100%	-	per person served	11,052	-
Intergovernmental Revenue	\$ 138,300	Y	100%	21.56	per person served	11,052	238,333
Community Development Revenue	\$ 1,353,100	Y	100%	210.98	per person served	11,052	2,331,806
Police Revenue	\$ 427,650	Y	100%	66.68	per person served	11,052	736,972
Municipal Court Revenue	\$ 98,400	Y	100%	15.34	per person served	11,052	169,573
Cable Franchise Fees	\$ 101,800	Y	100%	15.87	per person served	11,052	175,433
Other General Fund Revenue	\$ 151,600	Y	100%	23.64	per person served	11,052	261,253
Total General Fund Revenue	<u>3,254,990</u>			<u>507.52</u>			<u>5,609,346</u>

¹Per 2023 City Budget.

²Equivalent Units are equal to one per Project resident and 0.5 per Project employee.

Table E-7
Fiscal Impact Analysis
General Fund Cost Calculations 2029

Cost	Expenses (2029) ¹	LoS Adjustment	Efficiency Factor	Factor 2029	Measure ²	Equivalent Units	Cost
	(a)	(b)	(c)	(d)		(e)	(f)=(e)*(d)
General Fund (Fund 001)							
Executive-Mayor	\$ 15,898	75%	100%	1.86	per person served	11,052	\$ 20,548
Legislative-Council	\$ 24,542	75%	100%	2.87	per person served	11,052	\$ 31,720
City Administrator	\$ 206,351	75%	100%	24.13	per person served	11,052	\$ 266,705
Administration Services	\$ 784,654	75%	100%	91.76	per person served	11,052	\$ 1,014,150
Facilities	\$ 152,702	75%	100%	17.86	per person served	11,052	\$ 197,364
Legal	\$ 369,000	75%	100%	43.15	per person served	11,052	\$ 476,925
Municipal Court/Court Legal Services	\$ 572,788	75%	100%	66.98	per person served	11,052	\$ 740,317
EMS/Recyl/Anim Cont/Mental Helath	\$ 122,200	75%	100%	14.29	per person served	11,052	\$ 157,941
Community Development	\$ 2,043,937	75%	100%	239.02	per person served	11,052	\$ 2,641,748
Cemetery	\$ 28,742	75%	100%	3.36	per person served	11,052	\$ 37,148
Police (Comparable Cities)	Comp. City	100%	100%	254.61	per person served	11,052	\$ 2,814,089
Fire (Comparable Cities)	Comp. City	100%	100%	199.50	per person served	11,052	\$ 2,204,966
Parks & Recreation (Comparable Cities)	Comp. City	100%	100%	45.60	per person served	11,052	\$ 503,951
Public Works (Comparable Cities)	Comp. City	0%	0%	41.74	per person served	11,052	\$ -
General Fund Total	\$ 4,320,814			\$ 1,046.73			\$ 11,107,572

¹Per 2023 City Budget.

²Based on total population and 50% employment

³Building, Planning and Code Enforcement are assumed to be funded via fee revenue.

Table A-8
Fiscal Impact Analysis
Land Use and Phasing 2030

Product Type	Bulk Land Sale Value New Land Value per Unit		Unit Sale Value ¹ Building Value Only		Total New Land Values	Total New Building Value	Total New Valuation
	Value	No. Lots	Value	No. Units			
Residential	(a)	(b)	(c)	(d)	(e)=(a)*(b)	(f)=(c)*(d)	(g)=(e)+(f)
New Construction							
Apartments	\$ 60,000	23	\$ 340,000	12	\$ 1,380,000	\$ 3,910,000	\$ 5,290,000
Condos/Stacked Flats	\$ 105,000	5	\$ 345,000	3	\$ 525,000	\$ 862,500	\$ 1,387,500
Townhomes	\$ 185,000	112	\$ 515,000	108	\$ 20,720,000	\$ 55,620,000	\$ 76,340,000
Duplex/Duets/30x80 Alley	\$ 230,000	22	\$ 520,000	23	\$ 5,060,000	\$ 11,960,000	\$ 17,020,000
35x75 Alley Bungalows	\$ 239,201	-	\$ 540,803	-	\$ -	\$ -	\$ -
35x90 Alley	\$ 255,093	18	\$ 524,911	20	\$ 4,591,672	\$ 10,498,222	\$ 15,089,894
40x85 Alley	\$ 289,085	20	\$ 596,446	23	\$ 5,781,698	\$ 13,420,037	\$ 19,201,735
45x85 Alley	\$ 300,000	21	\$ 626,400	21	\$ 6,300,000	\$ 13,154,400	\$ 19,454,400
50x80 Alley	\$ 316,526	11	\$ 653,474	11	\$ 3,481,789	\$ 7,188,211	\$ 10,670,000
45x110 Alley w/Carriage	\$ 300,000	14	\$ 625,000	14	\$ 4,200,000	\$ 8,750,000	\$ 12,950,000
40x90 - 100	\$ 318,108	73	\$ 600,156	115	\$ 23,221,892	\$ 68,717,849	\$ 91,939,741
45x90 - 100	\$ 350,022	7	\$ 657,618	8	\$ 2,450,156	\$ 5,260,941	\$ 7,711,098
50x90 - 100	\$ 360,037	84	\$ 687,624	110	\$ 30,243,086	\$ 75,294,856	\$ 105,537,943
55x90 - 100	\$ 387,750	33	\$ 787,250	33	\$ 12,795,750	\$ 25,979,250	\$ 38,775,000
60x90 - 100	\$ 441,731	34	\$ 896,849	48	\$ 15,018,868	\$ 42,600,309	\$ 57,619,176
AA 45'	\$ 279,000	-	\$ 621,000	-	\$ -	\$ -	\$ -
AA 50'	\$ 294,500	-	\$ 655,500	-	\$ -	\$ -	\$ -
AA 60'	\$ 317,440	-	\$ 706,560	-	\$ -	\$ -	\$ -
AA Auto Court	\$ 255,750	-	\$ 569,250	-	\$ -	\$ -	\$ -
Cluster/Auto Court	\$ 260,000	1	\$ 515,000	1	\$ 260,000	\$ 515,000	\$ 775,000
Cottage	\$ 200,000	2	\$ 375,000	2	\$ 400,000	\$ 750,000	\$ 1,150,000
0	\$ 650,000	-	\$ 1,100,000	-	\$ -	\$ -	\$ -
		<u>480</u>		<u>549</u>			<u>480,911,487</u> (A)
Product Type	Existing Developed Lots Existing Land Value per Unit		Existing Unit Value ¹ Building Value Only		Total Existing Land Value	Total Existing Building Value	Total Existing Valuation
	Value	No. Lots	Value	No. Units			
Residential							(h)=(prior yrs)*1.01
From Prior Years							
Total							<u>4,130,594,043</u> (B)
Non-Residential							
	Mix		Building Sq. Ft.			Assessed Value Per Sq. Ft.	
New Construction							
Retail Buildings	0%		-		\$	210	-
Office Buildings	0%		140,000		\$	210	29,383,972
	0%		140,000				29,383,972 (C)
From Prior Years							
Retail Buildings	74%		461,000				
Office Buildings	26%		162,000				
Total	100%		623,000				125,045,930 (D)
Raw Land	Raw Land Acreage		Percentage of Total Land			Assessed Value Per Acre (i)	
Raw Land for Residential					\$	-	\$ -
Raw Land for Non-Residential					\$	-	\$ -
Total Value for Raw Land	<u>-</u>		<u></u>				<u>\$ -</u> (E)
Total Project Assessed Valuation = (A) + (B) + (C) + (D) + (E)							<u><u>\$ 4,765,935,432</u></u>

¹The market values shown for the final unit sale price per unit do not include the lot value for the lot on which each new unit is constructed. Half of the units from the prior year will be sold before July 31st of each year and will be counted on the assessment roll for that year. The other half will be counted on the following year.

Table B-8
Fiscal Impact Analysis
Property Tax Calculations 2030

Total Project Assessed Valuation				<u>\$ 4,765,935,432</u>	(A)
<u>Property Tax</u>					
City Share of Basic Tax ¹				\$ 1.38	(B)
City Tax Share				6,573,512	
City Tax Share-Rounded			(C) = (A)*(B)	<u>\$ 6,573,512</u>	(C)
<u>EMS Levy</u>					
City Share of Basic Tax ¹				\$ 0.21	
City Tax Share				997,129	
City Tax Share-Rounded				<u>\$ 997,129</u>	
<u>Personal Property Tax</u>					
	<u>Current Year Assessed Value</u>	<u>Per Resident</u>	<u>Residents</u>		
City Share of Basic Tax - New Construction ¹				\$ 1.38	
Personal Property Value ²	\$ 18,339,535	2,984	12,040	\$ 35,932,506	
Total City Share of Property Taxes, Levy Rate			(D) = (B)	1.38	(D)
City Tax Share, Dollars				49,560.63	
City Tax Share-Rounded				<u>\$ 49,561</u>	
Residents per SF HH ³				2.7000	
Residents per MF HH ³				1.8500	
Total Residents (Assumes 50% of residents for homes closed in current year)				<u>12,040</u>	
<u>Square Feet per Employee⁴</u>					
	<u>Square Footage</u>				
Retail	461,000			1,246	
Office	302,000			434	
Employees					
Retail				370	
Office				696	
Total Employees				<u>1,066</u>	
<u>Transfer Parameters</u>					
Turnover Rate ⁵					
Residential				7.14%	
Non-Residential				5.00%	
Assessed Valuation - New Construction / <i>Shown In Table 1, Letters (A) and (C)</i>				510,295,459	(E)
Assessed Valuation - Existing & Prior Years / <i>Shown In Table 1, Letters (B) and (D)</i>				4,255,639,973	(F)
AV of Transferred Real Estate (Resale and New Construction) / <i>Equal to Table A-10, (B)*7.14% and (D)*5.00%, Plus (A) and (C)</i>				<u>\$ 811,590,187</u>	
<u>Real Estate Excise Tax⁶</u>					
REET Rate				0.5000%	(G)
REET from New Construction			(H) = (E)*(G)	\$ 2,551,477	(H)
REET from Re-sale of Existing Property / <i>Equal to The Sum of Table 1, (B)*7.14% and (D)*5.00%, times (G)</i>				1,506,474	(I)
Total Amount, Rounded				<u>\$ 4,057,951</u>	

¹Estimated property tax levy rate based on rate of 1.38 per \$1,000 and EMS levy rate of .20922 in 2023 per City Budget.

²Assessed Value is estimated based on actual 2023 assessed value increased by 0% per year.

³The People per Household amounts pursuant to the Ten Trails Development Agreement and The Ten Trails Final EIS.

⁴Per Energy Information Administration (2003 Office Energy Statistics from the U.S. Government)

⁵Assumes existing homes are sold every 14 years and existing non-residential property is sold every 20 years. Please note REET revenue is not used for City General Fund operations.

⁶REET is not used for General Fund Operations, but is shown in this FIA for informational purposes.

Table C-8
Fiscal Impact Analysis
Sales and Use Tax Revenue Calculations 2030

Description					Amount
<u>Residential</u>					
Residential Building Valuation / (A) = Total AV of all New and Existing Residential Units as shown in Table 1E					\$ 4,354,617,843 (A)
Household Income @28.1% ¹					(B) = (A)* 28.1% \$ 1,223,647,614 (B)
Retail Taxable Sales @30% ²					(C) = (B)* 30% \$ 367,094,284 (C)
Projected Off-Site Taxable Sales Captured in City @30%					(D) = (C)* 30% \$ 110,128,285 (D)
<u>Project Indirect Sales and Use Tax to City - New Residents</u>					
Sales tax calculated on the Lesser of the assessed valuation percentage (@0.95% of taxable sales) (1) or per capita (2)					
<u>Assessed Valuation Percentage</u>					
(1) Sales Tax (@0.9500% of taxable sales)					0.9500% \$ 1,046,219
					<u>\$ 1,046,219</u>
<u>Per Capita</u>					
(2) Projected Sales tax per Capita (based on 2023 City Budget)					
	<u>Budget</u>	<u>Factor</u>	<u>Resident Factor</u>	<u>Units</u>	
	\$ 1,200,000	187.11	100%	12,040	\$ 2,252,720
<u>Project Indirect Sales and Use Tax to City - New Employees</u>					
<u>Per Capita</u>					
Projected Sales tax per Capita (based on City Budget) ³					
	<u>Budget</u>	<u>Factor</u>	<u>Employee Factor</u>	<u>Units</u>	
	\$ 1,200,000	187.11	50%	533	\$ 99,727
<u>Total Project Indirect Sales and Use Tax to City</u>					<u>\$ 1,145,946</u>
<u>Project Direct Sales and Use Tax to City - Businesses</u>					
Taxable Sales			<u>Taxable Sales Per Square Feet</u>	<u>Square Footage</u>	
Retail Buildings ⁴			\$ 327	461,000	150,930,299
Grocery					
Retail Pad Buildings					
Drug Store					
Main Street Retail					
Office Buildings			\$ -	302,000	-
Total Direct Taxable Sales				<u>763,000</u>	<u>150,930,299</u>
<u>Project Direct Sales and Use Tax to City</u>					
Sales Tax (@0.9500% of taxable sales)					0.9500% \$ 1,433,838
<u>Total Project Direct Sales and Use Tax to City</u>					<u>\$ 1,433,838</u>

¹Housing is considered affordable when 30% of household income is spent on housing per King County Office of Management and Budget and US Census Data.

²Estimates based on Federal Bureau of Labor Statistics "Consumer Expenditure Survey" for 2002 for the West

³Assumes new employees make purchases in Black Diamond at 50% of the rate of residents.

⁴Taxable Sales per Square foot based on "Estimating Retail Sales per Square Foot" report by Center for Community Economic Development

Table D-8
Fiscal Impact Analysis
Other General Fund Revenue Calculations 2030

Revenue Source	Revenues (2030) ¹	Recurring Revenue	Percentage Rev Applied	Factor 2030	Measure ²	Equivalent Units	Revenue
	(a)		(b)	(c)		(d)	(e) = (c)*(d)
General Fund (Fund 001)							
Taxes							
B & O Tax	-	Y	100%	-	per person served	12,573	-
Utility Taxes							
Electrical Tax	\$ 390,500	Y	100%	60.89	per person served	12,573	765,521
Telephone Tax	\$ 41,300	Y	100%	6.44	per person served	12,573	80,963
Wastewater Utility Tax	\$ 125,500	Y	100%	19.57	per person served	12,573	246,025
Stormwater Utility Tax	\$ 151,600	Y	100%	23.64	per person served	12,573	297,191
Water Utility Tax	\$ 110,240	Y	100%	17.19	per person served	12,573	216,110
Solid Waste Tax	\$ 74,600	Y	100%	11.63	per person served	12,573	146,243
Cable TV Utility Tax	\$ 85,000	Y	100%	13.25	per person served	12,573	166,631
Gas Utility Tax	\$ 100	Y	100%	0.02	per person served	12,573	196
Pull Tabs and Punch Board Tax	\$ 5,300	Y	100%	0.83	per person served	12,573	10,390
Licenses and Permits	\$ -	Y	100%	-	per person served	12,573	-
Intergovernmental Revenue	\$ 138,300	Y	100%	21.56	per person served	12,573	271,118
Community Development Revenue	\$ 1,353,100	Y	100%	210.98	per person served	12,573	2,652,563
Police Revenue	\$ 427,650	Y	100%	66.68	per person served	12,573	838,348
Municipal Court Revenue	\$ 98,400	Y	100%	15.34	per person served	12,573	192,899
Cable Franchise Fees	\$ 101,800	Y	100%	15.87	per person served	12,573	199,565
Other General Fund Revenue	\$ 151,600	Y	100%	23.64	per person served	12,573	297,191
Total General Fund Revenue	<u>3,254,990</u>			<u>507.52</u>			<u>6,380,952</u>

¹Per 2023 City Budget.

²Equivalent Units are equal to one per Project resident and 0.5 per Project employee.

Table E-8
Fiscal Impact Analysis
General Fund Cost Calculations 2030

Cost	Expenses (2030) ¹	LoS Adjustment	Efficiency Factor	Factor 2030	Measure ²	Equivalent Units	Cost
	(a)	(b)	(c)	(d)		(e)	(f)=(e)*(d)
General Fund (Fund 001)							
Executive-Mayor	\$ 15,898	75%	100%	1.86	per person served	12,573	\$ 23,374
Legislative-Council	\$ 24,542	75%	100%	2.87	per person served	12,573	\$ 36,083
City Administrator	\$ 206,351	75%	100%	24.13	per person served	12,573	\$ 303,392
Administration Services	\$ 784,654	75%	100%	91.76	per person served	12,573	\$ 1,153,653
Facilities	\$ 152,702	75%	100%	17.86	per person served	12,573	\$ 224,513
Legal	\$ 369,000	75%	100%	43.15	per person served	12,573	\$ 542,530
Municipal Court/Court Legal Services	\$ 572,788	75%	100%	66.98	per person served	12,573	\$ 842,153
EMS/Recyl/Anim Cont/Mental Helath	\$ 122,200	75%	100%	14.29	per person served	12,573	\$ 179,667
Community Development	\$ 2,043,937	75%	100%	239.02	per person served	12,573	\$ 3,005,139
Cemetery	\$ 28,742	75%	100%	3.36	per person served	12,573	\$ 42,258
Police (Comparable Cities)	Comp. City	100%	100%	254.61	per person served	12,573	\$ 3,201,187
Fire (Comparable Cities)	Comp. City	100%	100%	199.50	per person served	12,573	\$ 2,508,275
Parks & Recreation (Comparable Cities)	Comp. City	100%	100%	45.60	per person served	12,573	\$ 573,273
Public Works (Comparable Cities)	Comp. City	0%	0%	41.74	per person served	12,573	\$ -
General Fund Total	\$ 4,320,814			\$ 1,046.73			\$ 12,635,498

¹Per 2023 City Budget.

²Based on total population and 50% employment

³Building, Planning and Code Enforcement are assumed to be funded via fee revenue.

Table A-9
Fiscal Impact Analysis
Land Use and Phasing 2031

Product Type	Bulk Land Sale Value New Land Value per Unit		Unit Sale Value ¹ Building Value Only		Total New Land Values	Total New Building Value	Total New Valuation
	Value	No. Lots	Value	No. Units			
<u>Residential</u>	(a)	(b)	(c)	(d)	(e)=(a)*(b)	(f)=(c)*(d)	(g)=(e)+(f)
New Construction							
Apartments	\$ 60,000	23	\$ 340,000	23	\$ 1,380,000	\$ 7,820,000	\$ 9,200,000
Condos/Stacked Flats	\$ 105,000	5	\$ 345,000	5	\$ 525,000	\$ 1,725,000	\$ 2,250,000
Townhomes	\$ 185,000	72	\$ 515,000	126	\$ 13,320,000	\$ 64,632,500	\$ 77,952,500
Duplex/Duets/30x80 Alley	\$ 230,000	17	\$ 520,000	23	\$ 3,910,000	\$ 11,700,000	\$ 15,610,000
35x75 Alley Bungalows	\$ 239,201	-	\$ 540,803	-	\$ -	\$ -	\$ -
35x90 Alley	\$ 255,093	6	\$ 524,911	19	\$ 1,530,557	\$ 9,710,856	\$ 11,241,413
40x85 Alley	\$ 289,085	17	\$ 596,446	21	\$ 4,914,444	\$ 12,227,145	\$ 17,141,588
45x85 Alley	\$ 300,000	21	\$ 626,400	21	\$ 6,300,000	\$ 13,154,400	\$ 19,454,400
50x80 Alley	\$ 316,526	11	\$ 653,474	11	\$ 3,481,789	\$ 7,188,211	\$ 10,670,000
45x110 Alley w/Carriage	\$ 300,000	14	\$ 625,000	14	\$ 4,200,000	\$ 8,750,000	\$ 12,950,000
40x90 - 100	\$ 318,108	24	\$ 600,156	93	\$ 7,634,595	\$ 55,814,498	\$ 63,449,092
45x90 - 100	\$ 350,022	6	\$ 657,618	8	\$ 2,100,134	\$ 4,932,133	\$ 7,032,267
50x90 - 100	\$ 360,037	43	\$ 687,624	97	\$ 15,481,580	\$ 66,355,741	\$ 81,837,321
55x90 - 100	\$ 387,750	33	\$ 787,250	33	\$ 12,795,750	\$ 25,979,250	\$ 38,775,000
60x90 - 100	\$ 441,731	13	\$ 896,849	41	\$ 5,742,508	\$ 36,770,793	\$ 42,513,301
AA 45'	\$ 279,000	-	\$ 621,000	-	\$ -	\$ -	\$ -
AA 50'	\$ 294,500	-	\$ 655,500	-	\$ -	\$ -	\$ -
AA 60'	\$ 317,440	-	\$ 706,560	-	\$ -	\$ -	\$ -
AA Auto Court	\$ 255,750	-	\$ 569,250	-	\$ -	\$ -	\$ -
Cluster/Auto Court	\$ 260,000	1	\$ 515,000	1	\$ 260,000	\$ 515,000	\$ 775,000
Cottage	\$ 200,000	2	\$ 375,000	2	\$ 400,000	\$ 750,000	\$ 1,150,000
0	\$ 650,000	-	\$ 1,100,000	-	\$ -	\$ -	\$ -
		308		535			412,001,882 (A)
<u>Residential</u>	Existing Developed Lots Existing Land Value per Unit		Existing Unit Value ¹ Building Value Only		Total Existing Land Value	Total Existing Building Value	Total Existing Valuation
Product Type	Value	No. Lots	Value	No. Units			
From Prior Years							(h)=(prior yrs)*1.01
Total							4,657,620,586 (B)
<u>Non-Residential</u>							
	Mix		Building Sq. Ft.			Assessed Value Per Sq. Ft.	
New Construction							
Retail Buildings	0%		-		\$	215	-
Office Buildings	0%		152,000		\$	215	32,636,358
	0%		152,000				32,636,358 (C)
From Prior Years							
Retail Buildings	60%		461,000				
Office Buildings	40%		302,000				
Total	100%		763,000				155,974,201 (D)
<u>Raw Land</u>						Assessed Value Per Acre (i)	
Raw Land for Residential					\$	-	\$ -
Raw Land for Non-Residential					\$	-	\$ -
Total Value for Raw Land							\$ - (E)
Total Project Assessed Valuation = (A) + (B) + (C) + (D) + (E)							\$ 5,258,233,027

1The market values shown for the final unit sale price per unit do not include the lot value for the lot on which each new unit is constructed. Half of the units from the prior year will be sold before July 31st of each year and will be counted on the assessment roll for that year. The other half will be counted on the following year.

Table B-9
Fiscal Impact Analysis
Property Tax Calculations 2031

Total Project Assessed Valuation				<u>\$ 5,258,233,027</u>	(A)
<u>Property Tax</u>					
City Share of Basic Tax ¹				\$ 1.38	(B)
City Tax Share				7,252,523	
City Tax Share-Rounded			(C) = (A)*(B)	<u>\$ 7,252,523</u>	(C)
<u>EMS Levy</u>					
City Share of Basic Tax ¹				\$ 0.21	
City Tax Share				1,100,128	
City Tax Share-Rounded				<u>\$ 1,100,128</u>	
<u>Personal Property Tax</u>					
	<u>Current Year Assessed Value</u>	<u>Per Resident</u>	<u>Residents</u>		
City Share of Basic Tax - New Construction ¹				\$ 1.38	
Personal Property Value ²	\$ 18,339,535	2,984	13,335	\$ 39,797,089	
Total City Share of Property Taxes, Levy Rate			(D) = (B)	1.38	(D)
City Tax Share, Dollars				54,890.93	
City Tax Share-Rounded				<u>\$ 54,891</u>	
Residents per SF HH ³				2.7000	
Residents per MF HH ³				1.8500	
Total Residents (Assumes 50% of residents for homes closed in current year)				<u>13,335</u>	
<u>Square Feet per Employee⁴</u>					
	<u>Square Footage</u>				
Retail	461,000			1,246	
Office	454,000			434	
Employees					
Retail				370	
Office				1,046	
Total Employees				<u>1,416</u>	
<u>Transfer Parameters</u>					
Turnover Rate ⁵					
Residential				7.14%	
Non-Residential				5.00%	
Assessed Valuation - New Construction / <i>Shown In Table 1, Letters (A) and (C)</i>				444,638,240	(E)
Assessed Valuation - Existing & Prior Years / <i>Shown In Table 1, Letters (B) and (D)</i>				4,813,594,787	(F)
AV of Transferred Real Estate (Resale and New Construction) / <i>Equal to Table A-10, (B)*7.14% and (D)*5.00%, Plus (A) and (C)</i>				<u>\$ 785,124,135</u>	
<u>Real Estate Excise Tax⁶</u>					
REET Rate				0.5000%	(G)
REET from New Construction			(H) = (E)*(G)	\$ 2,223,191	(H)
REET from Re-sale of Existing Property / <i>Equal to The Sum of Table 1, (B)*7.14% and (D)*5.00%, times (G)</i>				1,702,429	(I)
Total Amount, Rounded				<u>\$ 3,925,621</u>	

¹Estimated property tax levy rate based on rate of 1.38 per \$1,000 and EMS levy rate of .20922 in 2023 per City Budget.

²Assessed Value is estimated based on actual 2023 assessed value increased by 0% per year.

³The People per Household amounts pursuant to the Ten Trails Development Agreement and The Ten Trails Final EIS.

⁴Per Energy Information Administration (2003 Office Energy Statistics from the U.S. Government)

⁵Assumes existing homes are sold every 14 years and existing non-residential property is sold every 20 years. Please note REET revenue is not used for City General Fund operations.

⁶REET is not used for General Fund Operations, but is shown in this FIA for informational purposes.

Table C-9
Fiscal Impact Analysis
Sales and Use Tax Revenue Calculations 2031

Description				Amount
<u>Residential</u>				
Residential Building Valuation / (A) = Total AV of all New and Existing Residential Units as shown in Table 1E				\$ 4,879,633,800 (A)
Household Income @28.1% ¹				(B) = (A)* 28.1% \$ 1,371,177,098 (B)
Retail Taxable Sales @30% ²				(C) = (B)* 30% \$ 411,353,129 (C)
Projected Off-Site Taxable Sales Captured in City @30%				(D) = (C)* 30% \$ 123,405,939 (D)
<u>Project Indirect Sales and Use Tax to City - New Residents</u>				
Sales tax calculated on the Lesser of the assessed valuation percentage (@0.95% of taxable sales) (1) or per capita (2)				
<u>Assessed Valuation Percentage</u>				
(1) Sales Tax (@0.9500% of taxable sales)				0.9500% \$ 1,172,356
				<u>\$ 1,172,356</u>
<u>Per Capita</u>				
(2) Projected Sales tax per Capita (based on 2023 City Budget)				
	<u>Budget</u>	<u>Factor</u>	<u>Resident Factor</u>	<u>Units</u>
	\$ 1,200,000	187.11	100%	13,335
				<u>\$ 2,495,003</u>
<u>Project Indirect Sales and Use Tax to City - New Employees</u>				
<u>Per Capita</u>				
Projected Sales tax per Capita (based on City Budget) ³				
	<u>Budget</u>	<u>Factor</u>	<u>Employee Factor</u>	<u>Units</u>
	\$ 1,200,000	187.11	50%	708
				<u>\$ 132,471</u>
				<u>\$ 1,304,827</u>
<u>Total Project Indirect Sales and Use Tax to City</u>				
<u>Project Direct Sales and Use Tax to City - Businesses</u>				
Taxable Sales		<u>Taxable Sales Per Square Feet</u>	<u>Square Footage</u>	
Retail Buildings ⁴		\$ 327	461,000 150,930,299	
Grocery				
Retail Pad Buildings				
Drug Store				
Main Street Retail				
Office Buildings		\$ -	454,000 -	
Total Direct Taxable Sales			<u>915,000 150,930,299</u>	
<u>Project Direct Sales and Use Tax to City</u>				
Sales Tax (@0.9500% of taxable sales)				0.9500% \$ 1,433,838
<u>Total Project Direct Sales and Use Tax to City</u>				<u>\$ 1,433,838</u>

¹Housing is considered affordable when 30% of household income is spent on housing per King County Office of Management and Budget and US Census Data.

²Estimates based on Federal Bureau of Labor Statistics "Consumer Expenditure Survey" for 2002 for the West

³Assumes new employees make purchases in Black Diamond at 50% of the rate of residents.

⁴Taxable Sales per Square foot based on "Estimating Retail Sales per Square Foot" report by Center for Community Economic Development

Table D-9
Fiscal Impact Analysis
Other General Fund Revenue Calculations 2031

Revenue Source	Revenues (2031) ¹	Recurring Revenue	Percentage Rev Applied	Factor 2031	Measure ²	Equivalent Units	Revenue
	(a)		(b)	(c)		(d)	(e) = (c)*(d)
General Fund (Fund 001)							
Taxes							
B & O Tax	-	Y	100%	-	per person served	14,043	-
Utility Taxes							
Electrical Tax	\$ 390,500	Y	100%	60.89	per person served	14,043	855,026
Telephone Tax	\$ 41,300	Y	100%	6.44	per person served	14,043	90,429
Wastewater Utility Tax	\$ 125,500	Y	100%	19.57	per person served	14,043	274,791
Stormwater Utility Tax	\$ 151,600	Y	100%	23.64	per person served	14,043	331,938
Water Utility Tax	\$ 110,240	Y	100%	17.19	per person served	14,043	241,378
Solid Waste Tax	\$ 74,600	Y	100%	11.63	per person served	14,043	163,342
Cable TV Utility Tax	\$ 85,000	Y	100%	13.25	per person served	14,043	186,113
Gas Utility Tax	\$ 100	Y	100%	0.02	per person served	14,043	219
Pull Tabs and Punch Board Tax	\$ 5,300	Y	100%	0.83	per person served	14,043	11,605
Licenses and Permits	\$ -	Y	100%	-	per person served	14,043	-
Intergovernmental Revenue	\$ 138,300	Y	100%	21.56	per person served	14,043	302,817
Community Development Revenue	\$ 1,353,100	Y	100%	210.98	per person served	14,043	2,962,702
Police Revenue	\$ 427,650	Y	100%	66.68	per person served	14,043	936,368
Municipal Court Revenue	\$ 98,400	Y	100%	15.34	per person served	14,043	215,453
Cable Franchise Fees	\$ 101,800	Y	100%	15.87	per person served	14,043	222,898
Other General Fund Revenue	\$ 151,600	Y	100%	23.64	per person served	14,043	331,938
Total General Fund Revenue	<u>3,254,990</u>			<u>507.52</u>			<u>7,127,016</u>

¹Per 2023 City Budget.

²Equivalent Units are equal to one per Project resident and 0.5 per Project employee.

Table E-9
Fiscal Impact Analysis
General Fund Cost Calculations 2031

Cost	Expenses (2031) ¹	LoS Adjustment	Efficiency Factor	Factor 2031	Measure ²	Equivalent Units	Cost
	(a)	(b)	(c)	(d)		(e)	(f)=(e)*(d)
General Fund (Fund 001)							
Executive-Mayor	\$ 15,898	75%	100%	1.86	per person served	14,043	\$ 26,107
Legislative-Council	\$ 24,542	75%	100%	2.87	per person served	14,043	\$ 40,302
City Administrator	\$ 206,351	75%	100%	24.13	per person served	14,043	\$ 338,864
Administration Services	\$ 784,654	75%	100%	91.76	per person served	14,043	\$ 1,288,539
Facilities	\$ 152,702	75%	100%	17.86	per person served	14,043	\$ 250,763
Legal	\$ 369,000	75%	100%	43.15	per person served	14,043	\$ 605,962
Municipal Court/Court Legal Services	\$ 572,788	75%	100%	66.98	per person served	14,043	\$ 940,618
EMS/Recyl/Anim Cont/Mental Helath	\$ 122,200	75%	100%	14.29	per person served	14,043	\$ 200,674
Community Development	\$ 2,043,937	75%	100%	239.02	per person served	14,043	\$ 3,356,502
Cemetery	\$ 28,742	75%	100%	3.36	per person served	14,043	\$ 47,199
Police (Comparable Cities)	Comp. City	100%	100%	254.61	per person served	14,043	\$ 3,575,472
Fire (Comparable Cities)	Comp. City	100%	100%	199.50	per person served	14,043	\$ 2,801,543
Parks & Recreation (Comparable Cities)	Comp. City	100%	100%	45.60	per person served	14,043	\$ 640,301
Public Works (Comparable Cities)	Comp. City	0%	0%	41.74	per person served	14,043	\$ -
General Fund Total	\$ 4,320,814			\$ 1,046.73			\$ 14,112,848

¹Per 2023 City Budget.

²Based on total population and 50% employment

³Building, Planning and Code Enforcement are assumed to be funded via fee revenue.

Table A-10
Fiscal Impact Analysis
Land Use and Phasing 2032

Product Type	Bulk Land Sale Value New Land Value per Unit		Unit Sale Value ¹ Building Value Only		Total New Land Values	Total New Building Value	Total New Valuation
	Value	No. Lots	Value	No. Units			
Residential	(a)	(b)	(c)	(d)	(e)=(a)*(b)	(f)=(c)*(d)	(g)=(e)+(f)
New Construction							
Apartments	\$ 60,000	-	\$ 340,000	23	\$ -	\$ 7,820,000	\$ 7,820,000
Condos/Stacked Flats	\$ 105,000	-	\$ 345,000	5	\$ -	\$ 1,725,000	\$ 1,725,000
Townhomes	\$ 185,000	-	\$ 515,000	92	\$ -	\$ 47,380,000	\$ 47,380,000
Duplex/Duets/30x80 Alley	\$ 230,000	-	\$ 520,000	20	\$ -	\$ 10,140,000	\$ 10,140,000
35x75 Alley Bungalows	\$ 239,201	-	\$ 540,803	-	\$ -	\$ -	\$ -
35x90 Alley	\$ 255,093	-	\$ 524,911	12	\$ -	\$ 6,298,933	\$ 6,298,933
40x85 Alley	\$ 289,085	-	\$ 596,446	19	\$ -	\$ 11,034,253	\$ 11,034,253
45x85 Alley	\$ 300,000	-	\$ 626,400	21	\$ -	\$ 13,154,400	\$ 13,154,400
50x80 Alley	\$ 316,526	-	\$ 653,474	11	\$ -	\$ 7,188,211	\$ 7,188,211
45x110 Alley w/Carriage	\$ 300,000	-	\$ 625,000	14	\$ -	\$ 8,750,000	\$ 8,750,000
40x90 - 100	\$ 318,108	-	\$ 600,156	49	\$ -	\$ 29,107,561	\$ 29,107,561
45x90 - 100	\$ 350,022	-	\$ 657,618	7	\$ -	\$ 4,274,515	\$ 4,274,515
50x90 - 100	\$ 360,037	-	\$ 687,624	64	\$ -	\$ 43,664,140	\$ 43,664,140
55x90 - 100	\$ 387,750	-	\$ 787,250	33	\$ -	\$ 25,979,250	\$ 25,979,250
60x90 - 100	\$ 441,731	-	\$ 896,849	24	\$ -	\$ 21,075,942	\$ 21,075,942
AA 45'	\$ 279,000	-	\$ 621,000	-	\$ -	\$ -	\$ -
AA 50'	\$ 294,500	-	\$ 655,500	-	\$ -	\$ -	\$ -
AA 60'	\$ 317,440	-	\$ 706,560	-	\$ -	\$ -	\$ -
AA Auto Court	\$ 255,750	-	\$ 569,250	-	\$ -	\$ -	\$ -
Cluster/Auto Court	\$ 260,000	-	\$ 515,000	1	\$ -	\$ 515,000	\$ 515,000
Cottage	\$ 200,000	-	\$ 375,000	2	\$ -	\$ 750,000	\$ 750,000
0	\$ 650,000	-	\$ 1,100,000	-	\$ -	\$ -	\$ -
		<u>-</u>		<u>394</u>			<u>238,857,205</u> (A)
Product Type	Existing Developed Lots Existing Land Value per Unit		Existing Unit Value ¹ Building Value Only		Total Existing Land Value	Total Existing Building Value	Total Existing Valuation
	Value	No. Lots	Value	No. Units			
Residential							(h)=(prior yrs)*1.01
From Prior Years							
Total							<u>5,120,318,692</u> (B)
Non-Residential							
	Mix		Building Sq. Ft.			Assessed Value Per Sq. Ft.	
New Construction							
Retail Buildings	0%		-		\$	220	-
Office Buildings	0%		-		\$	220	-
	0%		-				-
From Prior Years							
Retail Buildings	50%		461,000				
Office Buildings	50%		454,000				
Total	100%		915,000				190,496,664 (D)
Raw Land	Raw Land Acreage		Percentage of Total Land			Assessed Value Per Acre (i)	
Raw Land for Residential					\$	-	\$ -
Raw Land for Non-Residential					\$	-	\$ -
Total Value for Raw Land	<u>-</u>		<u></u>				<u>\$ -</u> (E)
Total Project Assessed Valuation = (A) + (B) + (C) + (D) + (E)							<u>\$ 5,549,672,561</u>

¹The market values shown for the final unit sale price per unit do not include the lot value for the lot on which each new unit is constructed. Half of the units from the prior year will be sold before July 31st of each year and will be counted on the assessment roll for that year. The other half will be counted on the following year.

Table B-10
Fiscal Impact Analysis
Property Tax Calculations 2032

Total Project Assessed Valuation				<u>\$ 5,549,672,561</u>	(A)
<u>Property Tax</u>					
City Share of Basic Tax ¹				\$ 1.38	(B)
City Tax Share				7,654,497	
City Tax Share-Rounded			(C) = (A)*(B)	<u>\$ 7,654,497</u>	(C)
<u>EMS Levy</u>					
City Share of Basic Tax ¹				\$ 0.21	
City Tax Share				1,161,102	
City Tax Share-Rounded				<u>\$ 1,161,102</u>	
<u>Personal Property Tax</u>					
	<u>Current Year Assessed Value</u>	<u>Per Resident</u>	<u>Residents</u>		
City Share of Basic Tax - New Construction ¹				\$ 1.38	
Personal Property Value ²	\$ 18,339,535	2,984	14,280	\$ 42,618,080	
Total City Share of Property Taxes, Levy Rate			(D) = (B)	1.38	(D)
City Tax Share, Dollars				58,781.84	
City Tax Share-Rounded				<u>\$ 58,782</u>	
Residents per SF HH ³				2.7000	
Residents per MF HH ³				1.8500	
Total Residents (Assumes 50% of residents for homes closed in current year)				<u>14,280</u>	
<u>Square Feet per Employee⁴</u>					
	<u>Square Footage</u>				
Retail	461,000			1,246	
Office	454,000			434	
Employees					
Retail				370	
Office				1,046	
Total Employees				<u>1,416</u>	
<u>Transfer Parameters</u>					
Turnover Rate ⁵					
Residential				7.14%	
Non-Residential				5.00%	
Assessed Valuation - New Construction / <i>Shown In Table 1, Letters (A) and (C)</i>				238,857,205	(E)
Assessed Valuation - Existing & Prior Years / <i>Shown In Table 1, Letters (B) and (D)</i>				5,310,815,357	(F)
AV of Transferred Real Estate (Resale and New Construction) / <i>Equal to Table A-10, (B)*7.14% and (D)*5.00%, Plus (A) and (C)</i>				<u>\$ 614,119,087</u>	
<u>Real Estate Excise Tax⁶</u>					
REET Rate				0.5000%	(G)
REET from New Construction			(H) = (E)*(G)	\$ 1,194,286	(H)
REET from Re-sale of Existing Property / <i>Equal to The Sum of Table 1, (B)*7.14% and (D)*5.00%, times (G)</i>				1,876,309	(I)
Total Amount, Rounded				<u>\$ 3,070,595</u>	

¹Estimated property tax levy rate based on rate of 1.38 per \$1,000 and EMS levy rate of .20922 in 2023 per City Budget.

²Assessed Value is estimated based on actual 2023 assessed value increased by 0% per year.

³The People per Household amounts pursuant to the Ten Trails Development Agreement and The Ten Trails Final EIS.

⁴Per Energy Information Administration (2003 Office Energy Statistics from the U.S. Government)

⁵Assumes existing homes are sold every 14 years and existing non-residential property is sold every 20 years. Please note REET revenue is not used for City General Fund operations.

⁶REET is not used for General Fund Operations, but is shown in this FIA for informational purposes.

Table C-10
Fiscal Impact Analysis
Sales and Use Tax Revenue Calculations 2032

Description	Amount			
<u>Residential</u>				
Residential Building Valuation / (A) = Total AV of all New and Existing Residential Units as shown in Table 1E		\$	5,277,490,477	(A)
Household Income @28.1% ¹	(B) = (A)* 28.1%	\$	1,482,974,824	(B)
Retail Taxable Sales @30% ²	(C) = (B)* 30%	\$	444,892,447	(C)
Projected Off-Site Taxable Sales Captured in City @30%	(D) = (C)* 30%	\$	133,467,734	(D)
<u>Project Indirect Sales and Use Tax to City - New Residents</u>				
Sales tax calculated on the Lesser of the assessed valuation percentage (@0.95% of taxable sales) (1) or per capita (2)				
<u>Assessed Valuation Percentage</u>				
(1) Sales Tax (@0.9500% of taxable sales)		0.9500%	\$	1,267,943
			\$	1,267,943
<u>Per Capita</u>				
(2) Projected Sales tax per Capita (based on 2023 City Budget)	Budget \$ 1,200,000	Factor 187.11	Resident Factor 100%	Units 14,280
				\$ 2,671,859
<u>Project Indirect Sales and Use Tax to City - New Employees</u>				
<u>Per Capita</u>				
Projected Sales tax per Capita (based on City Budget) ³	Budget \$ 1,200,000	Factor 187.11	Employee Factor 50%	Units 708
				\$ 132,471
				\$ 1,400,414
<u>Total Project Indirect Sales and Use Tax to City</u>				
<u>Project Direct Sales and Use Tax to City - Businesses</u>				
Taxable Sales			Taxable Sales Per Square Feet	Square Footage
Retail Buildings ⁴		\$ 327		461,000
Grocery				
Retail Pad Buildings				
Drug Store				
Main Street Retail				
Office Buildings		\$ -		454,000
Total Direct Taxable Sales				915,000
				150,930,299
<u>Project Direct Sales and Use Tax to City</u>				
Sales Tax (@0.9500% of taxable sales)		0.9500%	\$	1,433,838
<u>Total Project Direct Sales and Use Tax to City</u>			\$	1,433,838

¹Housing is considered affordable when 30% of household income is spent on housing per King County Office of Management and Budget and US Census Data.

²Estimates based on Federal Bureau of Labor Statistics "Consumer Expenditure Survey" for 2002 for the West

³Assumes new employees make purchases in Black Diamond at 50% of the rate of residents.

⁴Taxable Sales per Square foot based on "Estimating Retail Sales per Square Foot" report by Center for Community Economic Development

Table D-10
Fiscal Impact Analysis
Other General Fund Revenue Calculations 2032

Revenue Source	Revenues (2032) ¹	Recurring Revenue	Percentage Rev Applied	Factor 2032	Measure ²	Equivalent Units	Revenue
	(a)		(b)	(c)		(d)	(e) = (c)*(d)
General Fund (Fund 001)							
Taxes							
B & O Tax	-	Y	100%	-	per person served	14,988	-
Utility Taxes							
Electrical Tax	\$ 390,500	Y	100%	60.89	per person served	14,988	912,578
Telephone Tax	\$ 41,300	Y	100%	6.44	per person served	14,988	96,516
Wastewater Utility Tax	\$ 125,500	Y	100%	19.57	per person served	14,988	293,287
Stormwater Utility Tax	\$ 151,600	Y	100%	23.64	per person served	14,988	354,281
Water Utility Tax	\$ 110,240	Y	100%	17.19	per person served	14,988	257,625
Solid Waste Tax	\$ 74,600	Y	100%	11.63	per person served	14,988	174,336
Cable TV Utility Tax	\$ 85,000	Y	100%	13.25	per person served	14,988	198,640
Gas Utility Tax	\$ 100	Y	100%	0.02	per person served	14,988	234
Pull Tabs and Punch Board Tax	\$ 5,300	Y	100%	0.83	per person served	14,988	12,386
Licenses and Permits	\$ -	Y	100%	-	per person served	14,988	-
Intergovernmental Revenue	\$ 138,300	Y	100%	21.56	per person served	14,988	323,200
Community Development Revenue	\$ 1,353,100	Y	100%	210.98	per person served	14,988	3,162,123
Police Revenue	\$ 427,650	Y	100%	66.68	per person served	14,988	999,395
Municipal Court Revenue	\$ 98,400	Y	100%	15.34	per person served	14,988	229,956
Cable Franchise Fees	\$ 101,800	Y	100%	15.87	per person served	14,988	237,901
Other General Fund Revenue	\$ 151,600	Y	100%	23.64	per person served	14,988	354,281
Total General Fund Revenue	<u>3,254,990</u>			<u>507.52</u>			<u>7,606,739</u>

¹Per 2023 City Budget.

²Equivalent Units are equal to one per Project resident and 0.5 per Project employee.

Table E-10
Fiscal Impact Analysis
General Fund Cost Calculations 2032

Cost	Expenses (2032) ¹	LoS Adjustment	Efficiency Factor	Factor 2032	Measure ²	Equivalent Units	Cost
	(a)	(b)	(c)	(d)		(e)	(f)=(e)*(d)
General Fund (Fund 001)							
Executive-Mayor	\$ 15,898	75%	100%	1.86	per person served	14,988	\$ 27,865
Legislative-Council	\$ 24,542	75%	100%	2.87	per person served	14,988	\$ 43,015
City Administrator	\$ 206,351	75%	100%	24.13	per person served	14,988	\$ 361,673
Administration Services	\$ 784,654	75%	100%	91.76	per person served	14,988	\$ 1,375,271
Facilities	\$ 152,702	75%	100%	17.86	per person served	14,988	\$ 267,642
Legal	\$ 369,000	75%	100%	43.15	per person served	14,988	\$ 646,750
Municipal Court/Court Legal Services	\$ 572,788	75%	100%	66.98	per person served	14,988	\$ 1,003,931
EMS/Recyl/Anim Cont/Mental Helath	\$ 122,200	75%	100%	14.29	per person served	14,988	\$ 214,181
Community Development	\$ 2,043,937	75%	100%	239.02	per person served	14,988	\$ 3,582,429
Cemetery	\$ 28,742	75%	100%	3.36	per person served	14,988	\$ 50,376
Police (Comparable Cities)	Comp. City	100%	100%	254.61	per person served	14,988	\$ 3,816,138
Fire (Comparable Cities)	Comp. City	100%	100%	199.50	per person served	14,988	\$ 2,990,116
Parks & Recreation (Comparable Cities)	Comp. City	100%	100%	45.60	per person served	14,988	\$ 683,400
Public Works (Comparable Cities)	Comp. City	0%	0%	41.74	per person served	14,988	\$ -
General Fund Total	\$ 4,320,814			\$ 1,046.73			\$ 15,062,789

¹Per 2023 City Budget.

²Based on total population and 50% employment

³Building, Planning and Code Enforcement are assumed to be funded via fee revenue.

Table A-11
Fiscal Impact Analysis
Land Use and Phasing 2033

Product Type	Bulk Land Sale Value New Land Value per Unit		Unit Sale Value ¹ Building Value Only		Total New Land Values		Total New Building Value		Total New Valuation
	Value	No. Lots	Value	No. Units					
Residential	(a)	(b)	(c)	(d)	(e)=(a)*(b)		(f)=(c)*(d)		(g)=(e)+(f)
New Construction									
Apartments	\$ 60,000	-	\$ 340,000	12	\$ -	\$ -	\$ 3,910,000	\$ -	\$ 3,910,000
Condos/Stacked Flats	\$ 105,000	-	\$ 345,000	3	\$ -	\$ -	\$ 862,500	\$ -	\$ 862,500
Townhomes	\$ 185,000	-	\$ 515,000	36	\$ -	\$ -	\$ 18,540,000	\$ -	\$ 18,540,000
Duplex/Duets/30x80 Alley	\$ 230,000	-	\$ 520,000	9	\$ -	\$ -	\$ 4,420,000	\$ -	\$ 4,420,000
35x75 Alley Bungalows	\$ 239,201	-	\$ 540,803	-	\$ -	\$ -	\$ -	\$ -	\$ -
35x90 Alley	\$ 255,093	-	\$ 524,911	3	\$ -	\$ -	\$ 1,574,733	\$ -	\$ 1,574,733
40x85 Alley	\$ 289,085	-	\$ 596,446	9	\$ -	\$ -	\$ 5,069,792	\$ -	\$ 5,069,792
45x85 Alley	\$ 300,000	-	\$ 626,400	11	\$ -	\$ -	\$ 6,577,200	\$ -	\$ 6,577,200
50x80 Alley	\$ 316,526	-	\$ 653,474	6	\$ -	\$ -	\$ 3,594,105	\$ -	\$ 3,594,105
45x110 Alley w/Carriage	\$ 300,000	-	\$ 625,000	7	\$ -	\$ -	\$ 4,375,000	\$ -	\$ 4,375,000
40x90 - 100	\$ 318,108	-	\$ 600,156	12	\$ -	\$ -	\$ 7,201,871	\$ -	\$ 7,201,871
45x90 - 100	\$ 350,022	-	\$ 657,618	3	\$ -	\$ -	\$ 1,972,853	\$ -	\$ 1,972,853
50x90 - 100	\$ 360,037	-	\$ 687,624	22	\$ -	\$ -	\$ 14,783,922	\$ -	\$ 14,783,922
55x90 - 100	\$ 387,750	-	\$ 787,250	17	\$ -	\$ -	\$ 12,989,625	\$ -	\$ 12,989,625
60x90 - 100	\$ 441,731	-	\$ 896,849	7	\$ -	\$ -	\$ 5,829,516	\$ -	\$ 5,829,516
AA 45'	\$ 279,000	-	\$ 621,000	-	\$ -	\$ -	\$ -	\$ -	\$ -
AA 50'	\$ 294,500	-	\$ 655,500	-	\$ -	\$ -	\$ -	\$ -	\$ -
AA 60'	\$ 317,440	-	\$ 706,560	-	\$ -	\$ -	\$ -	\$ -	\$ -
AA Auto Court	\$ 255,750	-	\$ 569,250	-	\$ -	\$ -	\$ -	\$ -	\$ -
Cluster/Auto Court	\$ 260,000	-	\$ 515,000	1	\$ -	\$ -	\$ 257,500	\$ -	\$ 257,500
Cottage	\$ 200,000	-	\$ 375,000	1	\$ -	\$ -	\$ 375,000	\$ -	\$ 375,000
0	\$ 650,000	-	\$ 1,100,000	-	\$ -	\$ -	\$ -	\$ -	\$ -
		<u>-</u>		<u>154</u>					<u>92,333,617</u> (A)
Product Type	Existing Developed Lots Existing Land Value per Unit		Existing Unit Value ¹ Building Value Only		Total Existing Land Value		Total Existing Building Value		Total Existing Valuation
	Value	No. Lots	Value	No. Units					
Residential									(h)=(prior yrs)*1.01
From Prior Years									
Total									<u>5,412,767,656</u> (B)
Non-Residential									
	Mix		Building Sq. Ft.				Assessed Value Per Sq. Ft.		
New Construction									
Retail Buildings	0%		-				\$ 225	-	
Office Buildings	0%		-				\$ 225	-	
	0%		-					-	(C)
From Prior Years									
Retail Buildings	50%		461,000						
Office Buildings	50%		454,000						
Total	100%		915,000						<u>192,401,631</u> (D)
Raw Land	Raw Land Acreage		Percentage of Total Land				Assessed Value Per Acre (i)		
Raw Land for Residential							\$ -	\$ -	
Raw Land for Non-Residential							\$ -	\$ -	
Total Value for Raw Land	<u>-</u>		<u>-</u>				<u>\$ -</u>	<u>\$ -</u>	(E)
Total Project Assessed Valuation = (A) + (B) + (C) + (D) + (E)								<u>\$ 5,697,502,904</u>	

¹The market values shown for the final unit sale price per unit do not include the lot value for the lot on which each new unit is constructed. Half of the units from the prior year will be sold before July 31st of each year and will be counted on the assessment roll for that year. The other half will be counted on the following year.

Table B-11
Fiscal Impact Analysis
Property Tax Calculations 2033

Total Project Assessed Valuation				<u>\$</u>	<u>5,697,502,904</u>	(A)
<u>Property Tax</u>						
City Share of Basic Tax ¹				\$	1.38	(B)
City Tax Share					<u>7,858,395</u>	
City Tax Share-Rounded			(C) = (A)*(B)	<u>\$</u>	<u>7,858,395</u>	(C)
<u>EMS Levy</u>						
City Share of Basic Tax ¹				\$	0.21	
City Tax Share					<u>1,192,032</u>	
City Tax Share-Rounded				<u>\$</u>	<u>1,192,032</u>	
<u>Personal Property Tax</u>						
	<u>Current Year Assessed Value</u>	<u>Per Resident</u>	<u>Residents</u>			
City Share of Basic Tax - New Construction ¹				\$	1.38	
Personal Property Value ²	\$ 18,339,535	2,984	14,646	\$	43,710,618	
Total City Share of Property Taxes, Levy Rate			(D) = (B)		<u>1.38</u>	(D)
City Tax Share, Dollars					<u>60,288.74</u>	
City Tax Share-Rounded				<u>\$</u>	<u>60,289</u>	
Residents per SF HH ³					2.7000	
Residents per MF HH ³					<u>1.8500</u>	
Total Residents (Assumes 50% of residents for homes closed in current year)					<u><u>14,646</u></u>	
<u>Square Feet per Employee⁴</u>						
	<u>Square Footage</u>					
Retail	461,000				1,246	
Office	454,000				434	
Employees						
Retail					370	
Office					<u>1,046</u>	
Total Employees					<u>1,416</u>	
<u>Transfer Parameters</u>						
Turnover Rate ⁵						
Residential					7.14%	
Non-Residential					5.00%	
Assessed Valuation - New Construction / <i>Shown In Table 1, Letters (A) and (C)</i>					<u>92,333,617</u>	(E)
Assessed Valuation - Existing & Prior Years / <i>Shown In Table 1, Letters (B) and (D)</i>					<u>5,605,169,287</u>	(F)
AV of Transferred Real Estate (Resale and New Construction) / <i>Equal to Table A-10, (B)*7.14% and (D)*5.00%, Plus (A) and (C)</i>				<u>\$</u>	<u>488,579,959</u>	
<u>Real Estate Excise Tax⁶</u>						
REET Rate					0.5000%	(G)
REET from New Construction			(H) = (E)*(G)	\$	461,668	(H)
REET from Re-sale of Existing Property / <i>Equal to The Sum of Table 1, (B)*7.14% and (D)*5.00%, times (G)</i>					<u>1,981,232</u>	(I)
Total Amount, Rounded				<u>\$</u>	<u>2,442,900</u>	

¹Estimated property tax levy rate based on rate of 1.38 per \$1,000 and EMS levy rate of .20922 in 2023 per City Budget.

²Assessed Value is estimated based on actual 2023 assessed value increased by 0% per year.

³The People per Household amounts pursuant to the Ten Trails Development Agreement and The Ten Trails Final EIS.

⁴Per Energy Information Administration (2003 Office Energy Statistics from the U.S. Government)

⁵Assumes existing homes are sold every 14 years and existing non-residential property is sold every 20 years. Please note REET revenue is not used for City General Fund operations.

⁶REET is not used for General Fund Operations, but is shown in this FIA for informational purposes.

Table C-11
Fiscal Impact Analysis
Sales and Use Tax Revenue Calculations 2033

Description	Amount			
<u>Residential</u>				
Residential Building Valuation / (A) = Total AV of all New and Existing Residential Units as shown in Table 1E		\$	5,464,587,176	(A)
Household Income @28.1% ¹	(B) = (A)* 28.1%	\$	1,535,548,997	(B)
Retail Taxable Sales @30% ²	(C) = (B)* 30%	\$	460,664,699	(C)
Projected Off-Site Taxable Sales Captured in City @30%	(D) = (C)* 30%	\$	138,199,410	(D)
<u>Project Indirect Sales and Use Tax to City - New Residents</u>				
Sales tax calculated on the Lesser of the assessed valuation percentage (@0.95% of taxable sales) (1) or per capita (2)				
<u>Assessed Valuation Percentage</u>				
(1) Sales Tax (@0.9500% of taxable sales)		0.9500%	\$	1,312,894
			\$	1,312,894
<u>Per Capita</u>				
(2) Projected Sales tax per Capita (based on 2023 City Budget)	Budget	Factor	Resident Factor	Units
	\$ 1,200,000	187.11	100%	14,646
				\$ 2,740,354
<u>Project Indirect Sales and Use Tax to City - New Employees</u>				
<u>Per Capita</u>				
Projected Sales tax per Capita (based on City Budget) ³	Budget	Factor	Employee Factor	Units
	\$ 1,200,000	187.11	50%	708
				\$ 132,471
<u>Total Project Indirect Sales and Use Tax to City</u>				
				\$ 1,445,365
<u>Project Direct Sales and Use Tax to City - Businesses</u>				
Taxable Sales		Taxable Sales		Square Footage
		Per Square Feet		
Retail Buildings ⁴		\$ 327	461,000	150,930,299
Grocery				
Retail Pad Buildings				
Drug Store				
Main Street Retail				
Office Buildings		\$ -	454,000	-
Total Direct Taxable Sales			915,000	150,930,299
<u>Project Direct Sales and Use Tax to City</u>				
Sales Tax (@0.9500% of taxable sales)		0.9500%	\$	1,433,838
<u>Total Project Direct Sales and Use Tax to City</u>			\$	1,433,838

¹Housing is considered affordable when 30% of household income is spent on housing per King County Office of Management and Budget and US Census Data.

²Estimates based on Federal Bureau of Labor Statistics "Consumer Expenditure Survey" for 2002 for the West

³Assumes new employees make purchases in Black Diamond at 50% of the rate of residents.

⁴Taxable Sales per Square foot based on "Estimating Retail Sales per Square Foot" report by Center for Community Economic Development

Table D-11
Fiscal Impact Analysis
Other General Fund Revenue Calculations 2033

Revenue Source	Revenues (2032) ¹	Recurring Revenue	Percentage Rev Applied	Factor 2032	Measure ²	Equivalent Units	Revenue
	(a)		(b)	(c)		(d)	(e) = (c)*(d)
General Fund (Fund 001)							
Taxes							
B & O Tax	-	Y	100%	-	per person served	15,354	-
Utility Taxes							
Electrical Tax	\$ 390,500	Y	100%	60.89	per person served	15,354	934,867
Telephone Tax	\$ 41,300	Y	100%	6.44	per person served	15,354	98,873
Wastewater Utility Tax	\$ 125,500	Y	100%	19.57	per person served	15,354	300,450
Stormwater Utility Tax	\$ 151,600	Y	100%	23.64	per person served	15,354	362,934
Water Utility Tax	\$ 110,240	Y	100%	17.19	per person served	15,354	263,917
Solid Waste Tax	\$ 74,600	Y	100%	11.63	per person served	15,354	178,594
Cable TV Utility Tax	\$ 85,000	Y	100%	13.25	per person served	15,354	203,492
Gas Utility Tax	\$ 100	Y	100%	0.02	per person served	15,354	239
Pull Tabs and Punch Board Tax	\$ 5,300	Y	100%	0.83	per person served	15,354	12,688
Licenses and Permits	\$ -	Y	100%	-	per person served	15,354	-
Intergovernmental Revenue	\$ 138,300	Y	100%	21.56	per person served	15,354	331,094
Community Development Revenue	\$ 1,353,100	Y	100%	210.98	per person served	15,354	3,239,356
Police Revenue	\$ 427,650	Y	100%	66.68	per person served	15,354	1,023,805
Municipal Court Revenue	\$ 98,400	Y	100%	15.34	per person served	15,354	235,572
Cable Franchise Fees	\$ 101,800	Y	100%	15.87	per person served	15,354	243,712
Other General Fund Revenue	\$ 151,600	Y	100%	23.64	per person served	15,354	362,934
Total General Fund Revenue	<u>3,254,990</u>			<u>507.52</u>			<u>7,792,530</u>

¹Per 2023 City Budget.

²Equivalent Units are equal to one per Project resident and 0.5 per Project employee.

Table E-11
Fiscal Impact Analysis
General Fund Cost Calculations 2033

Cost	Expenses (2032) ¹	LoS Adjustment	Efficiency Factor	Factor 2032	Measure ²	Equivalent Units	Cost
	(a)	(b)	(c)	(d)		(e)	(f)=(e)*(d)
General Fund (Fund 001)							
Executive-Mayor	\$ 15,898	75%	100%	1.86	per person served	15,354	\$ 28,545
Legislative-Council	\$ 24,542	75%	100%	2.87	per person served	15,354	\$ 44,066
City Administrator	\$ 206,351	75%	100%	24.13	per person served	15,354	\$ 370,507
Administration Services	\$ 784,654	75%	100%	91.76	per person served	15,354	\$ 1,408,861
Facilities	\$ 152,702	75%	100%	17.86	per person served	15,354	\$ 274,179
Legal	\$ 369,000	75%	100%	43.15	per person served	15,354	\$ 662,547
Municipal Court/Court Legal Services	\$ 572,788	75%	100%	66.98	per person served	15,354	\$ 1,028,452
EMS/Recyl/Anim Cont/Mental Helath	\$ 122,200	75%	100%	14.29	per person served	15,354	\$ 219,412
Community Development	\$ 2,043,937	75%	100%	239.02	per person served	15,354	\$ 3,669,928
Cemetery	\$ 28,742	75%	100%	3.36	per person served	15,354	\$ 51,607
Police (Comparable Cities)	Comp. City	100%	100%	254.61	per person served	15,354	\$ 3,909,346
Fire (Comparable Cities)	Comp. City	100%	100%	199.50	per person served	15,354	\$ 3,063,148
Parks & Recreation (Comparable Cities)	Comp. City	100%	100%	45.60	per person served	15,354	\$ 700,091
Public Works (Comparable Cities)	Comp. City	0%	0%	41.74	per person served	15,354	\$ -
General Fund Total	\$ 4,320,814			\$ 1,046.73			\$ 15,430,690

¹Per 2023 City Budget.

²Based on total population and 50% employment

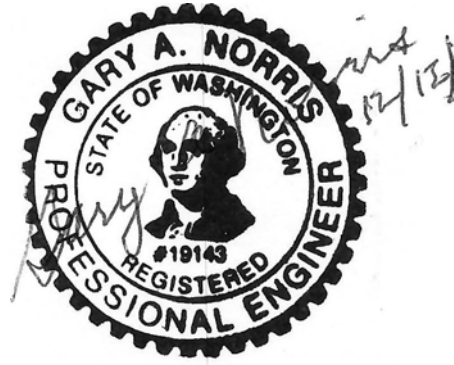
³Building, Planning and Code Enforcement are assumed to be funded via fee revenue.

Traffic Engineer Comments 12/12/25

Gary A. Norris, P.E., PTOE, RSPI, RSP2i

DN Traffic Consultants

Retained by: Friends of Black Diamond



I have a BS and MS in Civil Engineering from the University of Washington. I am a licensed professional civil engineer in Washington, Oregon, Idaho, Maryland, Rhode Island and Virginia. I have more than 50 years of experience in traffic engineering within the Puget Sound region, including serving as a traffic engineer for the Cities of Renton, Bellevue, and Seattle.

My review included both project alternatives and an assessment of whether the traffic study adhered to best practice methodologies.

1 . Failure to Evaluate A.M. Peak-Hour Traffic Conditions

A fundamental deficiency in the submitted traffic analysis is the lack of an A.M. peak-hour evaluation.

While P.M. peak-hour conditions are commonly analyzed in planning-level studies, the Highway Capacity Manual (HCM) makes clear that the "critical analysis period" must reflect the time period most likely to experience operational deficiencies.

For residential developments, ITE Trip Generation Manual, 11th Edition, shows that:

- The A.M. peak-hour occurs during the A.M. is when outbound trips are highest,
- Driveway and arterial access are most constrained, and
- Delays and conflicts are most acute.

For a project generating approximately 1,200 new homes, the A.M. peak hour is the controlling condition for:

- Driveway access
- Local street operations
- The ability for vehicles to access collectors/arterials and regional highways.

By analyzing only the P.M. peak hour, the study fails to comply with accepted methodologies in:

- HCM 7th Edition (context-sensitive selection of study periods)
- ITE Trip Generation (residential trip profiles)
- ITE Transportation Impact Analysis for Site Development (requirement to analyze critical periods related to land-use type)

Without an A.M. peak-hour analysis, the report cannot accurately represent operational and safety impacts which occur in the neighborhood.

2. Neighborhood Character and Increased Local Traffic

The Friends of Black Diamond have expressed a desire to maintain character and safety of their existing neighborhood.

ITE's Traffic Calming and Neighborhood Street Design Guidelines note that increased traffic volumes on local streets:

- Change functional classification behavior,
- Increase conflict points, and
- Reduce perceived and actual pedestrian safety.

The proposed development will route substantial new volumes through narrow, residential streets not designed under American Association of State Highway and Transportation Officials (AASHTO) local street guidelines for the projected increase in traffic. The study does not address these impacts.

3. Proposed Roadway Modifications May Worsen Access Conditions (AASHTO Driveway & Geometric Design Standards)

Several of the applicants' proposed "mitigation" measures—such as adding sidewalks, parking lanes, or widening pavement—would increase operational and safety risks. Under AASHTO's "Policy on Geometric Design of Highways and Streets" (Green Book):

- Increased roadway width often increases operating speeds,
- On-street parking reduces effective sight distance,

- Wider pavement without curb extensions increases pedestrian crossing exposure, and
- Driveways on widened sections require enhanced clear zones and sight-distance compliance.

For residents attempting to back out of driveways, on-street parking and higher traffic speeds create:

- Restricted sight distance,
- Increased conflict points, and
- Higher crash potential (AASHTO Driveway Design Guidelines).

The proposed modifications do not appear to meet AASHTO intersection sight distance (ISD) or stopping sight distance (SSD) requirements for the posted speeds.

4. Sight Distance Deficiencies (AASHTO SSD & ISD Requirements)

Several driveways and local intersections likely do not meet AASHTO sight distance standards, particularly where:

- Landscaping or fences create obstructions,
- On-street parking is proposed adjacent to driveways, or
- Roadway geometry limits approach visibility.

AASHTO requires compliance with:

- Stopping Sight Distance (SSD)
- Intersection Sight Distance (ISD)
- Approach Sight Triangles

The traffic study did not include a sight-distance inventory, even though the proposed changes directly affect sight-triangle visibility.

5. Crosswalk Placement & School Bus Loading Access (ITE School Transportation Safety Guidelines)

The study does not address safe routes to school, despite the project generating hundreds of new school-aged children. P.M. peak hours will not typically occur when school students are typically released.

ITE's "Design and Safety of Pedestrian Facilities" and the Safe Routes to School Guidelines require:

- Designated, marked crosswalks.
- Acceptable pedestrian sight distance
- Analysis of desire lines
- Traffic control warrants when school access is impacted.

The absence of any crosswalk plan or pedestrian safety analysis is not consistent with ITE or WSDOT pedestrian safety guidance.

6. Summary of Methodological Gaps

The traffic analysis does not meet standard engineering practice because it fails to:

- Evaluate the required A.M. peak hour (ITE & HCM)
- Assess neighborhood impacts in accordance with ITE neighborhood street design.
- Demonstrate compliance with AASHTO geometry and sight-distance requirements.
- Evaluate pedestrian and school access consistently with ITE pedestrian safety standards.
- Ensure proposed modifications do not degrade driveway and local street operations.
- Conduct a complete safety and operational evaluation under industry-recognized methodology.

7. In addition to the shear impact of increasing daily traffic volumes from 1,700 vehicles to 4,800 vehicles, the side effect of this increase in traffic volumes traffic volumes will change the nature and character of this neighborhood. These deficiencies must be addressed before the traffic impacts of the proposed development can be fully understood.

Friends of Black Diamond

FriendsofBlackDiamond@comcast.net

December 15, 2025

To: City of Black Diamond Hearing Examiner and City Council, staff contact
acampbell@blackdiamondwa.gov

Subject: PLN25-0006 Major Amendment to Development Agreement

Comments on Developer Application to Delay Pipeline Road

Introduction

These comments and the comments of many other people show that the City would be sacrificing its historic and small-town character by delaying Pipeline Road.

On SE 288th Street, people who live on that street and nearby are endure constant traffic noise, exhaust, and have safety concerns when people speed on this long, straight road. The issues are similar on the Lake Sawyer Road which has Ten Trails traffic traveling to or from SE 288th.

On Roberts Drive, the historic neighborhood was vibrant and walkable. In addition to the noise and traffic increase and the increase in speeding, now the power company PSE is attempting to buy easements from property owners to add more power lines to bring power to Ten trails. PSE would not need these if they put the power lines on pipeline road.

Roberts Drive with its older and/or smaller homes is affordable, so the increase in traffic is an environmental injustice to those who have few options. Roberts Drive homeowners will likely lose their property value, preventing them from moving, as OakPointe delays Pipeline Road and PSE removes beautiful trees to put up more power lines to serve more Ten Trails construction.

Black Diamond's population was 4,697 at the 2020 census. In 2023, with a 40.6% growth rate, Black Diamond was the fastest growing small city in King County. (Wikipedia). Developer OakPointe is behind or in violation of many of the promises they made with the Development Agreement. Allowing the public to subsidize more OakPointe profit by delaying Pipeline Road is not appropriate.

This document is submitted with several others because the photos of existing impacted neighborhoods result in large files.

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Growth Management (GMA) requires ensuring vitality, preservation, and improvement of existing neighborhoods:

WAC 365-196-410 (2)(g)(iii): “The housing element should identify strategies designed to ensure the vitality and character of existing neighborhoods. It should show how growth and change will preserve or improve existing residential qualities. The housing element may not focus on one requirement (e.g., preserving existing housing) to the exclusion of the other requirements (e.g., affordable housing) in RCW [36.70A.070](#)(2). It should explain how various needs are reconciled.”

When the city considers modifying the existing Development Agreement, it must consider this in light of current regulations. The city is required to “**ensure the vitality and character of existing neighborhoods.**” It must “**preserve or improve existing residential qualities.**” If we look back to the 2009 Comprehensive Plan and the 2010 MPD Approval, no one would say that these goals were not intended. But what has happened is the city is sacrificing existing neighborhoods so that new development can be added. The Pipeline Road is needed to meet the GMA and city goals of mitigating the impacts of growth.

The Master Planned Development Conditions of Approval Require Traffic Calming and Speed Control:

“30. The applicant shall apply road design speed control and traffic calming measures so that inappropriate speeds are avoided on neighborhood streets.”

“31. The timing of the design and alignment of the Pipeline Road shall be included as part of the Development Agreement.”

(see city ordinance 946, incorporated into the Development Agreement Ordinance 970)

The city should properly apply condition 30 to all streets impacted by the development, which includes Roberts Drive and SE 288th Street. Condition 30 is not limited to the new development. If Pipeline Road is not built now, then the developer must provide traffic calming such as increased vegetation and safety measures on Roberts Drive, SE 288th, and Lake Sawyer Road.

Condition 31 shows that Pipeline Road was always needed and the city's goal was to ensure people knew when it would be built and that it built before traffic became horrible. They did not intend to require that the new roundabouts be near failure before building Pipeline Road. That should not change.

The Development Agreement Specifies impacts are “mitigated” but with the proposed delay, that is no longer true:

“... Moreover, entering into this Agreement provides assurance to the Master Developer and its successors and assigns that: ... (iii) that this Agreement and its standards will be in effect for 15 years with the possibility of further extension; (iv) that mitigation measures for the Implementing Projects, including protections to the natural environment and improvements to the built environment necessary to appropriately mitigate probable, significant adverse impacts and accommodate the build out of The Villages MPD, are fully described in this Agreement;” (Villages D.A., page 4 from Ordinance 970)

If Pipeline Road is delayed past the requirement that it be built by the 1,746th unit, then the above statement is not accurate. Mitigation is not sufficient. The testimony of the residents and the evidence provided below make this clear.

Trigger for Pipeline Road is the EARLIER of degraded level of service or the building permit for 1,746th dwelling unit

Pipeline Road

The Pipeline Road shall be constructed by the Master Developer and open for traffic **prior to the earlier of:** (i) City's approval of a building permit for the 1746th Dwelling Unit of The Villages MPD; or (ii) when the Traffic Monitoring Plan (Exhibit "F") shows that construction is necessary ...

(The Development Agreement Section 6.4.3, Page 45-46)

The developer and city materials from Parametrix downplay or sometimes omit the “earlier” part of the above requirement. They like to focus on the level of service and ignore the 1,746 units.

The city staff report and this entire amendment completely ignore the point of setting the 1,746 unit trigger. The developer gives the city nothing in return, but requests that the Council simply pretend there was no reason for the trigger, and use a basic intersection L.O.S. analysis as is used by other transportation projects required in the D.A. But the Pipeline road is not other transportation projects.

This is a bait-and-switch. In 2011, developer agrees to a trigger that requires the road be built even if the intersections are not “failing” – this recognized that there were other impacts to not having a Pipeline Road – then in 2025 when it’s time to build the road, try to back out of the agreement.

It’s surprising that staff has not even recommended the developer provide more mitigation for the new traffic’s obvious impacts to the other city roads.

It’s surprising that staff didn’t ask for the city’s transportation review to assess neighborhood and walkability impacts.

It’s surprising that with a grocery store, a gas station, and a McDonalds coming to Ten Trails – none of which count toward the new proposed 2,800+ home trigger - staff is not concerned about the increased traffic that will impact residents of existing neighborhoods

Based on all of the neighborhood and safety issues, it is clear that the measure of “degraded level of service” construed as only whether intersection delays fail, is a completely inadequate definition. Ten Trails was built with a plan to keep the homes in Ten Trails safe from speeding and excess vehicle noise. The rest of the city must not suffer them as a result.

A major amendment allows the council to take all of the residents’ additional concerns and previously ignored neighborhood factors into account. If Council wants to require the master developer to add traffic calming, safety measures, etc., in order to grant a delay to Pipeline Road, the Council can do that as a condition of a major amendment.

Speeding and More Cars Add Neighborhood Noise and Safety Concerns

For many people, when they move out to Black Diamond, it is a greater distance from their job, and other places they need to go than they were used to before. Everything is far away.

People get tired of the length of time it takes to drive where they want to go, or they just run short on time. So, they speed more to try to gain some time back.

As a vehicle travels faster, road noise from tires becomes much louder.

- “Dominance Shift: At low speeds, engine noise is often louder, **but above about 25-30 mph (50 km/h), tire-road noise takes over** as the primary contributor to overall vehicle sound.
- Speed Relationship: **For every 10 mph increase in speed, the tire noise** can become approximately **twice as loud** (a significant decibel increase).”

Articles “describing strong correlations between traffic noise and a host of health problems, including heart attacks, strokes, obesity, diabetes, depression, and others.” - From <https://medium.com/swlh/the-sound-of-cars-400761fc71f2>

<http://www.onlinejacc.org/content/71/6/688> **Environmental Noise and the Cardiovascular System** in Journal of the American College of Cardiology (JACC)

<http://www.nonoise.org/library/smj/smj.htm> **Noise Pollution: A Modern Plague** by Lisa Goines, RN and Louis Hagler, MD in Southern Medical Journal

The safety concerns of drivers speeding through Black Diamond are intuitively understood by those who spend time in the area. Drivers don’t always see people in the crosswalks on Roberts Drive, and drivers don’t slow down for parked cars or driveways. All of this contributes to a feeling of, and a reality of, less safety for walking as more cars are added to the roads.

Lack Of Public Notice And Failure To Properly Identify The Proposal Location Contributing To Lack Of Notice

The SEPA adoption notice incorrectly states that this project, “Has no physical location.” This statement by the city is incorrect.

 27001 ROBERTS DRIVE
Black Diamond, WA 98010 FAX: (206) 851-7001
www.blackdiamondwa.gov

**ADOPTION OF EXISTING ENVIRONMENTAL DOCUMENT
FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS)
THE VILLAGES MASTER PLANNED DEVELOPMENT (MPD)**

Project Name: Major Amendment to The Villages Master Planned Development (MPD) Development Agreement (TV DA) regarding Pipeline Road Construction Timing

Application Number: PLN25-0006

Name of Applicant/Proponent: Oakpointe / CCD Black Diamond Partners LLC

Project Description: The applicant is requesting a Major Amendment to The Villages Master Planned Development (MPD) Development Agreement Section 6.4.3 to modify the language in this section regarding the deadline for when Pipeline Road must be constructed. This request proposes modifying the Dwelling Unit trigger for the construction and dedication timing of Pipeline Road from 1,746 Dwelling Units to 2,866 Dwelling Units. The Major Amendment request does not modify the acreage of the overall MPD, increase the number of lots within the MPD, decrease the required amount of open space to be provided, or modify the overall design of the approved MPD.

Location: The Major Amendment application impacts the Development Agreement for The Villages Master Planned Development and has no physical location. Pipeline Road will provide an east/west connection from the roundabout at the intersection of Lake Sawyer Road SE / Ten Trails Parkway SE to a future roundabout at State Route 169.

Title of Document Being Adopted: The Villages Master Planned Development Final Environmental Impact Statement (FEIS). Prepared by Parametrix on behalf of the City of Black Diamond and issued December 2009. The City of Black Diamond has identified and adopted this document as being appropriate for this proposal after independent review. The document meets our environmental review needs for the current proposal and will accompany the proposal to the decision maker. The FEIS meets the environmental review needs for the current proposal.

Description of Document Being Adopted: The FEIS for The Villages Master Planned Development identified the impacts of the MPD within the City of Black Diamond. The FEIS reviewed impacts and established required mitigation measures resulting from the development of the MPD.

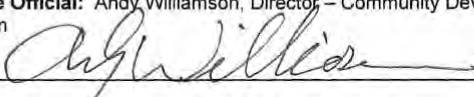
If the Document Being Adopted Has Been Challenged, Please Describe: The FEIS was administratively appealed with the City's Hearing Examiner issuing a Decision deeming the FEIS adequate in April 2010.

Adopted Document Availability: The Villages MPD FEIS is available for review on the City of Black Diamond's website at this location: <https://www.blackdiamondwa.gov/master-development-review-team/webforms/development-agreement-information>

Name of Agency Adopting Document: The City of Black Diamond

Staff Contact: Alex Campbell, Senior Planner – Master Development Review Team
acampbell@blackdiamondwa.gov, (360) 851-4544

Responsible Official: Andy Williamson, Director – Community Development and Master Development Review Team

Signature:  **Date:** 12/1/2025

Pipeline Road does have a physical location, and that location is in the Development Agreement (D.A.) as shown on the Staff Report Exhibit 1. Section 6.4.3 of the D.A. clearly defines the location of Pipeline Rd: from the Lake Sawyer Road near Ten Trails to State Route 169 in the vicinity of the Black Diamond Ravensdale Rd. Further, this section defines the location of the impacted area as Roberts Drive by specifically indicating that

Pipeline Rd. must be built prior to significant adverse degradation of level of service on Roberts Drive.

More importantly, the areas taking the additional traffic as a result of this major amendment DO have a physical location. They are alternate driving routes between, “the intersection of Lake Sawyer Road SE / Ten Trails Parkway SE” to State Route 169.

This difference is very important. If there were a physical location, then the developer and city would have been required to ensure that everyone along those roads received a notice of this hearing.

Independent Review Requirement of SEPA not followed because SEPA official not independent

The Official who signed off on the SEPA notice (shown above in the prior section) is not in an appropriately unbiased position

The Director of the MDRT is Andy Williamson, who is in charge of all permit applications. Now, the city has also made him the SEPA Official.

The SEPA official should be focused on SEPA

197-11-630 Adoption-Procedures.

(1) The agency adopting an existing environmental document must **independently** review the content of the document and determine that it meets the adopting agency's environmental review standards and needs for the proposal...

Therefore, the official in charge of determining that additional impacts warranted further SEPA review is the official who presided over the staff report and the application that says there are no impacts. SEPA's requirement for an independent review is designed to prevent this kind of natural “tunnel vision.”

A separate individual at the city with true SEPA autonomy could have determined that after 15 years, and having heard from people who are impacted negatively by the traffic and safety concerns, that a supplemental EIS was needed.

SEPA Checklist was not even completed, but SEPA impacts warranted a supplemental EIS and/or mitigation condition

The applicant did not even complete a SEPA checklist, yet the SEPA official simply adopted existing environmental documents. A thoughtful review of the questions on checklist could have identified more impacts, which would lead to further SEPA review.

SEPA requires that previously unidentified impacts be addressed:

WAC 197-11-405 (4)

(4) A supplemental EIS (SEIS) shall be prepared as an addition to either a draft or final statement if:

- (a) There are substantial changes to a proposal so that the proposal is likely to have significant adverse environmental impacts; or
- (b) There is significant new information indicating, or on, a proposal's probable significant adverse environmental impacts.

A SEPA input process would provide the public with much more opportunity to give input, and the **decision makers with much more information on the true impacts and potential mitigations.**

Safety problems at both ends of SE 288 St.

The following is the Collision History from the Traffic Provide the reported collision history At SR 169 / SE 288th from OakPointe's Ten Trails *Plat 3A Traffic Impact Study* from earlier this year. We can see that intersections at both ends of SE 288th Street have higher than average collisions. The Covington-Sawyer Road/216th Ave SE is an intersection immediately south of the 288th St/ 216th Ave SE intersection that vehicles headed to and from Ten Trails using 288th would pass through.

Intersection Collision Analysis

Collisions at study intersections were determined using WSDOT's classification of the "Junction Relationship" of the collision as well as by reviewing collisions that were noted to occur within 200 feet of intersections. All collisions that were classified as "At Intersection and Related" or "Intersection Related but Not at Intersection" were included. Collisions adjacent to intersections were also reviewed to determine whether the cause was related to the intersection (e.g., rear-end type collisions) or related to the roadway (e.g., fixed-object collisions) and included in the collision summaries. The number of collisions reported at these intersections are summarized in Table 4.

Table 4. Five-Year Collision Summary at Intersections – 2019 to 2023

Intersection	2019	2020	2021	2022	2023	Total	Annual Collisions Average per MEV ¹	
SE 288th St/216th Ave SE	2	2	1	2	4	11	2.20	0.55
SE 288th St/232nd Ave SE	0	0	0	0	0	0	0.00	0.00
SE Covington-Sawyer Rd/216th Ave SE	3	0	2	6	4	15	3.00	0.67
SE Auburn-Black Diamond Rd/218th Ave SE	0	1	2	2	1	6	1.20	0.41
Roberts Dr/Lake Sawyer Rd SE	0	2	0	0	0	2	0.40	0.14
Roberts Dr/Morgan St	1	0	0	0	0	1	0.20	0.09
SR 169/SE 288th St	4	4	2	4	1	15	3.00	0.55
SR 169/SE Black Diamond-Ravensdale Rd	3	7	2	1	3	16	3.20	0.60
SR 169/Roberts Dr	2	1	1	0	0	4	0.80	0.15
SR 169/Baker St	1	1	3	2	1	8	1.60	0.37
SR 169/Lawson Rd	0	2	0	2	1	5	1.00	0.24
SR 169/Jones Lake Rd	0	0	1	2	0	3	0.60	0.15
SR 169/SE Green Valley Rd	1	1	0	0	1	3	0.60	0.15
SE Kent-Kangley Rd/Landsburg Rd SE	6	3	0	1	1	11	2.20	0.60
SE Auburn-Black Diamond Rd/SE Green Valley Rd	0	1	0	0	0	1	0.20	0.05

Source: WSDOT, 2024.

OakPointe has worked on some of these intersections, but they still don't feel safe.

The photo below is the intersection still not done at SE 288th St/216th Ave SE. The non-working traffic signal that OakPointe started but was delayed from completing is still not work. It has been several years since it was triggered for construction. Photo taken

November 21, 2025 by Phil Acosta of Black Diamond. SE 288th St and 216th Ave SE.



Other Intersection Improvements Delayed

The intersection improvements at Roberts Drive and SR 169, Ravensdale Road and SR 169 started about 5 years after they were warranted per the traffic monitoring plan. This is a long time for people to wait. The intersection improvements at SR 169 and Baker St and Lawson St should start soon, but are not going to start on time. As pointed out above, the intersection at SE 288th St/ 216th Ave is delayed.

These are reasons that delaying Pipeline Road is risky. We have no assurance that when the road is needed even more badly, after over 1,000 additional homes at the new trigger, that the developer will timely complete the project.

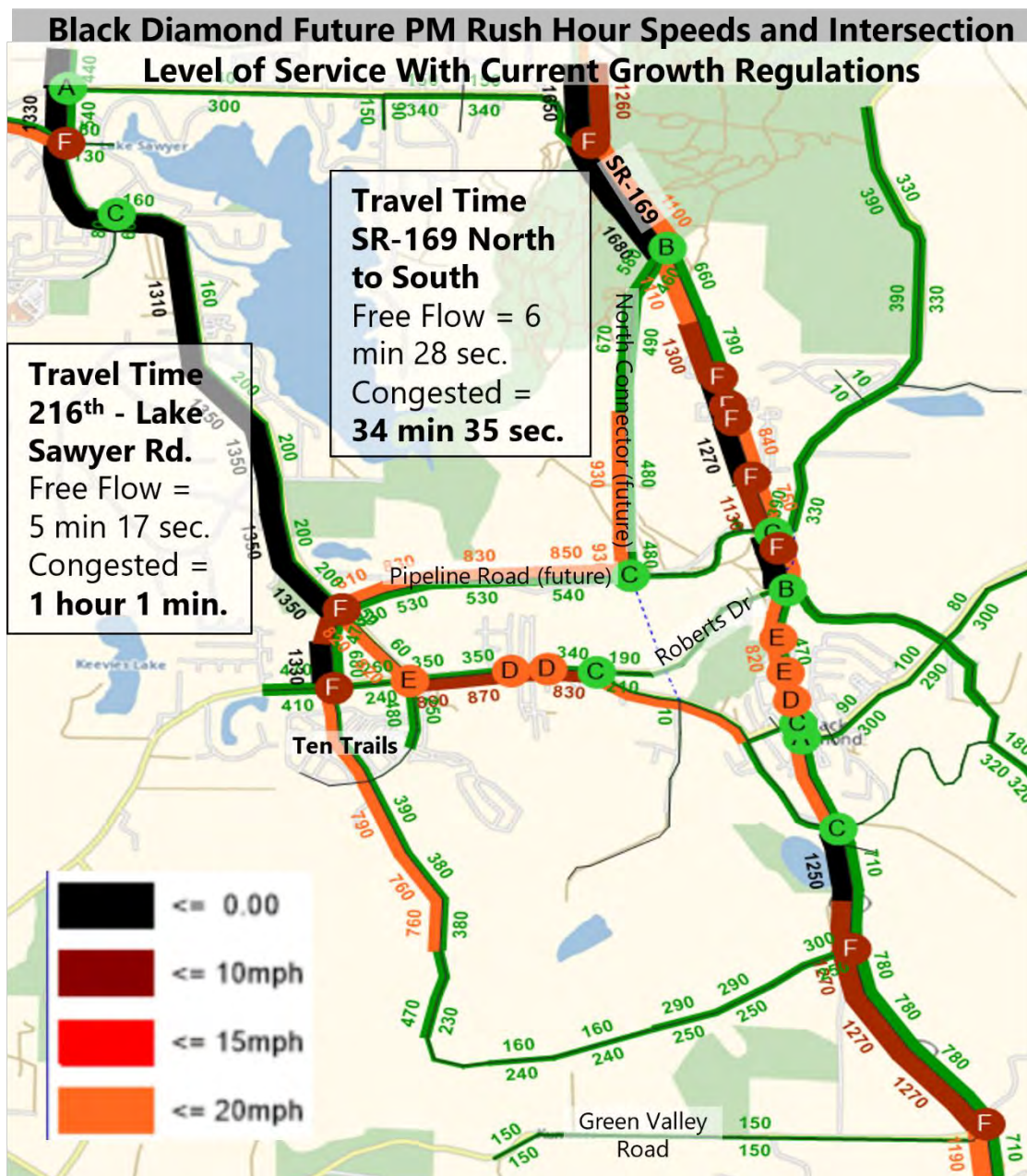
The developer should not get to delay Pipeline Road after coming up short on so many of their road projects so far.

The developer will be quick to point out that these intersections have reached or soon will reach their construction start trigger. However, we now know that construction start triggers can be delayed for numerous reasons (see all intersections on SR 169), and construction START has almost nothing to do with construction FINISH which can be 6 years after the trigger.

Traffic not evaluated at side streets to Roberts Drive, nor at side streets along the Lake Sawyer Road

Roberts Drive intersections at Union Dr, Morgan St., Sunny Lane, Bruckners Way, and intersections on Lake Sawyer Road at SE 312th St and SE 307th St., etc. were not evaluated. These can experience significant delays and/or safety issues with increased traffic.

The map below was created by professional Transportation Planner Ross Tilghman and Transportation Engineer Bob Shull for the Friends of Black Diamond in 2021.



The above map evaluates some stop-controlled intersections along city arterials that are left out of OakPointe's transportation analysis. Even with Pipeline Road, several intersections that cross Roberts Drive would be close to failure.

Lake Sawyer Road cross-streets were not evaluated, but would be impacted as this road becomes extremely congested. Ten Trails are also very impacted by delays and safety concerns if Pipeline Road is not built soon.

OakPointe is building a Safeway, a Chevron Station, and a McDonalds. We need the Pipeline Road.

The original plan for retail at Ten Trails Was for walkable shops. The actual retail that is currently permitted for construction is the opposite. The city and the developer are allowing a Safeway, a Chevron gas station and convenience store, and a McDonald's. Grocery shopping means people have a lot of stuff to carry home so they need their car. A gas station and a McDonald's are clearly car-oriented.

OakPointe may argue that they have factored this traffic into their analysis, but what if they're analysis is not correct?? There will be no recourse but to wait until the new trigger for the delayed Pipeline Road major amendment.

The new retail at Ten Trails is going to result in many more cars on Black Diamond's local neighborhood roads getting to this retail. It's going to increase the impacts of noise and safety and the issues that people are saying negatively impacts their lives.

Impact of OakPointe on Roberts Drive road shoulders

Roberts Drive has gravel shoulders in some places, where the gravel and grass begins immediately at the edge of the travel lane. In 2023, after years of construction trucks and other traffic from Ten Trails, ruts where the gravel was deeply worn away were becoming more of a problem on the shoulder. In the past, when ruts formed, public works could fill them in. But now they were worse and more frequent.

Thus, in September of 2023 the city council voted to pave the road shoulders near the east end of Roberts Dr. See Council meeting material from Sep. 9, 2023, AB23-050. However, there was no consideration of traffic calming. The extra width on these shoulders, especially the corner, encourages cars to drive faster on Roberts Drive.

The previous project to add sidewalks as the city grows – by OakPointe west of the Rock Creek bridge, and by the city east of the Rock Creek bridge, also were done in a way that widened the pavement along the travel lane. Again, this encourages faster driving.

The city staff in the staff report that these faster travel speeds are an impact of development. They fail to consider that traffic calming measures as required by the Development Agreement should be applied as vehicle travel to and from the OakPointe development increases.

Level Of Service For On-Duty Firefighters Not Met

Delaying Pipeline road will have two major categories of impacts: One is the extra traffic and safety concerns described by many. The other is that it will encourage OakPointe to develop more houses, faster, as their costs are lower and their infrastructure requirements reduced.

This means more people moving to the area with a **poor level of service for Emergency and Fire and EMS response. This level of service is specifically called out in the Development Agreement, but OakPointe is not meeting their requirement.** Again, this is a reason that it is a bad idea to allow Pipeline Road to be delayed.

The level of service for fire fighters to serve the city required by Ord. 970, the Ten Trails D.A. is:

“Level of Service
The City has an LOS standard of 1.4 on-duty career firefighters per 1,000 population.”

(Vested City of Black Diamond Comprehensive Plan June 2009, pg. 8-24: 8.7.3.)

Calculations below show the fire fighters needed based on this Level of Service.

	Year 2010	November 2025
Level of Service standard: On-duty career firefighters per 1,000	1.4	
Population size for the above on-duty career firefighter	1000	
Population of Black Diamond ¹	4,100	8,000
Population divided by 1000	4.1	8
On-duty Career Firefighters needed for above population (1.4 firefighters on duty per 1000 population)	5.74	11.2

The level of service agreed to with the Ten Trails Development Agreement requires 11.2 fire fighters to serve the current population, but there are not that many fire fighters funded by or serving the city.

On September 21, 2023, the MountainView Fire Department, which serves the city of Black Diamond, presented at the Black Diamond City Council meeting. Slides summarizing the

¹ Washington State Office of Financial Management Population Estimates and History.
<https://ofm.wa.gov/washington-data-research/population-demographics/population-estimates>

fire service provided and costs to the city were presented. Some of the slides are shown below from Mountainview Fire Department Sept. 21, 2023.

The city is served mainly by Fire Station 98. The station is staffed by 8 fire fighters, which covers 2 on duty at all times. The cost to operate (not capital, just operation) this station at this level is \$3.2 Million dollars (2023).

The city of Black Diamond pays Mountainview fire only \$1.1 Million dollars per year (2023). These figures are similar for 2024.

Not only does the level of service the city set require more fire fighters to serve the population, state law requires 3 firefighters on the scene to attempt to rescue a person from a structure fire.

Black Diamond is free to negotiate with Mountainview for additional on-duty personnel, however, Black Diamond is not getting funds as intended from Ten Trails tax Revenue.

Ten Trails Development Agreement requirements:

“The project, at all phases and at build-out, will not result in the lowering of established staffing levels of service including those related to public safety.”

(vested Black Diamond Municipal Code (BDMC) 18.98.080(A)(5), underline added)

“... Each updated fiscal analysis shall confirm that revenue from The Villages MPD is sufficient to maintain levels of service for police and fire services as such levels of service are adopted in the Comprehensive Plan (Exhibit ‘E’).”

(Ord. 970, D.A. Section 13.6(1)(i), pg. 129, underline added)

The D.A. requires a yearly comparison of the Fiscal Analysis to the city budget. Such a review would indicate whether the budget matches the public safety funding needed according to the Fiscal Analysis. However, the Staff Report makes no mention of this Annual Review and there is no evidence any comparison was done. Requirement:

“a. As part of the Annual Review pursuant to the terms of the Funding Agreement, the Designated Official and Master Developer shall meet to review the projections of the Fiscal Analysis compared to the City's budget.”

(Ord. 970, D.A. Section 13.6(6), pg. 133, underline added)

As evidence of a shortfall, there has been repeated discussion at city council meetings for the last year of the need for more funding for the fire department, and the Council plans to put a levy to the voters in 2026 to raise taxes.

At the Mountainview Fire Department Commissioners’ meeting on March 28, 2024, a commissioner expressed that the city is receiving a gifting of public funds from the other

taxpayers in the Mountainview fire district (and not in the Black Diamond city limits) because the city is not paying its fair share to serve the city population.

The resulting problem is that the public safety of the city is suffering. This is determined by the Council-approved Ordinance 970, Development Agreement that determines that the public needs more fire fighters to be adequately served.

Public Health and Safety are requirements of an amendment to the Master Plan. See requirements from Title 18 at the end of this document.

The City Council's proposal to annex into the Puget Sound Regional Fire (SP) is not sufficient to meet D.A. requirements. Moreover, the voters may not approve the annexation, so provisions need to be in place to deal with this eventuality.

Safety – Emergency Response as More People use Constrained Road Network

Without Pipeline Road, there are fewer routes for EMS and other emergency services to use to get across town from the west at Fire Station 98 to respond.

Appendix: Mountainview Fire Department Sept. 21, 2023



Current Interlocal Agreement

• Section 3.3 Staffing Levels

- **Minimum Staffing.** It is intended that Station 98 will be staffed 24 hours per day, seven days per week, with a minimum of two (2) on-duty career firefighters located on site. This minimum staffing level will be supplemented with volunteer personnel when available
- **Staffing Review.** The City and District shall periodically review staffing level needs in order to take into account needed levels of service for the City as its population and commercial base increases. If another Fire Station is built in the City of Black Diamond, staffing of that station shall be negotiated between the City and the District, based upon the cost for such services and the City's adopted level of service standard. The City shall give at least 365 days notice to the District of the anticipated opening of the new Fire Station to give the District sufficient time to hire and train adequate personnel to operate the new Fire Station at the agreed staffing level at the City's expense from the date of hire



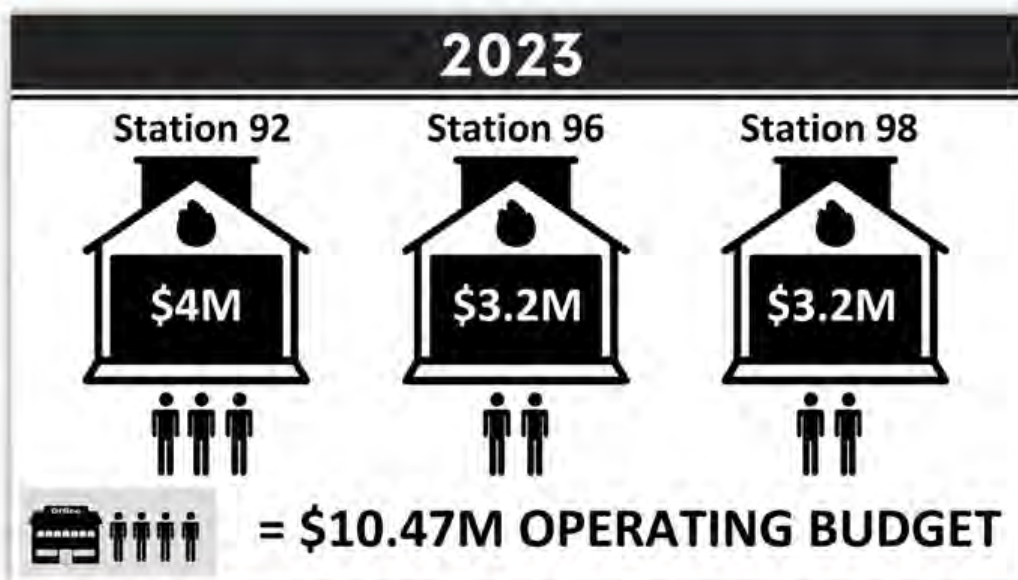
Current Interlocal Agreement

- **Section 4 Payment for Services** (Also in Exhibit A)
 - 2023 fire service contract rate \$1,101,100.00
 - 100% of EMS Levy Tax Revenue will be assigned to the District
 - City to pay MVFR the actual cost for Fire Marshal services per Section 3.6
- **Section 6 Fire Stations**
 - Fire Station 98 is the only currently occupied building in use by the City
 - Major repairs in excess of \$1000 per occurrence are the responsibility of the City
 - Routine maintenance and utilities are the responsibility of the District



Minimum Staffing

- In 2022, the MVFR Board of Commissioners changed the minimum level of staffing at District Fire Station 92 to a minimum staffing of 3 firefighters on duty 24/7
- State law requires a minimum of 3 firefighters (**2in/1out**) on scene to attempt a rescue on a structure fire with a known victim inside
- State law requires a minimum of 4 firefighters (**2in/2out**) on scene to perform interior fire attack on a structure fire
 - WAC 296.305 states:
 - (Section 4) Initial attack operations must be organized to ensure that if, on arrival at the emergency scene, responders find a known rescue situation where immediate action could prevent the loss of life or serious injury, such action must only be permitted when no less than three personnel (2-in/1-out) are present and equipped to provide emergency assistance or rescue of the team entering the hot zone.
 - No exception must be allowed when there is no possibility to save lives or no "known" viable victims.
 - (Section 5) Firefighters must not engage in interior structural firefighting in the absence of at least two standby firefighters (2-in/2-out) except as provided in WAC 296-305-05002(Section 4)
- MVFR is the only career staffed fire department in King County with 2 firefighter minimum staffing at fire stations



Other Neighborhood Impacts, Omission of A.M. traffic impacts, and Counts of Average Daily Traffic

The staff report and developer Transportation analysis ignore necessary information about the impacts of delaying pipeline Rd. They focus on measuring whether intersections perform at a level of service D or above. However they fail to count the total daily traffic. This total daily traffic brings noise and pollutants.

They also fail to account for impacts such as site distance and safety problems leaving driveways. They failed to account for reduced property values of people on busy streets as traffic increases.

The transportation analysis focused on the “PM Peak Hour”, and so it failed to account for conflicts as drivers leave in the morning and difficulty getting onto major roadways.

There are additional impacts and the reasons for them are described in the attached transportation analysis that transportation engineer Gary Norris provided for the impacts of additional traffic on Lawson St. - a similar major amendment application to the city. While Mr. Norris does not specifically address Pipeline Road, much of his analysis is applicable.

See Traffic Engineer Comments 12-12-25 Gary Norris.pdf

Failure to ensure the MPD does not have adverse fiscal impact.

It is an MPD requirement that there be “no adverse fiscal impact on the city,” and developer OakPointe is failing to meet this requirement. Therefore, it is not appropriate to grant them a delay to Pipeline Road.

The Fiscal Analysis (FIA) approved in 2024 and referenced in the Plat 3A Staff Report was intended to satisfy this requirement. However, the Analysis is demonstrably inaccurate to the city’s fiscal detriment, and the city has failed to do the required Annual Reviews to address this.

Impact

If the fiscal analysis is wrong and the City is not receiving expected tax revenue, then the public does not receive a benefit of a better-funded government. Also, if the Fiscal Analysis is wrong and the MPD is imposing unanticipated costs on City services, then the public does not benefit.

Failure to meet fiscal analysis obligations under the Development Agreement and Title 18 means this proposed major amendment is not be consistent with MPD conditions.

The developer has also not demonstrated continued compliance with required Annual Reviews (see Development Agreement Section 13.6, item 6. This review requires a comparison of city revenue and budget to the MPD fiscal analysis .

The city staff report and applicant materials contain no reference to the required Annual Review. If Reviews were conducted, there would have been an Annual Review in fall of 2024 and another in fall of this year, 2025. Both would show that the **actual city tax revenue is lower than the approved Fiscal Analysis’s projected tax revenue.**

Fiscal shortfalls are , in fact, impairing fire & EMS, and infrastructure services, constituting a threat to public health and safety.

This undermines any finding that “public use and interest is served” by this major amendment.

The Fiscal Impact Analysis (FIA) accepted January 2024, shows on page 20 that it was predicated on OakPointe selling 600 homes in 2025, this year. And more than 600 homes in 2026, 2027, etc. (see next page)

Table 1F
Fiscal Impact Analysis
Unit Sale Build Out and Absorption Schedule
All Phases Combined

	2023 Value		Year												
	Finished Lot	Finished Unit	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Residential															
Apartments	\$60,000	\$400,000	-	-	-	17	88	71	-	-	-	6	37	30	-
Condos/Stacked Flats	\$105,000	\$450,000	-	-	-	-	-	-	-	-	-	1	8	6	-
Townhomes	\$185,000	\$700,000	-	-	7	29	59	-	-	106	273	185	203	185	7
Duplex/Duets/30x80 Alley	\$230,000	\$750,000	-	-	14	14	-	-	-	-	13	18	24	24	2
35x75 Alley Bungalows	\$239,201	\$780,004	-	-	-	-	-	-	-	-	-	-	-	-	-
35x90 Alley	\$255,093	\$780,004	-	-	10	47	29	36	1	-	12	27	24	25	2
40x85 Alley	\$289,085	\$885,531	-	1	10	29	25	32	-	-	10	24	25	25	2
45x85 Alley	\$300,000	\$926,400	-	9	11	1	2	12	2	-	7	14	21	21	2
50x80 Alley	\$316,526	\$970,000	-	2	12	3	3	6	5	-	11	14	11	11	1
45x110 Alley w/Carriage	\$300,000	\$925,000	-	-	-	-	-	-	-	-	5	7	14	14	1
40x90 - 100	\$318,108	\$918,264	-	-	40	70	85	43	-	-	104	127	128	131	11
45x90 - 100	\$350,022	\$1,007,640	-	-	3	4	3	2	1	-	12	20	9	8	-
50x90 - 100	\$360,037	\$1,047,661	-	-	36	40	89	50	15	-	41	85	121	124	11
55x90 - 100	\$387,750	\$1,175,000	-	-	-	-	-	2	7	-	11	16	33	33	3
60x90 - 100	\$441,731	\$1,338,580	-	-	2	-	25	23	28	-	19	31	53	54	4
AA 45'	\$279,000	\$900,000	-	-	-	-	-	15	22	12	13	22	-	-	-
AA 50'	\$294,500	\$950,000	-	-	-	-	-	30	35	29	24	50	-	-	-
AA 60'	\$317,440	\$1,024,000	-	-	-	-	-	16	12	11	8	18	-	-	-
AA Auto Court	\$255,750	\$825,000	-	-	-	-	-	19	1	30	32	-	-	-	-
Cluster/Auto Court	\$260,000	\$775,000	-	-	-	-	-	-	-	-	-	1	1	1	-
Cottage	\$200,000	\$575,000	-	-	-	-	-	-	-	-	1	1	2	2	-
Annual Total Units			-	12	145	254	408	357	129	188	596	667	714	694	50
Cumulative Units			-	12	157	411	819	1,176	1,305	1,493	2,089	2,756	3,470	4,164	4,670
Non-Residential															
Retail			-	-	-	-	-	-	-	-	-	-	-	-	-
Office			-	-	-	-	-	-	-	-	-	-	-	-	-
Annual Total Square Feet			-	-	-	-	-	-	-	-	-	-	-	-	-
Cumulative Total Square Footage			-	-	-	-	-	-	-	-	-	-	-	-	-

Source: Developer

(page 20, 2024 Fiscal Impact Analysis (FIA))

On paper, in the 2024 Fiscal Analysis, projected home sales made it look like there would be a large amount of retail sales tax flowing to the city on materials used to build the homes. It also looked like there would be a large amount of real estate excise tax on home sales. Neither occurred at anywhere close to 600 units in 2025, nor can be reasonably expected to occur next year, etc.

Once the homes are built, the new residents begin to use city services, and their ongoing property taxes are not enough to cover the cost of those services.

See BDMC **18.98.080 MPD Permit Conditions of Approval**

“3. The proposed project will have no adverse financial impact upon the city at each phase of development, as well as at full build-out. The fiscal analysis shall also include the operation and maintenance costs to the city for operating, maintaining and replacing public facilities required to be constructed as a condition of MPD approval or any implementing approvals related thereto. This shall include conditioning any approval so that the fiscal analysis is updated to show continued compliance with this criteria, in accordance with the following

schedule:

- a. If any phase has not been completed within five years, a new fiscal analysis must be completed with regards to that phase before an extension can be granted;”

With OakPointe not meeting fiscal requirements of the city and of the MPD, it is not appropriate to approve a Major Amendment that results in further detriment to the city residents.

No Excuses

It is understandable that it is difficult for the developer to timely meet all their infrastructure requirements. OakPointe **wanted to build 6,000 houses in a rural area with tiny roads and no infrastructure**. They don't get out of their commitments because "it's hard." They knew what they were getting into; the people TOLD them what they were getting into.

The D.A. Can No Longer Be Amended because the MPD Approval is expired.

MPD Approval lasts 15 years from the MPD permit. In addition, according to staff's comments at city meetings this fall, applications for all future plats were already submitted by the developer and are now vested to the existing agreement.

Development Agreement, section 15.16:

15.16 TERM
"Build-Out" Period of fifteen (15) years following the date of the MPD Permit Approval is established for all the Development and construction of uses in The Villages MPD as authorized in BDMC 18.98.195(A) (Exhibit "E") and RCW 36.70B.170(3)(i)."

The MPD Permit approval took place on September 20, 2010, as Ordinance 946. The 15-year buildout period for (the Villages) Ten Trails expired as of September 20, 2025. The developer submitted plat applications so they may be able to continue developing under the current agreement.

But, the entire development is vested to the existing version of the agreement. The MPD approval has expired, so there is nothing to amend.

MPD Approval Criteria – CITY CODE

Given all of the comments submitted by the public, and the related documents and supporting materials, The purpose of the MPD permit, and the approval criterial for delaying Pipeline Road are not met.

18.98.010 Master planned development (MPD) permit-Purpose.

The purposes of the master planned development (MPD) permit process and standards set out in this chapter are to:

- A. Establish a public review process for MPD applications;
- B. Establish a comprehensive review process for development projects occurring on parcels or combined parcels greater than eighty acres in size;

C. Preserve passive open space and wildlife corridors in a coordinated manner while also preserving usable open space lands for the enjoyment of the city's residents;

D. Allow alternative, innovative forms of development and encourage imaginative site and building design and development layout with the intent of retaining significant features of the natural environment;

E. Allow flexibility in development standards and permitted uses;

F. Identify significant environmental impacts, and ensure appropriate mitigation;

G. Provide greater certainty about the character and timing of residential and commercial development and population growth within the city;

H. Provide environmentally sustainable development;

I. Provide needed services and facilities in an orderly, fiscally responsible manner;

J. Promote economic development and job creation in the city;

K. Create vibrant mixed-use neighborhoods, with a balance of housing, employment, civic and recreational opportunities;

L. Promote and achieve the city's vision of incorporating and/ or adapting the planning and design principles regarding mix of uses, compact form, coordinated open space, opportunities for casual socializing, accessible civic spaces, and sense of community; as well as such additional design principles as may be appropriate for a particular MPD, all as identified in the book Rural By Design by Randall Arendt and in the city's design standards;

18.98.20 MPD permit-Public benefit objectives.

A specific objective of the MPD permit process and standards is to provide public benefits not typically available through conventional development. These public benefits shall include but are not limited to:

A. Preservation and enhancement of the physical characteristics (topography, drainage, vegetation, environmentally sensitive areas, etc.) of the site;

B. Protection of surface and groundwater quality both on-site and downstream, through the use of innovative, low-impact and regional stormwater management technologies;

C. Conservation of water and other resources through innovative approaches to resource and energy management including measures such as wastewater reuse;

D. Preservation and enhancement of open space and views of Mt. Rainier;

E. Provision of employment uses to help meet the city's economic development objectives;

F. Improvement of the city's fiscal performance;

G. Timely provision of all necessary facilities, infrastructure and public services, equal to or exceeding the more stringent of either existing or adopted levels of service, as the MPD develops; and

H. Development of a coordinated system of pedestrian oriented facilities including, but not limited to, trails and bike paths that provide accessibility throughout the MPD and provide opportunity for connectivity with the city as a whole. (Ord. No. 897, § 1(Exh. A), 4-16-2009)

18.98.80 MPD Permit Conditions of Approval

A. An MPD permit shall not be approved unless it is found to meet the intent of the following criteria or that appropriate conditions are imposed so that the objectives of the criteria are met:

1. The proposed MPD meets or exceeds all of the public benefit objectives of [Section] 18.98.020 and the MPD purposes of [Section] 18.98.010(B) through (M).

A threat to public health and safety should cause development to be amended.

BDMC 18.14.30

E. Notwithstanding any other provisions of this chapter, the city may amend, alter, or suspend any vested rights created by the filing of a complete permit application and/ or preliminary or final plat approval where the city's legislative body finds that a change in conditions creates a serious threat to public health or safety in the permitted area if development were to proceed under the vested rights.

Friends of Black Diamond

FriendsofBlackDiamond@comcast.net

December 15, 2025

To: City of Black Diamond Hearing Examiner and City Council, staff contact
acampbell@blackdiamondwa.gov

Subject: Roberts Dr. Photos related to PLN25-0006, part 2

Photos of Roberts Drive, Black Diamond, WA with Comments on Impacts – Part 2

Impact on Ginder Creek, Rock Creek, and Sensitive Areas of more cars

Roberts Drive crosses the Rock Creek wetland near Ten Trails, with the road a few feet from this sensitive wetland and salmon stream.

Further east, near State Route 169, Roberts Dr. is parallel to Ginder Creek, a salmon stream that flows through town and joins up with Rock Creek.

The increase in pollutants from vehicle tires and emissions will harm these natural waters, and the city has failed to take that into account. We can expect to see a doubling of traffic volume with a delayed Pipeline Road. Roberts Drive could go from from 2,000 to 4,000 cars per day (Average Annual Daily Traffic or AADT). This would likely result in a **measurable increase in the concentration of pollutants and a higher degree of stress** on a creek ecosystem. This change exacerbates the existing "urban stream syndrome" symptoms, leading to specific, identifiable differences in the creek's health.

Specific Impacts of Increased Traffic

- Increased Pollutant Load: The primary impact is the increase in non-point source pollution washed into the creek via stormwater runoff. As traffic volume increases, so does the accumulation of traffic-related contaminants on road surfaces, including:
 - Heavy metals: Such as copper, lead, and zinc, from tire and brake pad wear, and engine parts.
 - Hydrocarbons and oils: Leaked fluids like oil, grease, and brake fluid.

- Organic contaminants: A wide array of chemicals from vehicle fluids, tires, paints, and coatings.
 - Deicing salts: Increased use during winter months contributes sodium, potassium, and chloride ions to the water.
- Changes to Hydrology and Habitat: The presence of the road itself creates impervious surfaces, altering natural water flow patterns. The increased runoff associated with development and higher traffic volumes causes:
 - Increased flow velocity and volume: This can lead to increased frequency and severity of minor floods.
 - Channel erosion and sedimentation: Higher flow rates act like sandpaper, intensifying erosion of stream banks and depositing fine sediment downstream, which smothers aquatic habitats and reduces the food base for aquatic life.
- Biological Degradation: The combination of chemical pollutants and habitat changes directly harms aquatic life.
 - Altered species composition: The abundance of pollution-sensitive animals, such as certain fish and shrimp species, may decline, while pollution-tolerant organisms like specific worms become more abundant.
 - Reduced biodiversity: The overall aquatic habitat is degraded, leading to a loss of the complex natural habitats needed for many species to thrive.

In essence, doubling the traffic load from a low baseline to a moderate one significantly increases the *amount* of readily mobilizable contaminants available for wash-off during rain events, pushing the creek further into an impaired condition.

Recent weather gave us an example of how urban runoff enters Ginder Creek easily. Water from the rainfall this December of 2025 caused Ginder Creek to flood over Roberts Drive. Ginder Creek is always a few feet from vehicle tires. If the road were built to current standards, it would have a 150-foot forested buffer that would clean and absorb this dirty storm runoff (see Black Diamond Municipal Code 19.10.325 - Fish and wildlife habitat conservation areas—Water bodies—Buffers). But right now the best we can do is try to limit traffic on Roberts Drive.

Photos of **Ginder** Creek flooding onto Roberts Drive east of the the State Route 169 intersection, both taken December 10, 2025 by William G. Bryant



Commented [KB1]: Need to get dad's photos off his phone



During such storms, emergency service calls and needs often go UP so the impact of a flooded road is compounded.

This flooding happens every so often, the last time was in 2019.

Photos from Google Maps view, captured December 14, 2025.

Location and Google image capture date shown on images. These images are approaching Diamond Village and Ginder Creek and SR 169 to the east.



This guard rail prevents cars from driving into Ginder Creek.



Ginder Creek is just a few feet from the Road at the east end of Roberts Drive. This salmon stream often has baby salmon in it.



Entrance to Diamond Village (near SR 169) with approximately 50 affordable homes of approximately 1100 sq feet each.



December 15, 2025

To: City of Black Diamond Hearing Examiner and City Council, staff contact
acampbell@blackdiamondwa.gov

Subject: PLN25-0006 Major Amendment to Development Agreement

Photos of SE 288th Street, and of Lake Sawyer Road, Black Diamond, WA

- The photos starting on the next page were taken starting at the west end of SE 288th St, then heading east. Pictures are inserted in order, west to east.
- House numbers can be seen in the photos to show the approximate location.
- Starting on Page 15, there are photos of the Lake Sawyer Road

The pictures document how many driveways are along these road. Some people must back out of their driveways, but traffic can travel very fast on this road. SE 288th St is long and straight, and speeding is common.

In addition, many drivers don't realize how many homes and pedestrians are in the area, and this can make it dangerous to be on the road shoulder.

Without Pipeline Road, these residents experience more noise, pollution, and safety concerns.

























The orange sign below says “Drive like your kids live here”



Lake Sawyer Road and driveways

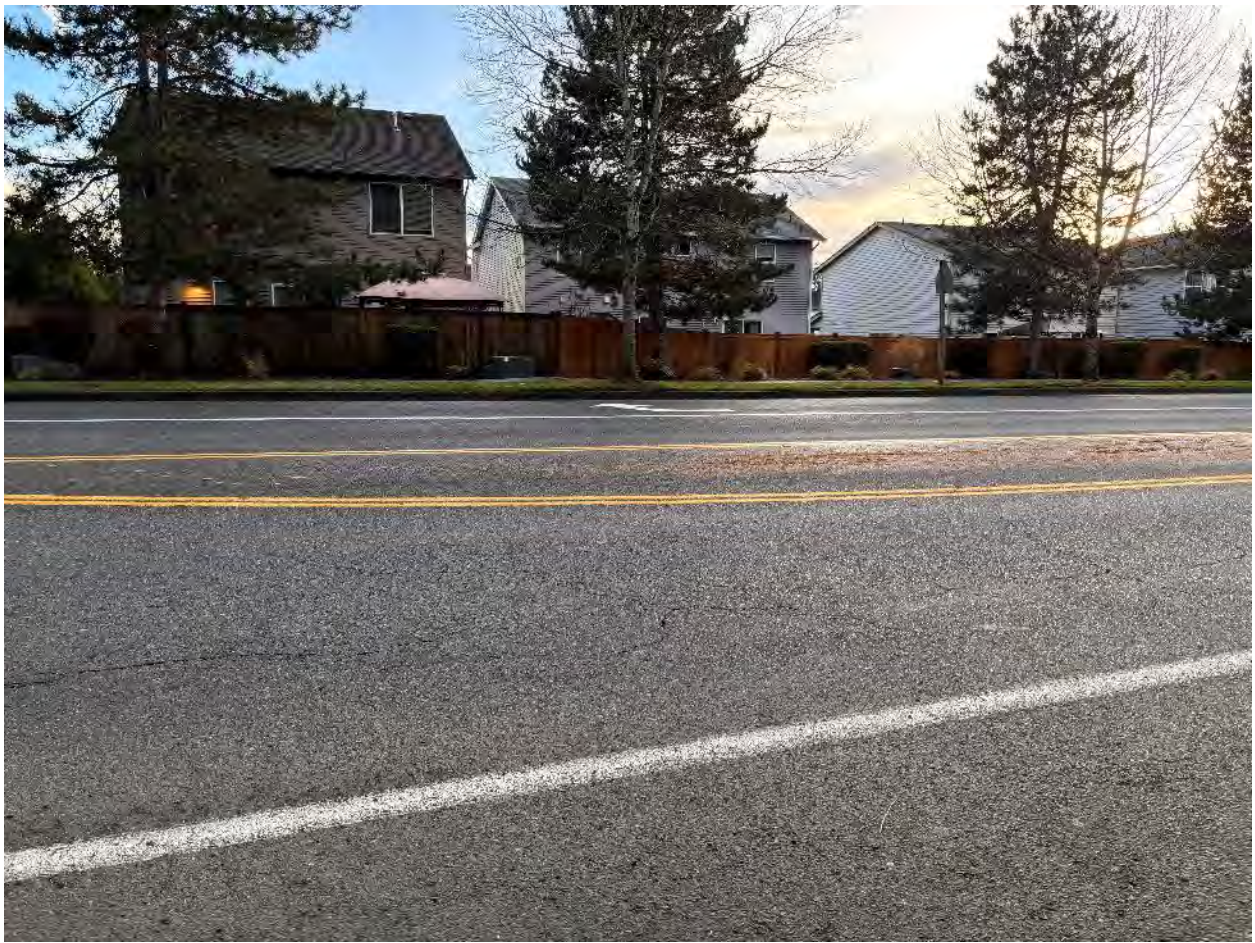
The following photos are of driveways and residences along the Lake Sawyer Road. This road has many curves where the name of the street changes according to numbering standards:

216th Ave SE, SE 296th St, 224th Ave SE.

These photos serve as a reminder that this road, too, is a residential area. Many drivers exceed the speed limit along this road.

















Friends of Black Diamond

FriendsofBlackDiamond@comcast.net

December 15, 2025

To: City of Black Diamond Hearing Examiner and City Council, staff contact
acampbell@blackdiamondwa.gov

Subject: Roberts Dr. Photos related to PLN25-0006

Photos of Roberts Drive, Black Diamond, WA with Comments on Impacts

The photos on the following pages show the residential homes, driveways, sidewalk, and neighborhood character. Roberts Drive is not simply an empty highway.

Roberts Drive is a historic street and a neighborhood where people walk and gather. In fact, in Morganville you have much of a walkable neighborhood that the city was trying to “create” with Ten Trails. But with all the traffic on Roberts Drive, walkability is significantly decreasing.

The photos start from the west at Ten Trails, where there is much landscaping and vegetation in the center of the street to improve the neighborhood.

As you continue into photos of Morganville (old Black Diamond), notice how sidewalks were put in without “traffic calming” – there are no green vegetation separators for safety and walkability. In some cases, the lanes are extremely wide since sidewalks were added, which was done as part of the mitigation for Ten Trails. Previously, gravel or grassy shoulders started immediately next to the 10 foot travel lane. You can see this on much of one side of Roberts Drive in the photos.

The newer wider lanes encourage speeding. In some places , a bike lane encourages speeding because of wider pavement.

Notice also how many driveways are on Roberts Dr, and imagine if you had to back in or OUT OF those driveways. Look at the historic houses. People live here, this is a real, historic neighborhood that is suffering a lot of noise and traffic due to OakPointe development.

Delayed Pipeline Road means More Power Lines and Major Loss of Trees on Roberts Drive.

Residents on Roberts Drive recently received offers from PSE to buy 10 feet of additional power line easement. These property owners are being offered a small amount of money for a change that will cause a major loss in their property values.

The new PSE easement is to bring more power for more new construction in Ten Trails. This means that trees all along the south side of Roberts will be cut down to make way for more ugly overhead power lines.

If the Pipeline Road were constructed now, then PSE could run new power lines for Ten Trails along Pipeline Road.

As you can see in the images below of Roberts Drive, or by traveling along it through all of the existing neighborhood, this power line widening of just 10 feet would bring a dramatic loss of trees. The whole character of the neighborhood will decrease. Property values and livability will be destroyed.

If we look at any “artist renderings” of Ten Trails, and other pictures used to market Black Diamond, they feature trees prominently around properties and roads. Why are we risking what we already have so the developer can wait for trees to grow in a future nice Ten Trails development?

We request that the city require the developer **Build pipeline road and work with PSE to put the new power lines there!**

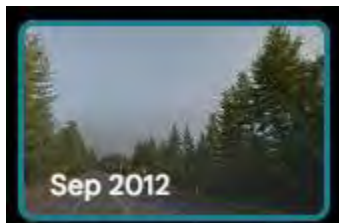
Photos from Google Maps view, captured December 14, 2025.

Location and Google image capture date shown on images.

Roberts Drive in front of Ten Trails



Below shows the Same location as the prior photo , from Sep. 2012:





Looking south at the Rock Creek Wetland where Roberts Drive rainfall runoff drains.









Notice the trees where residents have created a natural buffer to the busy road. Notice also the wide travel lane at this location that encourages fast driving.





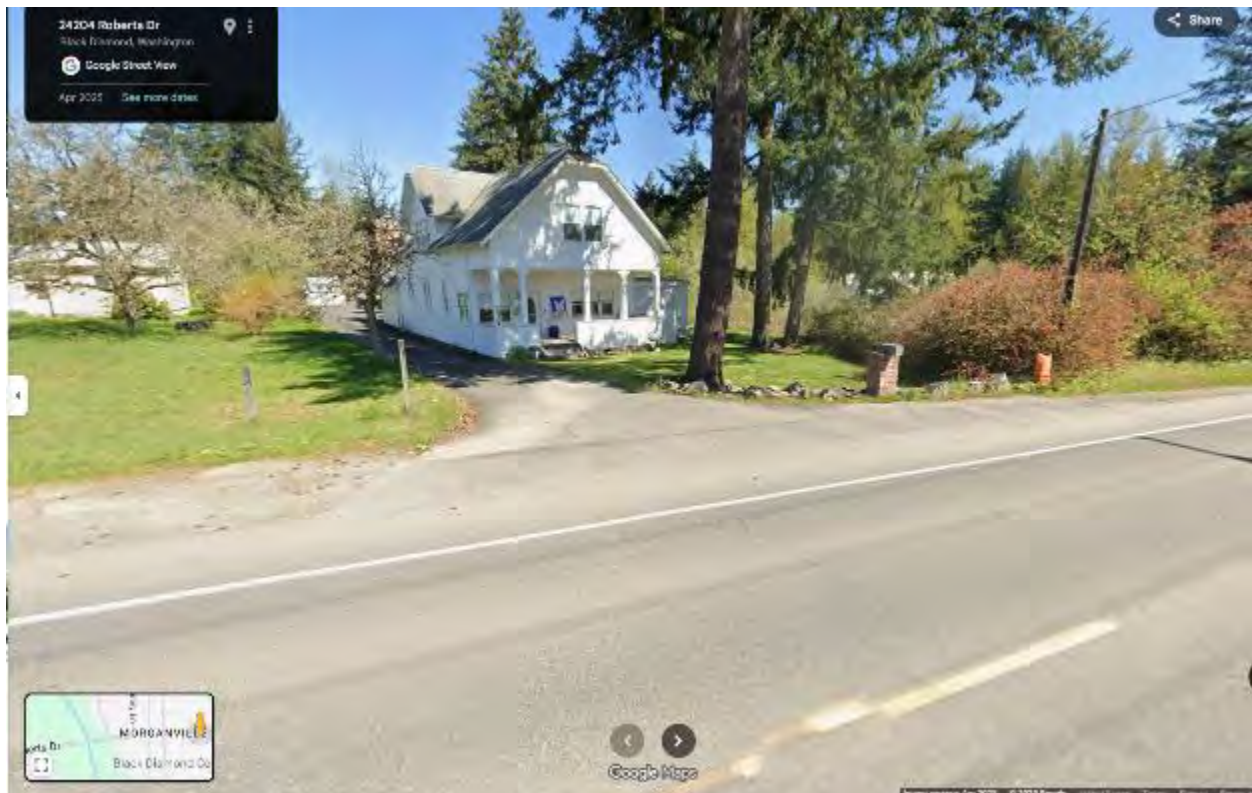








Below is the original 1903 house built by Mr. Morgan of Morganville.





Below, near city hall, notice how the wide pavement lanes encourage speeding. The sidewalk lacks a vegetative separator that would have been a requirement in Ten Trails and would make walking safer and more pleasant, and traffic slower.





Below shows a large wetland immediately north of Roberts Drive at Morgan Street intersection. This wetland is identified on the city's wetland inventory map. Many wetlands to the east exist but are not identified.









The wide bike lanes unfortunately encourage faster driving because drivers tend to go faster when the pavement is wider.





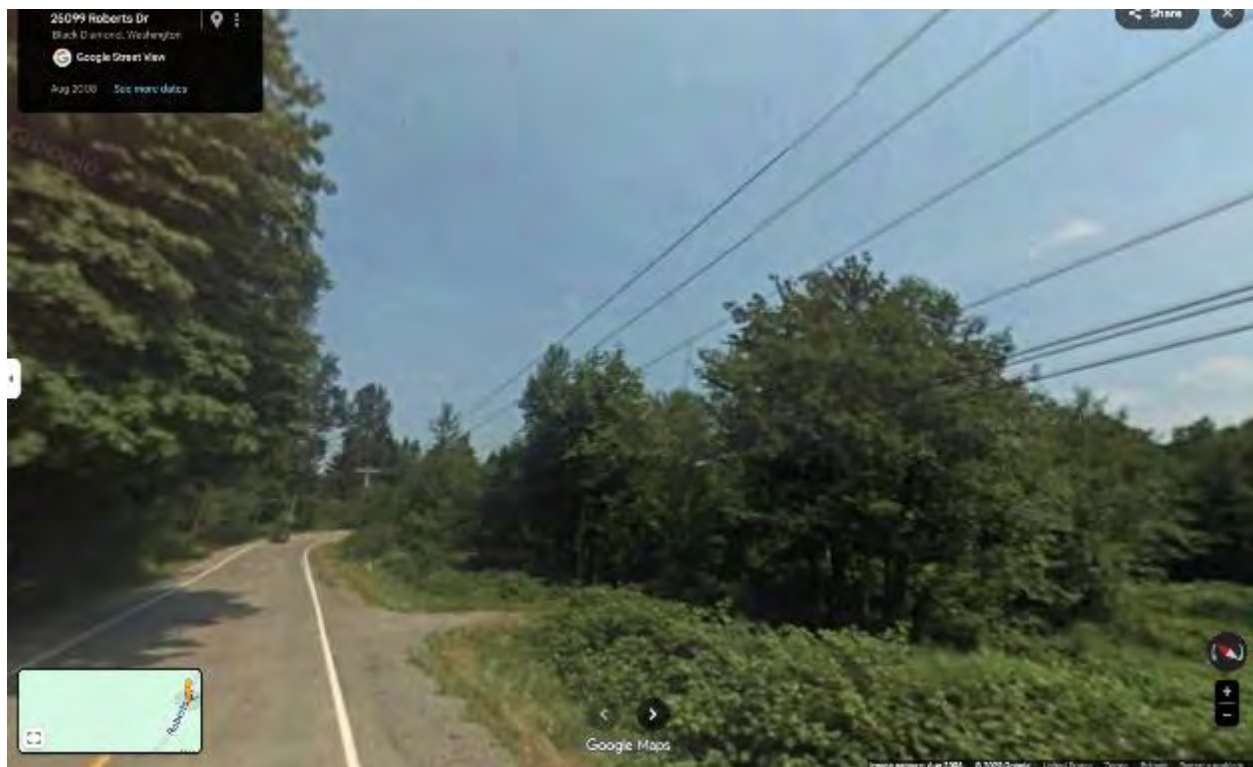
Images of this section of Roberts are from 2012. It has not changed but a Developer currently has plans to put many homes next to that open space.





These images of Roberts are from 2012. This has not changed much over the years because part of this is the preserved Ginder Creek open space.





Alex Campbell

From: Kristen Bryant <kristenbry@gmail.com>
Sent: Monday, December 15, 2025 4:48 PM
To: Alex Campbell
Cc: Friends BlackDiamond; Angela Rossman Fettig; r.mixdog4@comcast.net; karen@bryantstractorandmower.com; t.walker12@comcast.net; dougostgard@gmail.com; carolynwi@yahoo.com; linda.a.heather@hotmail.com; Philip Acosta; argangl52@gmail.com; tekberg@gmail.com; dgwbk@msn.com; Andy Williamson
Subject: Re: Comments on PLN25-0006 from Friends of Black Diamond

Hi Mr. Campbell,
Thank you. I incorporate by reference the Friends comments as my own.
Kristen Bryant

On Mon, Dec 15, 2025 at 4:47 PM Alex Campbell <acampbell@blackdiamondwa.gov> wrote:

Hello All - Thank you for submitting your comments on this proposal. I will get them added to the record for this proposal for Hearing Examiner and City Council consideration. I will also get you added as a Party of Record for this application, ensuring you receive City Council's decision on the application, once it is made.

To provide some context on the process, the City is presenting the application to the Hearing Examiner at the public hearing this evening (12/15). The Hearing Examiner will then issue a recommendation to the City Council approximately 2 weeks after the public hearing. The City Council will hold a Closed Record hearing to be scheduled after the Hearing Examiner's recommendation is made. This is notable since a Closed Record hearing means that the Council can only consider comments made at the public hearing – they do not accept new comments during their review. So it is important to provide any information you wish the Council to consider (like the comments you provided below) before or during this public hearing. I just wanted to outline the upcoming process related to this application.

Thank you,

Alex Campbell, AICP

City of Black Diamond

Senior Planner, Master Development Review Team

From: Friends BlackDiamond <friendsofblackdiamond@comcast.net>
Sent: Monday, December 15, 2025 4:40 PM
To: Alex Campbell <acampbell@blackdiamondwa.gov>
Cc: kristenbry@gmail.com; Angela Rossman Fettig <angimal80@hotmail.com>; r.mixdog4@comcast.net; karen@bryantstractorandmower.com; t.walker12@comcast.net; dougostgard@gmail.com; carolynwi@yahoo.com;

Alex Campbell

From: gbowie2014 <gbowie2014@gmail.com>
Sent: Monday, December 15, 2025 4:51 PM
To: Alex Campbell
Subject: FW: Scan Bowie
Attachments: 20251215140340235.pdf

Hello Alex,

This attachment goes with my comments.

Thanks,

Geoff Bowie

Sent from my T-Mobile 5G Device



CITY OF BLACK DIAMOND

General Sewer System Plan

Addendum 1

September 2024

Exhibit "B"



Engineers Certification

I hereby certify that this General Sewer Plan Addendum for the City of Black Diamond, Washington has been prepared under the supervision and direction of the undersigned, Daniel R. Ervin, whose seal as a Licensed Professional Engineer of the State of Washington is affixed below.



Varius Inc.
13533 NE 190th Place,
Woodinville WA 98072
www.variusinc.com



Exhibit "B-1"

The City's 2012 General Sewer Plan (GSP) identified Capital Projects for system extensions by developers. In that plan, sewage flows from the BD East Basin would be directed to the existing Jones Lake Lift Station where it would be pumped through existing city piping to a point of connection with the King County regional sewer interceptor in Lake Sawyer Road.

Since the adoption of the 2012 General Sewer Plan, significant development has occurred in the City under the Ten Trails Development Agreement. That development has enabled sewer service opportunities that were not available when the 2012 plan was adopted and this Addendum to the 2012 General Sewer Plan is intended to enable those opportunities which will improve level of service and reduce operating costs.

The City is in the process of updating the entire General Sewer Plan, however, the City does not anticipate that the update will be available within the time needed to take benefit of the opportunities for service in the BD East Basin. This Addendum is intended to bridge the gap between the approval of the General Sewer Plan update and pending development in the BD East Basin under the Lawson Hills Development Agreement.

Exhibit "B-Z"

BD East Basin

The BD East Basin, shown in **Figure 1 - Drainage Basins in Black Diamond**, is largely undeveloped and is expected to be developed under the Lawson Hills MPD Development Agreement. All wastewater facilities (collection system and interceptor pipes) will be provided by a Master Developer, Oakpointe, under a Development Agreement. All planning considerations and design standards are included in the Lawson Hills Development Agreement.

This basin is expected to reach saturation development within the next 15 years and ultimately will serve 1,258 ERU (**Figure 2 - BD East Basin Growth**).

The discharge location for sewage from this basin is dependent upon the timing of other improvements that will be provided by the Master Developer under the Ten Trails Development Agreement, namely the construction of Pipeline Road.

If Pipeline Road is complete before development in the BD East Basin, then this Basin will discharge directly to the King County Interceptor in Lake Sawyer Road. It is expected that this Basin will discharge into an interceptor pipe that traverses the Rock Creek Basin (presumably following the southern boundary of that basin). That pipe might be pressurized or gravity-flow at the developer's discretion. In addition, flows from this Basin might discharge directly to the King County Interceptor or they might discharge to a new lift station located in the Palmer Gravel quarry near Rock Creek. This final design configuration will be based on the opportunities available for combining BD East Basin facilities with the future Rock Creek Basin facilities.

If Pipeline Road is not complete or is not available for construction of an interceptor pipe, then sewage from the BD East Basin will discharge to the Jones Lake Lift Station through a combination of new and existing piping. Some existing piping may need to be replaced or oversized based on capacity or condition. If this discharge location option is selected, then King County will likely need to upgrade the capacity of the Lift Station.

The Capital Improvement Projects needed for the BD East Basin are shown below in Figures 3 and 4 (labelled projects 10 through 14).¹

Exhibit "B-3"

¹ Note, the CIP Project numbers in the Addendum (10 through 14) are consistent with project numbers in a pending General Sewer Plan Update and have been preserved here to minimize confusion when that plan is adopted.

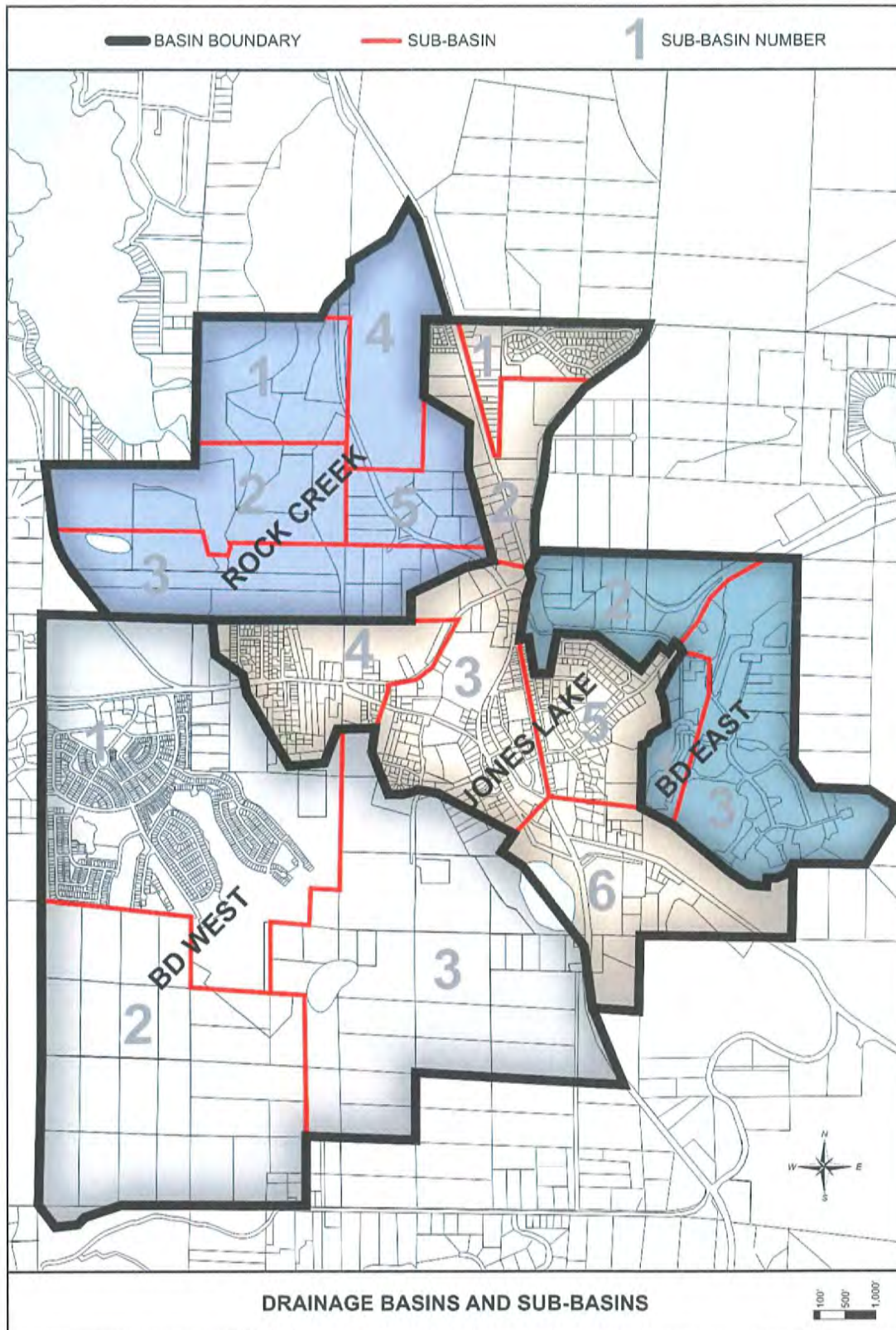


Figure 1 - Drainage Basins in Black Diamond

Exhibit "B-4"

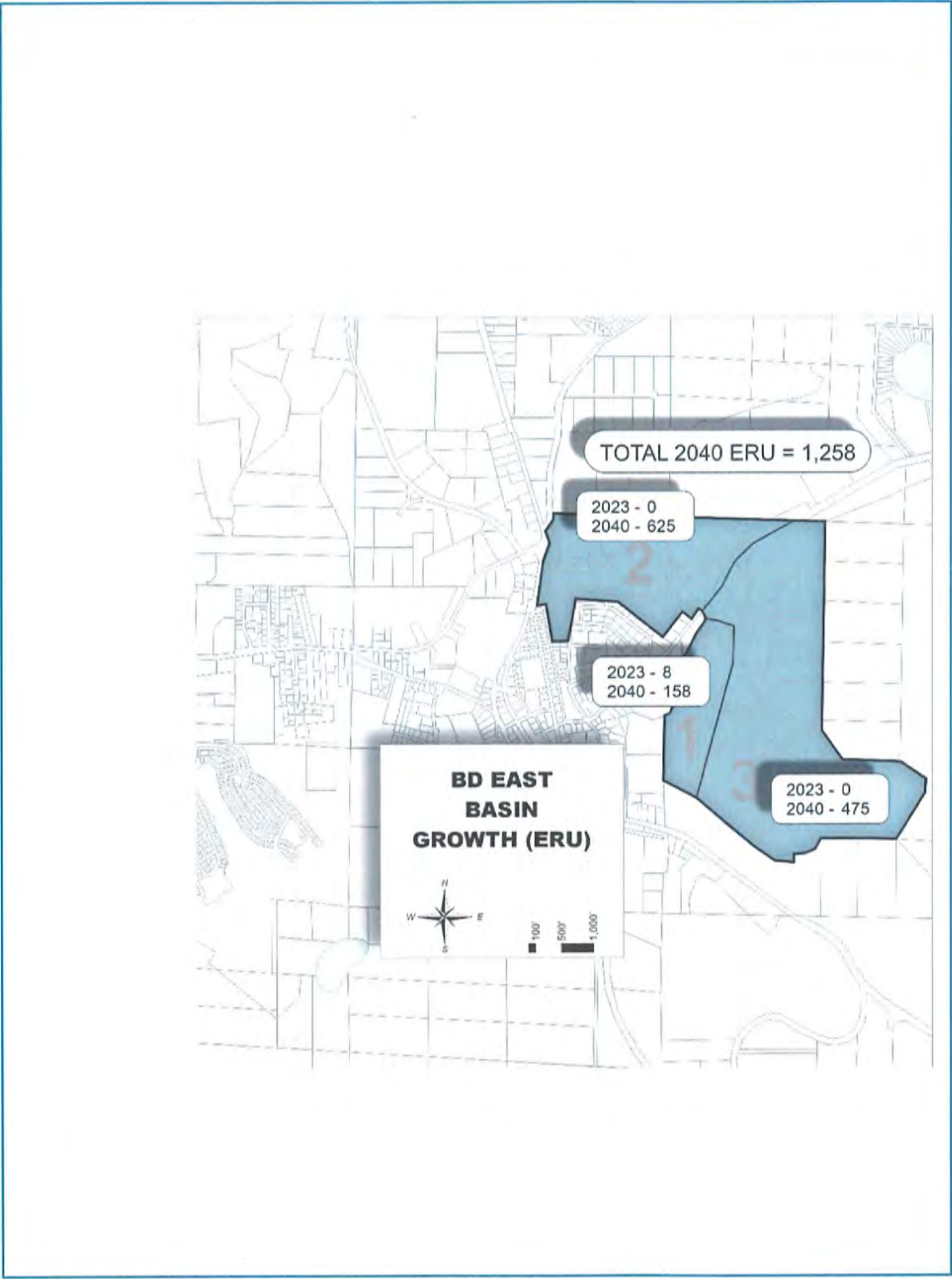


Figure 2 – BD East Basin Growth

Exhibit "B-5"

Black Diamond East Basin Improvements

Figure 3 - BD East Alt 1 CIP

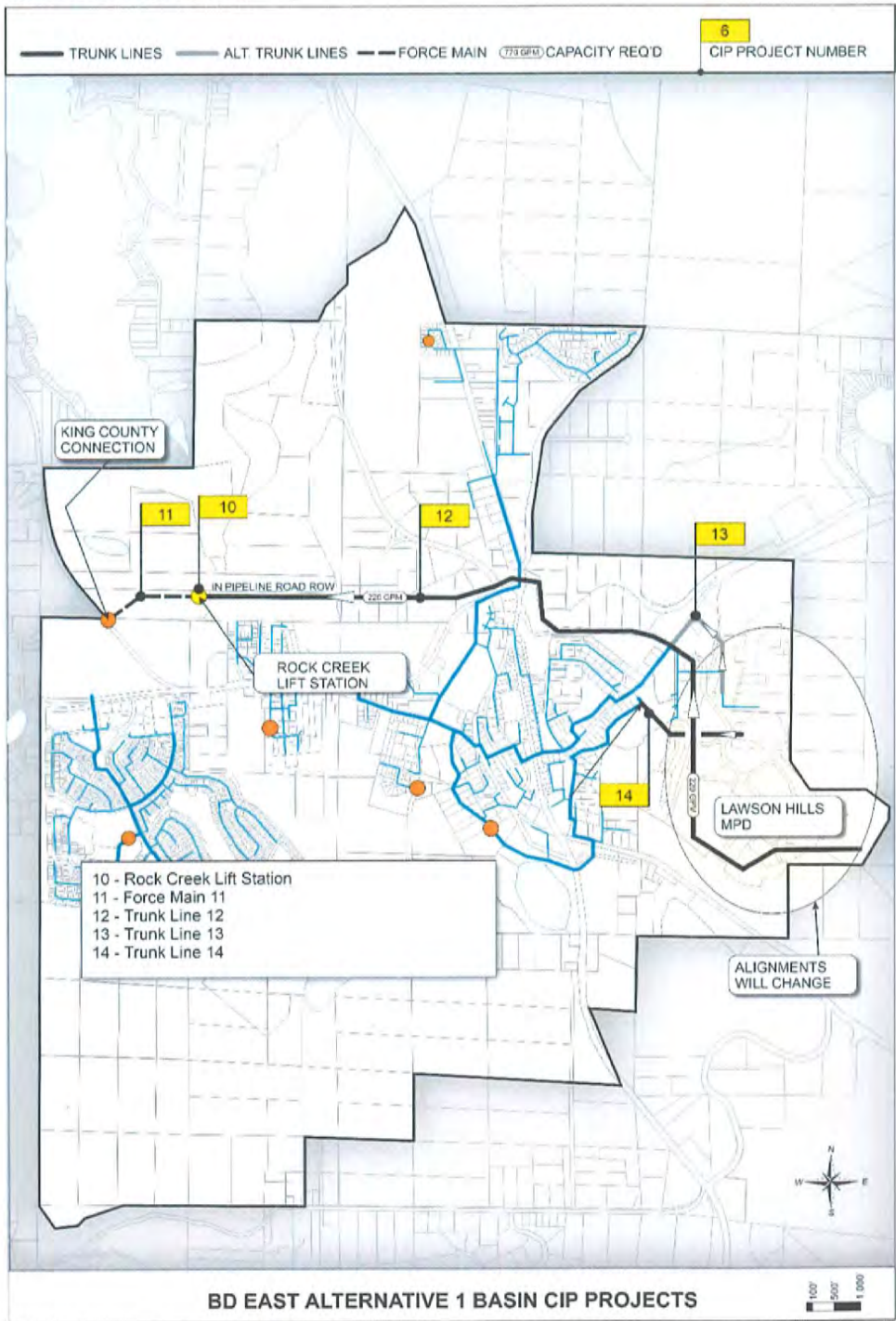
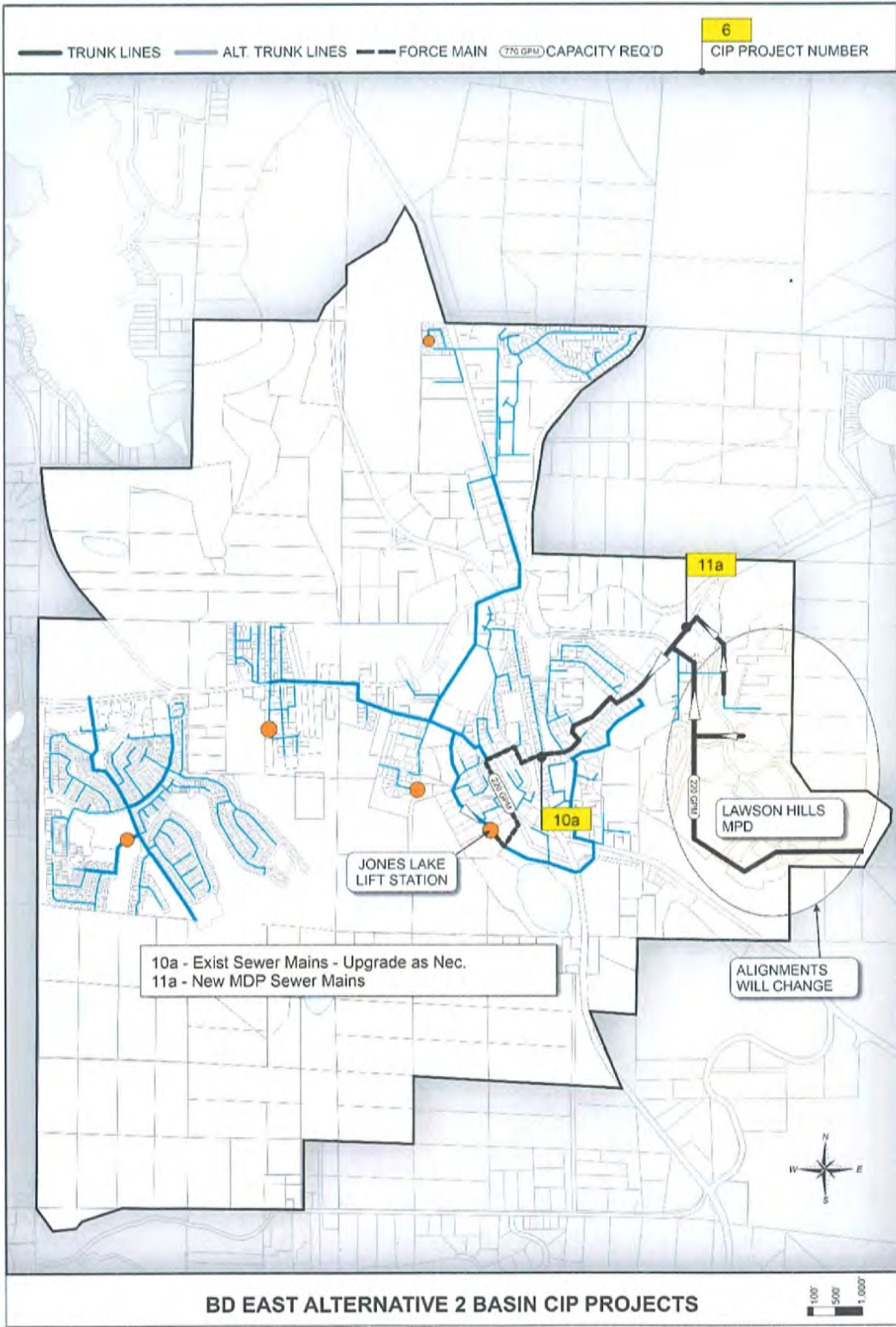


Exhibit "B-6"

Figure 4 - BD East Alt 2 CIP



"Exhibit" B-7"

CIP 10 – Rock Creek Lift Station

This project includes the construction of a new regional-scale lift station near Rock Creek within the Palmer Quarry area. This location allows a single lift station to serve the Rock Creek Basin and the BD East Basin. This station is likely to be a 1,000-gpm capacity facility (if it serves the flows from both basins) and constructed in conjunction with development under the Lawson Hills Development Agreement. There is a possibility that the pumps and motors that are used for the Ten Trails Regional Lift Station will be the same as those for this station and efforts should be made to use duplicate pumps and motors between the two facilities to minimize spare parts requirements.

Even though this station is funded by the Developer, it can be overlain with a Latecomer's Agreement to equitably distribute the costs among the benefitted parties.

Project Start	2026	Project Completion	2027
FINANCE	ACTIVITY	BUDGET	
2026	Planning and Design	\$400,000	
2027	Construction	\$3,000,000	
		\$3,400,000.00	
Source of Funds – Developer Funded			

CIP 10a – Upgrade Existing Jones Lake Sewers

This project includes the construction of a new pipeline from the Lawson Hills MPD to the Jones Lake Lift Station as necessary to increase capacity to meet saturation flows from the Lawson MPDs.

These upgrades will be developer funded in conjunction with development in Lawson Hills.

Project Start	2026	Project Completion	2027
FINANCE	ACTIVITY	BUDGET	
2026	Planning and Design	\$100,000	
2027	Construction	\$1,500,000	
		\$1,600,000.00	
Source of Funds – Developer Funded			

Exhibit "B-8"

CIP 11 – Force Main 11

This project includes the construction of a new force main to connect the Rock Creek Regional Lift Station to the King County Interceptor in Lake Sawyer Road. The force main is expected to be 12" diameter ductile iron capable of 1,000 gpm flow rates. This piping will be constructed by the Developer in conjunction with housing under the Lawson Hills Development Agreement.

Even though this force main is funded by the Developer, it can be overlain with a Latecomer's Agreement to equitably distribute the costs among the benefitted parties.

Project Start	2026	Project Completion	2027
----------------------	-------------	---------------------------	-------------

FINANCE	ACTIVITY	BUDGET
2026	Planning and Design	\$150,000
2027	Construction	\$400,000
		\$550,000.00
Source of Funds – Developer Funded		

CIP 11a – New MPD Sewer Mains

This project includes the construction of collection system piping to connect the Lawson Hills MPD to the Jones Lake Lift Station. This piping will be constructed by the Developer in conjunction with housing under the Lawson Hills Development Agreement.

Project Start	2028	Project Completion	2030
----------------------	-------------	---------------------------	-------------

FINANCE	ACTIVITY	BUDGET
2028	Planning and Design	\$200,000
2029	Construction	\$1,200,000
		\$1,400,000.00
Source of Funds – Developer Funded		

Exhibit 13-9"

CIP 12 – Trunk Line 12

This project includes the construction of collection system piping to connect the BD East Basin to the Rock Creek Regional Lift Station. This piping will be constructed by the Developer in conjunction with housing under the Lawson Hills Development Agreement. This pipeline is expected to be approximately 10,000 lineal feet with a capacity of 200 GPM (not including any contributions from the Rock Creek basin).

Even though this force main is funded by the Developer, portions of it can be overlain with a Latecomer's Agreement to equitably distribute the costs among the benefitted parties.

Project Start	2028	Project Completion	2030
----------------------	-------------	---------------------------	-------------

FINANCE	ACTIVITY	BUDGET
2028	Planning and Design	\$400,000
2029	Construction	\$2,000,000
2030	Construction	\$2,500,000
		\$4,750,000.00
Source of Funds – Developer Funded		

CIP 13 – Trunk Line 13

This project includes the construction of new collection system piping to connect up to 1,258 ERUs from the BD East Basin to the Jones Lake Lift Station in the event that the Alt. 1 CIP projects are selected but they are not available in time to coincide with house completions. This piping will be constructed by the Developer in conjunction with housing under the Lawson Hills Development Agreement.

This Trunk Line is expected to be approximately 1,500 feet in length and 8" diameter size.

Project Start	2028	Project Completion	2030
----------------------	-------------	---------------------------	-------------

FINANCE	ACTIVITY	BUDGET
2028	Planning and Design	\$200,000
2029	Construction	\$1,200,000
		\$1,400,000.00
Source of Funds – Developer Funded		

CIP 14 – Trunk Line 14

This project includes the construction of collection system piping to connect up to 1,258 ERUs from the BD East Basin to the Jones Lake Lift Station in the event that the Alt 1 CIP projects are selected. This piping will be constructed by the Developer in conjunction with housing under the Lawson Hills Development Agreement.

This Trunk Line is expected to be approximately 3,000 feet in length and 8" diameter size.

Exhibit "B-10"

Project Start	2028	Project Completion	2030
FINANCE	ACTIVITY	BUDGET	
2028	Planning and Design	\$300,000	
2029	Construction	\$2,200,000	
		\$2,500,000.00	
Source of Funds – Developer Funded			

Exhibit "B-11"

Alex Campbell

From: Nanette Comcast <nstocks@comcast.net>
Sent: Monday, December 15, 2025 4:50 PM
To: Alex Campbell
Cc: 'R Stocks'
Subject: Subject: PLN25-0006 Pipeline Road
Attachments: Pipeline Rd Subject PLN25-0006.pdf

Nanette and Rick Stocks
Black Diamond, WA 98010

Subject PLN25-0006 Pipeline Road

Why Pipeline Road Should Not Be Delayed

I am writing to express my deep concern about the developer's repeated failure to honor commitments made to this community.

The current residents should not be subjected to unnecessary traffic congestion or loss of property values simply because OakPointe is unwilling to follow through on long-standing obligations. Both Roberts Road and Lake Sawyer Rd SE already experience heavy traffic, and delaying the construction of Pipeline Road will only worsen these conditions.

1. Long-Standing Commitments Are Being Ignored

Fifteen years ago, a new access road was approved to properly serve future development. Instead of building that road as promised, the developer is now proposing to route increased traffic through established residential neighborhoods. This decision will:

- Create gridlock
- Strip away front yards
- Lower property values
- Severely compromise emergency access and egress

This is not what residents agreed to, nor what was approved.

2. Residential Neighborhoods Are Harmed and Small-Town Character Is Lost

Delaying Pipeline Road directly harms residential neighborhoods and erodes the small-town character of the community. Increased traffic through neighborhood streets will fundamentally change the livability and safety of these areas.

3. Safety and Walkability Decrease

Routing development traffic through neighborhood streets significantly increases risk for pedestrians, cyclists, and children. Walkability declines as traffic volume and speed increase, creating unsafe conditions for residents.

4. Noise and Exhaust Increase

Additional traffic on already congested roads will increase noise pollution and vehicle exhaust, directly affecting residents' health and quality of life.

5. Roberts Drive Is Not Designed for Increased Traffic

Roberts Drive was never designed to handle the traffic volumes now being proposed. It is already strained and unsafe, and further traffic will only increase congestion and accident risk.

6. Power Line Easements and Loss of Property Value on Roberts Drive

Residents along Roberts Drive have recently received offers from Puget Sound Energy (PSE) to purchase 10 feet of additional easement for overhead power lines. The compensation offered is minimal, yet the impact is significant:

- Major loss of property values
- Trees along the south side of Roberts Drive would be cut down
- Unsightly overhead power lines would permanently alter the neighborhood

These power lines are intended to support additional development in Ten Trails. If Pipeline Road were built as approved, power lines could be routed along that corridor instead, avoiding unnecessary harm to existing neighborhoods.

7. Poorly Designed Intersection at SE Covington–Sawyer

Homes currently being built off Pipeline Road will significantly affect the SE Covington–Sawyer intersection, which is already poorly designed.

- The intersection has barely enough width to safely accommodate left turns by school buses, trucks with trailers, RVs, and vehicles towing boats—common occurrences due to the nearby elementary school, high school, campground, and boat launch.
- While a left-turn lane exists for vehicles exiting Lake Sawyer Rd SE onto Covington–Sawyer, the redesigned intersection failed to include a right-turn lane for returning traffic. This omission creates unnecessary congestion and safety hazards.

Adding development traffic without correcting these deficiencies will further degrade safety and traffic flow.

8. Past Negligence Demonstrates a Pattern of Disregard for Safety

We have already seen the consequences of allowing this developer to cut corners. A recent road project left homeowners facing a 12-foot hay wall covered in tarps for 3–5 years. Even worse, the hay harbored

rattlesnakes that escaped into nearby neighborhoods where children play. Despite being notified, the builder failed to act.

This demonstrates a disturbing indifference to community safety and accountability.

9. Conflicts of Interest and Questionable Impact Studies

There is a troubling conflict of interest in the current process:

- The developer is funding salaries for city planning commission employees, with the city reimbursing those salaries.
- The developer also paid for its own impact analysis, which unsurprisingly concluded there would be no negative impacts.

A self-funded study cannot be considered objective and should not be relied upon for decisions that affect public safety and property values.

10. Attempt to Abandon the Pipeline Road Obligation

The developer is now attempting to abandon another long-approved obligation: the Pipeline Road for the Ten Trails development. This road was approved 15 years ago as the proper access route.

Failing to build it will:

- Cause significant neighborhood impacts
- Fail to support future traffic demands
- Be especially problematic with the addition of a shopping center that will bring outside traffic into the area

Trading a major infrastructure project for inadequate neighborhood access reflects the same disregard for residents and raises serious concerns about governance and oversight.

11. Financial Pressure Is Not the Community's Burden

The motive appears clear: financial pressure. After two school bond failures, the developer is attempting to cut costs by backing out of commitments. Residents should not bear the consequences of these financial challenges through unsafe traffic patterns, reduced infrastructure, and declining property values.

Call to Action

I urge the council to:

- **Enforce the original road and Pipeline Road commitments**
- **Halt any attempts to reroute development traffic through residential neighborhoods**
- **Require independent, third-party traffic and impact studies**

- **Investigate conflicts of interest between the developer and city staff**
- **Prioritize community safety, property values, and quality of life over developer profits**

The community deserves accountability, transparency, and leadership that protects residents—not policies that enable developers to disregard their commitments.

Nanette & Rick Stocks

Faith over Fear

Adversity is not a set back, it is how you handle Adversity that matters.

Rick and Nanette Stocks
Black Diamond resident for 28 years
Subject: PLN25-0006 Pipeline Road

December 15, 2025

Why Pipeline Road Should Not Be Delayed

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Call to Action

I urge the council to:

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- **Prioritize community safety, property values, and quality of life over developer profits**

The community deserves accountability, transparency, and leadership that protects residents—not policies that enable developers to disregard their commitments.

Alex Campbell

From: Angela Rossman Fettig <angimal80@hotmail.com>
Sent: Monday, December 15, 2025 4:58 PM
To: Alex Campbell
Cc: Kristen Bryant; BlackDiamond Friends; r.mixdog4@comcast.net; karen@bryantstractorandmower.com; t.walker12@comcast.net; dougostgard@gmail.com; carolynwi@yahoo.com; linda.a.heather@hotmail.com; Philip Acosta; argangl52@gmail.com; tekberg@gmail.com; dgwbk@msn.com; Andy Williamson
Subject: Re: Comments on PLN25-0006 from Friends of Black Diamond

Mr. Campbell,

Please incorporate by reference the comments from Friends of Black Diamond as my own.

Angela Fettig

Sent from my iPhone

On Dec 15, 2025, at 4:49 PM, Alex Campbell <acampbell@blackdiamondwa.gov> wrote:

Hello Kristen - Thank you for submitting your comments on this proposal. I will get them added to the record for this proposal for Hearing Examiner and City Council consideration. I will also get you added as a Party of Record for this application, ensuring you receive City Council's decision on the application, once it is made.

To provide some context on the process, the City is presenting the application to the Hearing Examiner at the public hearing this evening (12/15). The Hearing Examiner will then issue a recommendation to the City Council approximately 2 weeks after the public hearing. The City Council will hold a Closed Record hearing to be scheduled after the Hearing Examiner's recommendation is made. This is notable since a Closed Record hearing means that the Council can only consider comments made at the public hearing – they do not accept new comments during their review. So it is important to provide any information you wish the Council to consider (like the comments you provided below) before or during this public hearing. I just wanted to outline the upcoming process related to this application.

Thank you,
Alex Campbell, AICP
City of Black Diamond
Senior Planner, Master Development Review Team

From: Kristen Bryant <kristenbry@gmail.com>
Sent: Monday, December 15, 2025 4:48 PM
To: Alex Campbell <acampbell@blackdiamondwa.gov>
Cc: Friends BlackDiamond <friendsofblackdiamond@comcast.net>; Angela Rossman Fettig <angimal80@hotmail.com>; r.mixdog4@comcast.net; karen@bryantstractorandmower.com; t.walker12@comcast.net; dougostgard@gmail.com; carolynwi@yahoo.com;

Alex Campbell

From: r.mixdog4 <r.mixdog4@comcast.net>
Sent: Monday, December 15, 2025 5:07 PM
To: Alex Campbell; Friends BlackDiamond
Cc: kristenbry@gmail.com; Angela Rossman Fetting; karen@bryantstractorandmower.com; t.walker12@comcast.net; dougostgard@gmail.com; carolynwi@yahoo.com; linda.a.heather@hotmail.com; Philip Acosta; argangl52@gmail.com; tekberg@gmail.com; dgwbk@msn.com; Andy Williamson
Subject: RE: Comments on PLN25-0006 from Friends of Black Diamond

Hi Mr. Campbell,

I incorporate by reference the Friends comments as my own.

Thank you.

Renée Mix

Sent from my Verizon, Samsung Galaxy smartphone

----- Original message -----

From: Alex Campbell <acampbell@blackdiamondwa.gov>
Date: 12/15/25 4:47 PM (GMT-08:00)
To: Friends BlackDiamond <friendsofblackdiamond@comcast.net>
Cc: kristenbry@gmail.com, Angela Rossman Fetting <angimal80@hotmail.com>, r.mixdog4@comcast.net, karen@bryantstractorandmower.com, t.walker12@comcast.net, dougostgard@gmail.com, carolynwi@yahoo.com, linda.a.heather@hotmail.com, Philip Acosta <philamatic@comcast.net>, argangl52@gmail.com, tekberg@gmail.com, dgwbk@msn.com, Andy Williamson <awilliamson@blackdiamondwa.gov>
Subject: RE: Comments on PLN25-0006 from Friends of Black Diamond

Hello All - Thank you for submitting your comments on this proposal. I will get them added to the record for this proposal for Hearing Examiner and City Council consideration. I will also get you added as a Party of Record for this application, ensuring you receive City Council's decision on the application, once it is made.

To provide some context on the process, the City is presenting the application to the Hearing Examiner at the public hearing this evening (12/15). The Hearing Examiner will then issue a recommendation to the City Council approximately 2 weeks after the public hearing. The City Council will hold a Closed Record hearing to be scheduled after the Hearing Examiner's recommendation is made. This is notable since a Closed Record hearing means that the Council can only consider comments made at the public hearing – they do not accept new comments during their review. So it is important to provide any information you wish the Council to consider (like the comments you provided below) before or during this public hearing. I just wanted to outline the upcoming process related to this application.

Exhibit 13:

Oakpointe
Counsel
Testimony

#13

MEMORANDUM

To: Hearing Examiner Scheibmeir

From: Nancy Bainbridge Rogers, Counsel for the Applicant, CCD Black Diamond Partners LLC

Re: Written Testimony for Hearing on Pipeline Road Construction Timing
Major Amendments to the Ten Trails Development Agreement
City File Number: PLN25-0006

Date: December 12, 2025

I. Introduction

This firm represents CCD Black Diamond Partners LLC (“**Oakpointe**”), the Applicant for the Major Amendment to the Ten Trails (f/k/a The Villages) Development Agreement, to adjust the trigger for construction of Pipeline Road.

Oakpointe supports the Staff Recommendation of approval as detailed in the City of Black Diamond Staff Report (“**Staff Report**”). We ask that you assign the Staff Report an Exhibit number and that it be entered into the record.

Below we describe how the request for the Major Amendment meets all applicable criteria, and respond to the public and agency comments contained in the Staff Report, Exhibit 3. Enclosed as **Exhibit A**, and summarized throughout the discussion below is a new memorandum from Oakpointe’s consultant, Transpo, providing additional justification for the proposed Pipeline Road Construction Trigger.

II. The Request for the Major Amendment to Adjust the Construction Trigger for Pipeline Road meets all Applicable Criteria for Approval.

As described in Section 10.4.2 of the Ten Trails Development Agreement, a Major Amendment to the Development Agreement “shall be reviewed by the same procedures applicable to a new development agreement.” As explained in the Staff Report, Finding 5, a Major Amendment to a Development Agreement is a Type 4 – Quasi-Judicial Decision per vested BDMC 18.08.070. Accordingly, this decision is made by the City Council following a recommendation from the Hearing Examiner. The process and review criteria for a new development agreement are found in BDMC 18.66.

The approval criteria for a Major Amendment to the Development Agreement are located BDMC 18.98.090.

Each code provision is listed below in *italics*, followed by Oakpointe's summary of how each is met.

BDMC 18.66.020.A. The city may enter into development agreements with property owners as authorized by RCW 36.70B.170 et seq. Development agreements are intended to be used to address and establish development standards, mitigation requirements, vesting provisions and review procedures that will apply to and govern large, complex and/or phased development proposals located within the city during the term of any agreement.

Oakpointe supports and concurs with the Staff Report analysis. In addition, and in response to public comments about traffic volumes on Roberts Drive, the supplemental memorandum from Transpo attached as Exhibit A, confirms that current traffic counts from December 2025 are both far below the traffic volumes allowed by the MPD Permit and Development Agreement approvals, and are below the daily traffic volume range for a minor arterial road in the City of Black Diamond.

BDMC 18.66.020.B. Any development agreement shall be consistent with applicable city development regulations except as such regulations may be modified in the development agreement. For purposes of this chapter, "development standards" include but are not limited to:

B.1. Project elements such as uses, densities and intensities of land uses and buildings;

Oakpointe supports and concurs with the Staff Report analysis. The Major Amendment does not modify any of the Development Agreement terms related to uses, densities, or intensities of land use.

B.2. Mitigation measures, conditions and other requirements identified pursuant to SEPA (RCW 43.21 C);

Oakpointe supports and concurs with the Staff Report analysis. The Major Amendment is consistent with the EIS issued for the original Development Agreement such that use of that EIS via adoption was required by WAC 197-11-600(3) and (4).

B.3. Design standards such as maximum heights, setbacks, landscaping and other development features;

Oakpointe supports and concurs with the Staff Report analysis. The Major Amendment does not modify any of the Development Agreement terms related to heights, setbacks, landscaping and other development features.

B.4. Road and sidewalk standards;

Oakpointe supports and concurs with the Staff Report analysis. The Major Amendment does not modify any of the Development Agreement terms related to road and sidewalk standards. In addition, while not directly related to the Ten Trails MPD or the requested change in trigger date for the

construction of Pipeline Road, Oakpointe acknowledges public comments received raising concerns about the pedestrian experience along Roberts Drive, east of Morgan Street. As noted in the enclosed Transpo memorandum, the City already has planned for a grant- and city-funded reconstruction project along Roberts Drive between City Hall and SR 169. This future project would include extension of the existing sidewalk from the King County Library to SR 169, pedestrian lighting, and associated stormwater improvements.

B.5. Affordable housing;

Oakpointe supports and concurs with the Staff Report analysis. The Major Amendment does not modify any of the Development Agreement terms related to affordable housing.

B.6. Water, sewer, storm drainage, water quality, and other infrastructure and utility requirements;

Oakpointe supports and concurs with the Staff Report analysis. The Major Amendment does modify the trigger for construction of the roadway infrastructure known as Pipeline Road, because as demonstrated in Exhibit 6, the Parametrix Sensitivity Analysis, Pipeline Road does not need to be constructed and open until after the 2,866th dwelling unit is constructed.

Oakpointe acknowledges public comments expressing frustration with the delays in the timing for completion of Pipeline Road. The Parametrix Sensitivity Analysis, Exhibit 6, was prepared in 2023, and at the time, it was anticipated that the 2,866th dwelling unit would be constructed approximately sometime in 2027. As noted in the enclosed Transpo memo, the current development schedule predicts that the building permit for the 2,866th dwelling unit will be in early 2029. The trigger for construction of the Pipeline Road is not tied to a specific year, but rather to a specific number of building permits precisely because the actual construction and absorption of new dwelling units is subject to market fluctuations and uncertainty. Now, in December of 2025, it is predicted that the 2,866th dwelling unit will receive a building permit in early 2029. That date could move earlier or later. However, regardless of the date, Oakpointe will assure that the Pipeline Road is constructed and open for traffic at the time that the 2,866th dwelling unit receives a building permit.

B.7. Parks and open space preservation, and recreation facilities;

Oakpointe supports and concurs with the Staff Report analysis. The Major Amendment does not modify any of the Development Agreement terms related to parks and open space preservation, and recreation facilities.

B.8. Phasing of development and construction;

Oakpointe supports and concurs with the Staff Report analysis. The Major Amendment does not modify any of the Development Agreement terms related to the phasing of development and construction. The Major Amendment does alter the trigger for the construction of Pipeline Road because the evidence shows the new road is not needed until more dwelling units have been constructed.

B.9. Development review processes, procedures and standards for implementing decisions, including methods of reimbursement to the city for review processes;

Oakpointe supports and concurs with the Staff Report analysis. The Major Amendment does not modify any of the Development Agreement terms related to development review processes, procedures and standards for implementing decisions, or methods of reimbursement to the City.

B.10. A build-out or vesting period for applicable development standards;

Oakpointe supports and concurs with the Staff Report analysis. The Major Amendment does not modify any of the Development Agreement terms related to the build-out or vesting period.

B.11. A process for amending the development agreement; and

Oakpointe supports and concurs with the Staff Report analysis. The Major Amendment does not modify any of the Development Agreement terms related to amending the development agreement.

B.12. Any other appropriate development requirement or procedure.

Oakpointe supports and concurs with the Staff Report analysis. The Major Amendment modifies the trigger for construction of Pipeline Road, because the evidence shows the new road is not needed until more dwelling units have been constructed.

C. During the term specified in the development agreement, a development permit or approval issued by the city shall be consistent with the standards in such agreement. The standards contained in the development agreement shall govern during the term of the agreement and may not be subject to an amendment of city development standards or regulations adopted after the effective date of the development agreement. Provided, that the development agreement shall reserve to the city the authority to impose new or different regulations to the extent required by a serious threat to public health and safety.

Oakpointe supports and concurs with the Staff Report analysis. MPD Permit Condition of Approval No. 31 provided that the trigger for the design and alignment of Pipeline Road should be established within the Development Agreement. The Major Amendment modifies the trigger for construction of Pipeline Road, because the evidence shows the new road is not needed until more dwelling units have been constructed.

D. A development agreement shall be recorded with the real property documents of King County. During the term of the agreement, it shall be binding on the parties and their successors, including a city that assumes jurisdiction through incorporation or annexation of the area or property subject to the development agreement. Unless terminated, the agreement shall be enforceable by a party to the agreement.

Oakpointe supports and concurs with the Staff Report analysis. If approved, the Major Amendment will be recorded with the real property records of King County.

E. A development agreement shall be reviewed and adopted following a public hearing pursuant to the procedures and requirements set forth in Chapter 18.08.

Oakpointe supports and concurs with the Staff Report analysis. The Major Amendment is being reviewed and processed following the requirements of Chapter 18.08 BDMC.

BDMC 18.98.090 MPD Permit – Development Agreement

The MPD conditions of approval shall be incorporated into a development agreement as authorized by RCW 36.70B.170. This agreement shall be binding on all MPD property owners and their successors, and shall require that they develop the subject property only in accordance with the terms of the MPD approval. This agreement shall be signed by the mayor and all property owners and lien holders within the MPD boundaries, and recorded, before the city may approve any subsequent implementing permits or approvals (preliminary plat, design review, building permit, etc.).

Oakpointe supports and concurs with the Staff Report analysis. MPD Permit Condition of Approval No. 31 provided that the timing of the design and alignment of Pipeline Road should be established within the Development Agreement. The Major Amendment modifies the trigger for construction of Pipeline Road, because the evidence shows the new road is not needed until more dwelling units have been constructed.

III. Conclusion

Oakpointe thanks the Examiner for his careful review of this matter, and requests that the Examiner recommend approval of the Major Amendment to the Ten Trails Development Agreement, City File Number: PLN25-0006.

Exhibits to this Memo:

Exhibit A – Transpo Group, *Pipeline Road Construction Trigger* (December 2025)

EXHIBIT A

MEMORANDUM

Date:	December 12, 2025	TG:	1.16450.00
To:	Brian Ross and Justin Wortman – Oakpointe		
From:	Mike Swenson, P.E., PTOE and Maris Fry, P.E., RSP1 – Transpo Group		
Subject:	Pipeline Road Construction Trigger		

This memorandum provides additional justification for the proposed change in the construction trigger for Pipeline Road from the 1,746th dwelling unit within the Ten Trails Master Planned Development (MPD) to the 2,866th dwelling unit. The basis for this change is detailed in the *Pipeline Road Sensitivity Analysis* (“*Sensitivity Analysis*”) prepared by Parametrix in July of 2023 on behalf of the City of Black Diamond, utilizing the City’s updated transportation model. At the time the *Sensitivity Analysis* was completed, it was expected that the trigger would be met in 2027. Based on the most up to date development schedule the 2,866th building permit application for a dwelling unit is expected in early 2029.

As currently outlined in the Ten Trails MPD Development Agreement (DA), Pipeline Road is required to be open to traffic prior to approval of the building permit for the 1,746th dwelling unit or when traffic analysis shows that construction is necessary to prevent a significantly adverse degradation of Level of Service (LOS) on Roberts Drive. The analysis provided in the *Sensitivity Analysis* evaluates study intersections along Roberts Drive to determine the point at which any of the study intersections would fall below the City of Black Diamond’s LOS standards. The analysis accounts for updates to baseline intersection counts, current ITE trip generation rates, the City’s updated travel demand model, and the implementation schedule of the Ten Trails and Lawson Hills Master Planned Developments (MPDs). As outlined in the *Sensitivity Analysis*, Pipeline Road does not need to be constructed and open until after the 2,866th dwelling unit is constructed, provided that improvements planned at the intersection of Morgan Street and Roberts Drive are completed. As of December 2024, the proposed improvements at Morgan Street and Roberts Drive were completed such that the Master Developer has adequately addressed the LOS condition of the DA and the conditions set forth in the *Sensitivity Analysis*.

Furthermore, as part of the Ten Trails MPD Final Environmental Impact Statement (FEIS), it was projected that approximately 1,690 vehicles would travel along Roberts Drive west of Morgan Street during the PM peak hour and that approximately 730 vehicles would travel along Roberts Drive east of Morgan Street during the PM peak hour. Mitigation was determined for the project based on those projections. Based on counts collected in December of 2025, Roberts Drive currently experiences approximately 620 vehicles west of Morgan Street and approximately 400 vehicles east of Morgan Street during the PM peak hour – well below the level of traffic that was evaluated and approved as part of the FEIS. The detailed traffic count worksheets are included as Attachment A.

Table 1. Comparison of Bi-Directional Roberts Drive PM Peak Hour Traffic Volumes

Roberts Drive	FEIS Volumes at Full Build-Out of the MPDs	December 2025 Traffic Counts
West of Morgan St	1,690 vehicles	620 vehicles
East of Morgan St	730 vehicles	400 vehicles

The level of traffic projected as part of the EIS is also in line with a Minor Arterial, which is the designated functional classification of Roberts Drive. As outlined in the City of Black Diamond’s *Engineering Design and Construction Standards*, a Minor Arterial is designed to accommodate

10,000 to 20,000 daily trips, which translates to between 1,000 to 2,000 PM peak hour trips. The existing and FEIS-approved volumes along Roberts Drive are within or below this threshold.

Beyond the intersection improvements constructed by the Master Developer, the City of Black Diamond's *2025 Comprehensive Plan* and the *2026-2031 Capital Improvement Plan* outline a grant- and city-funded reconstruction project along Roberts Drive between City Hall and SR 169. This future project would include extension of the existing sidewalk from the King County Library to SR 169, pedestrian lighting, and associated stormwater improvements.

In summary:

- Study intersections along Roberts Drive are projected to meet the City's LOS standards through the proposed 2,866th dwelling unit trigger, provided that the improvements at Roberts Drive/Morgan Street are completed. As of December 2024, a traffic signal was installed at this intersection, thus mitigating impacts of the MPDs.
- The existing volumes along Roberts Drive are well below the volumes evaluated and approved as part of the FEIS.
- The existing and FEIS-approved future volumes along Roberts Drive are consistent with that of a Minor Arterial.
- The City has planned for additional grant- and city-funded corridor improvements along Roberts Drive City Hall and SR 169.

Attachment A: December 2025 Traffic Counts along Roberts Drive

Location: Roberts Dr W/O Bruckners Way
 Date Range: 12/2/2025 - 12/8/2025
 Site Code: 01

Time	Tuesday 12/2/2025			Wednesday 12/3/2025			Thursday 12/4/2025			Friday 12/5/2025			Saturday 12/6/2025			Sunday 12/7/2025			Monday 12/8/2025			Mid-Week Average		
	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total
12:00 AM				7	8	15	11	5	16													9	7	16
1:00 AM				10	9	19	8	6	14													9	8	17
2:00 AM				8	3	11	7	6	13													8	5	12
3:00 AM				11	5	16	15	7	22													13	6	19
4:00 AM				23	19	42	23	16	39													23	18	41
5:00 AM				90	59	149	79	62	141													85	61	145
6:00 AM				191	147	338	154	153	307													173	150	323
7:00 AM				223	181	404	225	180	405													224	181	405
8:00 AM				262	219	481	245	218	463													254	219	472
9:00 AM				200	208	408	172	202	374													186	205	391
10:00 AM				183	185	368	171	156	327													177	171	348
11:00 AM				209	210	419	225	189	414													217	200	417
12:00 PM				233	219	452	204	205	409													219	212	431
1:00 PM	215	209	424	199	218	417																207	214	421
2:00 PM	232	232	464	239	222	461																236	227	463
3:00 PM	298	293	591	285	292	577																292	293	584
4:00 PM	301	305	606	315	321	636																308	313	621
5:00 PM	240	257	497	263	284	547																252	271	522
6:00 PM	162	209	371	170	267	437																166	238	404
7:00 PM	106	151	257	110	165	275																108	158	266
8:00 PM	73	126	199	84	126	210																79	126	205
9:00 PM	52	72	124	49	83	132																51	78	128
10:00 PM	26	35	61	39	56	95																33	46	78
11:00 PM	16	18	34	17	17	34																17	18	34
Total	1,721	1,907	3,628	3,420	3,523	6,943	1,539	1,405	2,944													3,340	3,418	6,758
Percent	47%	53%		49%	51%		52%	48%														49%	51%	
AM Peak							08:00	08:00	08:00													08:00	08:00	08:00
Vol.				262	219	481	245	218	463													254	219	472
PM Peak	16:00	16:00	16:00	16:00	16:00	16:00	12:00	12:00	12:00													16:00	16:00	16:00
Vol.	301	305	606	315	321	636	204	205	409													308	313	621

1. Mid-week average includes data between Tuesday and Thursday.

Location: Roberts Dr W/O SR 169
Date Range: 12/2/2025 - 12/8/2025
Site Code: 02

Time	Tuesday 12/2/2025			Wednesday 12/3/2025			Thursday 12/4/2025			Friday 12/5/2025			Saturday 12/6/2025			Sunday 12/7/2025			Monday 12/8/2025			Mid-Week Average			
	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	
12:00 AM				2	8	10	8	7	15													5	8	13	
1:00 AM				7	6	13	6	3	9													7	5	11	
2:00 AM				5	1	6	4	4	8													5	3	7	
3:00 AM				16	4	20	17	4	21													17	4	21	
4:00 AM				26	3	29	23	7	30													25	5	30	
5:00 AM				92	27	119	82	19	101													87	23	110	
6:00 AM				170	65	235	142	66	208													156	66	222	
7:00 AM				159	131	290	173	107	280													166	119	285	
8:00 AM				150	87	237	153	109	262													152	98	250	
9:00 AM				146	117	263	136	107	243													141	112	253	
10:00 AM				124	99	223	100	99	199													112	99	211	
11:00 AM				144	145	289	140	163	303													142	154	296	
12:00 PM				138	144	282	147	155	302													143	150	292	
1:00 PM	137	149	286	132	155	287																135	152	287	
2:00 PM	141	190	331	133	174	307																137	182	319	
3:00 PM	159	207	366	157	187	344																158	197	355	
4:00 PM	165	229	394	186	221	407																176	225	401	
5:00 PM	164	210	374	161	243	404																163	227	389	
6:00 PM	102	186	288	132	230	362																117	208	325	
7:00 PM	78	117	195	70	141	211																74	129	203	
8:00 PM	47	90	137	57	99	156																52	95	147	
9:00 PM	30	47	77	33	69	102																32	58	90	
10:00 PM	18	31	49	24	38	62																21	35	56	
11:00 PM	10	18	28	10	16	26																10	17	27	
Total	1,051	1,474	2,525	2,274	2,410	4,684	1,131	850	1,981													2,228	2,367	4,595	
Percent	42%	58%		49%	51%		57%	43%														48%	52%		
AM Peak																									
Vol.																									
PM Peak	16:00	16:00	16:00	16:00	17:00	16:00	12:00	12:00	12:00													16:00	17:00	16:00	
Vol.	165	229	394	186	243	407	147	155	302													166	154	296	
																						176	227	401	

1. Mid-week average includes data between Tuesday and Thursday.

Exhibit 14:

Oakpointe
Response to
Emergency
Services

#14

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ATTORNEYS AT LAW

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MEMORANDUM

To: Hearing Examiner Scheibmeir

From: Nancy Bainbridge Rogers, Counsel for the Applicant, CCD Black Diamond Partners LLC

Re: Supplemental Memo in Support of Pipeline Road Construction Timing
Major Amendment to the Ten Trails Development Agreement
City File Number: PLN25-0006

Date: December 15, 2025

I. Introduction

This firm represents CCD Black Diamond Partners LLC (“Oakpointe”), the Applicant for the Major Amendment to the Ten Trails (f/k/a The Villages) Development Agreement, to adjust the trigger for construction of Pipeline Road. Again, Oakpointe supports the Staff Report recommendation of approval.

Below we provide supplemental argument in support of adjusting the trigger for construction of Pipeline Road. In part, these supplemental arguments are in response to the written comments of the City’s Chief of Police received on December 12.

II. The Legal Doctrine of Concurrency and the Structure of Black Diamond’s City Government Support Shifting the Construction Trigger for Pipeline Road to the date the 2,866th Dwelling Unit receives a Building Permit

Oakpointe’s request to move the trigger for the construction of Pipeline Road¹ from 1,746 building permits to 2,866 building permits for new homes is grounded in the legal doctrine of concurrency. The doctrine of concurrency was incorporated into Washington State law and, therefore, local City planning and codes under the Growth Management Act, Chapter 36.70A RCW. Cities are required to plan so that new transportation infrastructure is built concurrent with the new development that necessitates the infrastructure. RCW 36.70A.070(6). The definition of “concurrent with the development” is “that improvements or strategies are in place at the time of development, or that a financial commitment is in place to complete the improvements or strategies within six years.” RCW 36.70A.070(6)(b).

At the time the MPD permits and Development Agreements were approved, the City’s concurrency program was contained only in its Comprehensive Plan. *See, e.g.,* Ten Trails Development

¹ The construction trigger is the date that Pipeline Road must be constructed and open to traffic.

Agreement, Exhibit F, Traffic Monitoring Plan, p. 1. The MPDs, therefore, were conditioned to build new roadways and intersection improvements when “necessary to maintain the City’s then-applicable, adopted levels of service to the extent that project traffic would cause or contribute to any level of service deficiency as determined by the City’s adopted level of service standard.” Ten Trails MPD Condition of Approval No. 10. (A copy of the MPD Permit conditions is included in Exhibit 5.)

The MPDs were also conditioned to require Oakpointe to pay the City’s expenses to create a new transportation demand model. That is, the City was obligated to create a new transportation demand model, and the Master Developer’s role was simply to pay the City’s invoices. By March of 2023, that new model had been created by Parametrix. Exhibit 6, p.3. The new model was finalized in October 2023. Exhibit 5.

The MPD Permit Conditions of Approval Nos. 11 through 17 included built-in flexibility to accommodate the actual timing of development, and the potential for different – but functionally equivalent – roadways to be built. This flexibility is explained throughout the new model’s discussion of each condition. Exhibit 5, pp. 5 – 25. The MPD Permit conditions also resulted in the preparation of the Traffic Monitoring Plan, located at Exhibit F to the Ten Trails Development Agreement. The Traffic Monitoring Plan mandates the preparation of a Traffic Monitoring Report (“**TMR**”) at the beginning and at the mid-point of each phase, specifically to “determine what improvements or strategies, if any, will be necessary to comply with the City’s transportation concurrency requirements as defined in the City of Black Diamond’s Comprehensive Plan (2009).” DA, Ex. F, p. 1.

As described in Exhibit 6, the Parametrix Sensitivity Analysis, the Phase 1B Mid-Point TMR (Feb 2021), disclosed that a signal at the intersection of Morgan Street and Roberts Drive would be needed by the time the 1,900th building permit was issued for Ten Trails, unless Pipeline Road was under construction. The Parametrix Sensitivity Analysis evaluated at what point in time Pipeline Road would be needed if the signal at Morgan Street and Roberts Drive was constructed. The Parametrix Sensitivity Analysis concluded that if the intersection of Morgan Street/Roberts Drive was signalized by the end of 2024, Pipeline Road would not need to be constructed and open until after the 2,866 dwelling unit was constructed in Ten Trails. This conclusion was because with the signal at Morgan Street/Roberts Drive, significant degradation of LOS on Roberts Drive was expected to occur at some point between 2,866 and 3,484 permitted dwelling units. Stated differently, the adjusted trigger of 2,866 dwelling units is the beginning point – not the end point - of when significant degradation to Roberts Drive might begin. Thus, Pipeline Road is to be built and open to traffic by the time the building permit for the 2,866th dwelling unit is issued, which is the earliest point in time it is predicted to be needed to meet concurrency.

Cities don’t require developers to build new public infrastructure before it is needed, because doing so simply increases the City’s expenses to operate and maintain unneeded infrastructure. In fact, the Hearing Examiner may recall that when the City first proposed moving the construction trigger for Pipeline Road, the City proposed doing so via Minor Amendment. That proposal resulted in a proceeding before the Hearing Examiner in which the Examiner decided that the shift in the construction trigger required a Major Amendment. One of the exhibits from that proceeding is the City’s letter dated August 14, 2023, copy attached as Exhibit A. That letter was focused on not dedicating the right-of-way prior to road construction, but also explains some of the reasons why the City does not want

infrastructure too soon, such as owning right-of-way before a roadway is constructed, and that the City bears the costs of operation and maintenance for any infrastructure it owns.

The December 10 letter from Police Chief Kiblinger (received December 12) argues the engineering analysis of Transpo and Parametrix is inadequate. However, Chief Kiblinger concedes that she is not an engineer. Under the law, the City of Black Diamond's Police Chief has no role to play in roadway design or evaluation of roadway function. The role of the Police Chief is to plan for a police department that is capable of maintaining order in the city and enforcing state laws and city ordinances. Specifically, under BDMC 2.16.020:

The police chief, under the direction of the mayor, is head of the municipal police department, and in this capacity is responsible for the planning, organizing and directing of the department in such matters as planning, coordinating, and supervision of patrol, investigation, crime prevention, training and all other programs and services of the police department. The police chief shall be responsible for and have the duty to see that order is maintained in the city and that state laws and city ordinances are enforced.

In the City of Black Diamond, it is the Public Works Department and not the Police Department, that is charged with the "construction, maintenance, repair and cleaning of the streets, sidewalks, gutters, sewers, and drains and other such related activities." BDMC 2.28.020. Here, the City Staff Report recommends approval of the requested Major Amendment to shift the construction trigger for Pipeline Road to the time a building permit for the 2,866th dwelling unit is issued.

Oakpointe supports the Staff Report recommendation, because Pipeline Road should be built at the time it is actually needed to serve the new trips from new homes in Ten Trails. All of the qualified engineering and technical analysis shows that Pipeline Road is not needed to serve new trips from the Ten Trails development until at least the building permit for the 2,866th unit is approved, and possibly much later when the 3,484th building permit is issued. All of the qualified engineering and technical analysis shows that the City's road system will function at or below the assigned Level of Service, even when construction of Pipeline Road is delayed until the building permit for the 2,866th unit in Ten Trails is approved.

While Chief Kiblinger plainly has decades of real-world experience providing emergency services on the City's road system, she is not a traffic engineer and her statements about Level of Service not reflecting reality are not well taken. Contrary to the opinions of the public, including as those opinions are repeated and re-stated by the police chief, when Level of Service standards are met, this means that traffic is flowing. Certainly, there also will be moments of congestion, potential queuing at side streets, and other traffic disruptions. However, the law expressly permits the driver of an emergency vehicle to avoid these disruptions. Specifically, when an emergency vehicle is responding to an emergency call or pursuing an actual or suspected violator of the law, the driver may avoid traffic disruptions and delays, by doing things such as proceeding past stop signs or signals, exceeding maximum speed limits, and driving in the opposing lane of traffic. RCW 46.61.035.

The City's Department of Community Development and the Master Development Review Team manages the process for amendments to the Development Agreement, and the City's Public Works Department manages the decisions regarding construction of new roads. Oakpointe asks the Examiner to

Exhibits to this Memo:

Exhibit A – Letter from A. Williamson, dated August 14, 2023

EXHIBIT A



CITY OF BLACK DIAMOND

Physical Address: 24301 Roberts Drive
Mailing Address: PO Box 599
Black Diamond, WA 98010

Phone: (360) 851-4500
Fax: (360) 851-4501
www.blackdiamondwa.gov

August 14, 2023

Justin Wortman
Oakpointe LLC
3025 112th Ave. NE
Suite 100
Bellevue, WA 98004

**Re: Proposed Minor Amendment to Section 6.4.3 of The Villages MPD Development Agreement
Regarding Dedication of Pipeline Road Right-of-Way**

Dear Mr. Wortman:

As the Designated Official for the MDRT, I am writing to propose a Minor Amendment to The Villages MPD Development Agreement ("TVDA"). Specifically, the City proposes that Section 6.4.3 of TVDA be amended to adjust the timing for the dedication of the right-of-way ("ROW") for Pipeline Road.

Under Section 6.4.3 as currently written, the Master Developer is required to complete the preliminary design and alignment of the Pipeline Road and to secure the dedication of the ROW to the City "prior to the City's approval of building permit for the 1200th Dwelling Unit of The Villages MPD." As you know, the The Villages MPD (n/k/a "Ten Trails") is approximately 50 Dwelling Units short of this 1200-unit threshold. We understand from your letter dated May 15, 2023, that Oakpointe has already completed the preliminary design and alignment of the Pipeline Road as required by Section 6.4.3. As your May 15th letter states, Oakpointe provided a complete engineering plan set for Pipeline Road on February 21, 2023, and submitted to the current owner (Palmer Coking Coal) a draft agreement for dedication. Given your completion of this task, the City believes now is an appropriate time to propose deferring the actual dedication of the ROW to a later point in time than the current threshold of 1200 Dwelling Units.

The City desires to adjust this timing requirement for several reasons. First, we have significant concerns about acquiring over a mile of ROW long before it is needed for transportation concurrency purposes. The City is concerned that by taking ownership of over a mile of unimproved public ROW across an operational gravel pit, the City may be exposing itself to substantial additional liability risk that would result from this sizable industrial property suddenly becoming accessible to the public. The City could be held liable for personal injuries or property damage associated with public use of this unimproved ROW. Second, it is standard practice that developers dedicate ROW to a city *after* construction is completed. This is because minor adjustments to the road alignment may be needed during final engineering and construction. If the ROW is dedicated prior to final engineering and construction, the ROW described in the deed of dedication may not completely match the final road alignment when construction is completed. This would necessitate an administratively burdensome (and potentially difficult) re-

negotiation of ROW acquisition from the original owner so that the deed can be revised to match the final alignment.

Third, the City would be burdened with the financial costs of mowing, litter removal, and other property maintenance obligations if it were to receive dedicated ROW for Pipeline Road now, even though the road will not be constructed and used for transportation purposes for several years.

Under TVDA Section 6.4.3, Pipeline Road is not required to be constructed and open for traffic until the earlier of (i) the building permit for the 1,746th Dwelling Unit in Ten Trails, or (ii) when the Traffic Monitoring Plan shows that it is needed to prevent “significant adverse degradation of Level of Service on Roberts Drive.”¹ At present, Ten Trails is over 550 Dwelling Units away from reaching the 1,746-unit threshold, indicating that the need for construction of Pipeline Road is still well into the future—2025 or beyond.²

Further, according to TranspoGroup’s February 2021 traffic monitoring report, 1900 ERUs would be the trigger point for Roberts Drive falling below the City’s LOS standards and necessitating a traffic signal at the Roberts Drive/Morgan Street intersection if Pipeline Road were not under construction by then. Furthermore, according to a recent analysis by the City’s transportation engineering consultant, if the Roberts Drive/Morgan Street intersection is improved with a traffic signal or roundabout by the end of 2024, Pipeline Road will not be needed to maintain adopted LOS standards on Roberts Drive until at least the 2,886th Dwelling Unit, likely sometime in 2027. (Parametrix Technical Memorandum, dated July 19, 2023, at p. 4.)

In short, dedication of ROW for the Pipeline Road by the 1200th Dwelling Unit will not result in a public benefit but will certainly result in increased public costs and other potential complications for the City. Accordingly, pursuant to Section 10.4.2 of TVDA, the City proposes that Section 6.4.3 of TVDA be revised, in relevant part, as follows:

Pursuant to Condition of Approval No. 31 of the MPD Permit Approval, the preliminary design and alignment of the Pipeline Road shall be completed by the Master Developer ~~and the right of way dedicated to the City~~ prior to the City’s approval of a building permit for the 1200th Dwelling Unit of The Villages MPD. The Pipeline Road shall be constructed by the Master Developer and open for traffic, ~~and the right-of-way dedicated to the City, prior to the earlier of:~~ (i) City’s approval of a building permit for the 1746th Dwelling Unit of The Villages MPD; or (ii) ~~the City’s approval of the 2,886th Dwelling Unit if the Morgan Street/Roberts Drive intersection has been improved with a roundabout or traffic signal by the end of 2024, which is when the Traffic Monitoring Plan (Exhibit “F”) shows that construction of Pipeline Road is expected to be is—necessary to prevent a~~ significantly adverse degradation of Level of Service on Roberts Drive.

This amendment is consistent with the intent and policy of TVDA because it preserves the City’s adopted LOS on Roberts Drive based on the most current trip generation and distribution data, recently collected and forecasted traffic volumes, and the City’s latest traffic demand modeling.

¹ Under Section 6.4.3, “significant adverse degradation of Level of Service” means that “the Master Developer is unable to make further improvements to these three identified intersections to meet adopted LOS . . . without widening Roberts Drive to provide an additional eastbound travel lane and/or westbound travel lane.” The three identified intersections are Roberts Drive/Morgan Street, SR 169/Roberts Drive, and Lake Sawyer Road/Roberts Drive.

² Through full build-out of Phase 1A, 1B, and 2, the Ten Trails MPD would comprise only 1,741 total Dwelling Units. The preliminary plat of Phase 1B Plat A was approved on July 10, 2023. It is unlikely that final plat for any divisions of Phase 1B Plat A will occur before Spring 2024, at the earliest, with the first building permits not being approved until sometime thereafter.

To support reliance on the above amended language of subsection (ii) for approval of building permits beyond the 1,746th Dwelling Unit, the City will accept a bond from Oakpointe securing 150% of the estimated cost of the Morgan Street/Roberts Drive intersection improvements.

Because this proposed amendment would not materially modify the intent and policy of TVDA, I have determined that it would constitute a "Minor Amendment" under Section 10.4.2, and therefore could be approved by Mayor Benson if Oakpointe is amenable. Please advise at your earliest convenience whether Oakpointe would be agreeable to this proposed amendment. If so, the MDRT will proceed to issue public notice under Section 12.6.1 and follow the process for Minor Amendments as outlined in TVDA and Chapter 18.08 of the vested code, as we have done on previous occasions when an amendment has been requested by Oakpointe.

Sincerely,

A handwritten signature in cursive script, appearing to read "Andy Williamson".

Andy Williamson
MDRT and Economic Development Director

Exhibit 15:

Transpo Traffic
Response to
Emergency
Services

#15

MEMORANDUM

Date:	December 15, 2025	TG:	1.16450.00
To:	Brian Ross and Justin Wortman - Oakpointe		
From:	Mike Swenson, P.E., PTOE and Maris Fry, P.E., RSP1 – Transpo Group		
Subject:	Response to Comments – Major Amendment/Pipeline Road, PLN25-0006		

This memorandum provides responses to the comment letter prepared by the Black Diamond Chief of Police and dated December 10, 2025 in regards to Major Amendment/Pipeline Road, PLN25-0006.

Comment: Infrastructure should come before the problems it is designed to prevent, not after. Pipeline Road was originally required early, in place by 1,746 homes, because the City, it's consultant, the hearing examiner during that time, and elected officials all determined that a second east-west corridor was necessary to preserve roadway capacity and protect public safety. Pipeline Road was not just another building project; it was a core mitigation measure built into the Developer Agreement. Changing the construction timing weakens the very reason the condition existed; to prevent the existing road network from being overwhelmed.

Response: *While we agree that infrastructure improvements should be proactive, they should also be constructed concurrent with need. In this case, the need has shifted from what was originally evaluated as part of the 2009 Final Environmental Impact Statement (FEIS). Changes in local and regional assumptions were expected when the Development Agreement (DA) was drafted. Many of the conditions of the DA were designed to continue reflecting on "real world" conditions, including the development of a revised transportation model and Traffic Monitoring Reports. These elements aim to incorporate and evaluate assumptions that have changed since the FEIS was completed and the DA developed to ensure that infrastructure projects occur when appropriate.*

The proposed Pipeline Road trigger of 2,866 dwelling units, which is based on the most up to date assumptions available, including the City's updated transportation model, is meant to ensure that infrastructure is built appropriately before issues arise. As detailed in the Parametrix Sensitivity Analysis, it is expected that intersection level of service at Roberts Drive/Lake Sawyer Road SE would fall below the City's standards (indicating "significantly adverse degradation of LOS on Roberts Drive" as outlined in Exhibit F of the DA) would occur between 2,866 and 3,484 dwelling units – therefore setting the trigger prior to the point where the LOS issue arises. As such, the proposed trigger does represent infrastructure improvements occurring before the problem it's designed to prevent.

Comment: The original trigger, as described in exhibits, was based on traffic modeling and safety standards, not developer convenience. Moving the requirements to 2,866 homes invites exactly the problems the Development Agreement was designed to prevent; heavier congestion, more chokepoints on Roberts Drive, slower response times, and lower quality of life for residents, even if the "Level of Service" (LOS) still meets technical minimums.

Response: *The original trigger was based on the comprehensive phasing of the MPDs and regional growth as defined in the transportation analysis completed as part of the FEIS. The proposed trigger is based on a more refined transportation model that is based on an approved regional model and accounts for updates to baseline intersection counts, current ITE trip generation rates, and the development schedule of the MPDs.*

As such, the proposed trigger is representative of the most up to date transportation and development assumptions and represents infrastructure improvements occurring before issues arise along Roberts Drive.

Comment: The City continues to rely heavily on developer-funded modeling and on a schedule shaped by the developer's build-out plan. While the City's consultants reviewed the updated model required under Conditions 10-17 (Report, Introduction; Conditions 11-17), the analysis is still built on assumptions that limit reliability.

***Response:** While the model update was funded by the developer, it was fully developed by the City's traffic consultant, Parametrix, without outside influence from the developer or the developers' traffic consultant, Transpo Group. The starting point for the transportation demand modeling work in support of the City's model update is the Puget Sound Regional Council (PSRC) 4K Trip-Based Travel Demand Model developed for the current (at the time analysis was conducted) Regional Transportation Plan 2018. As such, the basis for the model was built from a regionally developed and regionally accepted transportation model. As outlined in Condition 12, the new model must take into account current and proposed land uses and therefore it is appropriate that the City's consultant worked with the developer to understand and incorporate the development schedule known at the time the model was developed.*

Comment: The model assumes 1,375 homes existed in Ten Trails in 2022 per the Mid-Point Monitoring Report (Transpo Group 2021). In reality, only about 1,000 homes were completed, a 27% difference. This directly affects trip generation and undermines model accuracy.

***Response:** It appears this comment is related to the following excerpt of the Transportation Model Update Executive Summary.*

"The analysis was conducted for existing 2022 conditions. To be conservative, the 2022 analysis is based on existing traffic counts as well as trip generation estimates for Phase 1A/1B and Phase 2 of Ten Trails forecasted for the year 2022, as documented in the Mid-Point Traffic Monitoring Report: Ten Trails and Lawson Hills Master Planned Developments: Phase 1A (Transpo Group 2021). The Mid-Point Traffic Monitoring Report assumed 1,375 dwelling units would be constructed by the year 2022. Actual construction by the end of 2022 included approximately 1,000 dwelling units."

We understand this as Parametrix acknowledging the difference between the previous analyses and the "on the ground" conditions at the time the model was developed.

Comment: The model uses 2032 as the "full buildout" year, even though the development agreements expire in 2025 (Report, Development Agreements). Calling the 2032 assumption "conservative" is misleading, it is speculative and not tied to any approved vesting schedule.

***Response:** A 2032 horizon year results in a higher level of regional background growth, thus the combined traffic projections of project build-out plus regional growth would be more than if a 2025 build-out year was assumed.*

Comment: The 2022 results show SR 169/SR 516 and SR 169/SE Wax Road already operating at LOS E, below Maple Valley's LOS D standard (Report, 2022 Analysis Results). Rather than analyze the real-world impacts of these failures, the report simply states that a prior mitigation agreement overrides several Conditions of Approval (Report, 12.10.1). This removes a known real-world problem from meaningful review.

Response: Condition 15 explicitly states that “Intersection improvements outside the City limits may be mitigated through measures set forth in the agreement between the developer and the applicable agency. Where agreement is possible, the developer shall enter into traffic mitigation agreements with impacted agencies outside the city that have projects under their jurisdiction in the list below...**Any agreement so incorporated supersedes all other conditions and processes that may set mitigation measures and that are contained in the MPD Conditions or Development Agreement.**”

The developer entered into a mitigation agreement with the City of Maple Valley such that the developer would make payments towards construction of many improvements in Maple Valley. The developer has made those payments in concurrence with the schedule defined in the mitigation agreement.

The timing of Pipeline Road does not impact conditions outside of Black Diamond. Regardless of whether project trips use Roberts Drive or Pipeline Road to access SR 169, the level of traffic along SR 169 would not demonstrably change.

Comment: Under 2032 conditions, the model forecasts LOS E or F at multiple intersections across Maple Valley, Covington, and unincorporated King County (Report, Table 6).

- Covington has four intersections expected to fail, and its plan allows this only after SR 516 is widened, and improvement with no committed timeline (Report, Covington LOS Standards).
- SE Auburn Black Diamond Road/218th Avenue SE and Kent Kangley Road/Landsburg Road are forecast at LOS F. A roundabout is proposed at the former, but the latter has no funding, relying instead on a future proportional-share contribution that isn't guaranteed (Report, 2032 Mitigation Discussion).

Response: As noted previously, mitigation agreements made with agencies outside the City of Black Diamond supersede all other conditions and processes that may set mitigation measures. Similar to Maple Valley, the developer entered into a mitigation agreement with the City of Covington to make payments towards the construction of improvements.

Related to SE Auburn-Black Diamond Road/218th Avenue SE, the developer is already coordinating with King County on the design of the proposed roundabout such that construction begins in line with the ERU trigger defined in the Phase 3 Traffic Monitoring Report (Phase 3 TMR), the most up to date monitoring report developed for the MPDs. Related to Kent-Kangley Road/Landsburg Road, the proportional-share contribution timing is also set forth in the Phase 3 TMR.

The timing of Pipeline Road does not impact conditions outside of Black Diamond. Regardless of whether project trips use Roberts Drive or Pipeline Road to access SR 169, the level of traffic along roadways outside of Black Diamond would not demonstrably change.

Comment: The model includes Pipeline Road, the North Connector, South Connector, SE Loop Connector, and Lawson Parkway for 2032, but the report notes these alignments may change and would require new modeling (Report, Roadway Assumptions). This highlights that the model is tied to developer plans, not independent traffic conditions.

Response: All roadways were included as they are a part of the City's comprehensive planning documents. But as noted in the comment, any changes to these roadways or their alignments would require further study. For instance, the change in construction trigger was analyzed in detail by the City for Pipeline Road.

Comment: These modeling limitations have real consequences for emergency response. When a model uses optimistic assumptions, including unfunded future improvements, or ignoring intersections already operating below standard, it underestimates the actual conditions first responders face.

Emergency vehicles don't move through "average LOS." They move through real congestion:

- School traffic
- Special events
- Construction backups
- Seasonal weather, and
- Regional growth outside the MPDs.

None of these are fully reflected in the model. And because emergency response is a life-safety issue, not just a planning metric, ignoring these conditions creates a major gap in evaluating whether the developments can maintain adequate public-safety performance in the future.

Response: *School Traffic:* The model focuses on the PM peak hour – any school traffic associated with this time period would be reflected in the counts and the future traffic projections.

Special Events: Special events are not frequent enough, nor occur in sufficient regularity to be included. If there is a significant enough event, a stand-alone event management plan is typically completed.

Construction back-ups: Construction back-ups are a short-term condition. Modeling doesn't assume construction back-ups because it assumes full build-out of the project when construction is complete.

Seasonal weather: While changes in weather conditions can occur, there is no industry standard to adjust intersection capacity for purposes of intersection analyses.

Regional growth: The model does address regional growth outside of the MPDs by basing the model from the regional PSRC model which accounts for regional growth throughout the wider region.

Exhibit 16:

Public
Testimony -
Ekberg

My name is Tom Ekberg. I have been a resident of Black Diamond since 2006. I am a member of Friends of Black Diamond. I incorporate the Friends of Black Diamond comments as my own.

I live on Union Drive, 1/2 block north of Roberts Drive. When I drive from my driveway 1/2 block south to the stop sign I often have to wait for traffic to clear, even at 10 in the morning, to make a left turn. Twice the traffic has been so heavy that I have had to turn right, go down to the Roberts/Lake Sawyer round-about, and take the Roberts Road Eastbound exit, essentially a U turn.

The reason for this heavy traffic is that Roberts Drive is the one reasonable road west of HWY 169 (a.k.a. 3rd avenue) that goes to the Ten Trails area. The addition of the Pipeline Road, between the northern Lake Sawyer Road round-about and HWY 169 will split the east/west traffic between Roberts Drive and the Pipeline Road.

There are other east-west routes North of Black Diamond for Southbound traffic on HWY 169 going to the Ten Trails area, 288th Ave SE and HWY 516. These routes can go through high traffic areas during rush hour, and unprotected left turns in 35-50 MPH zones.

#16

Exhibit 17:

Public
Testimony -
Bryant

#17

Comments for December 15, 2025, Hearing on PLN25-0006, Pipeline Road

To the City of Black Diamond Hearing Examiner and Council:

Developer OakPointe, as I understand, now wants to amend their Development Agreement approved by the City Council in 2011. To the detriment of the people of Black Diamond and what appears to be the benefit of OakPointe.

OakPointe originally agreed to build a Pipeline Road from Ten Trails to Highway 169 north of Roberts Drive.

Now, instead, OakPointe wants to use Roberts Drive as a main avenue to Highway 169. They're directing traffic through old Black Diamond on a road built for low traffic and already in disrepair. This will harm our local neighborhood, and makes it unsafe for current residents.

Why do we want to negatively impact the lives of so many residents and families which already have restricted parking and nowhere to move?

I live on Roberts Drive and we are seeing a huge increase in traffic from the OakPointe development. It makes it hard to cross the street to see your neighbors.

With increased traffic, my wife and I don't walk on Roberts Drive anymore. Before now, for decades we would walk almost every day for exercise along Roberts Drive to Morgan Street and then up Morgan and back home on 3rd Avenue. The traffic is now too much and it feels unpleasant and dangerous.

It sounds like OakPointe is saying: let's do it our way, and the people who live in this little town need to be told what's best for them.

The city custodians need to listen to us, the people, who this town belongs to. You represent the people. People choose to live here because of the country atmosphere, historic character, and quality of life where neighbors know neighbors. Do not let OakPointe intimidate you .

I support the Friends of Black diamond testimony on this issue, and incorporate it as my own.

Thank you,

William G. Bryant. 25100 Roberts Dr., Black Diamond, WA 98010

Exhibit 18:

Public
Testimony –
Friends of BD

#18

Friends of Black Diamond

FriendsofBlackDiamond@comcast.net

December 15, 2025

To: City of Black Diamond Hearing Examiner and City Council, staff contact
acampbell@blackdiamondwa.gov

Subject: PLN25-0006 Major Amendment to Development Agreement

Comments on Developer Application to Delay Pipeline Road

Introduction

These comments and the comments of many other people show that the City would be sacrificing its historic and small-town character by delaying Pipeline Road.

On SE 288th Street, people who live on that street and nearby are endure constant traffic noise, exhaust, and have safety concerns when people speed on this long, straight road. The issues are similar on the Lake Sawyer Road which has Ten Trails traffic traveling to or from SE 288th.

On Roberts Drive, the historic neighborhood was vibrant and walkable. In addition to the noise and traffic increase and the increase in speeding, now the power company PSE is attempting to buy easements from property owners to add more power lines to bring power to Ten trails. PSE would not need these if they put the power lines on pipeline road.

Roberts Drive with its older and/or smaller homes is affordable, so the increase in traffic is an environmental injustice to those who have few options. Roberts Drive homeowners will likely lose their property value, preventing them from moving, as OakPointe delays Pipeline Road and PSE removes beautiful trees to put up more power lines to serve more Ten Trails construction.

Black Diamond's population was 4,697 at the 2020 census. In 2023, with a 40.6% growth rate, Black Diamond was the fastest growing small city in King County. (Wikipedia). Developer OakPointe is behind or in violation of many of the promises they made with the Development Agreement. Allowing the public to subsidize more OakPointe profit by delaying Pipeline Road is not appropriate.

This document is submitted with several others because the photos of existing impacted neighborhoods result in large files.

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Growth Management (GMA) requires ensuring vitality, preservation, and improvement of existing neighborhoods:

WAC 365-196-410 (2)(g)(iii): “The housing element should identify strategies designed to ensure the vitality and character of existing neighborhoods. It should show how growth and change will preserve or improve existing residential qualities. The housing element may not focus on one requirement (e.g., preserving existing housing) to the exclusion of the other requirements (e.g., affordable housing) in RCW 36.70A.070(2). It should explain how various needs are reconciled.”

When the city considers modifying the existing Development Agreement, it must consider this in light of current regulations. The city is required to “ensure the vitality and character of existing neighborhoods.” It must “preserve or improve existing residential qualities.” If we look back to the 2009 Comprehensive Plan and the 2010 MPD Approval, no one would say that these goals were not intended. But what has happened is the city is sacrificing existing neighborhoods so that new development can be added. The Pipeline Road is needed to meet the GMA and city goals of mitigating the impacts of growth.

The Master Planned Development Conditions of Approval Require Traffic Calming and Speed Control:

“30. The applicant shall apply road design speed control and traffic calming measures so that inappropriate speeds are avoided on neighborhood streets.”

“31. The timing of the design and alignment of the Pipeline Road shall be included as part of the Development Agreement.”
(see city ordinance 946, incorporated into the Development Agreement Ordinance 970)

The city should properly apply condition 30 to all streets impacted by the development, which includes Roberts Drive and SE 288th Street. Condition 30 is not limited to the new development. If Pipeline Road is not built now, then the developer must provide traffic calming such as increased vegetation and safety measures on Roberts Drive, SE 288th, and Lake Sawyer Road.

Condition 31 shows that Pipeline Road was always needed and the city's goal was to ensure people knew when it would be built and that it built before traffic became horrible. They did not intend to require that the new roundabouts be near failure before building Pipeline Road. That should not change.

The Development Agreement Specifies impacts are “mitigated” but with the proposed delay, that is no longer true:

“... Moreover, entering into this Agreement provides assurance to the Master Developer and its successors and assigns that: ... (iii) that this Agreement and its standards will be in effect for 15 years with the possibility of further extension; (iv) that mitigation measures for the Implementing Projects, including protections to the natural environment and improvements to the built environment necessary to appropriately mitigate probable, significant adverse impacts and accommodate the build out of The Villages MPD, are fully described in this Agreement;” (Villages D.A., page 4 from Ordinance 970)

If Pipeline Road is delayed past the requirement that it be built by the 1,746th unit, then the above statement is not accurate. Mitigation is not sufficient. The testimony of the residents and the evidence provided below make this clear.

Trigger for Pipeline Road is the EARLIER of degraded level of service or the building permit for 1,746th dwelling unit

Pipeline Road

The Pipeline Road shall be constructed by the Master Developer and open for traffic prior to the earlier of: (i) City's approval of a building permit for the 1746th Dwelling Unit of The Villages MPD; or (ii) when the Traffic Monitoring Plan (Exhibit "F") shows that construction is necessary ...

(The Development Agreement Section 6.4.3, Page 45-46)

The developer and city materials from Parametrix downplay or sometimes omit the “earlier” part of the above requirement. They like to focus on the level of service and ignore the 1,746 units.

The city staff report and this entire amendment completely ignore the point of setting the 1,746 unit trigger. The developer gives the city nothing in return, but requests that the Council simply pretend there was no reason for the trigger, and use a basic intersection L.O.S. analysis as is used by other transportation projects required in the D.A. But the Pipeline road is not other transportation projects.

This is a bait-and-switch. In 2011, developer agrees to a trigger that requires the road be built even if the intersections are not “failing” – this recognized that there were other impacts to not having a Pipeline Road – then in 2025 when it’s time to build the road, try to back out of the agreement.

It’s surprising that staff has not even recommended the developer provide more mitigation for the new traffic’s obvious impacts to the other city roads.

It’s surprising that staff didn’t ask for the city’s transportation review to assess neighborhood and walkability impacts.

It’s surprising that with a grocery store, a gas station, and a McDonalds coming to Ten Trails – none of which count toward the new proposed 2,800+ home trigger - staff is not concerned about the increased traffic that will impact residents of existing neighborhoods

Based on all of the neighborhood and safety issues, it is clear that the measure of “degraded level of service” construed as only whether intersection delays fail, is a completely inadequate definition. Ten Trails was built with a plan to keep the homes in Ten Trails safe from speeding and excess vehicle noise. The rest of the city must not suffer them as a result.

A major amendment allows the council to take all of the residents’ additional concerns and previously ignored neighborhood factors into account. If Council wants to require the master developer to add traffic calming, safety measures, etc., in order to grant a delay to Pipeline Road, the Council can do that as a condition of a major amendment.

Speeding and More Cars Add Neighborhood Noise and Safety Concerns

For many people, when they move out to Black Diamond, it is a greater distance from their job, and other places they need to go than they were used to before. Everything is far away.

People get tired of the length of time it takes to drive where they want to go, or they just run short on time. So, they speed more to try to gain some time back.

As a vehicle travels faster, road noise from tires becomes much louder.

- “Dominance Shift: At low speeds, engine noise is often louder, **but above about 25-30 mph (50 km/h), tire-road noise takes over** as the primary contributor to overall vehicle sound.
- Speed Relationship: **For every 10 mph increase in speed, the tire noise can become approximately twice as loud** (a significant decibel increase).”

Articles “describing strong correlations between traffic noise and a host of health problems, including heart attacks, strokes, obesity, diabetes, depression, and others.” - From <https://medium.com/swlh/the-sound-of-cars-400761fc71f2>

<http://www.onlinejacc.org/content/71/6/688> **Environmental Noise and the Cardiovascular System** in Journal of the American College of Cardiology (JACC)

<http://www.nonnoise.org/library/smj/smj.htm> **Noise Pollution: A Modern Plague** by Lisa Goines, RN and Louis Hagler, MD in Southern Medical Journal

The safety concerns of drivers speeding through Black Diamond are intuitively understood by those who spend time in the area. Drivers don’t always see people in the crosswalks on Roberts Drive, and drivers don’t slow down for parked cars or driveways. All of this contributes to a feeling of, and a reality of, less safety for walking as more cars are added to the roads.

Lack Of Public Notice And Failure To Properly Identify The Proposal Location Contributing To Lack Of Notice

The SEPA adoption notice incorrectly states that this project, "Has no physical location." This statement by the city is incorrect.



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ADOPTION OF EXISTING ENVIRONMENTAL DOCUMENT FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS) THE VILLAGES MASTER PLANNED DEVELOPMENT (MPD)

Project Name: Major Amendment to The Villages Master Planned Development (MPD) Development Agreement (TV DA) regarding Pipeline Road Construction Timing

Application Number: PLN25-0006

Name of Applicant/Proponent: Oakpointe / CCD Black Diamond Partners LLC

Project Description: The applicant is requesting a Major Amendment to The Villages Master Planned Development (MPD) Development Agreement Section 6.4.3 to modify the language in this section regarding the deadline for when Pipeline Road must be constructed. This request proposes modifying the Dwelling Unit trigger for the construction and dedication timing of Pipeline Road from 1,746 Dwelling Units to 2,866 Dwelling Units. The Major Amendment request does not modify the acreage of the overall MPD, increase the number of lots within the MPD, decrease the required amount of open space to be provided, or modify the overall design of the approved MPD.

Location: The Major Amendment application impacts the Development Agreement for The Villages Master Planned Development and has no physical location. Pipeline Road will provide an east/west connection from the roundabout at the intersection of Lake Sawyer Road SE / Ten Trails Parkway SE to a future roundabout at State Route 169.

Title of Document Being Adopted: The Villages Master Planned Development Final Environmental Impact Statement (FEIS). Prepared by Parametrix on behalf of the City of Black Diamond and issued December 2009. The City of Black Diamond has identified and adopted this document as being appropriate for this proposal after independent review. The document meets our environmental review needs for the current proposal and will accompany the proposal to the decision maker. The FEIS meets the environmental review needs for the current proposal.

Description of Document Being Adopted: The FEIS for The Villages Master Planned Development identified the impacts of the MPD within the City of Black Diamond. The FEIS reviewed impacts and established required mitigation measures resulting from the development of the MPD.

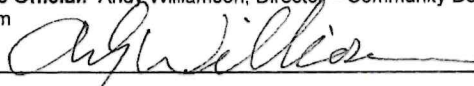
If the Document Being Adopted Has Been Challenged, Please Describe: The FEIS was administratively appealed with the City's Hearing Examiner issuing a Decision deeming the FEIS adequate in April 2010.

Adopted Document Availability: The Villages MPD FEIS is available for review on the City of Black Diamond's website at this location: <https://www.blackdiamondwa.gov/master-development-review-team/webforms/development-agreement-information>

Name of Agency Adopting Document: The City of Black Diamond

Staff Contact: Alex Campbell, Senior Planner – Master Development Review Team
acampbell@blackdiamondwa.gov, (360) 851-4544

Responsible Official: Andy Williamson, Director – Community Development and Master Development Review Team

Signature:  **Date:** 12/1/2025

Pipeline Road does have a physical location, and that location is in the Development Agreement (D.A.) as shown on the Staff Report Exhibit 1. Section 6.4.3 of the D.A. clearly defines the location of Pipeline Rd: from the Lake Sawyer Road near Ten Trails to State Route 169 in the vicinity of the Black Diamond Ravensdale Rd. Further, this section defines the location of the impacted area as Roberts Drive by specifically indicating that

Pipeline Rd. must be built prior to significant adverse degradation of level of service on Roberts Drive.

More importantly, the areas taking the additional traffic as a result of this major amendment DO have a physical location. They are alternate driving routes between, “the intersection of Lake Sawyer Road SE / Ten Trails Parkway SE” to State Route 169.

This difference is very important. If there were a physical location, then the developer and city would have been required to ensure that everyone along those roads received a notice of this hearing.

Independent Review Requirement of SEPA not followed because SEPA official not independent

The Official who signed off on the SEPA notice (shown above in the prior section) is not in an appropriately unbiased position

The Director of the MDRT is Andy Williamson, who is in charge of all permit applications. Now, the city has also made him the SEPA Official.

The SEPA official should be focused on SEPA

197-11-630 Adoption-Procedures.

(1) The agency adopting an existing environmental document must **independently** review the content of the document and determine that it meets the adopting agency's environmental review standards and needs for the proposal...

Therefore, the official in charge of determining that additional impacts warranted further SEPA review is the official who presided over the staff report and the application that says there are no impacts. SEPA's requirement for an independent review is designed to prevent this kind of natural “tunnel vision.”

A separate individual at the city with true SEPA autonomy could have determined that after 15 years, and having heard from people who are impacted negatively by the traffic and safety concerns, that a supplemental EIS was needed.

SEPA Checklist was not even completed, but SEPA impacts warranted a supplemental EIS and/or mitigation condition

The applicant did not even complete a SEPA checklist, yet the SEPA official simply adopted existing environmental documents. A thoughtful review of the questions on checklist could have identified more impacts, which would lead to further SEPA review.

SEPA requires that previously unidentified impacts be addressed:

WAC 197-11-405 (4)

(4) A supplemental EIS (SEIS) shall be prepared as an addition to either a draft or final statement if:

- (a) There are substantial changes to a proposal so that the proposal is likely to have significant adverse environmental impacts; or
- (b) There is significant new information indicating, or on, a proposal's probable significant adverse environmental impacts.

A SEPA input process would provide the public with much more opportunity to give input, and the **decision makers with much more information on the true impacts and potential mitigations.**

Safety problems at both ends of SE 288 St.

The following is the Collision History from the Traffic Provide the reported collision history At SR 169 / SE 288th from OakPointe's Ten Trails *Plat 3A Traffic Impact Study* from earlier this year. We can see that intersections at both ends of SE 288th Street have higher than average collisions. The Covington-Sawyer Road/216th Ave SE is an intersection immediately south of the 288th St/ 216th Ave SE intersection that vehicles headed to and from Ten Trails using 288th would pass through.

Intersection Collision Analysis

Collisions at study intersections were determined using WSDOT's classification of the "Junction Relationship" of the collision as well as by reviewing collisions that were noted to occur within 200 feet of intersections. All collisions that were classified as "At Intersection and Related" or "Intersection Related but Not at Intersection" were included. Collisions adjacent to intersections were also reviewed to determine whether the cause was related to the intersection (e.g., rear-end type collisions) or related to the roadway (e.g., fixed-object collisions) and included in the collision summaries. The number of collisions reported at these intersections are summarized in Table 4.

Table 4. Five-Year Collision Summary at Intersections – 2019 to 2023

Intersection	2019	2020	2021	2022	2023	Total	Annual Collisions Average per MEV ¹	
SE 288th St/216th Ave SE	2	2	1	2	4	11	2.20	0.55
SE 288th St/232nd Ave SE	0	0	0	0	0	0	0.00	0.00
SE Covington-Sawyer Rd/216th Ave SE	3	0	2	6	4	15	3.00	0.67
SE Auburn-Black Diamond Rd/218th Ave SE	0	1	2	2	1	6	1.20	0.41
Roberts Dr/Lake Sawyer Rd SE	0	2	0	0	0	2	0.40	0.14
Roberts Dr/Morgan St	1	0	0	0	0	1	0.20	0.09
SR 169/SE 288th St	4	4	2	4	1	15	3.00	0.55
SR 169/SE Black Diamond-Ravensdale Rd	3	7	2	1	3	16	3.20	0.60
SR 169/Roberts Dr	2	1	1	0	0	4	0.80	0.15
SR 169/Baker St	1	1	3	2	1	8	1.60	0.37
SR 169/Lawson Rd	0	2	0	2	1	5	1.00	0.24
SR 169/Jones Lake Rd	0	0	1	2	0	3	0.60	0.15
SR 169/SE Green Valley Rd	1	1	0	0	1	3	0.60	0.15
SE Kent-Kangley Rd/Landsburg Rd SE	6	3	0	1	1	11	2.20	0.60
SE Auburn-Black Diamond Rd/SE Green Valley Rd	0	1	0	0	0	1	0.20	0.05

Source: WSDOT, 2024.

OakPointe has worked on some of these intersections, but they still don't feel safe.

The photo below is the intersection still not done at SE 288th St / 216th Ave SE. The non-working traffic signal that OakPointe started but was delayed from completing is still not work. It has been several years since it was triggered for construction. Photo taken

November 21, 2025 by Phil Acosta of Black Diamond. SE 288th St and 216th Ave SE.



Other Intersection Improvements Delayed

The intersection improvements at Roberts Drive and SR 169, Ravensdale Road and SR 169 started about 5 years after they were warranted per the traffic monitoring plan. This is a long time for people to wait. The intersection improvements at SR 169 and Baker St and Lawson St should start soon, but are not going to start on time. As pointed out above, the intersection at SE 288th St/ 216th Ave is delayed.

These are reasons that delaying Pipeline Road is risky. We have no assurance that when the road is needed even more badly, after over 1,000 additional homes at the new trigger, that the developer will timely complete the project.

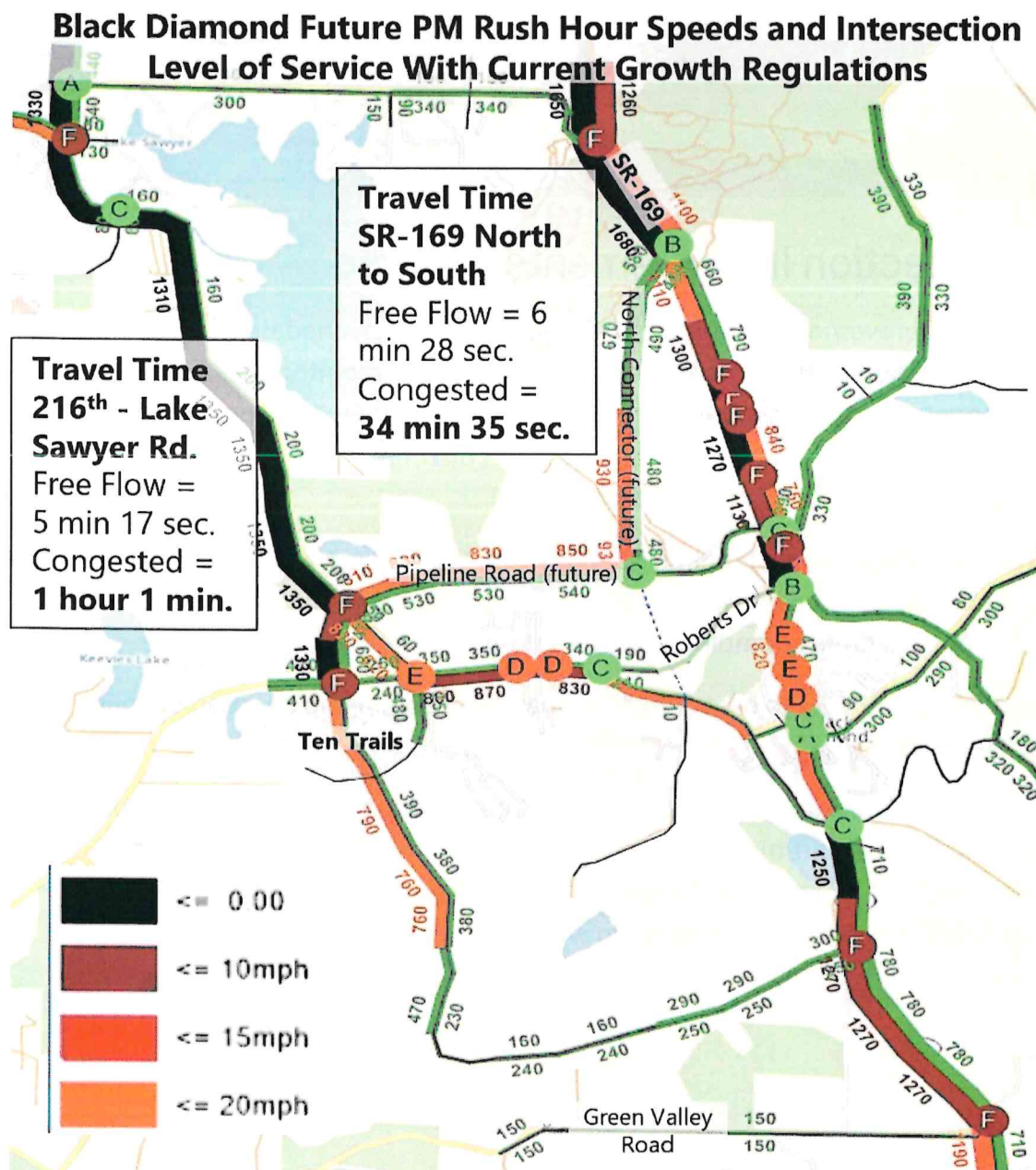
The developer should not get to delay Pipeline Road after coming up short on so many of their road projects so far.

The developer will be quick to point out that these intersections have reached or soon will reach their construction start trigger. However, we now know that construction start triggers can be delayed for numerous reasons (see all intersections on SR 169), and construction START has almost nothing to do with construction FINISH which can be 6 years after the trigger.

Traffic not evaluated at side streets to Roberts Drive, nor at side streets along the Lake Sawyer Road

Roberts Drive intersections at Union Dr, Morgan St., Sunny Lane, Bruckners Way, and intersections on Lake Sawyer Road at SE 312th St and SE 307th St., etc. were not evaluated. These can experience significant delays and/or safety issues with increased traffic.

The map below was created by professional Transportation Planner Ross Tilghman and Transportation Engineer Bob Shull for the Friends of Black Diamond in 2021.



The above map evaluates some stop-controlled intersections along city arterials that are left out of OakPointe's transportation analysis. Even with Pipeline Road, several intersections that cross Roberts Drive would be close to failure.

Lake Sawyer Road cross-streets were not evaluated, but would be impacted as this road becomes extremely congested. Ten Trails are also very impacted by delays and safety concerns if Pipeline Road is not built soon.

OakPointe is building a Safeway, a Chevron Station, and a McDonalds. We need the Pipeline Road.

The original plan for retail at Ten Trails Was for walkable shops. The actual retail that is currently permitted for construction is the opposite. The city and the developer are allowing a Safeway, a Chevron gas station and convenience store, and a McDonald's. Grocery shopping means people have a lot of stuff to carry home so they need their car. A gas station and a McDonald's are clearly car-oriented.

OakPointe may argue that they have factored this traffic into their analysis, but what if they're analysis is not correct?? There will be no recourse but to wait until the new trigger for the delayed Pipeline Road major amendment.

The new retail at Ten Trails is going to result in many more cars on Black Diamond's local neighborhood roads getting to this retail. It's going to increase the impacts of noise and safety and the issues that people are saying negatively impacts their lives.

Impact of OakPointe on Roberts Drive road shoulders

Roberts Drive has gravel shoulders in some places, where the gravel and grass begins immediately at the edge of the travel lane. In 2023, after years of construction trucks and other traffic from Ten Trails, ruts where the gravel was deeply worn away were becoming more of a problem on the shoulder. In the past, when ruts formed, public works could fill them in. But now they were worse and more frequent.

Thus, in September of 2023 the city council voted to pave the road shoulders near the east end of Roberts Dr. See Council meeting material from Sep. 9, 2023, AB23-050. However, there was no consideration of traffic calming. The extra width on these shoulders, especially the corner, encourages cars to drive faster on Roberts Drive.

The previous project to add sidewalks as the city grows – by OakPointe west of the Rock Creek bridge, and by the city east of the Rock Creek bridge, also were done in a way that widened the pavement along the travel lane. Again, this encourages faster driving.

The city staff in the staff report that these faster travel speeds are an impact of development. They fail to consider that traffic calming measures as required by the Development Agreement should be applied as vehicle travel to and from the OakPointe development increases.

Level Of Service For On-Duty Firefighters Not Met

Delaying Pipeline road will have two major categories of impacts: One is the extra traffic and safety concerns described by many. The other is that it will encourage OakPointe to develop more houses, faster, as their costs are lower and their infrastructure requirements reduced.

This means more people moving to the area with a **poor level of service for Emergency and Fire and EMS response. This level of service is specifically called out in the Development Agreement, but OakPointe is not meeting their requirement.** Again, this is a reason that it is a bad idea to allow Pipeline Road to be delayed.

The level of service for fire fighters to serve the city required by Ord. 970, the Ten Trails D.A. is:

“Level of Service
The City has an LOS standard of 1.4 on-duty career firefighters per 1,000 population.”
(Vested City of Black Diamond Comprehensive Plan June 2009, pg. 8-24: 8.7.3.)

Calculations below show the fire fighters needed based on this Level of Service.

	Year 2010	November 2025
Level of Service standard: On-duty career firefighters per 1,000	1.4	
Population size for the above on-duty career firefighter	1000	
Population of Black Diamond ¹	4,100	8,000
Population divided by 1000	4.1	8
On-duty Career Firefighters needed for above population (1.4 firefighters on duty per 1000 population)	5.74	11.2

The level of service agreed to with the Ten Trails Development Agreement requires 11.2 fire fighters to serve the current population, but there are not that many fire fighters funded by or serving the city.

On September 21, 2023, the MountainView Fire Department, which serves the city of Black Diamond, presented at the Black Diamond City Council meeting. Slides summarizing the

¹ Washington State Office of Financial Management Population Estimates and History.
<https://ofm.wa.gov/washington-data-research/population-demographics/population-estimates>

fire service provided and costs to the city were presented. Some of the slides are shown below from Mountainview Fire Department Sept. 21, 2023.

The city is served mainly by Fire Station 98. The station is staffed by 8 fire fighters, which covers 2 on duty at all times. The cost to operate (not capital, just operation) this station at this level is \$3.2 Million dollars (2023).

The city of Black Diamond pays Mountainview fire only \$1.1 Million dollars per year (2023). These figures are similar for 2024.

Not only does the level of service the city set require more fire fighters to serve the population, state law requires 3 firefighters on the scene to attempt to rescue a person from a structure fire.

Black Diamond is free to negotiate with Mountainview for additional on-duty personnel, however, Black Diamond is not getting funds as intended from Ten Trails tax Revenue.

Ten Trails Development Agreement requirements:

“The project, at all phases and at build-out, will not result in the lowering of established staffing levels of service including those related to public safety.”

(vested Black Diamond Municipal Code (BDMC) 18.98.080(A)(5), underline added)

“... Each updated fiscal analysis shall confirm that revenue from The Villages MPD is sufficient to maintain levels of service for police and fire services as such levels of service are adopted in the Comprehensive Plan (Exhibit ‘E’).”

(Ord. 970, D.A. Section 13.6(1)(i), pg. 129, underline added)

The D.A. requires a yearly comparison of the Fiscal Analysis to the city budget. Such a review would indicate whether the budget matches the public safety funding needed according to the Fiscal Analysis. However, the Staff Report makes no mention of this Annual Review and there is no evidence any comparison was done. Requirement:

“a. As part of the Annual Review pursuant to the terms of the Funding Agreement, the Designated Official and Master Developer shall meet to review the projections of the Fiscal Analysis compared to the City's budget.”

(Ord. 970, D.A. Section 13.6(6), pg. 133, underline added)

As evidence of a shortfall, there has been repeated discussion at city council meetings for the last year of the need for more funding for the fire department, and the Council plans to put a levy to the voters in 2026 to raise taxes.

At the Mountainview Fire Department Commissioners’ meeting on March 28, 2024, a commissioner expressed that the city is receiving a gifting of public funds from the other

taxpayers in the Mountainview fire district (and not in the Black Diamond city limits) because the city is not paying its fair share to serve the city population.

The resulting problem is that the public safety of the city is suffering. This is determined by the Council-approved Ordinance 970, Development Agreement that determines that the public needs more fire fighters to be adequately served.

Public Health and Safety are requirements of an amendment to the Master Plan. See requirements from Title 18 at the end of this document.

The City Council's proposal to annex into the Puget Sound Regional Fire (SP) is not sufficient to meet D.A. requirements. Moreover, the voters may not approve the annexation, so provisions need to be in place to deal with this eventuality.

Safety – Emergency Response as More People use Constrained Road Network

Without Pipeline Road, there are fewer routes for EMS and other emergency services to use to get across town from the west at Fire Station 98 to respond.

Appendix: Mountainview Fire Department Sept. 21, 2023



Current Interlocal Agreement

• Section 3.3 Staffing Levels

- **Minimum Staffing.** It is intended that Station 98 will be staffed 24 hours per day, seven days per week, with a minimum of two (2) on-duty career firefighters located on site. This minimum staffing level will be supplemented with volunteer personnel when available
- **Staffing Review.** The City and District shall periodically review staffing level needs in order to take into account needed levels of service for the City as its population and commercial base increases. If another Fire Station is built in the City of Black Diamond, staffing of that station shall be negotiated between the City and the District, based upon the cost for such services and the City's adopted level of service standard. The City shall give at least 365 days notice to the District of the anticipated opening of the new Fire Station to give the District sufficient time to hire and train adequate personnel to operate the new Fire Station at the agreed staffing level at the City's expense from the date of hire



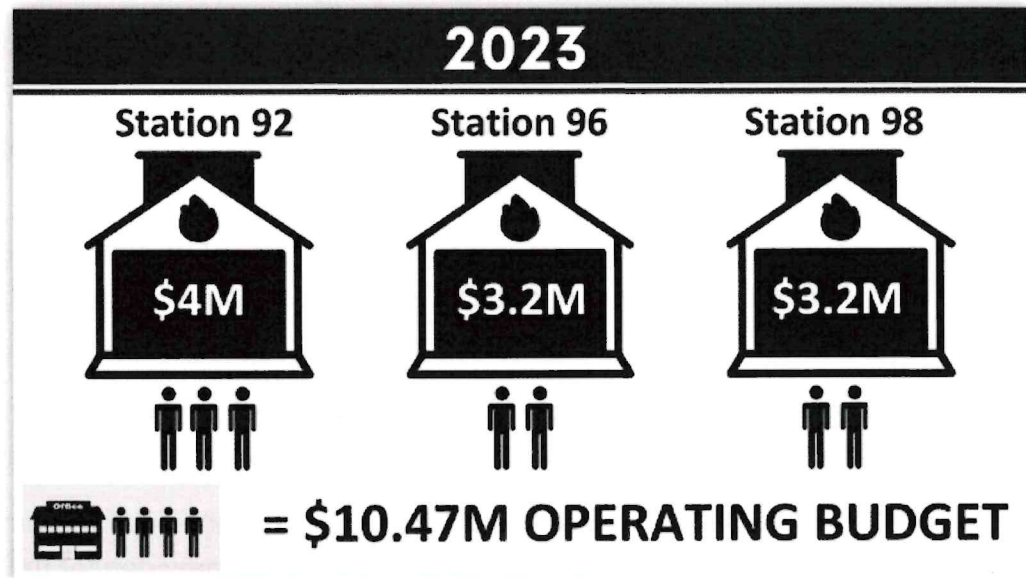
Current Interlocal Agreement

- **Section 4 Payment for Services** (Also in Exhibit A)
 - 2023 fire service contract rate \$1,101,100.00
 - 100% of EMS Levy Tax Revenue will be assigned to the District
 - City to pay MVFR the actual cost for Fire Marshal services per Section 3.6
- **Section 6 Fire Stations**
 - Fire Station 98 is the only currently occupied building in use by the City
 - Major repairs in excess of \$1000 per occurrence are the responsibility of the City
 - Routine maintenance and utilities are the responsibility of the District



Minimum Staffing

- In 2022, the MVFR Board of Commissioners changed the minimum level of staffing at District Fire Station 92 to a minimum staffing of 3 firefighters on duty 24/7
- State law requires a minimum of 3 firefighters (**2in/1out**) on scene to attempt a rescue on a structure fire with a known victim inside
- State law requires a minimum of 4 firefighters (**2in/2out**) on scene to perform interior fire attack on a structure fire
 - WAC 296.305 states:
 - (Section 4) Initial attack operations must be organized to ensure that if, on arrival at the emergency scene, responders find a known rescue situation where immediate action could prevent the loss of life or serious injury, such action must only be permitted when no less than three personnel (2-in/1-out) are present and equipped to provide emergency assistance or rescue of the team entering the hot zone.
 - No exception must be allowed when there is no possibility to save lives or no "known" viable victims.
 - (Section 5) Firefighters must not engage in interior structural firefighting in the absence of at least two standby firefighters (2-in/2-out) except as provided in WAC 296-305-05002(Section 4)
- MVFR is the only career staffed fire department in King County with 2 firefighter minimum staffing at fire stations



Other Neighborhood Impacts, Omission of A.M. traffic impacts, and Counts of Average Daily Traffic

The staff report and developer Transportation analysis ignore necessary information about the impacts of delaying pipeline Rd. They focus on measuring whether intersections perform at a level of service D or above. However they fail to count the total daily traffic. This total daily traffic brings noise and pollutants.

They also fail to account for impacts such as site distance and safety problems leaving driveways. They failed to account for reduced property values of people on busy streets as traffic increases.

The transportation analysis focused on the “PM Peak Hour”, and so it failed to account for conflicts as drivers leave in the morning and difficulty getting onto major roadways.

There are additional impacts and the reasons for them are described in the attached transportation analysis that transportation engineer Gary Norris provided for the impacts of additional traffic on Lawson St. - a similar major amendment application to the city. While Mr. Norris does not specifically address Pipeline Road, much of his analysis is applicable.

See Traffic Engineer Comments 12-12-25 Gary Norris.pdf

Failure to ensure the MPD does not have adverse fiscal impact.

It is an MPD requirement that there be “no adverse fiscal impact on the city,” and developer OakPointe is failing to meet this requirement. Therefore, it is not appropriate to grant them a delay to Pipeline Road.

The Fiscal Analysis (FIA) approved in 2024 and referenced in the Plat 3A Staff Report was intended to satisfy this requirement. However, the Analysis is demonstrably inaccurate to the city’s fiscal detriment, and the city has failed to do the required Annual Reviews to address this.

Impact

If the fiscal analysis is wrong and the City is not receiving expected tax revenue, then the public does not receive a benefit of a better-funded government. Also, if the Fiscal Analysis is wrong and the MPD is imposing unanticipated costs on City services, then the public does not benefit.

Failure to meet fiscal analysis obligations under the Development Agreement and Title 18 means this proposed major amendment is not be consistent with MPD conditions.

The developer has also not demonstrated continued compliance with required Annual Reviews (see Development Agreement Section 13.6, item 6. This review requires a comparison of city revenue and budget to the MPD fiscal analysis .

The city staff report and applicant materials contain no reference to the required Annual Review. If Reviews were conducted, there would have been an Annual Review in fall of 2024 and another in fall of this year, 2025. Both would show that the **actual city tax revenue is lower than the approved Fiscal Analysis’s projected tax revenue.**

Fiscal shortfalls are , in fact, impairing fire & EMS, and infrastructure services, constituting a threat to public health and safety.

This undermines any finding that “public use and interest is served” by this major amendment.

The Fiscal Impact Analysis (FIA) accepted January 2024, shows on page 20 that it was predicated on OakPointe selling 600 homes in 2025, this year. And more than 600 homes in 2026, 2027, etc. (see next page)

Table 1F
Fiscal Impact Analysis
Unit Sale Build Out and Absorption Schedule
All Phases Combined

	2023 Value		Year											2028	2029
	Finished Lot	Finished Unit	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027		
Residential															
Apartments	\$60,000	\$400,000	-	-	-	17	88	71	-	-	-	6	37	30	
Condos/Stacked Flats	\$105,000	\$450,000	-	-	-	-	-	-	-	-	-	1	8	6	
Townhomes	\$185,000	\$700,000	-	-	7	29	59	-	-	106	273	185	203	185	
Duplex/Duets/30x80 Alley	\$230,000	\$750,000	-	-	14	14	-	-	-	-	13	18	24	24	
35x75 Alley Bungalows	\$239,201	\$780,004	-	-	-	-	-	-	-	-	-	-	-	-	
35x90 Alley	\$255,093	\$780,004	-	-	10	47	29	36	1	-	12	27	24	25	
40x85 Alley	\$289,085	\$885,531	-	1	10	29	25	32	-	-	10	24	25	25	
45x85 Alley	\$300,000	\$926,400	-	9	11	1	2	12	2	-	7	14	21	21	
50x80 Alley	\$316,526	\$970,000	-	2	12	3	3	6	5	-	11	14	11	11	
45x110 Alley w/Carriage	\$300,000	\$925,000	-	-	-	-	-	-	-	-	5	7	14	14	
40x90 - 100	\$318,108	\$918,264	-	-	40	70	85	43	-	-	104	127	128	131	
45x90 - 100	\$350,022	\$1,007,640	-	-	3	4	3	2	1	-	12	20	9	8	
50x90 - 100	\$360,037	\$1,047,661	-	-	36	40	89	50	15	-	41	85	121	124	
55x90 - 100	\$387,750	\$1,175,000	-	-	-	-	-	2	7	-	11	16	33	33	
60x90 - 100	\$441,731	\$1,338,580	-	-	2	-	25	23	28	-	19	31	53	54	
AA 45'	\$279,000	\$900,000	-	-	-	-	-	15	22	12	13	22	-	-	
AA 50'	\$294,500	\$950,000	-	-	-	-	-	30	35	29	24	50	-	-	
AA 60'	\$317,440	\$1,024,000	-	-	-	-	-	16	12	11	8	18	-	-	
AA Auto Court	\$255,750	\$825,000	-	-	-	-	-	19	1	30	32	-	-	-	
Cluster/Auto Court	\$260,000	\$775,000	-	-	-	-	-	-	-	-	-	1	1	1	
Cottage	\$200,000	\$575,000	-	-	-	-	-	-	-	-	1	1	2	2	
Annual Total Units			-	12	145	254	408	357	129	188	596	667	714	694	
Cumulative Units			-	12	157	411	819	1,176	1,305	1,493	2,089	2,756	3,470	4,164	
Non-Residential															
Retail			-	-	-	-	-	-	-	-	-	-	-	-	
Office			-	-	-	-	-	-	-	-	-	-	-	-	
Annual Total Square Feet			-	-	-	-	-	-	-	-	-	-	-	-	
Cumulative Total Square Footage			-	-	-	-	-	-	-	-	-	-	-	-	

Source: Developer

(page 20, 2024 Fiscal Impact Analysis (FIA))

On paper, in the 2024 Fiscal Analysis, projected home sales made it look like there would be a large amount of retail sales tax flowing to the city on materials used to build the homes. It also looked like there would be a large amount of real estate excise tax on home sales. Neither occurred at anywhere close to 600 units in 2025, nor can be reasonably expected to occur next year, etc.

Once the homes are built, the new residents begin to use city services, and their ongoing property taxes are not enough to cover the cost of those services.

See BDMC 18.98.080 MPD Permit Conditions of Approval

"3. The proposed project will have no adverse financial impact upon the city at each phase of development, as well as at full build-out. The fiscal analysis shall also include the operation and maintenance costs to the city for operating, maintaining and replacing public facilities required to be constructed as a condition of MPD approval or any implementing approvals related thereto. This shall include conditioning any approval so that the fiscal analysis is updated to show continued compliance with this criteria, in accordance with the following

schedule:

- a. If any phase has not been completed within five years, a new fiscal analysis must be completed with regards to that phase before an extension can be granted;”

With OakPointe not meeting fiscal requirements of the city and of the MPD, it is not appropriate to approve a Major Amendment that results in further detriment to the city residents.

No Excuses

It is understandable that it is difficult for the developer to timely meet all their infrastructure requirements. OakPointe **wanted to build 6,000 houses in a rural area with tiny roads and no infrastructure**. They don't get out of their commitments because "it's hard." They knew what they were getting into; the people TOLD them what they were getting into.

The D.A. Can No Longer Be Amended because the MPD Approval is expired.

MPD Approval lasts 15 years from the MPD permit. In addition, according to staff's comments at city meetings this fall, applications for all future plats were already submitted by the developer and are now vested to the existing agreement.

Development Agreement, section 15.16:

15.16 TERM
"Build-Out" Period of fifteen (15) years following the date of the MPD Permit Approval is established for all the Development and construction of uses in The Villages MPD as authorized in BDMC 18.98.195(A) (Exhibit "E") and RCW 36.70B.170(3)(i)."

The MPD Permit approval took place on September 20, 2010, as Ordinance 946. The 15-year buildout period for (the Villages) Ten Trails expired as of September 20, 2025. The developer submitted plat applications so they may be able to continue developing under the current agreement.

But, the entire development is vested to the existing version of the agreement. The MPD approval has expired, so there is nothing to amend.

MPD Approval Criteria – CITY CODE

Given all of the comments submitted by the public, and the related documents and supporting materials, The purpose of the MPD permit, and the approval criterial for delaying Pipeline Road are not met.

18.98.010 Master planned development (MPD) permit-Purpose.

The purposes of the master planned development (MPD) permit process and standards set out in this chapter are to:

- A. Establish a public review process for MPD applications;
- B. Establish a comprehensive review process for development projects occurring on parcels or combined parcels greater than eighty acres in size;

C. Preserve passive open space and wildlife corridors in a coordinated manner while also preserving usable open space lands for the enjoyment of the city's residents;

D. Allow alternative, innovative forms of development and encourage imaginative site and building design and development layout with the intent of retaining significant features of the natural environment;

E. Allow flexibility in development standards and permitted uses;

F. Identify significant environmental impacts, and ensure appropriate mitigation;

G. Provide greater certainty about the character and timing of residential and commercial development and population growth within the city;

H. Provide environmentally sustainable development;

I. Provide needed services and facilities in an orderly, fiscally responsible manner;

J. Promote economic development and job creation in the city;

K. Create vibrant mixed-use neighborhoods, with a balance of housing, employment, civic and recreational opportunities;

L. Promote and achieve the city's vision of incorporating and/ or adapting the planning and design principles regarding mix of uses, compact form, coordinated open space, opportunities for casual socializing, accessible civic spaces, and sense of community; as well as such additional design principles as may be appropriate for a particular MPD, all as identified in the book Rural By Design by Randall Arendt and in the city's design standards;

18.98.20 MPD permit-Public benefit objectives.

A specific objective of the MPD permit process and standards is to provide public benefits not typically available through conventional development. These public benefits shall include but are not limited to:

A. Preservation and enhancement of the physical characteristics (topography, drainage, vegetation, environmentally sensitive areas, etc.) of the site;

B. Protection of surface and groundwater quality both on-site and downstream, through the use of innovative, low-impact and regional stormwater management technologies;

C. Conservation of water and other resources through innovative approaches to resource and energy management including measures such as wastewater reuse;

D. Preservation and enhancement of open space and views of Mt. Rainier;

E. Provision of employment uses to help meet the city's economic development objectives;

F. Improvement of the city's fiscal performance;

G. Timely provision of all necessary facilities, infrastructure and public services, equal to or exceeding the more stringent of either existing or adopted levels of service, as the MPD develops; and

H. Development of a coordinated system of pedestrian oriented facilities including, but not limited to, trails and bike paths that provide accessibility throughout the MPD and provide opportunity for connectivity with the city as a whole. (Ord. No. 897, § 1(Exh. A), 4-16-2009)

18.98.80 MPD Permit Conditions of Approval

A. An MPD permit shall not be approved unless it is found to meet the intent of the following criteria or that appropriate conditions are imposed so that the objectives of the criteria are met:

1. The proposed MPD meets or exceeds all of the public benefit objectives of [Section] 18.98.020 and the MPD purposes of [Section] 18.98.010(B) through (M).

A threat to public health and safety should cause development to be amended.

BDMC 18.14.30

E. Notwithstanding any other provisions of this chapter, the city may amend, alter, or suspend any vested rights created by the filing of a complete permit application and/ or preliminary or final plat approval where the city's legislative body finds that a change in conditions creates a serious threat to public health or safety in the permitted area if development were to proceed under the vested rights.

Friends of Black Diamond

FriendsofBlackDiamond@comcast.net

December 15, 2025

To: City of Black Diamond Hearing Examiner and City Council, staff contact
acampbell@blackdiamondwa.gov

Subject: Roberts Dr. Photos related to PLN25-0006

Photos of Roberts Drive, Black Diamond, WA with Comments on Impacts

The photos on the following pages show the residential homes, driveways, sidewalk, and neighborhood character. Roberts Drive is not simply an empty highway.

Roberts Drive is a historic street and a neighborhood where people walk and gather. In fact, in Morganville you have much of a walkable neighborhood that the city was trying to “create” with Ten Trails. But with all the traffic on Roberts Drive, walkability is significantly decreasing.

The photos start from the west at Ten Trails, where there is much landscaping and vegetation in the center of the street to improve the neighborhood.

As you continue into photos of Morganville (old Black Diamond), notice how sidewalks were put in without “traffic calming” – there are no green vegetation separators for safety and walkability. In some cases, the lanes are extremely wide since sidewalks were added, which was done as part of the mitigation for Ten Trails. Previously, gravel or grassy shoulders started immediately next to the 10 foot travel lane. You can see this on much of one side of Roberts Drive in the photos.

The newer wider lanes encourage speeding. In some places , a bike lane encourages speeding because of wider pavement.

Notice also how many driveways are on Roberts Dr, and imagine if you had to back in or OUT OF those driveways. Look at the historic houses. People live here, this is a real, historic neighborhood that is suffering a lot of noise and traffic due to OakPointe development.

Delayed Pipeline Road means More Power Lines and Major Loss of Trees on Roberts Drive.

Residents on Roberts Drive recently received offers from PSE to buy 10 feet of additional power line easement. These property owners are being offered a small amount of money for a change that will cause a major loss in their property values.

The new PSE easement is to bring more power for more new construction in Ten Trails. This means that trees all along the south side of Roberts will be cut down to make way for more ugly overhead power lines.

If the Pipeline Road were constructed now, then PSE could run new power lines for Ten Trails along Pipeline Road.

As you can see in the images below of Roberts Drive, or by traveling along it through all of the existing neighborhood, this power line widening of just 10 feet would bring a dramatic loss of trees. The whole character of the neighborhood will decrease. Property values and livability will be destroyed.

If we look at any “artist renderings” of Ten Trails, and other pictures used to market Black Diamond, they feature trees prominently around properties and roads. Why are we risking what we already have so the developer can wait for trees to grow in a future nice Ten Trails development?

We request that the city require the developer **Build pipeline road and work with PSE to put the new power lines there!**

Photos from Google Maps view, captured December 14, 2025.

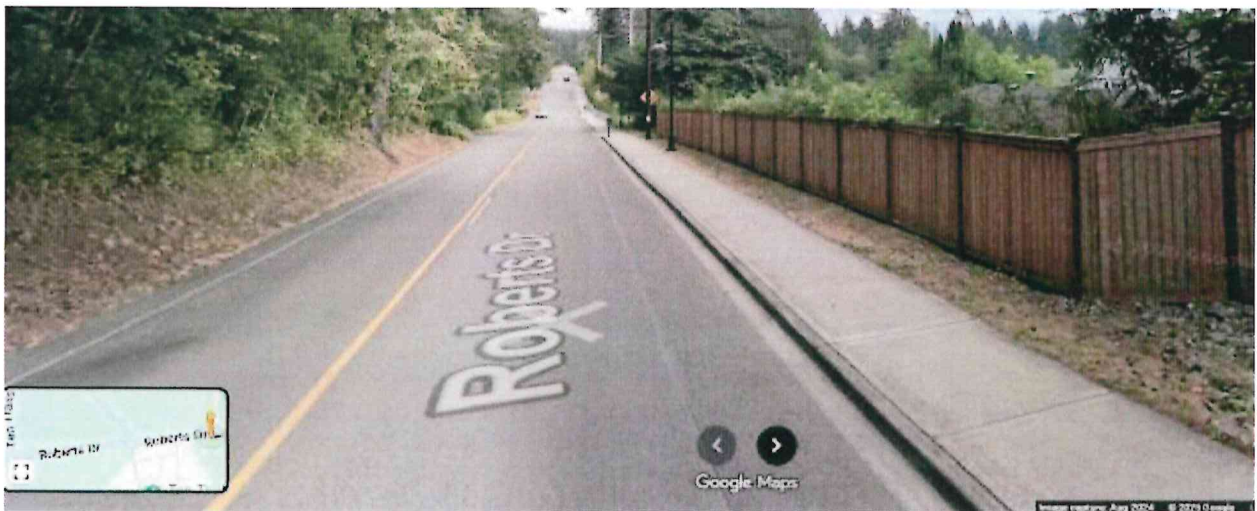
Location and Google image capture date shown on images.

Roberts Drive in front of Ten Trails



Below shows the Same location as the prior photo , from Sep. 2012:

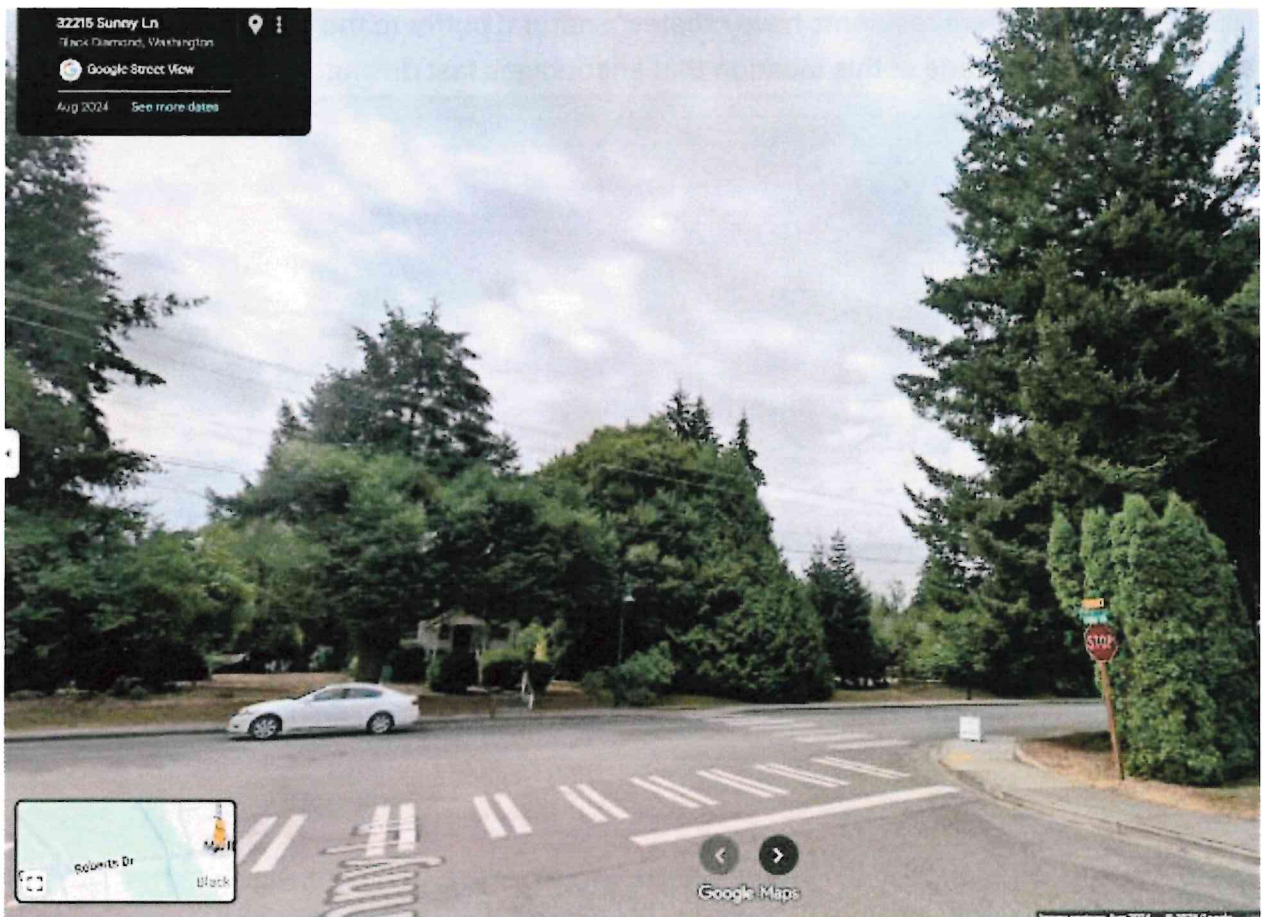


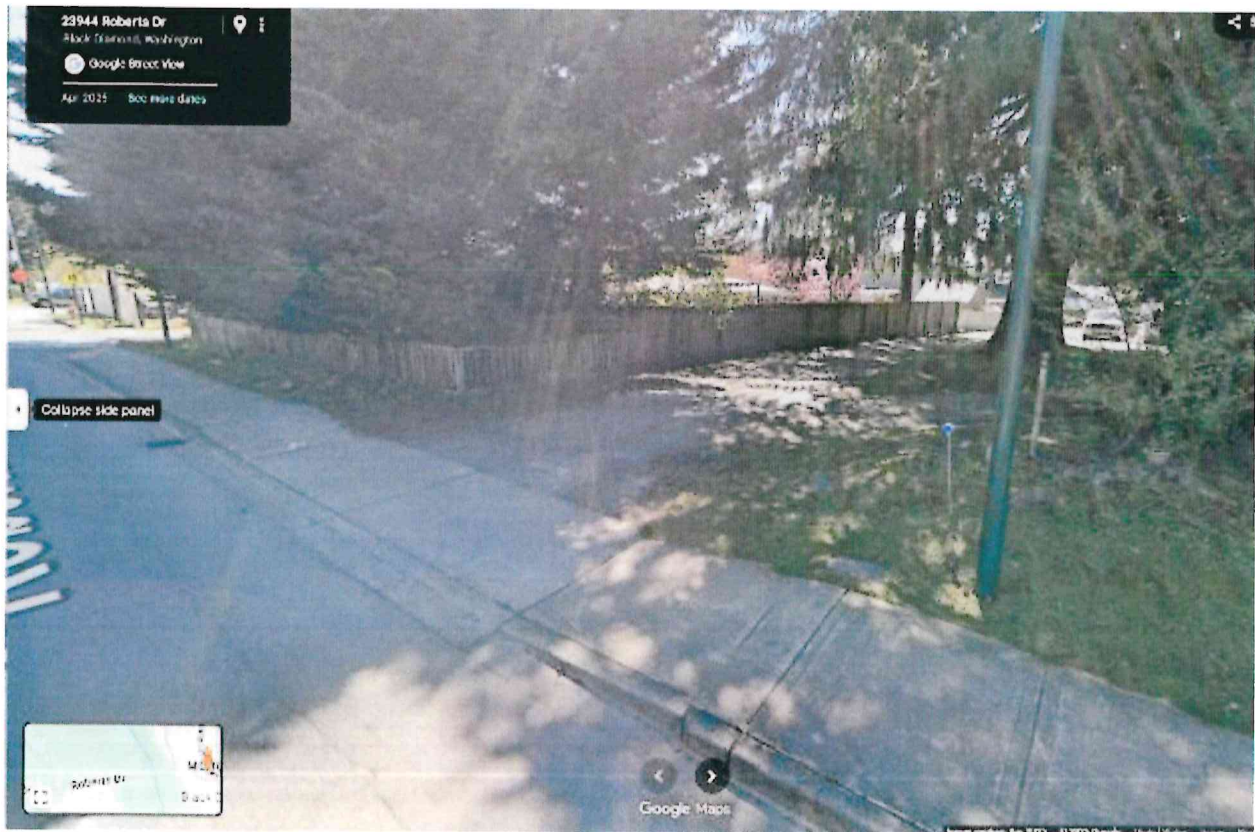


Looking south at the Rock Creek Wetland where Roberts Drive rainfall runoff drains.

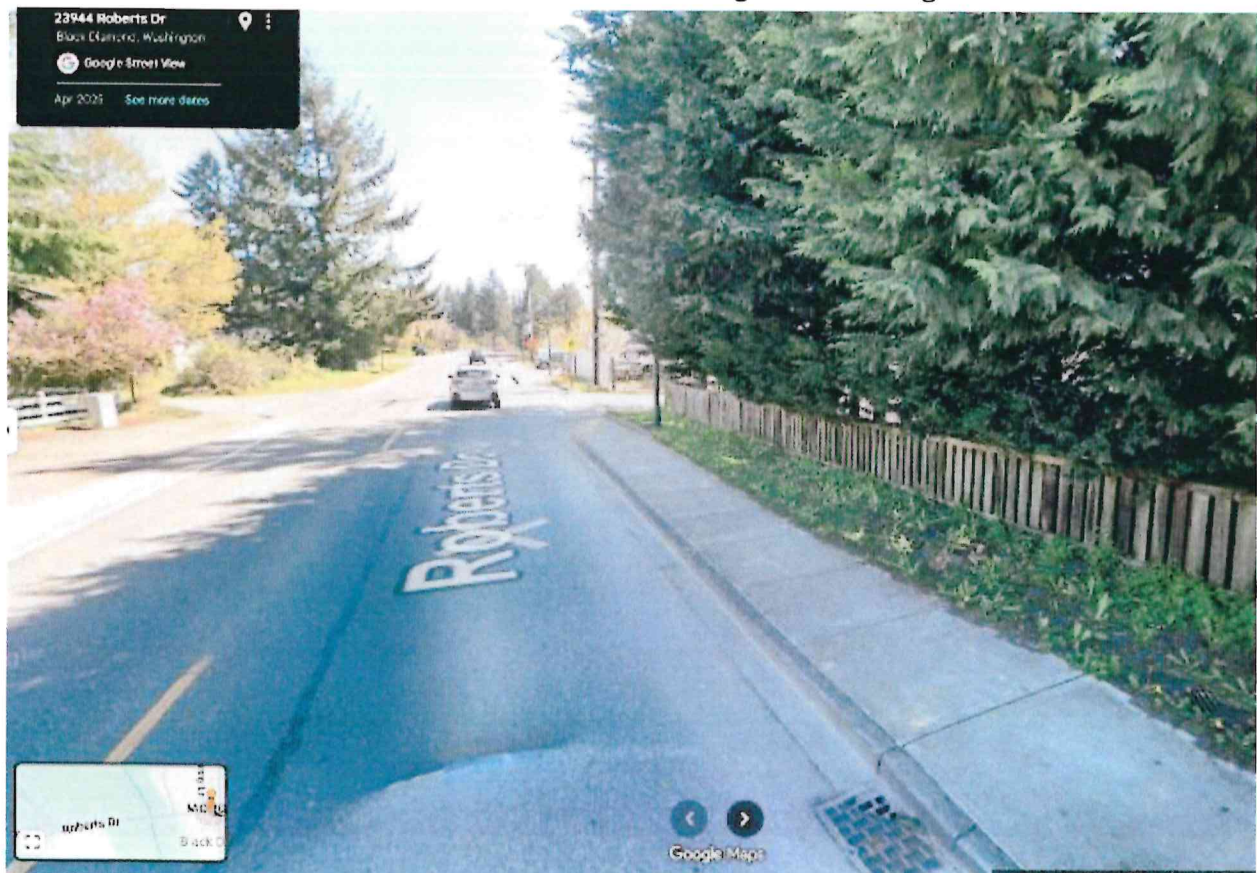


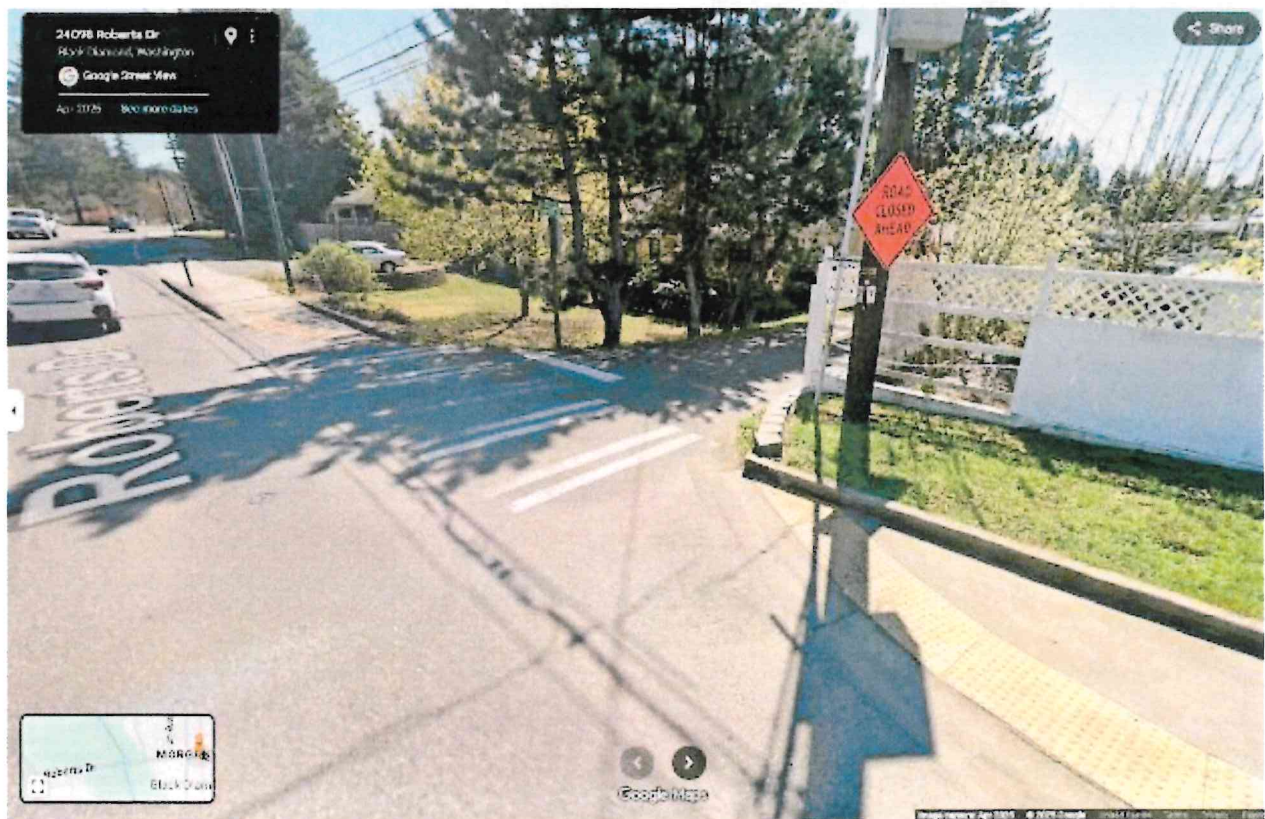
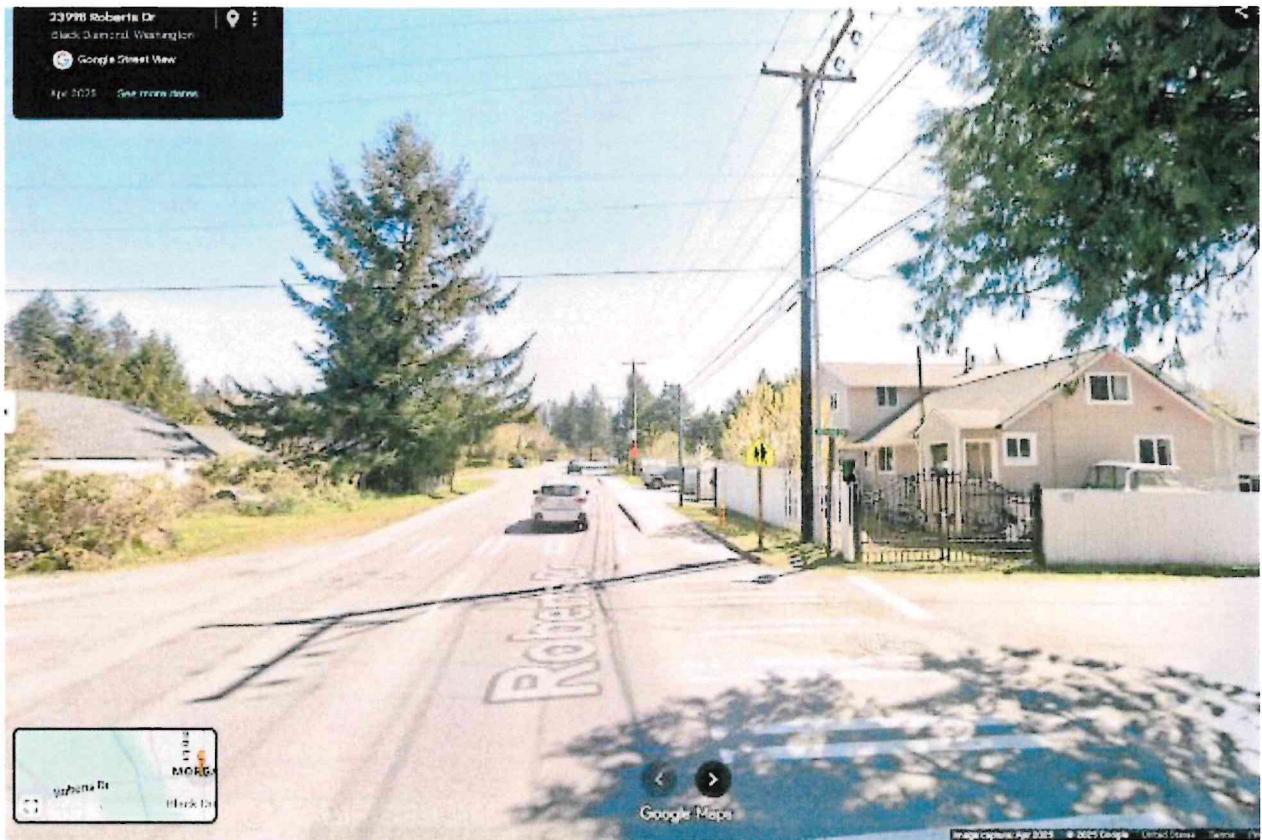


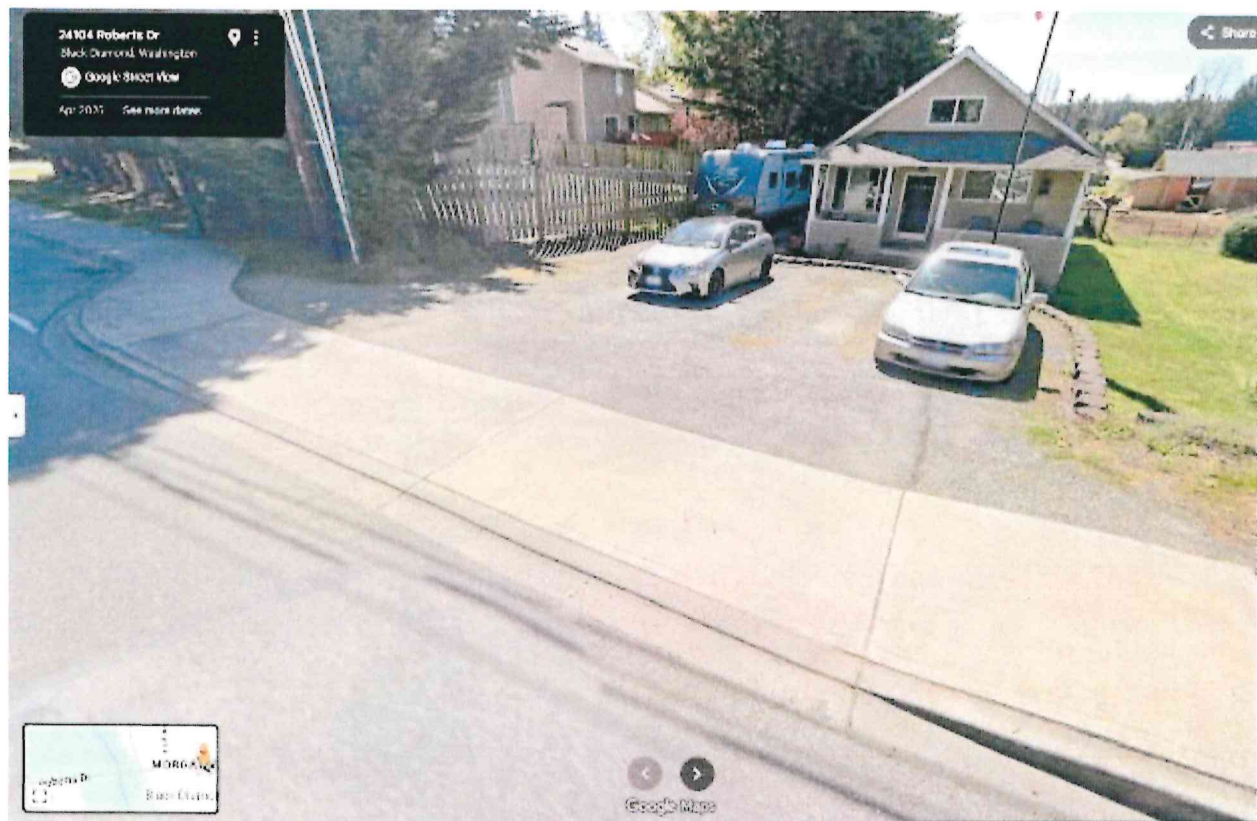
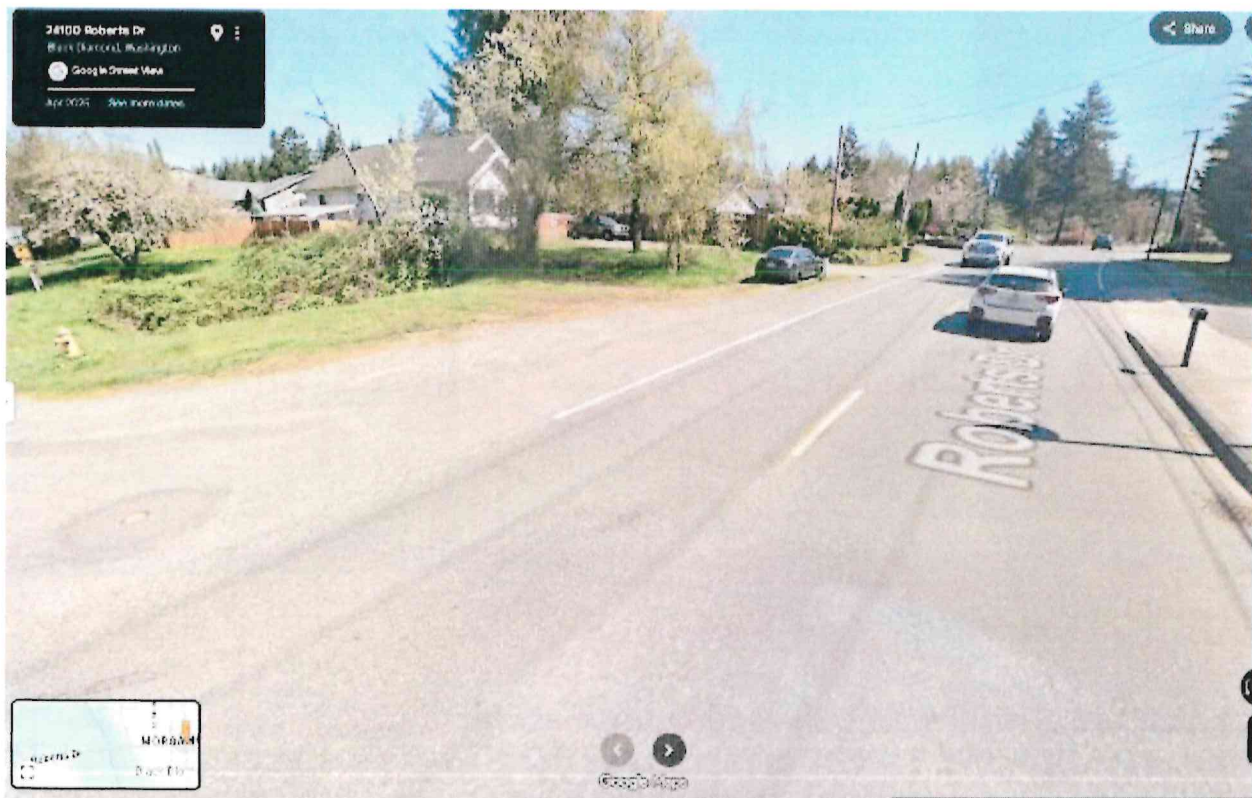


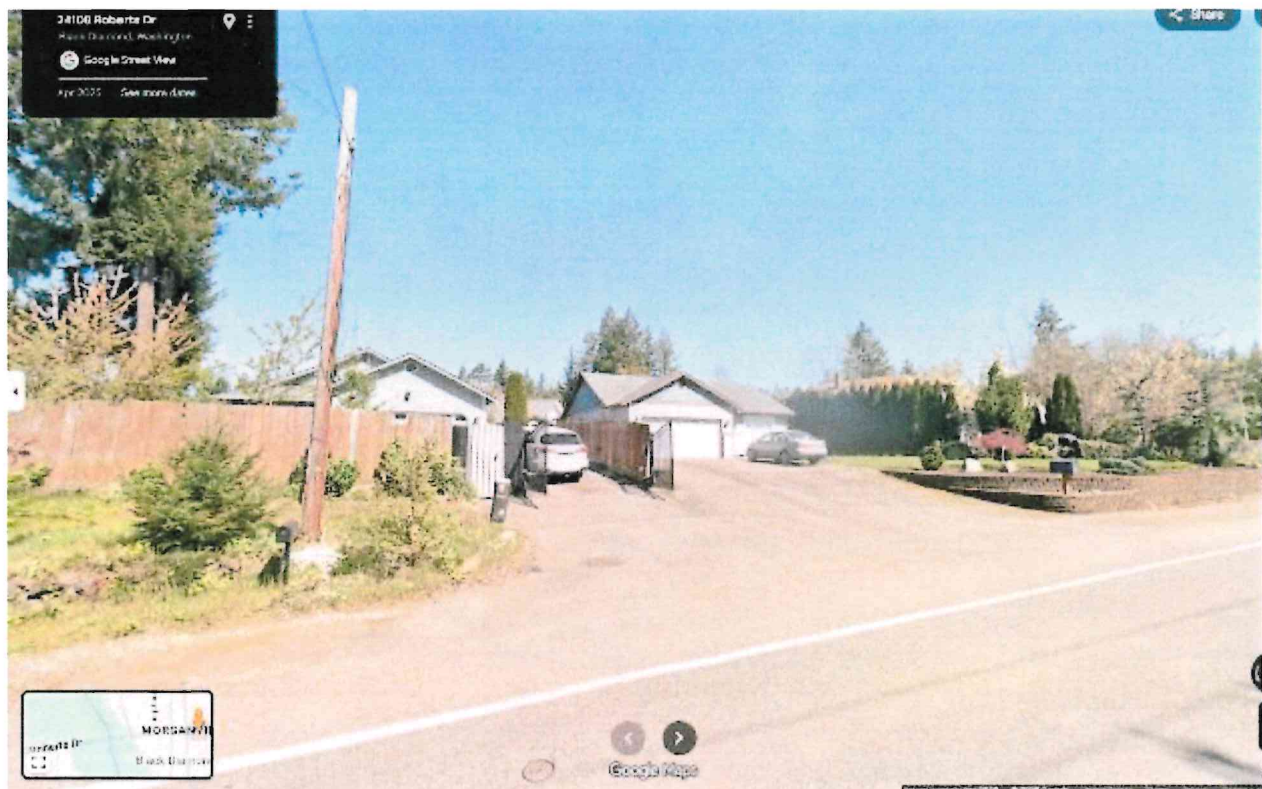
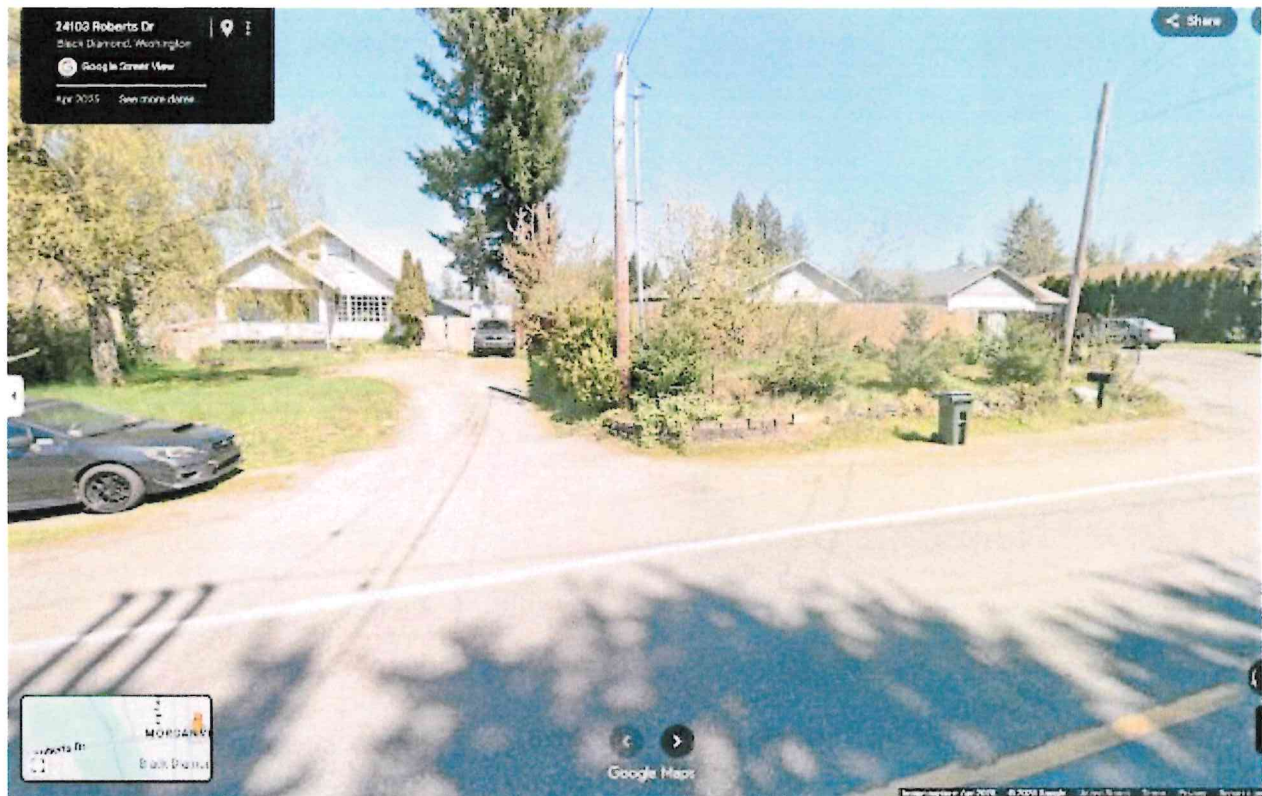


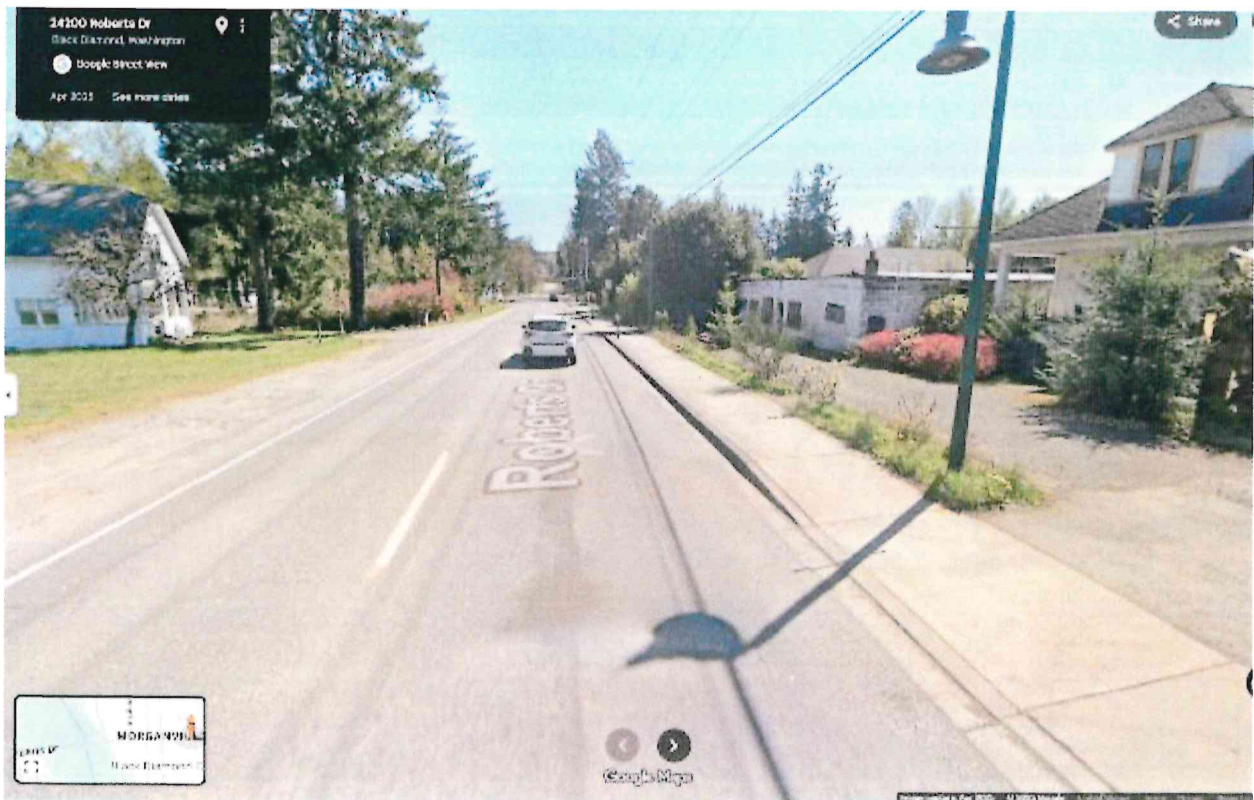
Notice the trees where residents have created a natural buffer to the busy road. Notice also the wide travel lane at this location that encourages fast driving.

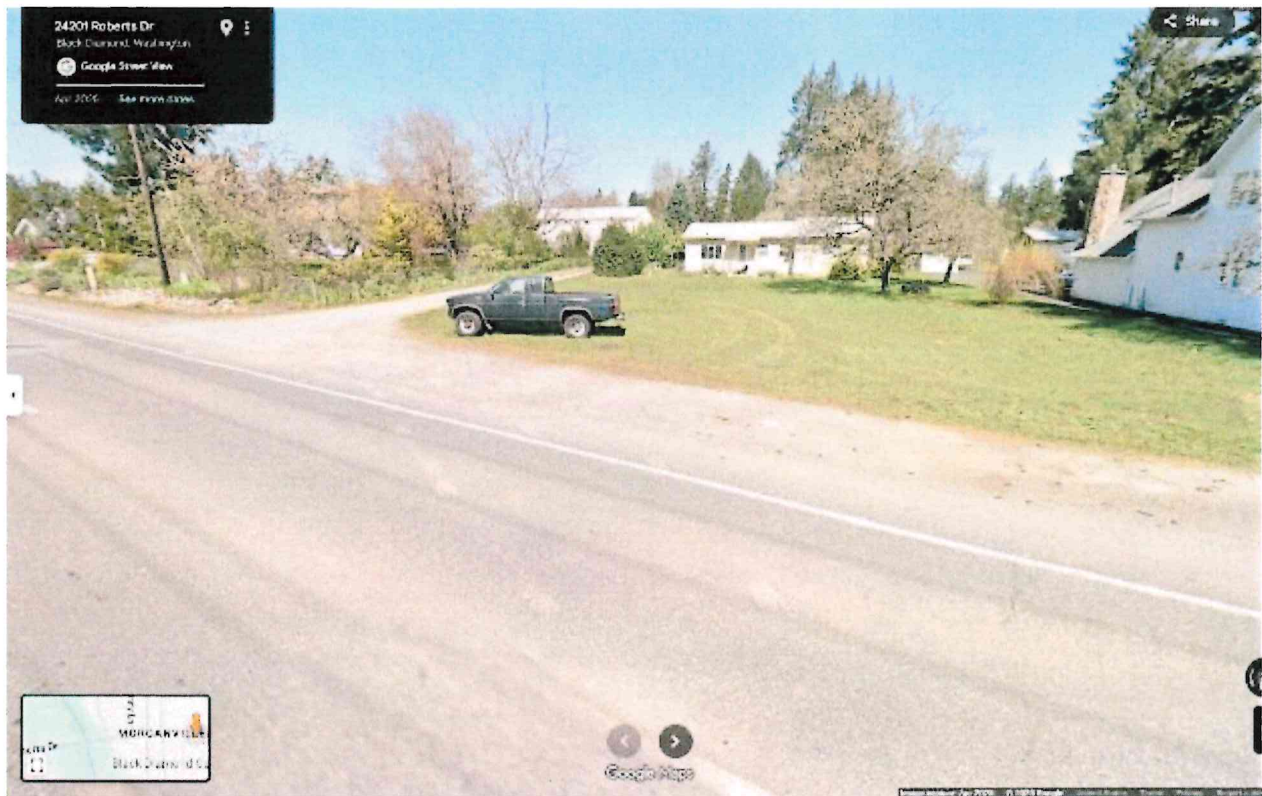




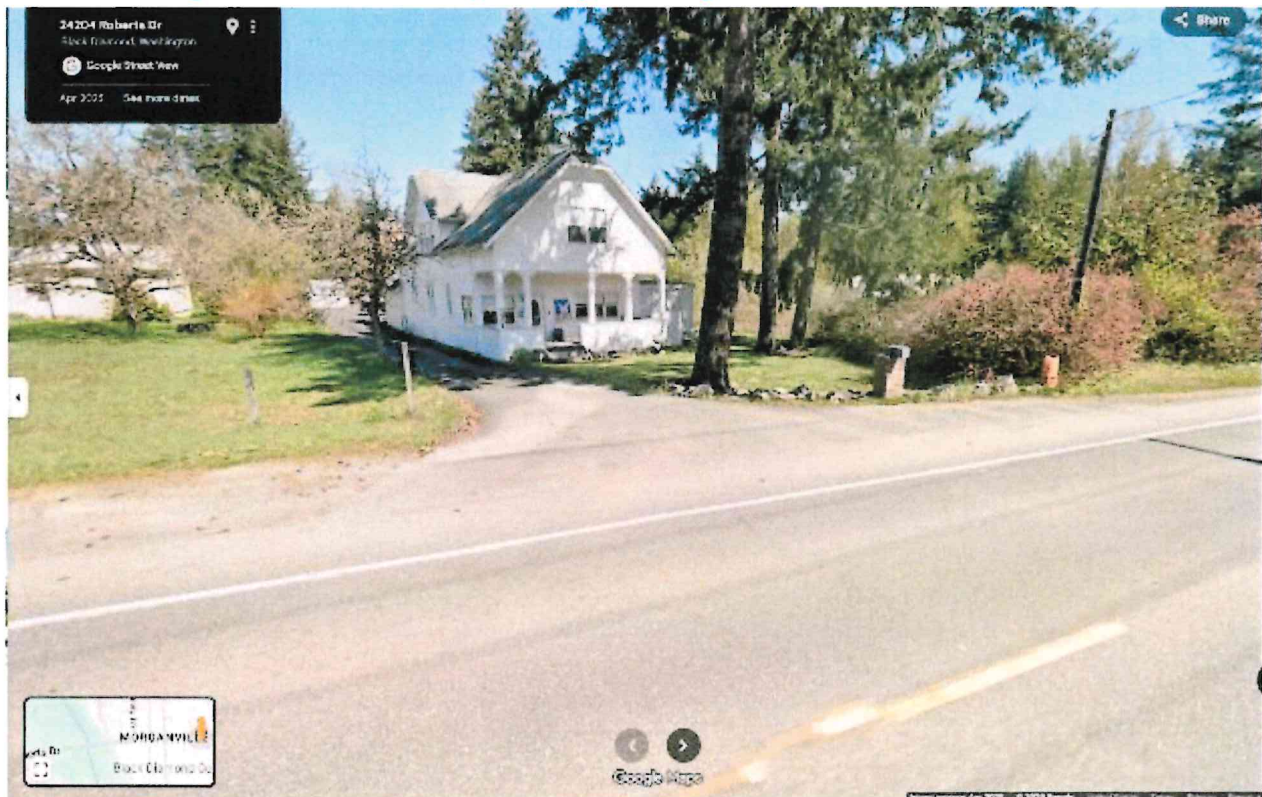


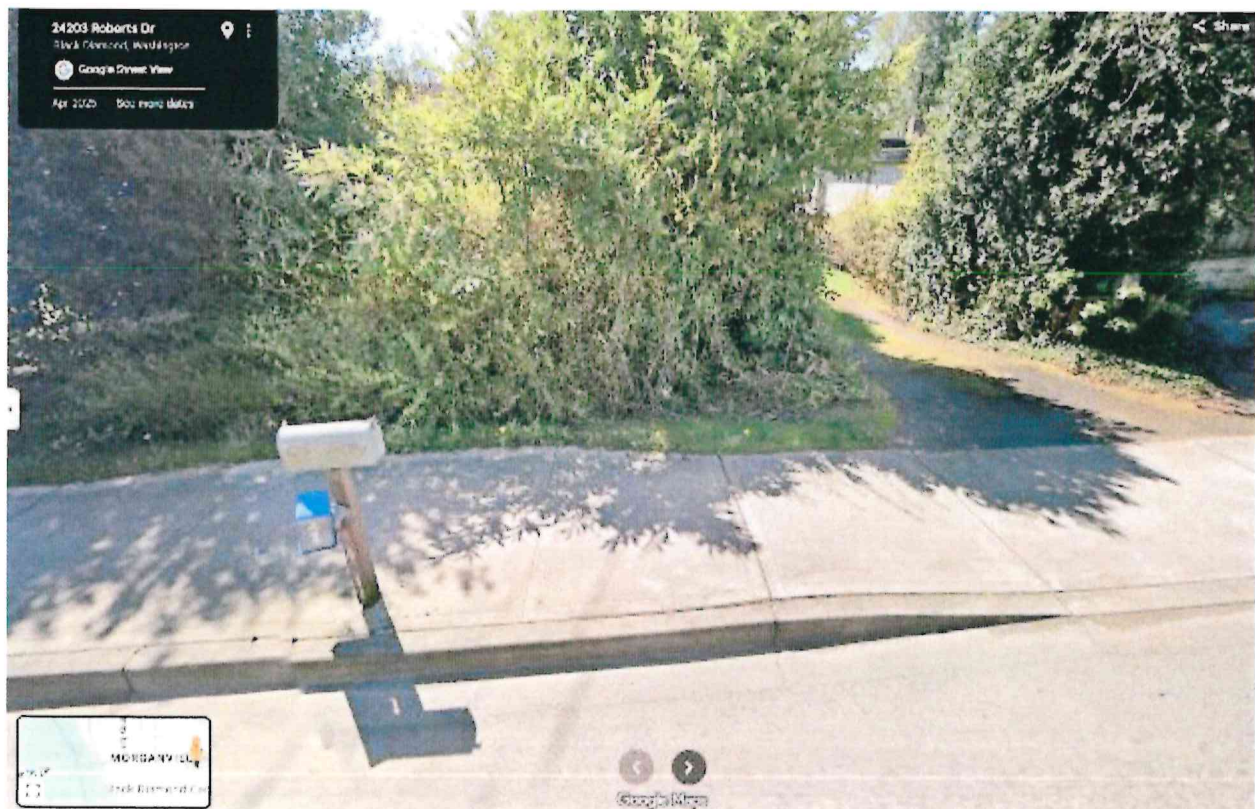




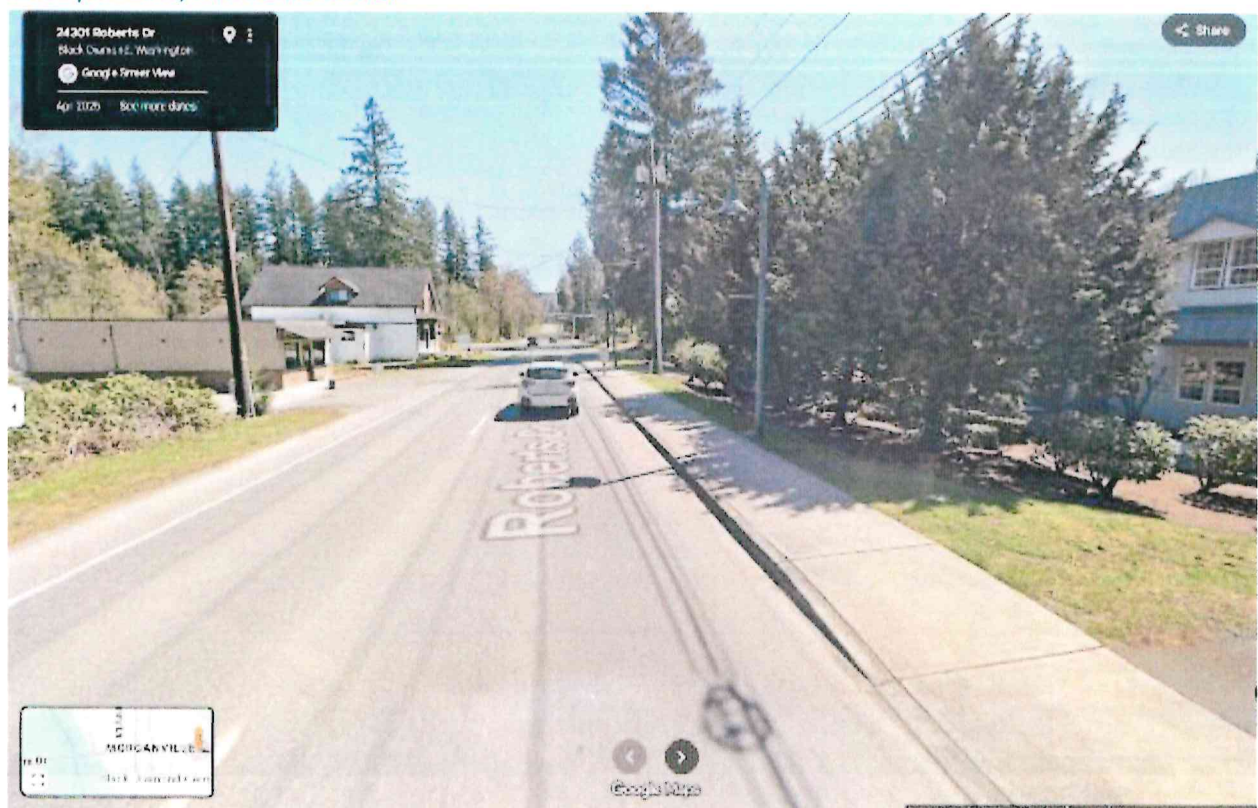


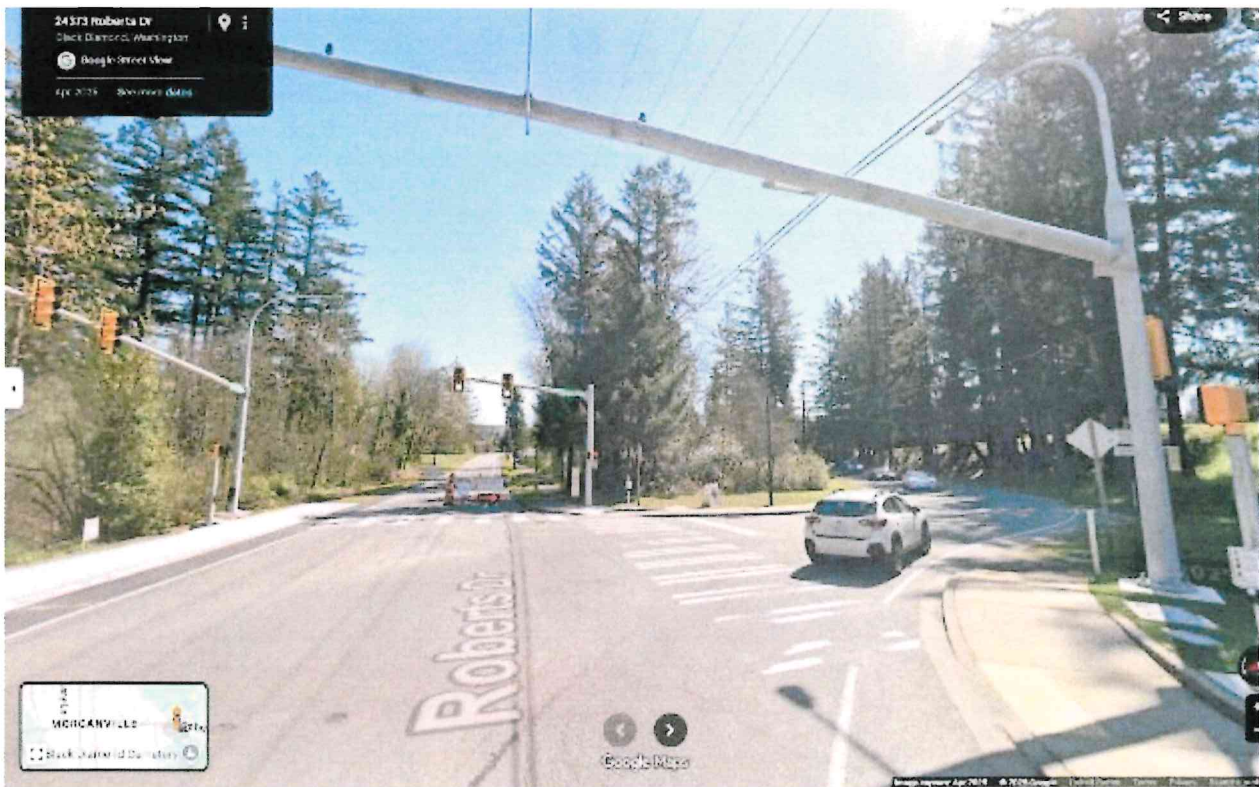
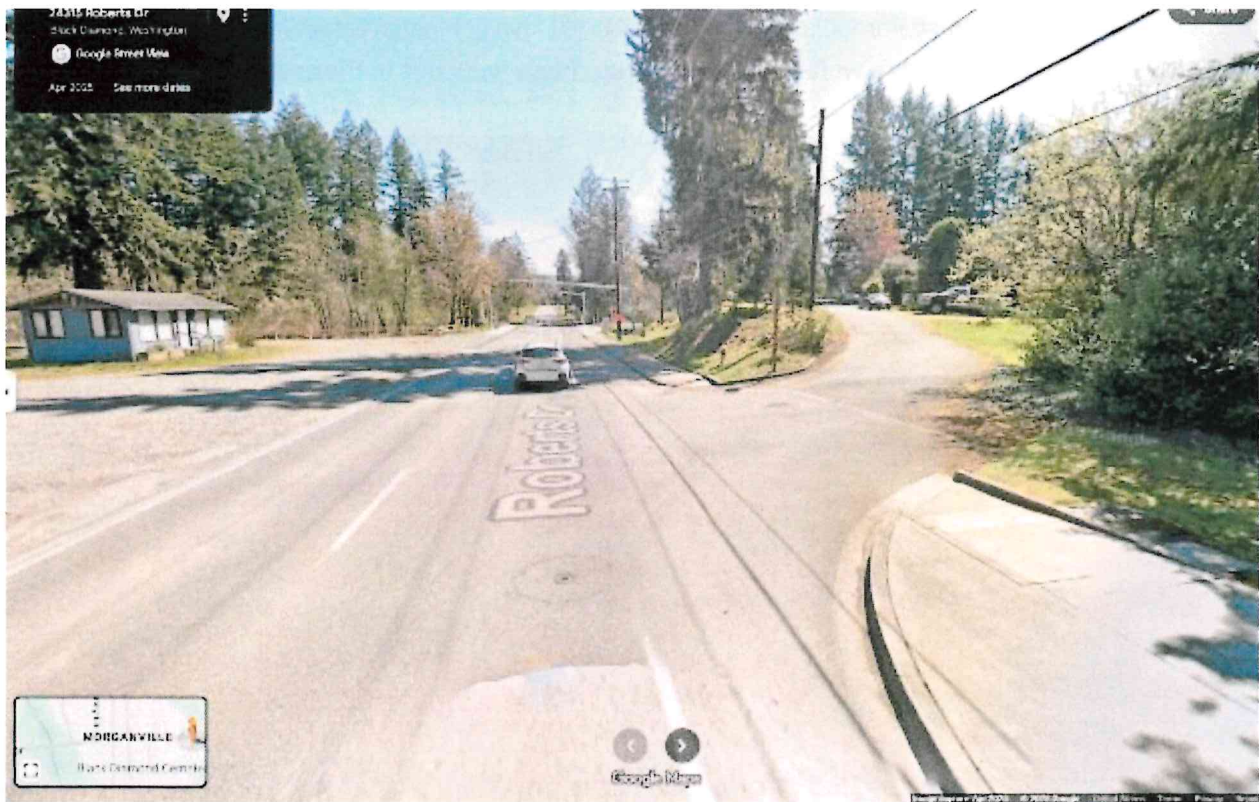
Below is the original 1903 house built by Mr. Morgan of Morganville.



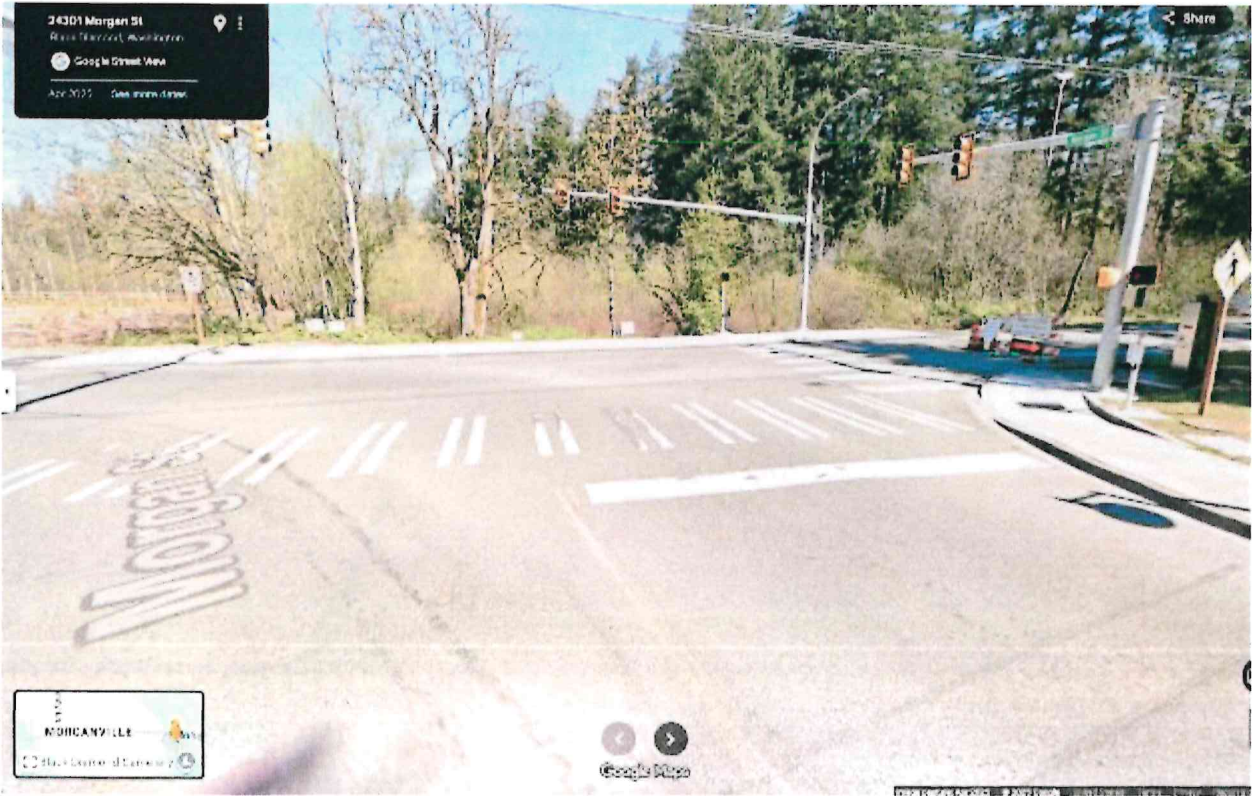


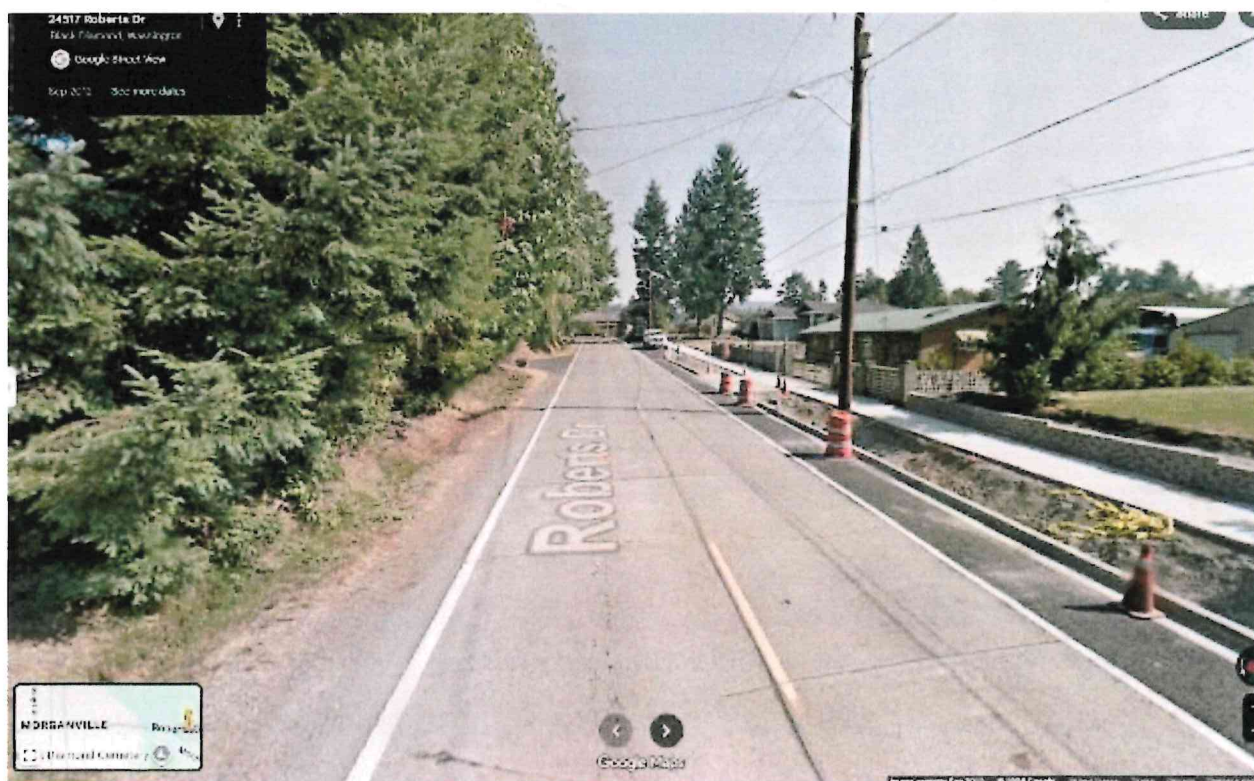
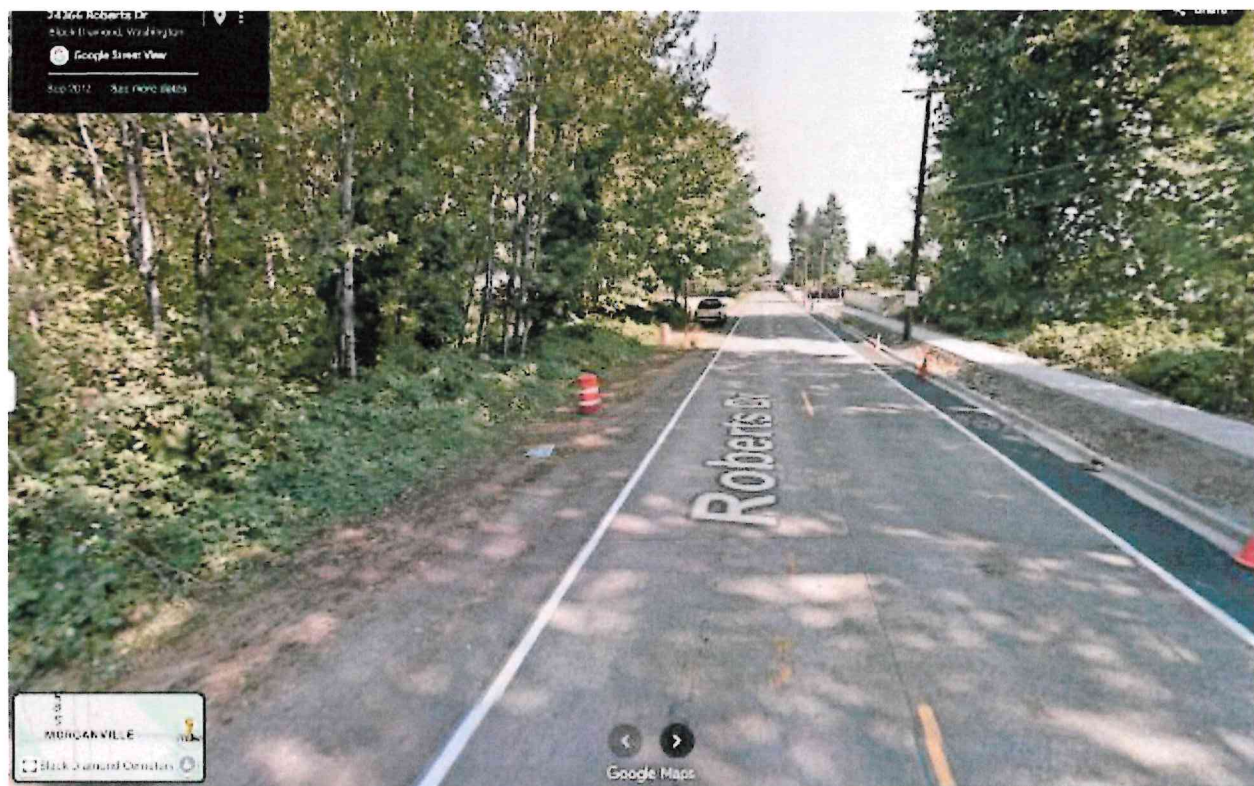
Below, near city hall, notice how the wide pavement lanes encourage speeding. The sidewalk lacks a vegetative separator that would have been a requirement in Ten Trails and would make walking safer and more pleasant, and traffic slower.



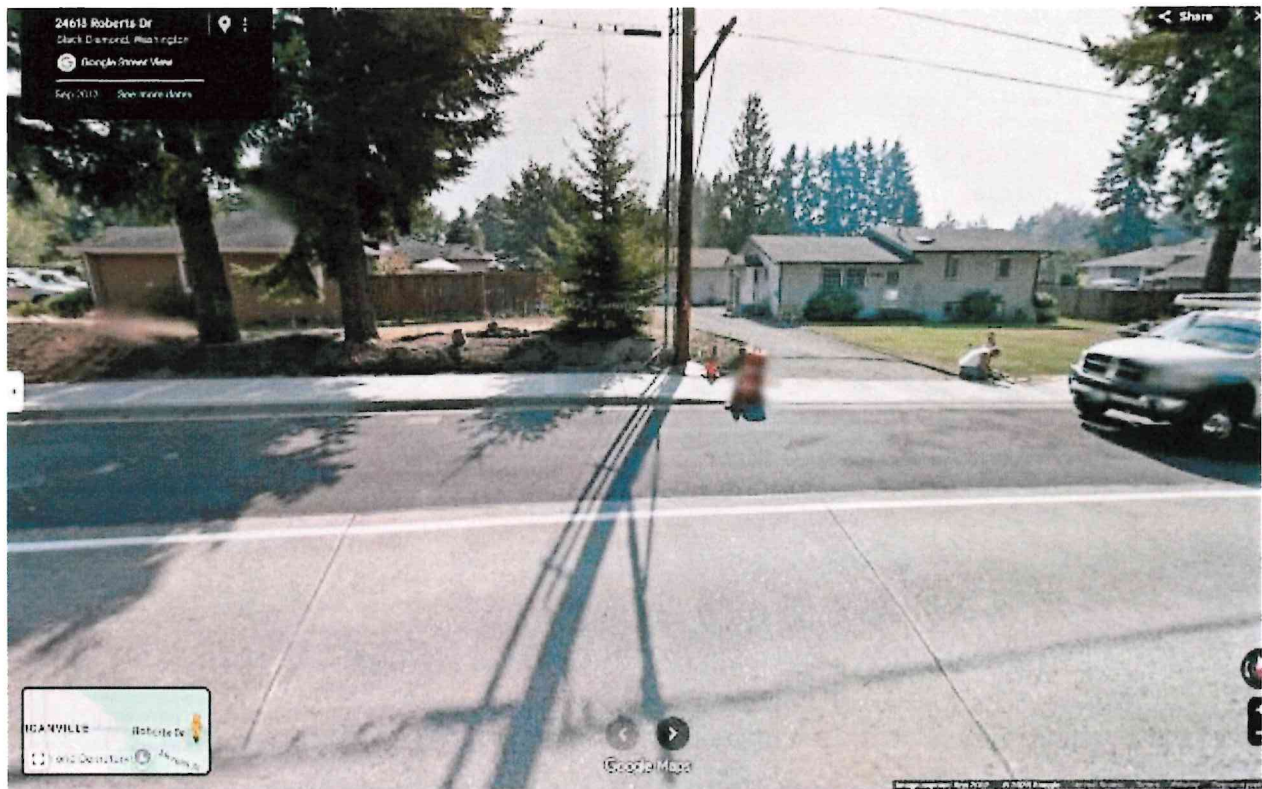


Below shows a large wetland immediately north of Roberts Drive at Morgan Street intersection. This wetland is identified on the city’s wetland inventory map. Many wetlands to the east exist but are not identified.

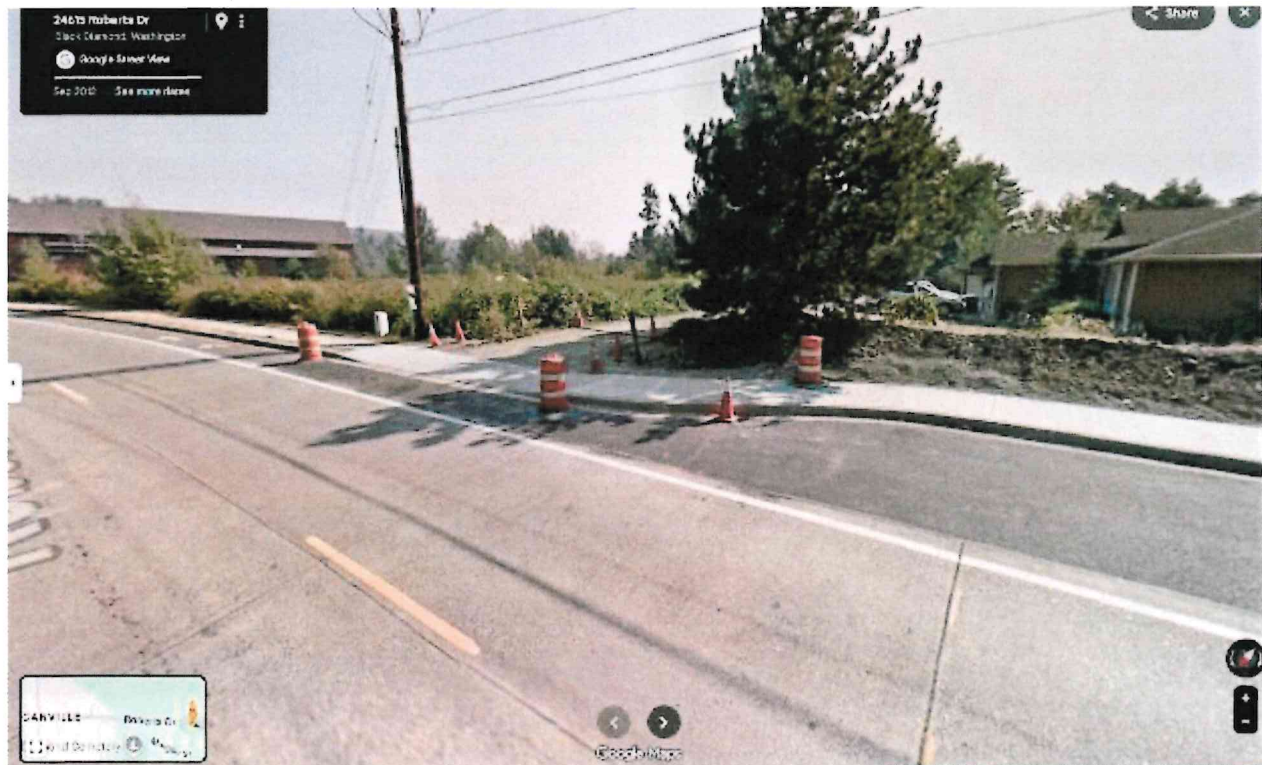


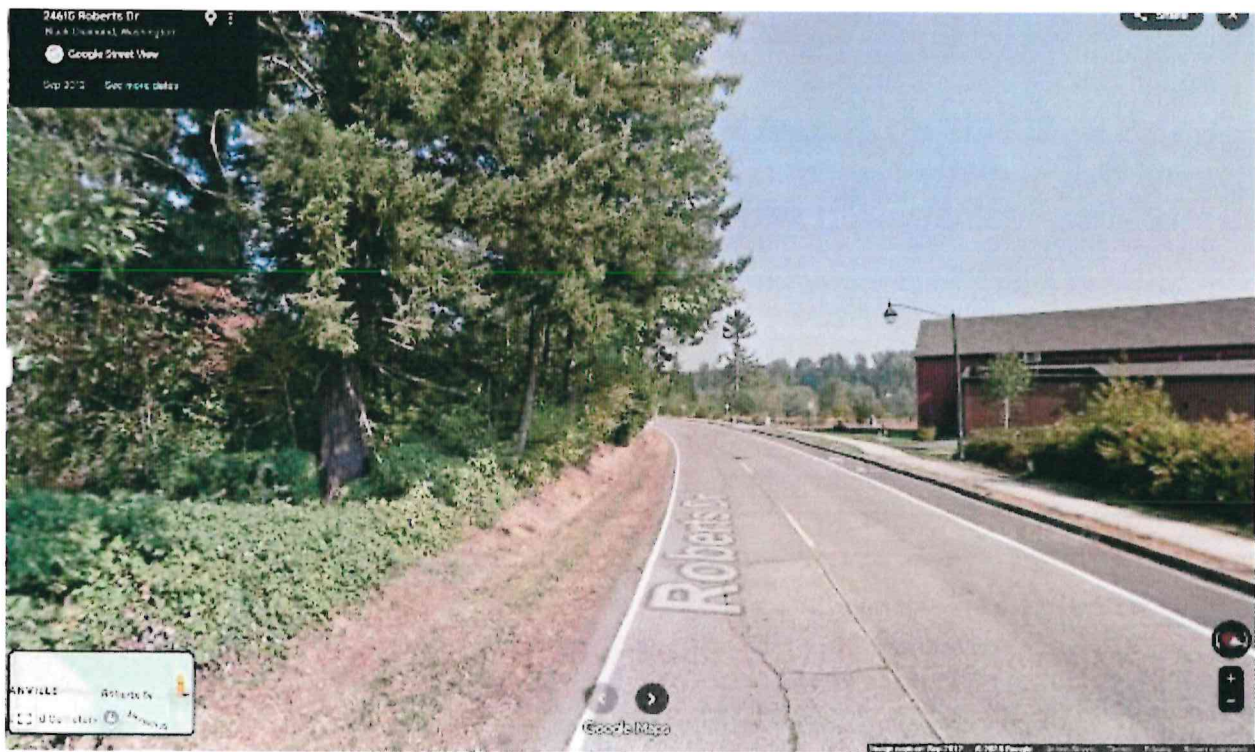




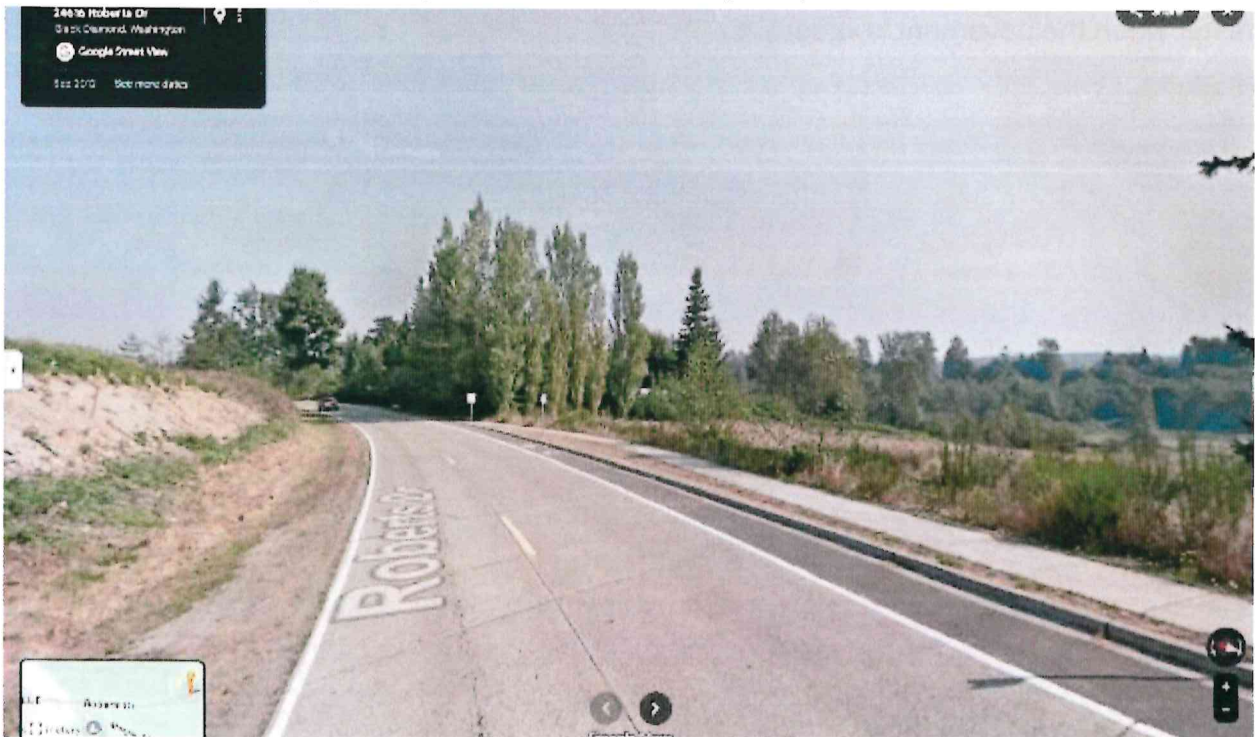


The wide bike lanes unfortunately encourage faster driving because drivers tend to go faster when the pavement is wider.



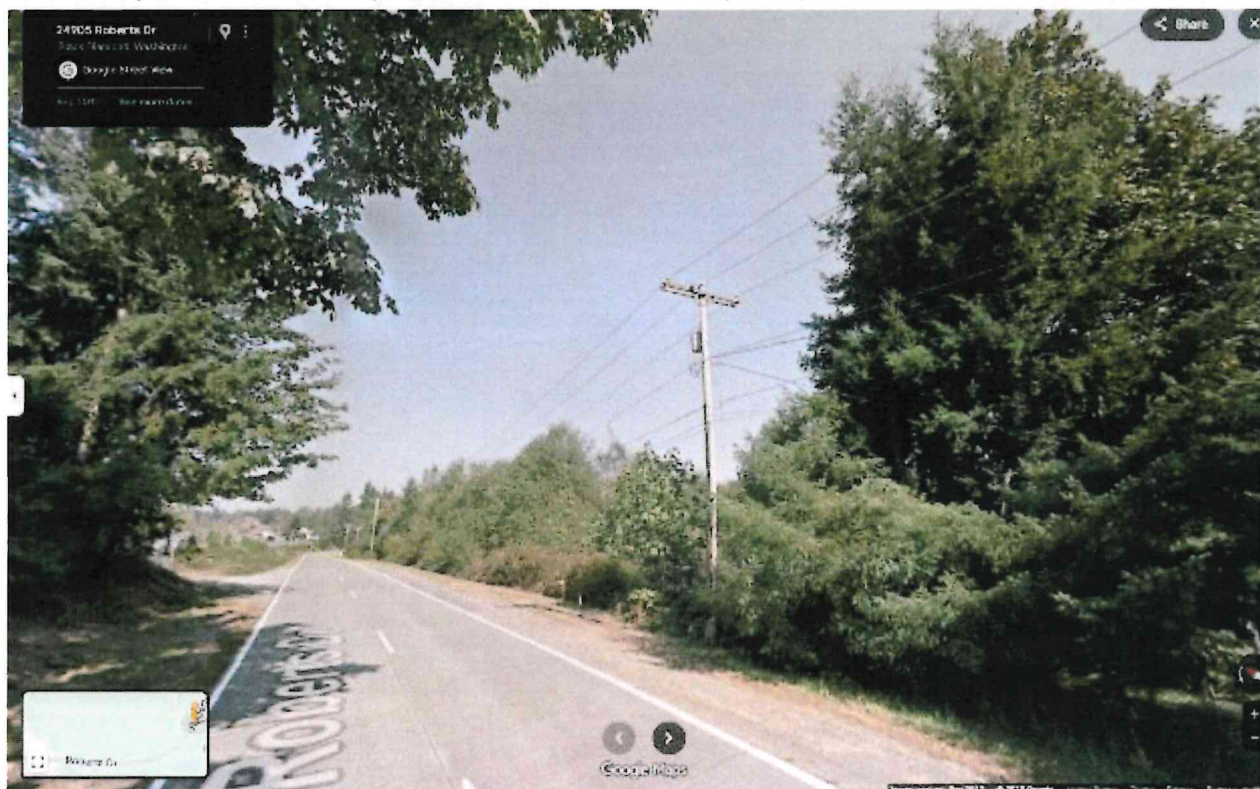


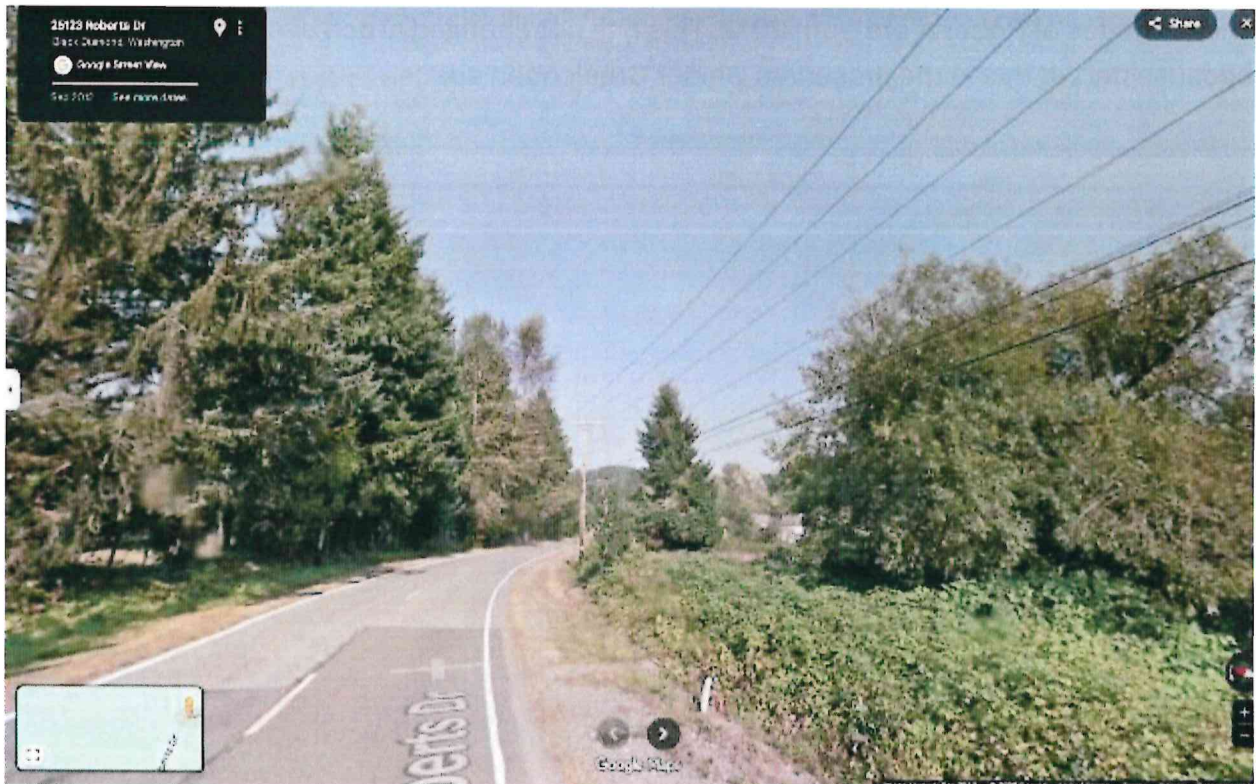
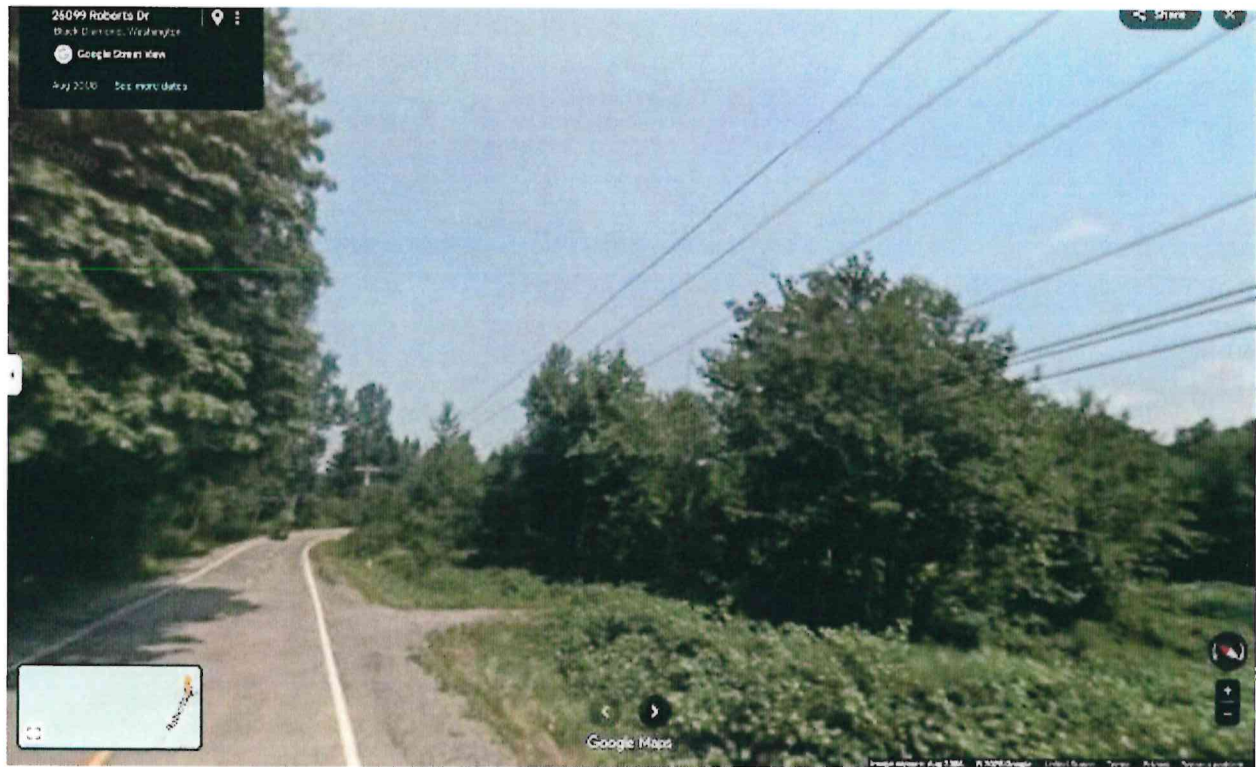
Images of this section of Roberts are from 2012. It has not changed but a Developer currently has plans to put many homes next to that open space.





These images of Roberts are from 2012. This has not changed much over the years because part of this is the preserved Ginder Creek open space.





Friends of Black Diamond
FriendsOfBlackDiamond@comcast.net

December 15, 2025

To: City of Black Diamond Hearing Examiner and City Council, staff contact
acampbell@blackdiamondwa.gov

Subject: Roberts Dr. Photos related to PLN25-0006, part 2

Photos of Roberts Drive, Black Diamond, WA with Comments on Impacts – Part 2

Impact on Ginder Creek, Rock Creek, and Sensitive Areas of more cars

Roberts Drive crosses the Rock Creek wetland near Ten Trails, with the road a few feet from this sensitive wetland and salmon stream.

Further east, near State Route 169, Roberts Dr. is parallel to Ginder Creek, a salmon stream that flows through town and joins up with Rock Creek.

The increase in pollutants from vehicle tires and emissions will harm these natural waters, and the city has failed to take that into account. We can expect to see a doubling of traffic volume with a delayed Pipeline Road. Roberts Drive could go from from 2,000 to 4,000 cars per day (Average Annual Daily Traffic or AADT). This would likely result in a measurable increase in the concentration of pollutants and a higher degree of stress on a creek ecosystem. This change exacerbates the existing "urban stream syndrome" symptoms, leading to specific, identifiable differences in the creek's health.

Specific Impacts of Increased Traffic

- Increased Pollutant Load: The primary impact is the increase in non-point source pollution washed into the creek via stormwater runoff. As traffic volume increases, so does the accumulation of traffic-related contaminants on road surfaces, including:
 - Heavy metals: Such as copper, lead, and zinc, from tire and brake pad wear, and engine parts.
 - Hydrocarbons and oils: Leaked fluids like oil, grease, and brake fluid.

- Organic contaminants: A wide array of chemicals from vehicle fluids, tires, paints, and coatings.
- Deicing salts: Increased use during winter months contributes sodium, potassium, and chloride ions to the water.
- Changes to Hydrology and Habitat: The presence of the road itself creates impervious surfaces, altering natural water flow patterns. The increased runoff associated with development and higher traffic volumes causes:
 - Increased flow velocity and volume: This can lead to increased frequency and severity of minor floods.
 - Channel erosion and sedimentation: Higher flow rates act like sandpaper, intensifying erosion of stream banks and depositing fine sediment downstream, which smothers aquatic habitats and reduces the food base for aquatic life.
- Biological Degradation: The combination of chemical pollutants and habitat changes directly harms aquatic life.
 - Altered species composition: The abundance of pollution-sensitive animals, such as certain fish and shrimp species, may decline, while pollution-tolerant organisms like specific worms become more abundant.
 - Reduced biodiversity: The overall aquatic habitat is degraded, leading to a loss of the complex natural habitats needed for many species to thrive.

In essence, doubling the traffic load from a low baseline to a moderate one significantly increases the amount of readily mobilizable contaminants available for wash-off during rain events, pushing the creek further into an impaired condition.

Recent weather gave us an example of how urban runoff enters Ginder Creek easily. Water from the rainfall this December of 2025 caused Ginder Creek to flood over Roberts Drive. Ginder Creek is always a few feet from vehicle tires. If the road were built to current standards, it would have a 150-foot forested buffer that would clean and absorb this dirty storm runoff (see Black Diamond Municipal Code 19.10.325 - Fish and wildlife habitat conservation areas—Water bodies—Buffers). But right now the best we can do is try to limit traffic on Roberts Drive.

Photos of **Ginder** Creek flooding onto Roberts Drive east of the the State Route 169 intersection, both taken December 10, 2025 by William G. Bryant

Commented [KB1]: Need to get dad's photos off his phone





During such storms, emergency service calls and needs often go UP so the impact of a flooded road is compounded.

This flooding happens every so often, the last time was in 2019.

Photos from Google Maps view, captured December 14, 2025.

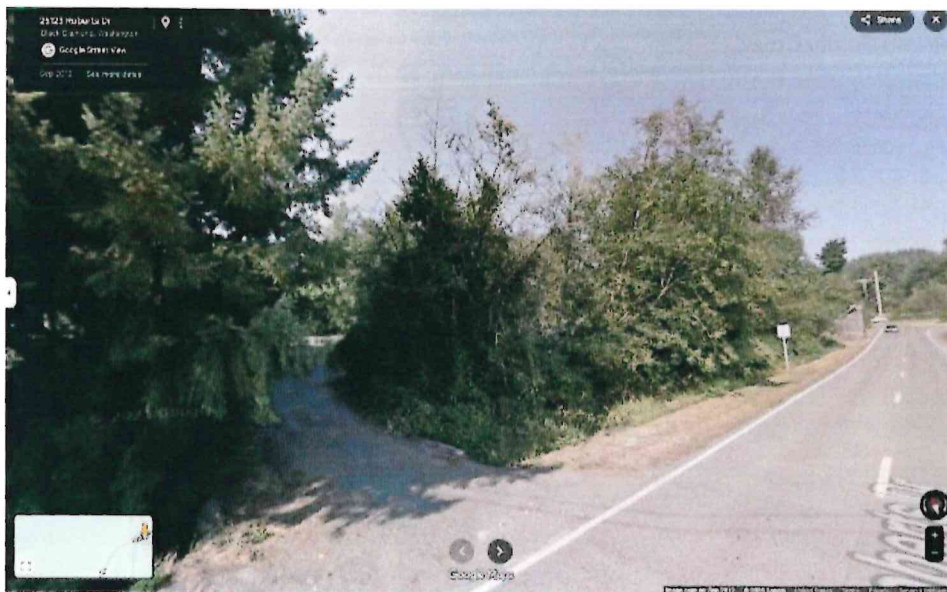
Location and Google image capture date shown on images. These images are approaching Diamond Village and Ginder Creek and SR 169 to the east.



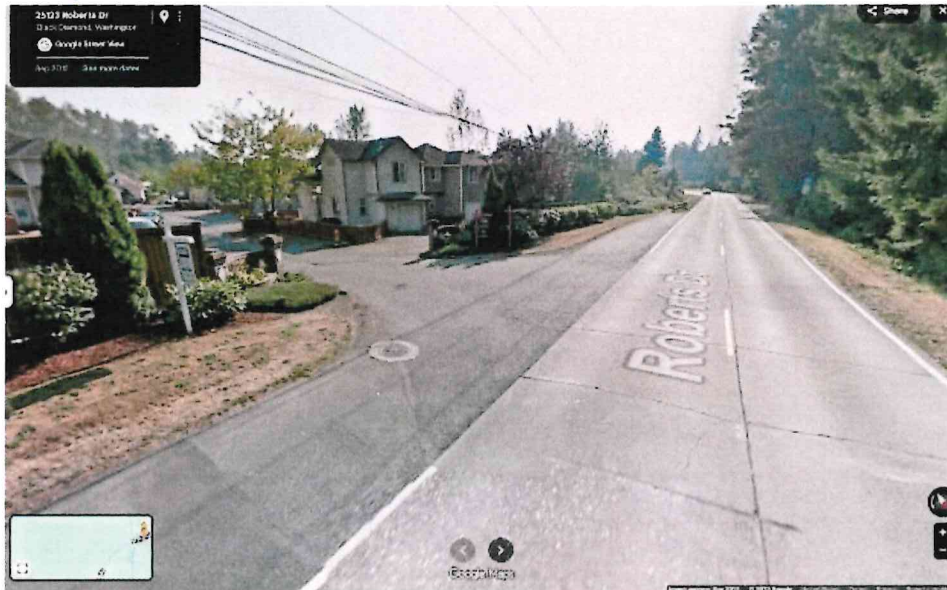
This guard rail prevents cars from driving into Ginder Creek.



Ginder Creek is just a few feet from the Road at the east end of Roberts Drive. This salmon stream often has baby salmon in it.



Entrance to Diamond Village (near SR 169) with approximately 50 affordable homes of approximately 1100 sq feet each.



December 15, 2025

To: City of Black Diamond Hearing Examiner and City Council, staff contact
acampbell@blackdiamondwa.gov

Subject: PLN25-0006 Major Amendment to Development Agreement

Photos of SE 288th Street, and of Lake Sawyer Road, Black Diamond, WA

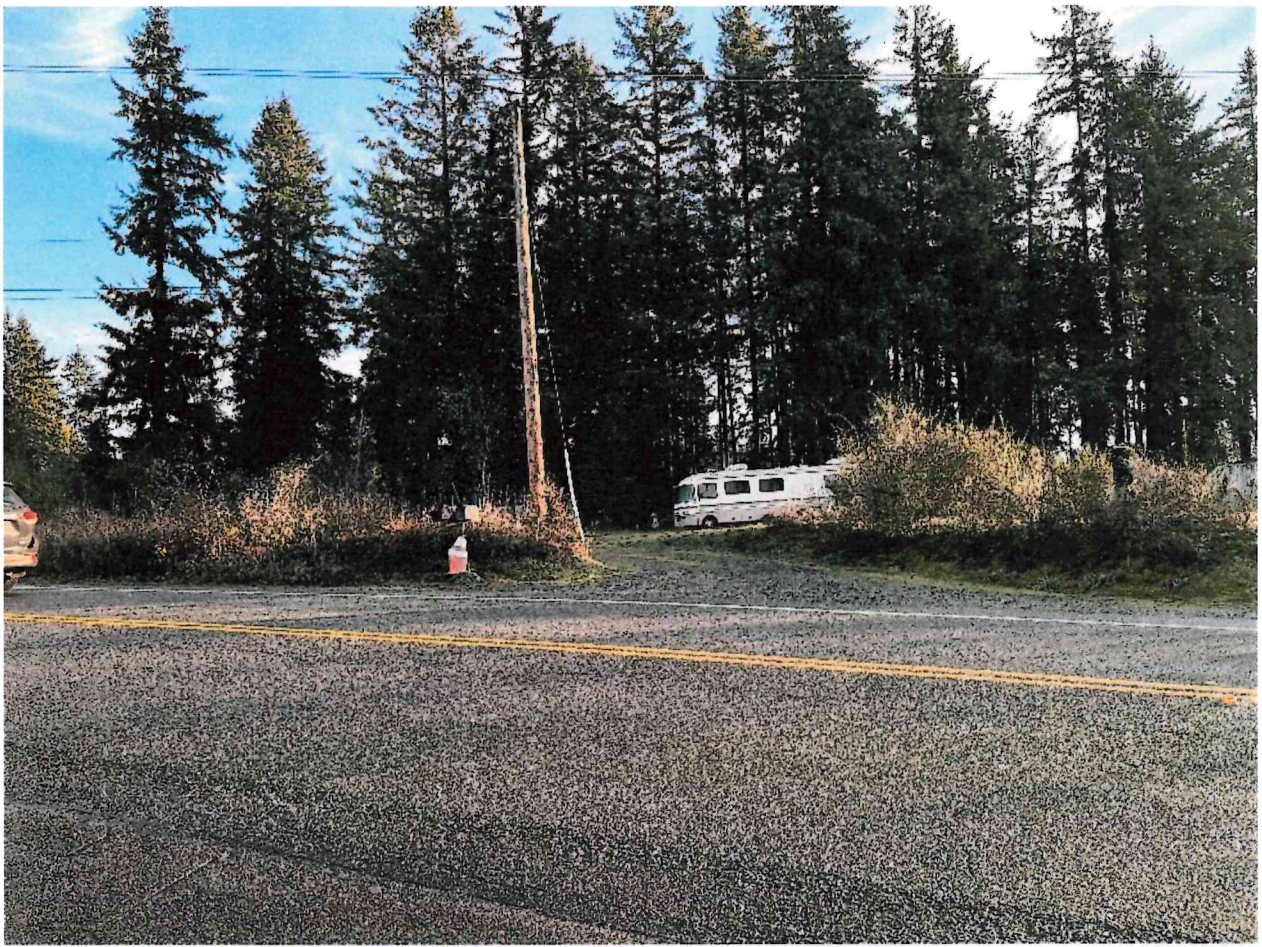
- The photos starting on the next page were taken starting at the west end of SE 288th St, then heading east. Pictures are inserted in order, west to east.
- House numbers can be seen in the photos to show the approximate location.
- Starting on Page 15, there are photos of the Lake Sawyer Road

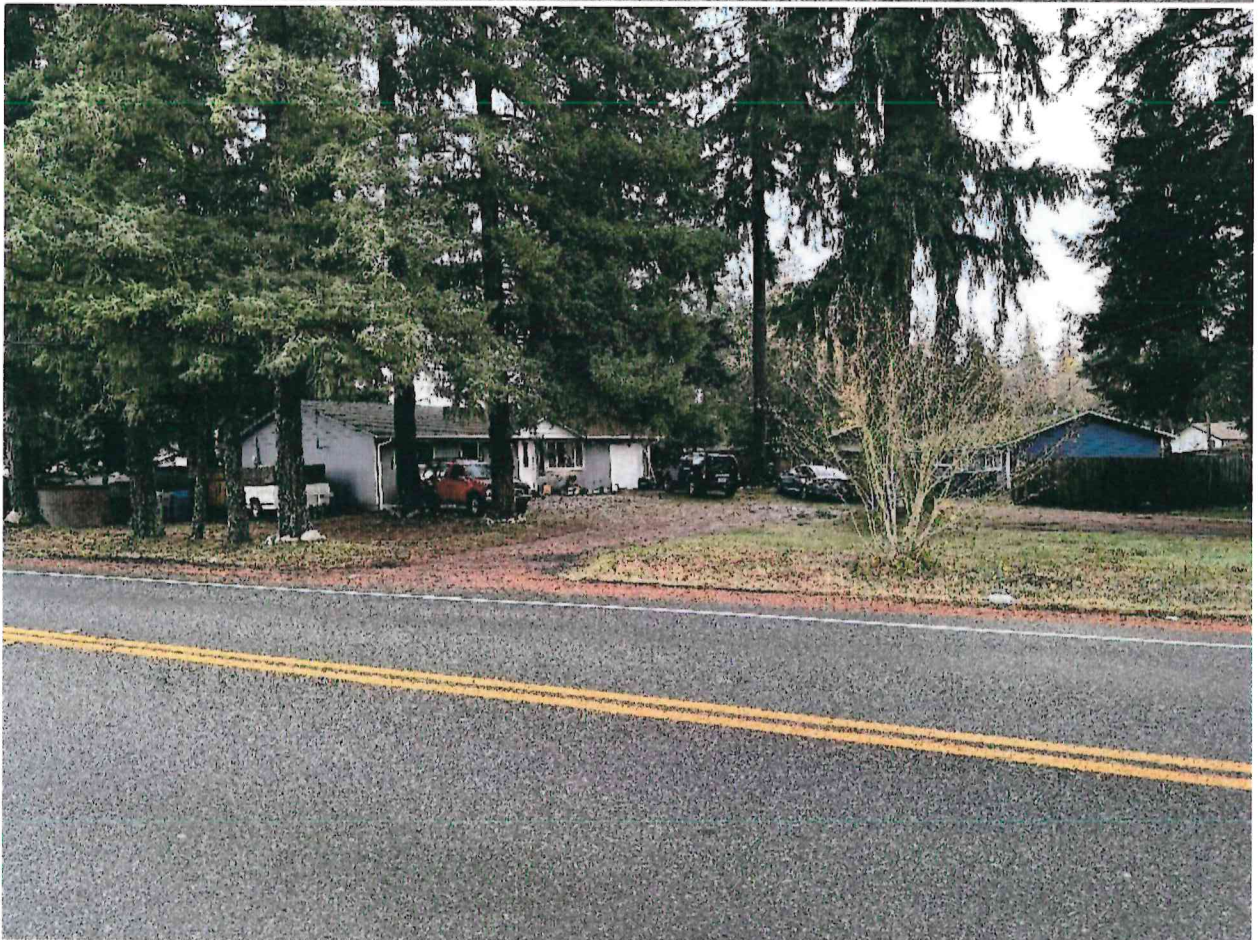
The pictures document how many driveways are along these road. Some people must back out of their driveways, but traffic can travel very fast on this road. SE 288th St is long and straight, and speeding is common.

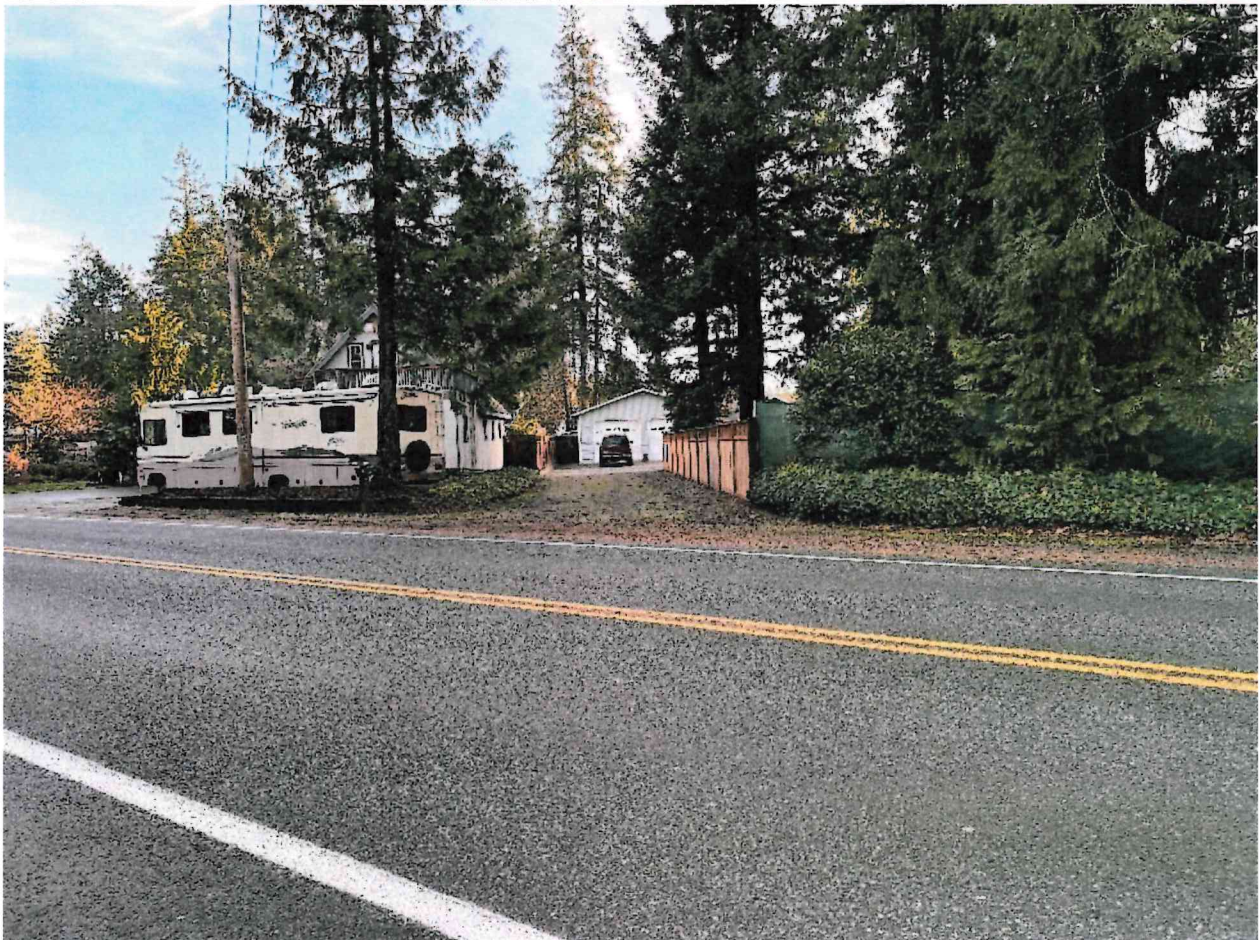
In addition, many drivers don't realize how many homes and pedestrians are in the area, and this can make it dangerous to be on the road shoulder.

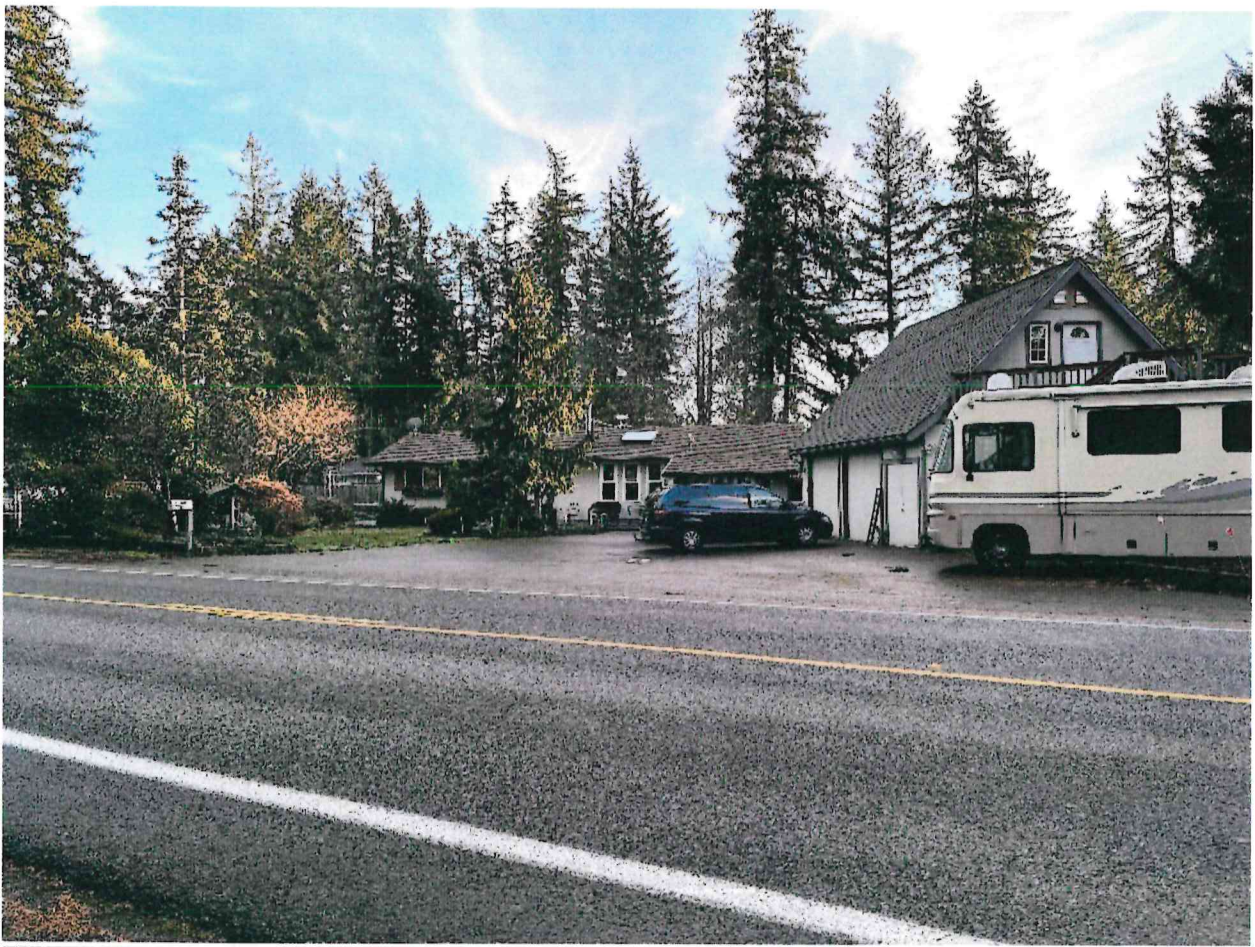
Without Pipeline Road, these residents experience more noise, pollution, and safety concerns.



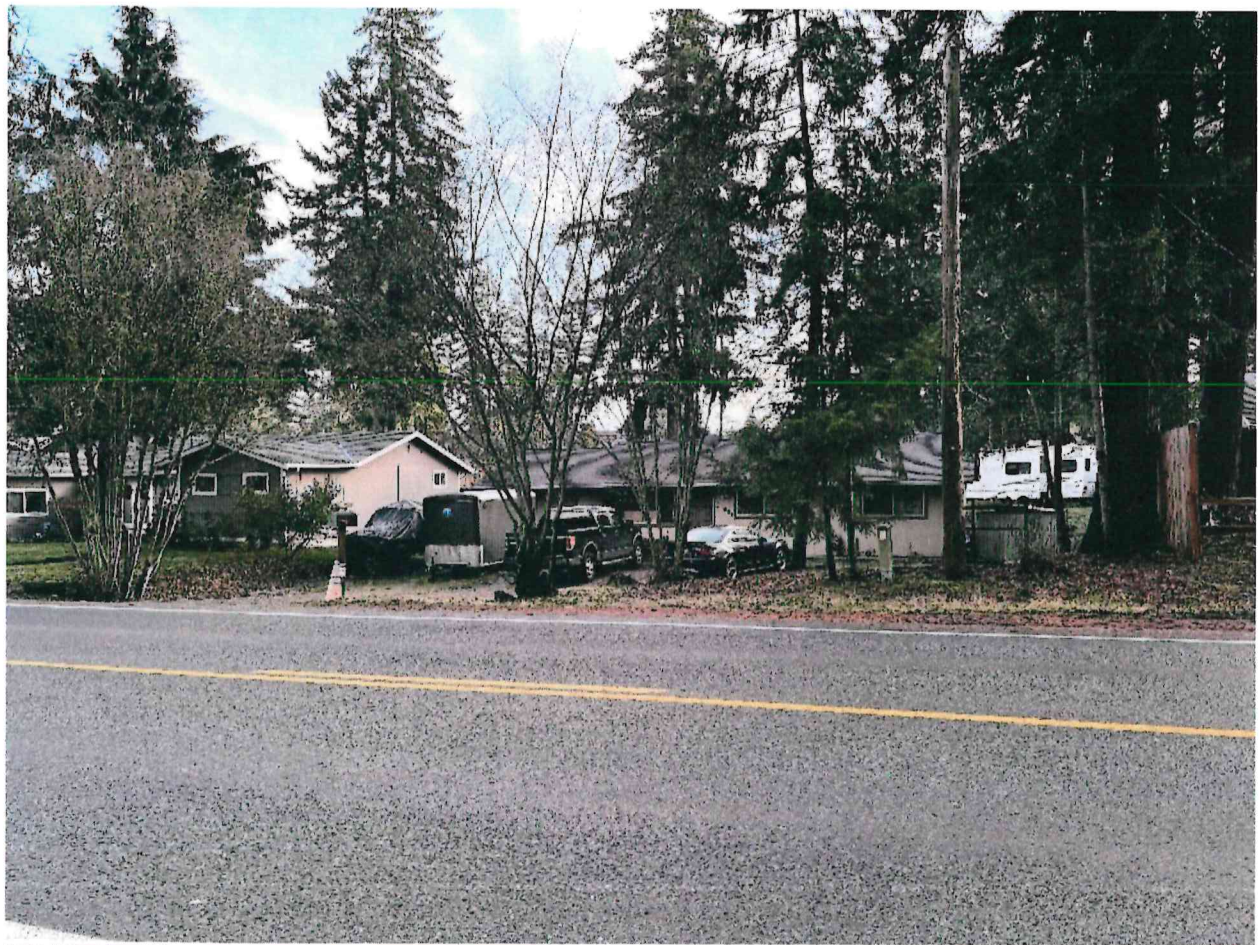




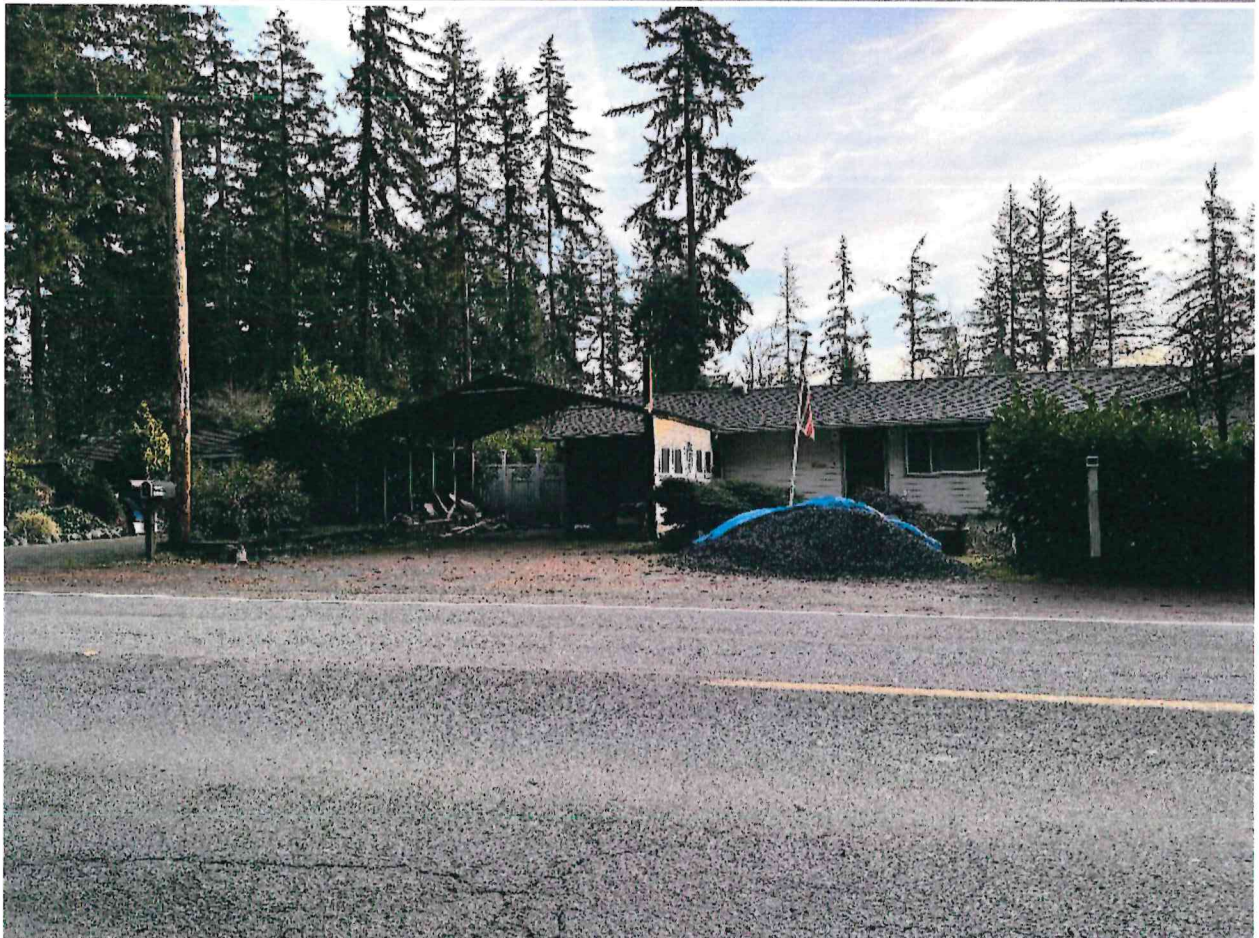
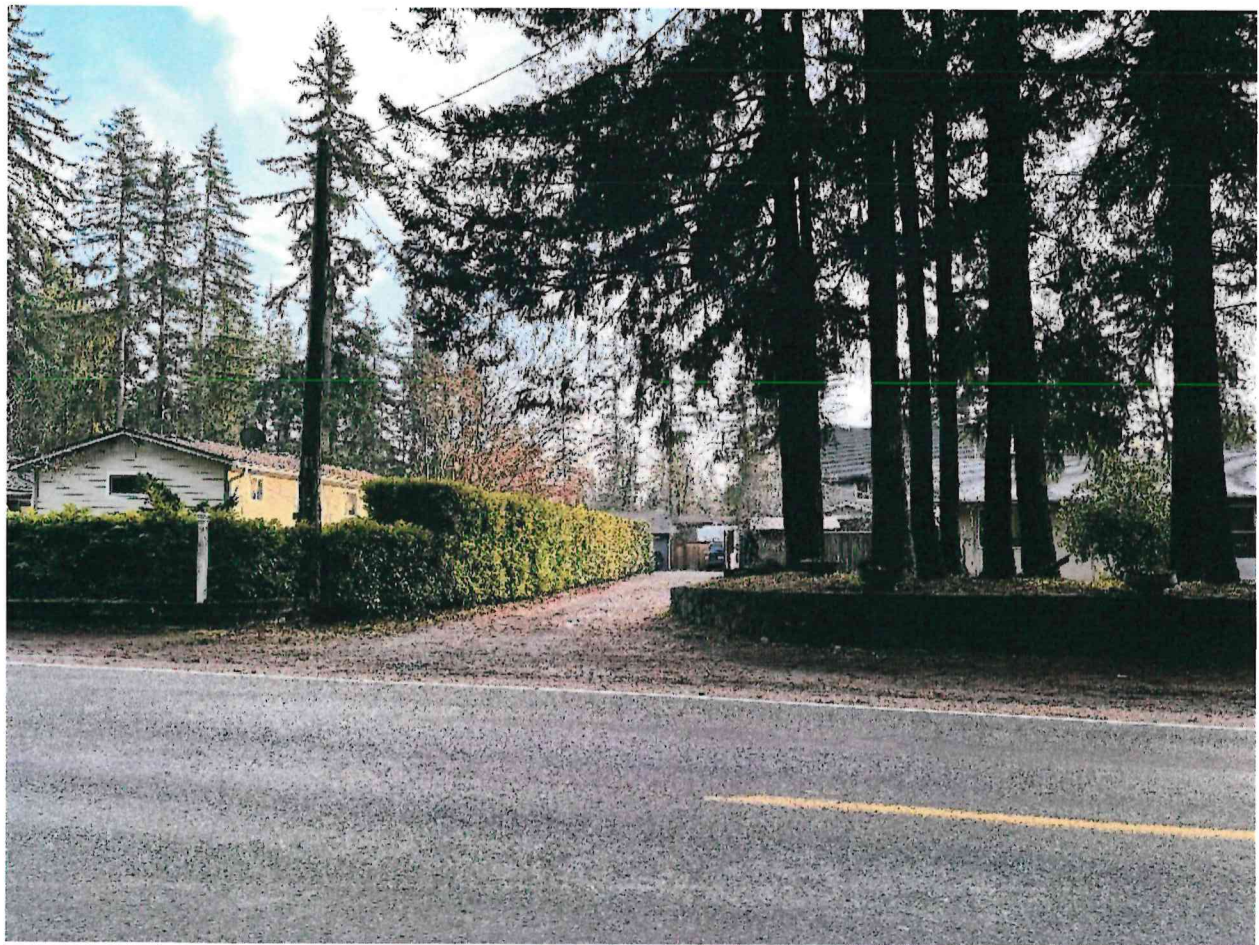


















The orange sign below says “Drive like your kids live here”



Lake Sawyer Road and driveways

The following photos are of driveways and residences along the Lake Sawyer Road. This road has many curves where the name of the street changes according to numbering standards:

216th Ave SE, SE 296th St, 224th Ave SE.

These photos serve as a reminder that this road, too, is a residential area. Many drivers exceed the speed limit along this road.







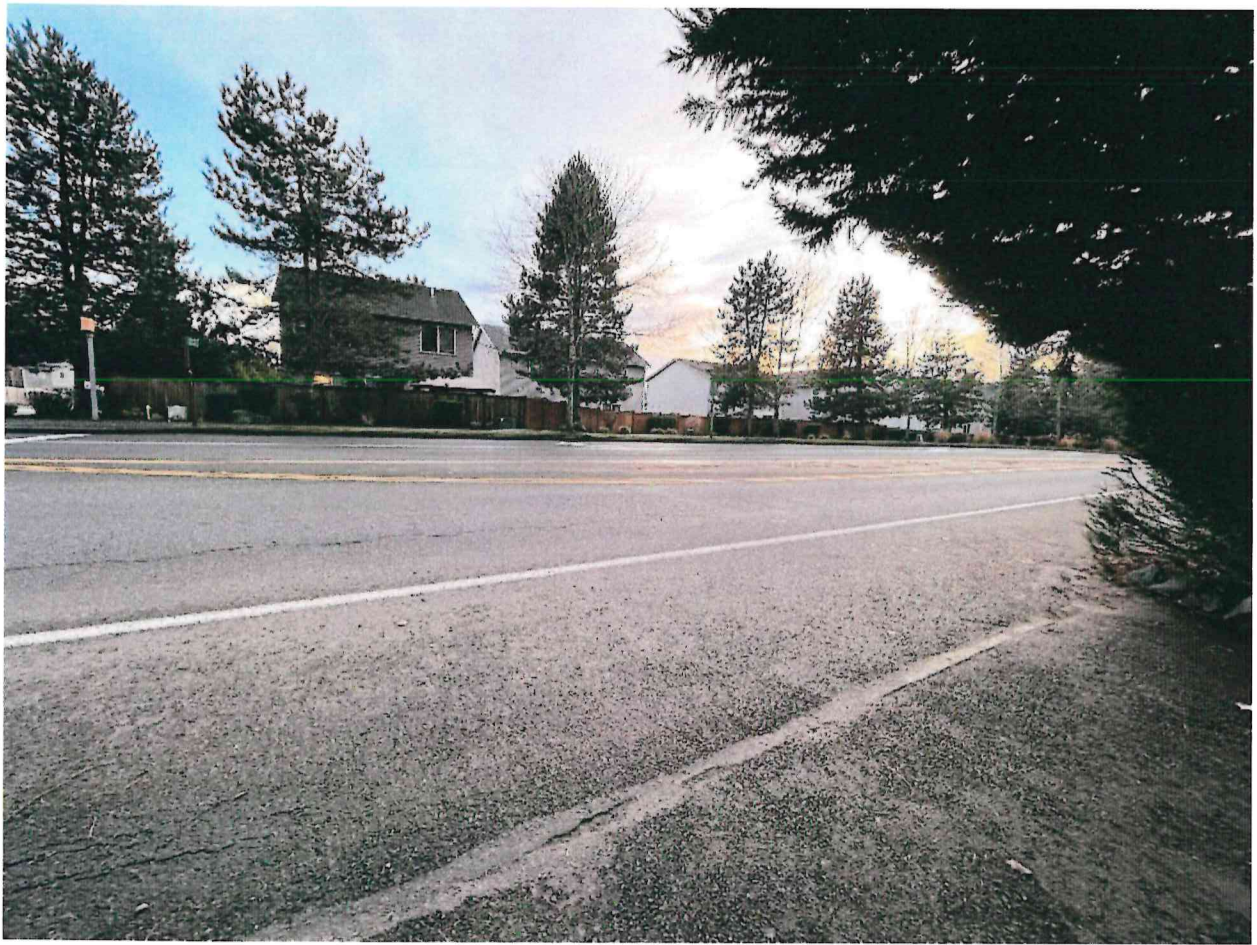










Exhibit 19:

FOBD

Handwritten
Notes

#19

C. Preserve passive open space and wildlife corridors in a coordinated manner while also preserving usable open space lands for the enjoyment of the city's residents;

D. Allow alternative, innovative forms of development and encourage imaginative site and building design and development layout with the intent of retaining significant features of the natural environment;

E. Allow flexibility in development standards and permitted uses;

F. Identify significant environmental impacts, and ensure appropriate mitigation;

G. Provide greater certainty about the character and timing of residential and commercial development and population growth within the city;

H. Provide environmentally sustainable development;

I. Provide needed services and facilities in an orderly, fiscally responsible manner;

J. Promote economic development and job creation in the city;

K. Create vibrant mixed-use neighborhoods, with a balance of housing, employment, civic and recreational opportunities;

L. Promote and achieve the city's vision of incorporating and/ or adapting the planning and design principles regarding mix of uses, compact form, coordinated open space, opportunities for casual socializing, accessible civic spaces, and sense of community; as well as such additional design principles as may be appropriate for a particular MPD, all as identified in the book Rural By Design by Randall Arendt and in the city's design standards;

18.98.20 MPD permit-Public benefit objectives.

A specific objective of the MPD permit process and standards is to provide public benefits not typically available through conventional development. These public benefits shall include but are not limited to:

A. Preservation and enhancement of the physical characteristics (topography, drainage, vegetation, environmentally sensitive areas, etc.) of the site;

B. Protection of surface and groundwater quality both on-site and downstream, through the use of innovative, low-impact and regional stormwater management technologies;

C. Conservation of water and other resources through innovative approaches to resource and energy management including measures such as wastewater reuse;

D. Preservation and enhancement of open space and views of Mt. Rainier;

E. Provision of employment uses to help meet the city's economic development objectives;

F. Improvement of the city's fiscal performance;

G. Timely provision of all necessary facilities, infrastructure and public services, equal to or exceeding the more stringent of either existing or adopted levels of service, as the MPD develops; and

#19

H. Development of a coordinated system of pedestrian oriented facilities including, but not limited to, trails and bike paths that provide accessibility throughout the MPD and provide opportunity for connectivity with the city as a whole. (Ord. No. 897, § 1(Exh. A), 4-16-2009)

18.98.80 MPD Permit Conditions of Approval

A. An MPD permit shall not be approved unless it is found to meet the intent of the following criteria or that appropriate conditions are imposed so that the objectives of the criteria are met:

1. The proposed MPD meets or exceeds all of the public benefit objectives of [Section] 18.98.020 and the MPD purposes of [Section] 18.98.010(B) through (M).

A threat to public health and safety should cause development to be amended.

BDMC 18.14.30

E. Notwithstanding any other provisions of this chapter, the city may amend, alter, or suspend any vested rights created by the filing of a complete permit application and/ or preliminary or final plat approval where the city's legislative body finds that a change in conditions creates a serious threat to public health or safety in the permitted area if development were to proceed under the vested rights.

18.66.20 Applicability of Development Agreement

B. ... Development Standards...

12. Any other Appropriate development requirement,

C. ... city authority to impose new or different regulations to the extent required by a serious threat to public health and safety.

18.12.60

B.12. Any other appropriate development requirement

Exhibit 20:

COBD Public
Works
Statement

Alex Campbell

From: Andy Williamson
Sent: Wednesday, December 3, 2025 2:35 PM
To: Alex Campbell
Subject: FW: Pipeline Road Staff Report

Follow Up Flag: Follow up
Flag Status: Flagged

Andrew Williamson



MDRT/Economic Development Director
Phone: 360-851-4448
Fax: 360-851-4501
Email: awilliamson@blackdiamondwa.gov

(OBDA)

New office hours at City Hall beginning April 1, 2025

Monday – Thursday: 8:30 a.m. – 4:30 p.m.
(Closed 12:00 p.m. – 1:00 p.m.)

Friday: 8:30 a.m. – 12:00 p.m.
(Closed 1:00 p.m. – 5:00 p.m.)

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From: Scott Hanis <shanis@blackdiamondwa.gov>
Sent: Wednesday, December 3, 2025 1:00 PM
To: Andy Williamson <awilliamson@blackdiamondwa.gov>
Subject: Pipeline Road Staff Report

Andy,

Upon reviewing the technical memorandum and attachments provided by Alex Atchison, PE, PTOE with Parametrix, dated December 1, 2025, I agree with her analysis and conclusion regarding Pipeline Road. I agree that conditions have changed compared to 2009, including upgrades to the Morgan Street/Roberts Drive intersection. I agree that the new information supports the timing of when Pipeline Road needs to be constructed which, according to the memorandum, would need to occur in 2027 based and the anticipated construction of the 2,866 dwelling unit. I believe this will maintain consistency in tying traffic improvements to actual traffic conditions and maintaining the level of service standards on Roberts Drive.

Please let me know if you have any questions.

Sincerely,

Scott Hanis
Public Works Director
City of Black Diamond
Phone: (360) 851-4521
shanis@blackdiamondwa.gov

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Exhibit 21:

COBD Post-
Hearing
Response to
HE



December 18, 2025

Via email: Kristin@centerstlaw.com

Mark C. Scheibmeir
Hearing Examiner for City of Black Diamond
P.O Box 939
299 NW Center St.
Chehalis, WA 98532

RE: Pipeline Road – Major Amendment to The Villages MPD Development Agreement
City of Black Diamond File No. PLN25-0006

Dear Mr. Examiner:

This letter and the accompany's memorandum from Parametrix, dated December 18, 2025, serve as the City's final submittal regarding the above-referenced matter. This letter and the Parametrix memorandum address certain points raised by Chief of Police, Jamey Kiblinger, in her letter to you dated December 10, 2025.

In addition to the technical points addressed in the Parametrix memorandum, it should be noted that Chief Kiblinger's request to deny the proposed DA Amendment does not represent the official position of the City Administration, which is reflected in the Staff Report prepared by the Master Development Review Team and supported by the Public Works department. These two departments are the components of City government that possess the City Council-delegated responsibility for reviewing proposals related to the MPDs and for constructing and maintaining City streets. While the Police Department clearly has valuable perspective to be considered when addressing matters of public safety, the Chief of Police does not speak for the City with respect to the pending application.

Respectfully,

MADRONA LAW GROUP, PLLC

David A. Linehan
City Attorney

Encl: Parametrix Memorandum dated December 18, 2025

Cc: Kristin Friend
Andy Williamson
Alex Campbell

Nancy Rogers
Megan Nelson
Justin Wortman

Exhibit 22:

Parametrix
Post-Hearing
Response to
HE

To: Mr. Hearing Examiner

From: Alex Atchison, PE, PTOE

Re: Responses to Chief Kiblinger's 12/10/25 written testimony for PLN25-0006 Major Amendment to The Villages Master Planned Development (MPD) Development Agreement (TV DA) regarding Pipeline Road Construction Timing

Dear Mr. Hearing Examiner

At the City's request, I am providing the following responses to the concerns raised by the Black Diamond Chief of Police, Jamey Kiblinger, in her letter dated December 10, 2025, regarding the construction timing for Pipeline Road.

As stated in my testimony, I am a licensed Professional Engineer (P.E.) and certified Professional Traffic Operations Engineer (PTOE) for Parametrix, Inc., and I serve as the City's transportation engineering consultant. My statements in this letter are based not only on my professional expertise, but also on my personal knowledge of the City's most up-to-date traffic modeling conducted in 2023-2024, as well as the transportation element of the City's Comprehensive Plan. In my role as transportation engineering consultant, I served as the lead engineer in the preparation of the City's 2023-2024 traffic model.

As background information, I am attaching to this letter a conceptual overview of transportation Level of Service (LOS), including a description of the various service levels (A through F), how those levels are measured, and how the City of Black Diamond's LOS standards compare to neighboring jurisdictions. As noted on the last page of the attachment, Black Diamond is the *only* jurisdiction in the region that requires LOS "C" for the operation of streets within its corporate limits (the exception being State Route 169, which is set by WSDOT at LOS "D").¹ This means that congestion on Black Diamond streets is legally required to be (and is in fact observed to be) *better* than congestion in all surrounding cities and unincorporated King County.

Although issues related to safety are more specifically addressed in my additional comments below, I first want to address the concerns generally raised by Chief Kiblinger (and many of the public commenters at the hearing) regarding existing traffic conditions observed on Roberts Drive, which currently serves as the primary East-West route through the City. Chief Kiblinger seems to assume or imply that Pipeline Road is urgently needed (no later than the 1,746th dwelling unit building permit) to alleviate existing traffic congestion on Roberts Drive and avoid public safety bottlenecks.

In addressing this concern, however, it is important to note the functional classification for Roberts Drive. The Roadway Functional Class Map in the 2024-2044 Comprehensive Plan classifies Roberts Drive as a "Minor Arterial."² The Comprehensive Plan defines "Minor Arterial" as follows:

Arterial (Minor): Minor arterials connect with and augment the principal arterials and serve intra-city areas. Minor arterials provide more access to abutting land than a principal arterial. Minor arterials also connect residential neighborhoods to small community centers and principal arterials. These streets typically provide service to the

¹ City of Black Diamond 2024-2044 Comprehensive Plan, Chapter 7 (Transportation Element), p. 124, Policy T-4.1 (adopted via Ordinance No. 25-1235, October 16, 2025).

² Id., Appendix 4 (Transportation), p. A4-4, Figure A4-11: Roadway Functional Class (Map) (adopted via Ordinance No. 25-1235, October 16, 2025).



*public transit system. Average daily traffic (ADT) is usually between 5,000 and 15,000 vehicles per day. The roadways typically have 2, 4, or 5 travel lanes with widths ranging from 28 to 60 feet. Right-of-way widths are typically 84 feet and have vertical curbs and gutters.*³

As noted in this definition, Minor Arterials are expected to accommodate 5,000 to 15,000 vehicles per day. However, the latest traffic counts collected by the City show that, on average, only 4,001-6,000 vehicles per day use Roberts Drive.⁴ Thus, contrary to the impression left by much of the public testimony and Chief Kiblinger's letter, traffic on Roberts Drive is at the low end of the typical range for a Minor Arterial. This level of usage does not suggest excessive or dangerous levels of congestion, on average. Of course, if dangerously fast or reckless driving is observed along Roberts Drive, that can be addressed by increased law enforcement or by changes to roadway design (e.g., installation of traffic calming measures, signalized crosswalks, etc.). But such concerns would not be resolved by adding capacity elsewhere in the system.

The remainder of this letter responds to the specific concerns raised in Chief Kiblinger's letter.

Comment from Chief Kiblinger's letter: *The original trigger, as described in the exhibits, was based on traffic modeling and safety standards, not developer convenience.*

Response:

The comment incorrectly characterizes the basis of the original Pipeline Road trigger. The trigger was established based on traffic operations and concurrency (level-of-service standards), not safety criteria and not developer convenience.

Section 6.4.3 of the Villages MPD Development Agreement (DA) requires Pipeline Road to be constructed and open to traffic prior to the earlier of: (i) the City's approval of a building permit for the 1,746th dwelling unit of The Villages MPD; or (ii) when the Traffic Monitoring Plan (Exhibit F) demonstrates that construction is necessary to prevent a significantly adverse degradation of level of service on Roberts Drive. No independent safety-based trigger is identified in the Development Agreement.

While Section 6.4.3 anticipated that Pipeline Road could be required by the 1,746th dwelling unit if traffic volumes on Roberts Drive resulted in unacceptable LOS conditions, it also explicitly tied the trigger to observed traffic performance through ongoing monitoring, implying that the trigger could be adjusted if observed conditions warranted it.

Traffic analysis updated in 2023 to incorporate updated traffic counts, MPD phasing, and assumptions consistent with the City's updated travel demand model revealed two significant findings:

- First, Morgan Street/Roberts Drive remained the controlling intersection for LOS performance. Without improvements, this intersection would fall below LOS C by 2024. The new signal (installed in 2024) at the intersection of Morgan/Roberts will allow this intersection to operate at LOS A-B through at least 2027. This meant that a Morgan/Roberts improvement, already included in the City's TIP, effectively resolved the earlier LOS bottleneck that the DA's 1,746-unit trigger was based on.

³ Id., Glossary, p. 160 (adopted via Ordinance No. 25-1235, October 16, 2025).

⁴ Id., Appendix 4 (Transportation), page A4-6, Figure A4-12: Traffic Volumes (2023).



- Second, with the improvement at Morgan/Roberts drive, the trigger for Pipeline Road construction now aligns with the next LOS failure point on the corridor: Lake Sawyer Road/Roberts Drive, which was anticipated to fail beginning in 2027 based on the build-out assumptions available at that time. Analysis shows the roundabout at this intersection would degrade to LOS E by 2027, below City standards. But results of the updated analysis show that with the improvements at the intersection of Morgan Street/Roberts Drive, Pipeline Road does not need to be constructed and open until after the 2,866th dwelling unit is constructed

It is important to note that this updated trigger does not remove the requirement that Pipeline Road be constructed. Instead, it ensures that the DA is applied consistently with its purpose: tying improvements to actual traffic conditions and maintaining adopted LOS standards on Roberts Drive.

Comment: 2022 assumptions do not match reality.

The model assumes 1,375 homes existed in Ten Trails in 2022 per the Mid-Point Monitoring Report (Transpo Group 2021). In reality, only about 1,000 homes were completed, a 27% difference. This directly affects trip generation and undermines model accuracy.

Response:

The comment misunderstands how existing conditions were established in the analysis.

Existing conditions were based on updated PM peak hour turning movement counts, which inherently reflect the level of Ten Trails build-out at the time the counts were collected. Existing traffic volumes were therefore collected in the field, not generated from assumed dwelling unit totals.

For the Pipeline Sensitivity Analysis, to be conservative, the analysis then layered the full 2023 anticipated Ten Trails development on top of the observed traffic volumes. No adjustments were made to reduce or remove trips from the counts to account for differences between assumed and actual 2022 housing totals.

As a result, the analysis effectively assumes that observed traffic volumes and the full 2023 development occur concurrently, which overstates traffic conditions rather than understates them. This approach provides a conservative assessment of trip generation and operational impacts and does not undermine the accuracy of the analysis.

Comment: Existing road failures are dismissed instead of analyzed.

Existing road failures are dismissed instead of analyzed. The 2022 results show SR 169/SR 516 and SR 169/SE Wax Road already operating at LOS E, below Maple Valley's LOS D standard (Report, 2022 Analysis Results). Rather than analyze the real-world impacts of these failures, the report simply states that a prior mitigation agreement overrides several Conditions of Approval (Report, §12.10.1). This removes a known real-world problem from meaningful review.

Response:

As explained in Section 12.10.1 of The Villages Development Agreement, the Master Developer and the City of Maple Valley entered a mitigation agreement which supersedes the MPD Conditions of Approval 10 through 14, and 16 through 34. No additional mitigation is required. More fundamentally, however, Chief Kiblinger's letter provides no engineering analysis to suggest that constructing Pipeline Road by the 1,746th dwelling unit would have any effect on the LOS levels of the intersections she references in Maple Valley. Nor does her letter provide engineering analysis to show that delaying construction of Pipeline Road to the 2,866th dwelling unit would exacerbate existing LOS at those intersections.



Comment: 2032 forecasts show widespread failures.

Under 2032 conditions, the model forecasts LOS E or F at multiple intersections across Maple Valley, Covington, and unincorporated King County (Report, Table 6). – Covington has four intersections expected to fail, and its plan allows this only after SR 516 is widened, an improvement with no committed timeline (Report, Covington LOS Standards). – SE Auburn Black Diamond Road/218th Avenue SE and Kent Kangley Road/Landsburg Road are forecast at LOS F. A roundabout is proposed at the former, but the latter has no funding, relying instead on a future proportional-share contribution that isn't guaranteed (Report, 2032 Mitigation Discussion).

Response:

The 2032 forecasts cited in the comment above include intersections evaluated as part of the report that addresses the Hearing Examiner transportation conditions (Conditions 10 through 17) for The Villages and Lawson Hills MPD Permits, which required updates to the transportation modeling conducted for the Final Environmental Impact Statement (FEIS). This report addresses MPD Permit Conditions 11 through 17 by documenting the methodology, assumptions, and results of the updated modeling.

As noted in Section 12.10.1 of *The Villages Development Agreement*, the Master Developer and the City of Maple Valley entered into a mitigation agreement that supersedes MPD Conditions of Approval 10 through 14 and 16 through 34, and no additional mitigation is required under that agreement.⁵ A separate mitigation agreement between the Master Developer and the City of Covington likewise fulfilled all mitigation requirements regarding Covington.⁶ Similarly, Covington's 2016 Comprehensive Plan allows traffic operations at LOS E or F following improvements to SR 516, which are outside Black Diamond's control.

The Pipeline Road Sensitivity Analysis Technical Memorandum (Exhibit 6 to the Staff Report) is a distinct analysis with a different purpose and regulatory basis. It evaluates the construction triggers for Pipeline Road as required under The Ten Trails (formerly The Villages) and Lawson Hills MPD Development Agreements. Accordingly, the analysis is intentionally limited to intersections within the City of Black Diamond, where the City has authority to establish level-of-service standards and require mitigation. Moreover, Chief Kiblinger's letter provides no engineering analysis to suggest that constructing Pipeline Road by the 1,746th dwelling unit would have any effects on the LOS levels of the intersections she references in Maple Valley, Covington, or unincorporated King County. Nor does her letter provide engineering analysis to show that delaying construction of Pipeline Road to the 2,866th dwelling unit would exacerbate existing LOS at those intersections.

Comment: Future road alignments are uncertain

The model includes Pipeline Road, the North Connector, South Connector, SE Loop Connector, and Lawson Parkway for 2032, but the report notes these alignments may change and would require new modeling (Report, Roadway Assumptions). This highlights that the model is tied to developer plans, not independent traffic conditions.

⁵ The Villages MPD Development Agreement, Exhibit Q.

⁶ Id., Exhibit R.



Response:

The roadway facilities included in the 2032 analysis, Pipeline Road, the North Connector, South Connector, SE Loop Connector, and Lawson Parkway are required by the Development Agreement and incorporated into the City's travel demand model and are therefore appropriately included in the analysis.

While final alignments may be refined as design progresses, the assumed connections and endpoint intersections that drive LOS can reasonably be evaluated at a planning level. If roadway locations or connections change in the future, subsequent traffic monitoring and development review would be required, and the developer would be responsible for demonstrating compliance with City standards and identifying any additional mitigation as necessary.

Comment (part 2)

These modeling limitations have real consequences for emergency response. When a model uses optimistic assumptions, including unfunded future improvements, or ignoring intersections already operating below standard, it underestimates the actual conditions first responders face.

Emergency vehicles don't move through "average LOS." They move through real congestion: school traffic, special events, construction backups, seasonal weather, and regional growth outside the MPDs.

None of these are fully reflected in the model. And because emergency response is a life-safety issue, not just a planning metric, ignoring these conditions creates a major gap in evaluating whether the developments can maintain adequate public-safety performance in the future.

Response:

Emergency response is a critical life-safety consideration, and it is easy to appreciate Chief Kiblinger's concern that public safety not be eroded by decisions regarding transportation infrastructure. This concern, however, is not inconsistent with the traffic analysis, which is intended to evaluate roadway and intersection operations under typical, representative conditions, consistent with standard transportation planning practice and applicable regulatory requirements.

The analysis accounts for regional growth outside of the MPDs, in accordance with the Transportation Model Update and the Hearing Examiner's MPD Permit conditions. Background growth, committed projects, and planned development are incorporated as required.

Traffic operations were evaluated during the weekday PM peak hour, which represents the highest and most congested recurring traffic volumes on the network. School arrival and dismissal periods, while congested, are typically lower than PM peak hour volumes. Special events, construction activity, severe weather, and other episodic conditions can affect traffic, but these conditions are not typically analyzed for development review because they are temporary or infrequent. Designing roadway infrastructure to accommodate these conditions would result in overbuilding and is not consistent with standard practice.

It is also recognized that emergency vehicles operate under conditions that differ from typical traffic. Emergency response is not governed by "average LOS" metrics, as emergency vehicles have legal and operational tools, such as signal preemption, use of opposing lanes when necessary, and audible and visual warnings, that allow them to navigate congested conditions.



Evaluation of emergency response times and public safety performance is therefore more appropriately addressed through fire and police service planning rather than through intersection level-of-service modeling. The City's traffic analysis remains appropriately scoped and provides a conservative and reasonable basis for evaluating transportation system performance while recognizing that emergency response planning is addressed through complementary public-safety and law-enforcement processes.

Comment:

From both a residents' and a public-safety perspective, "LOS is acceptable" does not mean the roads are safe or functional.

Response:

It is correct that level of service (LOS) is not a measure of safety, and an acceptable LOS alone does not imply that a roadway is safe. Safety concerns are important and are appropriately evaluated through traffic safety analysis and roadway design, rather than through operational LOS metrics.

However, LOS is an accepted and widely used measure of roadway and intersection functionality, describing how efficiently traffic moves through the transportation system in terms of delay and congestion. From a transportation planning and operations standpoint, a finding that LOS is acceptable does indicate that the roadway is functioning as intended under typical peak-hour conditions.

The concerns raised regarding safety are reasonable but separate from traffic operations performance. These issues can exist even when a roadway is operating at acceptable LOS and are best addressed through targeted safety improvements, enforcement, and design refinements.

Sincerely,

Parametrix



Alex Atchison, PE, PTOE

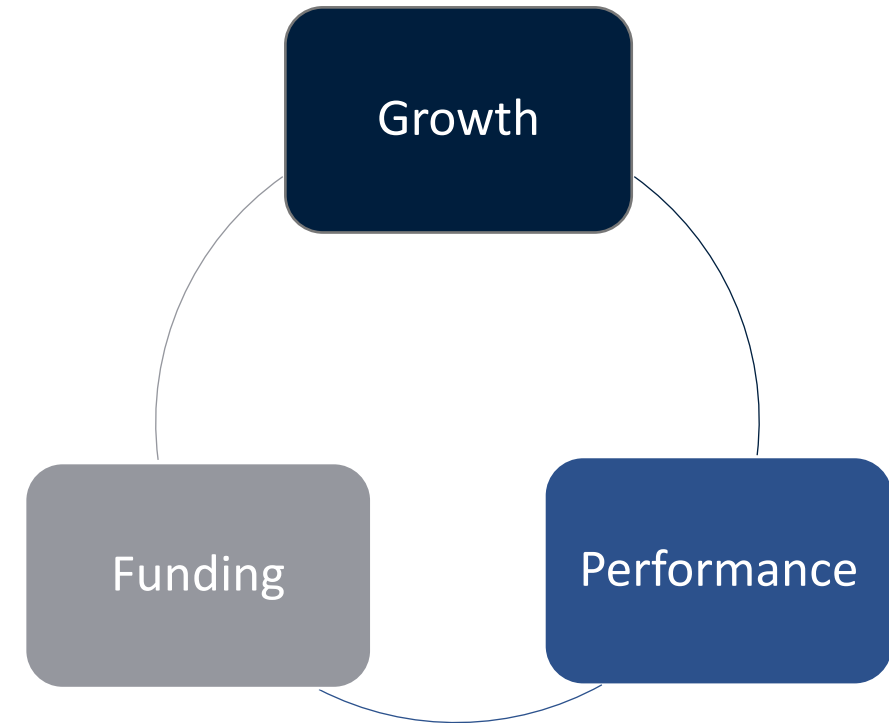
Senior Consultant





Goal: Finding the appropriate balance between:

- Amount of growth
- Expectations about how transportation system should perform, and
- Amount of funding available for transportation projects





Concurrency:

- Required by GMA
- Transportation system needs to be adequate to accommodate growth and if not, then growth cannot be permitted

Level of Service:

- Measurement used to determine adequacy
- Adopted through the Transportation Element and City Code
- WSDOT sets LOS standards for State roadways (e.g., SR 169)
- City sets LOS standards for City roadways

WHAT IS LEVEL OF SERVICE?



Level of Service (LOS) is quantitative measure of traffic operational conditions.

Intersection LOS is based on the amount of time each vehicle has to wait to go through the intersection during a particular hour.

LOS thresholds vary by type of intersection control: (signal, stop sign or roundabout)

Level of Service	General Description
A	Highly stable, free flow conditions
B	Stale, free-flow with little congestion
C	Free-flow with moderate congestion
D	Approaching unstable flow with increasing congestion
E	Unstable, congested conditions
F	Highly congested

HOW IS LEVEL OF SERVICE DELAY DEFINED?



Level of Service	Stop Sign on side street only <i>(average delay for worst movement)</i>	Signalized Intersections <i>(average delay per vehicle for entire intersection)</i>	Roundabouts <i>(average delay for entry approach)</i>
A	≤ 10 sec	≤ 10 sec	≤ 10 sec
B	> 10 - 15 sec	>10 - 20 sec	> 10 - 15 sec
C	> 15 - 25 sec	>20 - 35 sec	> 15 - 25 sec
D	> 25 - 35 sec	>35 - 55 sec	> 25 - 35 sec
E	> 35 - 50 sec	>55 - 80 sec	> 35 - 50 sec
F	> 50 sec	>80 sec	> 50 sec

HOW DOES BLACK DIAMOND COMPARE?



Level of Service Standards

- King County = LOS E
- Kent = LOS E
- Enumclaw = LOS E (unsignalized)
= LOS D (signalized)
- WSDOT = LOS D
- Covington = LOS D
- Maple Valley = LOS D
- Black Diamond = LOS C

Exhibit 23:

Oakpointe
Post-Hearing
Response to
HE

MEMORANDUM

To: Hearing Examiner Scheibmeir

From: Nancy Bainbridge Rogers, Counsel for the Applicant, CCD Black Diamond Partners LLC

Re: Response to Hearing Examiner Requests (Pipeline Road Construction Trigger)
Major Amendment to the Ten Trails Development Agreement
City File Number: PLN25-0006

Date: December 19, 2025

I. Introduction

This firm represents CCD Black Diamond Partners LLC (“**Oakpointe**”), the Applicant for the Major Amendment to the Ten Trails Development Agreement, changing the construction trigger date for Pipeline Road. At the close of the December 15, 2025 hearing on this matter, the Hearing Examiner asked the City and the Applicant to provide additional information regarding public comments received for the hearing.

Oakpointe responds as follows.

II. Response to Additional Issues

Public benefits and improvements to Roberts Drive. Several public comments suggested that in return for moving the construction trigger for Pipeline Road to the 2,866th dwelling unit, Oakpointe should be required to provide public benefits, specifically traffic calming measures and pedestrian improvements along the eastern portion of Roberts Drive. No legal authority was cited to support this contention. Nothing in RCW 36.70B.170 - .210, nothing in Chapter 18.66 BDMC, and nothing in the Ten Trails Development Agreement mandates additional public benefit be provided when a Development Agreement is amended.

While public benefits are not required, we note that Oakpointe has already met its obligations under Section 11.6 of the Ten Trails Development Agreement, to provide the public benefit of construction of pedestrian improvements along Roberts Drive, extending from Ten Trails to the Rock Creek bridge. The City has built additional pedestrian improvements from the Rock Creek bridge to City Hall.

Additional pedestrian improvements are already planned by the City. As described in Exhibit 15 (Transpo, December 15, 2025), the City's Capital Improvement Program already includes enhancements to the eastern portion of Roberts Drive between City Hall and SR-169. During public testimony on December 15, Rosanne and Donald McPherson testified to their understanding that the City planned to fund these additional improvements in 2027. Whenever they are built, the City's planned improvements to Roberts Drive are the fix that can address current citizen concerns about the impact on pedestrians from Roberts Drive traffic in front of their homes. In contrast, and regardless of when it is constructed, nothing about Oakpointe's construction of Pipeline Road – which will include only vehicular travel lanes, shoulders and stormwater improvements – will do anything to provide pedestrian improvements along Roberts Drive, or to provide an alternative location with pedestrian amenities.¹

There is no legal basis to require Oakpointe to further improve the eastern portion of Roberts Drive, and there is no practical reason to force Oakpointe to build Pipeline Road at 1,746 dwelling units to address community concerns about traffic impacts on the pedestrian experience along the eastern portion of Roberts Drive.

Public benefits and improvements to other area roadway infrastructure. As noted above, there is no legal mandate for Oakpointe to provide public benefits in exchange for obtaining approval of the proposed amendment to the Development Agreement. However, as explained in the hearing by Mr. Wortman, the changes to the transportation analysis driven by the Development Agreement's requirements for consistent updates to reflect changing real world conditions led not only to shifting the need for construction of Pipeline Road to the time the 2,866th building permit is issued, but also included advancing the timeline to signalize the intersection of Morgan Street and Roberts Drive (work that has been completed), and to earlier construction at the intersection of 218th and Auburn-Black Diamond Road (work that is currently undergoing permitting). Earlier construction of each of those projects directly benefits the public.

Evaluation of PM Peak Hour Traffic is appropriate. Citing to a memo submitted as evidence in the separate hearing related to the SE Connector Alternate alignment accessing the Lawson Hills development, Friends of Black Diamond argues that AM Peak Hour traffic must be analyzed related to the Major Amendment to move the construction trigger for Pipeline Road. Friends of Black Diamond is incorrect. Analysis of AM Peak Hour traffic is not required. See enclosed Exhibit A, Transpo Memorandum, *Response to DN Traffic Consultants Comments – SE Connector Alternate*, PLN25-0062 (December 19, 2025).

The Ten Trails Development Agreement is valid through December 21, 2026. Quoting only portions of Section 15.16 of the Development Agreement, Friends of Black Diamond asserts the Ten Trails Development Agreement and/or MPD Permit has expired such that the Development Agreement cannot be amended. Again, Friends of Black Diamond's assertion is incorrect. The Development Agreement was approved by City Council Ordinance No. 11-970 on December 12, 2011. Under State law, that Ordinance did not take effect until five days after publication, and Ord. No. 11-970 states its "Effective Date" was December 21, 2011 (five days after publication on December 16, 2011). The 15-year term of the Ten Trails DA expires on December 21, 2026.

¹ As described in the testimony of Scott Hanis and Justin Wortman, future construction of pedestrian improvements along Pipeline Road will occur as frontage improvements when the lands adjoining the right-of-way are built out.

The area road system already provides redundancy for emergency access. MountainView Fire & Rescue filed comments asserting, generally, that Pipeline Road should be constructed to provide redundancy and ensure public safety, and then echoing various community concerns. Enclosed as Exhibit B is a memorandum from Transpo, *Response to MVFR Comments – Pipeline Road, PLN25-0006* (December 19, 2025). As explained in Exhibit B, the existing road system has both redundancy and sufficient capacity to carry the existing and predicted traffic now and into the future, as well as multiple features that assist emergency vehicles to promptly reach their destination. In addition to the matters explained in Exhibit B, Oakpointe again notes that emergency vehicles are authorized by State law to proceed past stop signs or signals, to exceed maximum speed limits, and to drive in the opposing lane of traffic. RCW 46.61.035.

The Public Works Department Supports the Change in Construction Trigger. As previously explained, the City police department has no authority over matters of roadway location, design, or the timing for new roadway construction. Neither does the fire department. The matters at issue in this hearing are squarely within the assigned duties of the City’s Public Works Department. BDMC 2.28.020 (imposing the duty on the Public Works Department to ensure “construction, maintenance, repair and cleaning of the streets, sidewalks, gutters, sewers, and drains and other such related activities,” as well as maintenance of all City-controlled lands).

Exhibit 20 and the testimony of Public Works Director, Scott Hanis, confirm that the City does not need Pipeline Road to be constructed at the original trigger of 1,746 dwelling units, and does not want the road constructed until the 2,866th dwelling unit is permitted. The Police and Fire Department arguments supporting community members’ demands for earlier construction of Pipeline Road are not persuasive evidence. The Police and Fire Department arguments should not be granted more weight than the evidence of the City agency – the Public Works Department – directly charged with construction and maintenance of roads. Just like the views of the Public Works Department would be subordinate (and likely not relevant) to any actions of the police or fire department during an emergency, or subordinate (and likely not relevant) to police evidence during a court hearing on any civil infraction or criminal matter, here, the views of the Police and Fire Departments must be subordinate to the position of the Public Works Department on the issue of when to build a new road. Consistent with the direction of the Public Works Department, the Pipeline Road construction trigger should be moved to the 2,866th dwelling unit.

III. Conclusion

As previously argued, whether or not to shift the construction trigger for Pipeline Road to the 2,866th dwelling unit must be evaluated as a question of concurrency and engineering. Under the law, neither the Police Department, nor Fire Department, has any role to play in this decision. All of the engineering evidence supports shifting the construction trigger for Pipeline Road from 1,746 dwelling units to 2,866 dwelling units. This shift ensures Pipeline Road is open to traffic at the earliest possible time it is anticipated to be necessary to ensure traffic flow on Roberts Drive meets the City’s Level of Service Standards. In addition, moving the trigger to the 2,866th dwelling unit reduces near term costs for the City, because the City will not need to maintain and operate Pipeline Road until the road is actually needed to serve new trips generated by the Ten Trails development.

Oakpointe thanks the Examiner for his careful review of this matter, and requests that the Examiner recommend approval of the Major Amendment to the Ten Trails Development Agreement, City File Number: PLN25-0006.

- Exhibit A: Transpo Memorandum, *Response to DN Traffic Consultants Comments – SE Connector Alternate*, PLN25-0062 (December 19, 2025), without attached ICE report.
- Exhibit B: Transpo, *Response to MVFR Comments – Pipeline Road*, PLN25-0006 (December 19, 2025).

EXHIBIT A

Transpo Memorandum, *Response to DN Traffic Consultants Comments – SE Connector Alternate, PLN25-0062* (December 19, 2025), without attached ICE report

MEMORANDUM

Date:	December 19, 2025	TG:	1.16450.00
To:	Hearing Examiner Scheibmeir		
From:	Mike Swenson, P.E., PTOE and Maris Fry, P.E., RSP1 – Transpo Group		
Subject:	Response to DN Traffic Consultants Comments – SE Connector Alternate, PLN25-0062		

This memorandum provides responses to the comment letter prepared by DN Traffic Consultants on behalf of Friends of Black Diamond dated December 12, 2025 regarding the SE Connector Alternate Major Amendment to the Lawson Hills MPD Permit and Development Agreement (City File Number: PLN25-0062).

Comment: A fundamental deficiency in the submitted traffic analysis is the lack of an A.M. peak-hour evaluation. While P.M. peak-hour conditions are commonly analyzed in planning-level studies, the Highway Capacity Manual (HCM) makes clear that the “critical analysis period” must reflect the time period most likely to experience operational deficiencies. For residential developments, ITE Trip Generation Manual, 11th Edition, shows that:

- The A.M. peak-hour occurs during the A.M. is when outbound trips are highest,
- Driveway and arterial access are most constrained, and
- Delays and conflicts are most acute.

For a project generating approximately 1,200 new homes, the A.M. peak hour is the controlling condition for:

- Driveway access
- Local street operations
- The ability for vehicles to access collectors/arterials and regional highways

By analyzing only the P.M. peak hour, the study fails to comply with accepted methodologies in:

- HCM 7th Edition (context-sensitive selection of study periods)
- ITE Trip Generation (residential trip profiles)
- ITE Transportation Impact Analysis for Site Development (requirement to analyze critical periods related to land-use type)

Without an A.M. peak-hour analysis, the report cannot accurately represent operational and safety impacts which occur in the neighborhood.

Response: For the reasons described below, the SE Connector Alternate Traffic Operations Analysis focused on the PM peak hour. However, the WSDOT Intersection Control Evaluation (ICE) for the intersection of SR 169/Baker Street and SR 169/Lawson Street analyzed both the AM and PM peak hours. Additionally, the ICE analyzed these conditions with either the SE Connector or the SE Connector Alternate. The ICE (included as Attachment A) has been approved by WSDOT with traffic signals at SR 169/Lawson Street and SR 169/Baker as the preferred intersection control. As shown in the analysis, with the SE Connector Alternate, SR 169/Lawson Street would operate at LOS C during the AM peak hour through build-out of both MPDs.

The analysis performed within the SE Connector Alternate Traffic Operations Analysis, including the use of only the PM peak hour, is consistent with the requirements of the City's transportation model and the Traffic Monitoring Reports (TMRs), and the City's Comprehensive Plan. As outlined in The Villages (Ten Trails) Conditions of Approval, as well as Exhibit F of The Village (Ten Trails) Development Agreement the PM peak hour analysis is to be used in determining necessary mitigation measures for the Master Planned Development (MPD) – related to both the transportation model developed by the City's traffic consultant and the Traffic Monitoring Reports (TMRs) developed by the developer's traffic consultant. Additionally, when the City's adopted LOS is referenced in these excerpts, it should be noted that "The City's existing LOS standard is LOS C for all City intersections. These standards apply to the weekday PM peak hour." These standards are set forth in the City's Comprehensive Plan.

Condition 17.b., related to the development of an updated transportation model, states that:

"Using the trip distribution and trip assignment yielded by the transportation demand model validation and calibration required in subsection (a) above, the City shall conduct an intersection operations analysis of the transportation levels of service (LOS) for the intersections identified in Condition 11 above, and shall issue findings, conclusions and a recommendation as provided below. The intersection operations analysis shall determine whether then-existing, adopted PM peak hour intersection levels of service are projected to be met by the time of the next validation/calibration/operations analysis identified by the City Council pursuant to subsection (a) above. The intersection operations analysis for existing conditions must take into account the then-existing peak hour factor; the analysis for the next identified phase or interval of development must be based on a reasonable assumption (justified by reasonable traffic engineering practice) as to the future peak hour factor, and contain a sensitivity analysis to identify the effect of such peak hour factor assumption. If the findings and conclusions determine that the then-existing, adopted PM peak hour LOS will not be met, they shall also determine whether the projects set forth in Condition 15 and 16 above adequately mitigate the impacts resulting from the failure to meet the adopted LOS. If the findings and conclusions determine failure to meet adopted transportation LOS will not be adequately mitigated, they shall also recommend such additional measures necessary to adequately mitigate the impacts reasonably attributable to the MPD projects' failure to meet the adopted LOS."

Section D of Exhibit F of the Villages (Ten Trails) MPD Development Agreement, related to determination of the triggers and timing for construction of transportation projects as part of the TMRs, states that:

"For intersection improvements, the threshold trigger is when the intersection level of service (LOS) (as defined in the Highway Capacity Manual, TRB, 2000) for the entire PM peak hour would (1) no longer meet the adopted LOS (as defined in the City of Black Diamond's Comprehensive Plan, 2009, or other jurisdiction's standard applicable to the MPD Approval) or (2) in the event that the LOS is already below the applicable threshold, the trigger shall be when traffic volumes from the new MPD Phase begin to increase delay at the intersection causing an additional impact."

Both excerpts state that the PM peak hour analysis should be used to define the need for mitigation and reference the City's adopted LOS threshold, which as noted previously applies to the weekday PM peak hour. All of the above are the accepted and applicable methodologies for analyzing transportation impacts for this proposal.

Additionally, AM peak hour counts in the City of Black Diamond are significantly lower than PM peak hour counts. Along SR 169 in particular, AM peak hour counts are between 30% and 40% lower than PM peak hour counts (see table below). Further, while AM peak hour trip generation results in a higher proportion of outbound trips, AM peak hour trip generation rates for residential trips are approximately 25% lower than PM peak hour trip generation rates. This means that analysis using the PM peak hour trip generation rates adequately captures the worst-case scenario.

Intersection	Total Entering Vehicles (Dec 2024)		% diff between PM and AM
	AM Peak Hour	PM Peak Hour	
SR 169/Baker Street	1,594	2,157	30%
SR 169/Lawson Street	1,519	2,091	32%
SR 169/Jones Lake Rd	1,482	2,041	32%
SR 169/288th Street	1,981	2,963	40%
SR 169/Green Valley Rd	1519	2100	32%

Comment: The Friends of Black Diamond have expressed a desire to maintain character and safety of their existing neighborhood.

ITE's Traffic Calming and Neighborhood Street Design Guidelines note that increased traffic volumes on local streets:

- Change functional classification behavior,
- Increase conflict points, and
- Reduce perceived and actual pedestrian safety.

The proposed development will route substantial new volumes through narrow, residential streets not designed under American Association of State Highway and Transportation Officials (AASHTO) local street guidelines for the projected increase in traffic. The study does not address these impacts.

Response: *While we acknowledge that increased traffic volumes on local streets may have impacts noted in the comment, Lawson Street is not designated as a local street. Per the City's Comprehensive Plan, Lawson Street is designated as a Minor Arterial. The projected volumes and roadway design are aligned with that of a Minor Arterial. Further, the proposed streetscape project along Lawson Street will enhance pedestrian safety by incorporating pedestrian facilities that do not currently exist along the corridor.*

Comment: Several of the applicants' proposed "mitigation" measures – such as adding sidewalks, parking lanes, or widening pavement – would increase operational and safety risks. Under AASHTO's "Policy on Geometric Design of Highways and Streets" (Green Book):

- Increased roadway width often increases operating speeds,
- On-street parking reduces effective sight distance,
- Wider pavement without curb extensions increases pedestrian crossing exposure, and
- Driveways on widened sections require enhanced clear zones and sight-distance compliance.

For residents attempting to back out of driveways, on-street parking and higher traffic speeds create:

- Restricted sight distance,

- Increased conflict points, and
- Higher crash potential (AASHTO Driveway Design Guidelines)

The proposed modifications do not appear to meet AASHTO intersection sight distance (ISD) or stopping sight distance (SSD) requirements for the posted speeds.

Response: *The design details and concerns raised in the comment are premature. The Lawson Street improvements have not been formally designed and will not be formally designed unless and until the SE Connector Alternate is approved. The current analysis presents several conceptual street sections to be considered along the corridor as the design is refined and completed. During that design process, issues similar to those raised in the comment can be evaluated. The concepts generally narrow the effective roadway width by replacing paved or unpaved shoulders with curb – thus contributing to traffic calming. Only where parking is provided does the effective roadway width increase, but even in these cases, the unpaved shoulder already exists as a de facto parking lane.*

Comment: Several driveways and local intersections likely do not meet AASHTO sight distance standards, particularly where:

- Landscaping or fences create obstructions,
- On-street parking is proposed adjacent to driveways, or
- Roadway geometry limits approach visibility.

AASHTO requires compliance with:

- Stopping Sight Distance (SSD)
- Intersection Sight Distance (ISD)
- Approach Site Triangles

The traffic study did not include a sight-distance inventory, even though the proposed changes directly affect sight-triangle visibility.

Response: *No information was presented by Mr. Norris regarding independent sight distance calculations to support this comment. A sight distance analysis was not completed to date by Transpo as the Lawson Street improvements have not been designed. Again, the design details and concerns raised in the comment are premature. As noted, conceptual street sections have been developed, however application and design has yet to be initiated. This design process will evaluate all AASHTO and City standards in determining the final design.*

Comment: The study does not address safe routes to school, despite the project generating hundreds of new school-aged children. P.M. peak hours will not typically occur when school students are typically released.

ITE's "Design and Safety of Pedestrian Facilities" and the Safe Routes to School Guidelines require:

- Designated, marked crosswalks.
- Acceptable pedestrian sight distance
- Analysis of desire lines
- Traffic control warrants when school access is impacted.

The absence of any crosswalk plan or pedestrian safety analysis is not consistent with ITE or WSDOT pedestrian safety guidance.

Response: *The comment seems concerned about future walking conditions along Lawson Street. Once again, the comment is timed incorrectly. Mitigation for impacts to the school system and for school access was previously evaluated with the MPD Permit and Development Agreement. Specific confirmation that school children will have safe routes to school will be evaluated later, with plat applications inside the MPD. To the extent that schoolchildren inside the MPD were to use Lawson Street, the general concept for Lawson Street improvements would improve access to schools by incorporating sidewalks and shared-use paths along Lawson Street where they do not currently exist. These active transportation improvements along Lawson Street will only be completed in conjunction with the SE Connector Alternate. If the SE Connector Alternate is not approved, then future improvements to the aging Lawson Street corridor would not occur until the City generates sufficient funds to implement a complete streets corridor project. Finally, if the SE Connector Alternate is approved, further traffic calming or pedestrian improvement such as curb bulbs or Rectangular Rapid Flashing Beacons (RRFB) may be considered through the design process.*

Comment: Summary of Methodological Gaps. The traffic analysis does not meet standards engineering practice because it fails to:

- Evaluate the required A.M. peak hour (ITE & HCM)
- Assess neighborhood impacts in accordance with ITE neighborhood street design.
- Demonstrate compliance with AASHTO geometry and sight-distance requirements.
- Evaluate pedestrian and school access consistently with ITE pedestrian safety standards.
- Ensure proposed modifications do not degrade driveway and local street operations
- Conduct a complete safety and operational evaluation under industry-recognized methodology.

Response: *This comment is a summary of the earlier comments, each addressed above.*

Comment: In addition to the shear impact of increasing daily traffic volumes from 1,700 vehicles to 4,800 vehicles, the side effect of this increase in traffic volumes traffic volumes [sic] will change the nature and character of this neighborhood. These deficiencies must be addressed before the traffic impacts of the proposed development can be fully understood.

Response: *As described in the SE Connector Alternate Traffic Operations Analysis, Lawson Parkway remains the primary access route to and from the Lawson Hills MPD. Based on current analysis, using updated models and information, construction of either the SE Connector Alternate or the SE Connector results in **fewer** overall trips using Lawson Street than were originally analyzed in the FEIS when the access points included Lawson Parkway, Lawson Street, and the original SE Connector. As noted in the comment, with the SE Connector Alternate daily traffic volumes along Lawson Street would increase to approximately 4,800 vehicles from 1,700 vehicles under existing conditions. But it should also be noted that with the SE Connector daily traffic volumes along Lawson Street would increase to approximately 3,800 vehicles. As such, the comment overstates the impact of the SE Connector Alternate as compared to the SE Connector.*

*Despite the shift in trips onto Lawson Street when the SE Connector Alternate is built versus the SE Connector, the total number of trips on Lawson Street will be **fewer** than originally projected under the original analysis published in the 2009 FEIS. Therefore, the*

EXHIBIT B

Transpo, *Response to MVFR Comments – Pipeline Road, PLN25-0006* (December 19, 2025)

MEMORANDUM

Date:	December 19, 2025	TG:	1.16450.00
To:	Hearing Examiner Scheibmeir		
From:	Mike Swenson, P.E., PTOE and Maris Fry, P.E., RSP1 – Transpo Group		
Subject:	Response to MVFR Comments – Pipeline Road, PLN25-0006		

This memorandum provides responses to the comment letter prepared by Mountain View Fire & Rescue dated December 15, 2025 regarding the Pipeline Road Major Amendment (City File Number: PLN25-0006).

Comment: Delayed Emergency Response Times: The current road network lacks redundancy and direct routes, which can result in longer travel times for fire, EMS, and rescue units. In emergency situations, every minute counts. Delaying Pipeline Road's construction until nearly 3,000 homes are built could compromise our ability to respond promptly and effectively.

Response: While Pipeline Road would provide additional connectivity to SR 169, alternatives to Roberts Drive do currently exist. As shown in Figure 1, vehicles traveling to and from the north via SR 169 can also travel along 288th Street and SE 272nd Street via Lake Sawyer Road SE/216th Avenue SE. For vehicles traveling west and south, Pipeline Road would have limited impact on roadway network redundancy.

Comment: Increased Traffic Congestion: The staff report acknowledges that Level of Service (LoS) standards can be met without Pipeline Road until 2,866 units are built. However, this analysis does not account for the operational realities of emergency vehicle movement through congested corridors. Increased traffic on Roberts Drive and surrounding roads will hinder our ability to navigate safely and quickly.

Response: The signal at Roberts Drive/Morgan Street is equipped with vehicle preemption giving emergency vehicles a green light upon detection and helping clear the intersection ahead of the vehicle's arrival. As detailed in the Parametrix Pipeline Road Sensitivity Analysis all roundabout-controlled intersections operate below capacity through the construction of 2,866 dwelling units, particularly along the Roberts Drive approaches. The roundabouts also include many mountable elements resulting in additional flexibility for emergency vehicles to travel through the intersections. Additionally, there is sufficient space for emergency vehicles to maneuver around vehicles that pull over along Roberts Drive, particularly leading up to intersections where vehicle queues would be most likely to occur.

Comment: Limited Evacuation Routes: In the event of a large-scale emergency – such as a wildfire, hazardous materials incident, or natural disaster – having multiple evacuation routes is essential. Pipeline Road would provide critical alternative route for both emergency ingress and community egress.

Response: As shown in Figure 1, there are multiple routes that provide access to SR 169 beyond Roberts Drive.

Comment: Community Safety and Risk Mitigation: The safety of residents must be the foremost priority in planning decisions. As population density increases, so does the risk of fire, medical emergencies, and traffic-related incidents. Delaying the construction of Pipeline Road removes a key infrastructure component that would help mitigate these risks. The road is not just a transportation feature – it is a lifeline for public safety services and a safeguard for the community.

Response: *Comment noted, but as mentioned previously, there are multiple routes beyond Roberts Drive that can provide emergency access and egress, and conditions along Roberts Drive are projected to operate below capacity during the PM peak hour.*

Comment: Public Trust and Planning Integrity: The original Development Agreement recognized the importance of Pipeline Road as a transportation mitigation measure. Altering its timeline undermines the collaborative strategic planning that occurred with the original Agreement, which acknowledged ongoing regular infrastructure improvement intervals needed for public safety access.

Response: *While we agree that the original Development Agreement recognized the importance of Pipeline Road, it also recognized that changes in local and regional assumptions would occur over time. To address these, several conditions of the Development Agreement were designed to continue reflecting on updated “real world” conditions as the MPDs are built out, including the development of a revised transportation model and the completion of Traffic Monitoring Reports for each MPD phase and at the mid-point of each MPD phase. These elements aim to incorporate and evaluate assumptions that have changed since the FEIS was completed and the DA developed to ensure that infrastructure projects are constructed at the appropriate time. In this case, the “real world” update concludes not only that Pipeline Road is not needed until, at the earliest, 2,866 dwelling units are permitted, but also that the signal at Roberts Drive/Morgan Street is needed earlier (work that has been completed) and that the roundabout improvement at 218th Street and Auburn-Black Diamond Road is needed earlier (work that is currently undergoing permitting). In some cases, the updated transportation model, which reflects more accurate current conditions, results in the need for improvements later than initially projected, and in some cases the need for improvements earlier than initially projected. To date, the developer has been responsive to the need for earlier improvements when determined to be the appropriate timing based on sound transportation analyses.*



Figure 1: Ten Trails MPD Vehicular Access

CITY COUNCIL AGENDA BILL

City of Black Diamond
Post Office Box 599
Black Diamond, WA 98010

ITEM INFORMATION		
SUBJECT: Approval of Agreement with BERK Consulting for Strategic Plan Development	Agenda Date: February 19, 2026	
	AB26-023	
	Mayor John Adler	
	City Administrator Kevin O'Neill	X
	City Attorney David Linehan	
	City Clerk – Brenda L. Martinez	
	Com Dev – Andy Williamson	
	Finance – Xavier Mason	
	MDRT/Ec Dev – Andy Williamson	
	Police – Chief Kiblinger	
Cost Impact (see also Fiscal Note): \$30,000	Public Works – Scott Hanis	
Fund Source: General Fund	Court – Judge Swain/Tawnya Parks	
Timeline:		
Agenda Placement: ☐ Mayor ☐ Two Councilmembers ☐ Committee Chair ☒ City Administrator		
Attachments: Resolution; Contract		
SUMMARY STATEMENT: The proposed agreement with BERK Consulting will support the development of a comprehensive Strategic Plan for the City of Black Diamond. The Strategic Plan will provide a cohesive framework to align community expectations, City Council priorities, and staff work across departments. The final plan is intended to be aspirational, actionable, and results-oriented, guiding Council decision-making and focusing City resources on the community's highest priorities. The consultant will facilitate Council discussions, conduct interviews with elected officials, engage City staff in strategy development, and review key planning and budget documents to ensure alignment with existing policies and community input. The process will result in a clearly defined Strategic Plan and Implementation Framework that establishes priority goals, actionable strategies, performance measures, and a structure for integrating the plan into future budgets and departmental workplans. Approval of this agreement will provide the City with a structured, measurable roadmap to guide policy direction, operational priorities, and resource allocation in the coming years. Work on the strategic plan will kick off with a Council retreat expected to be held in March. The plan is expected to take roughly 6 months and be used to help plan for the 2027 budget. FISCAL NOTE (Finance Department): This item was budgeted for within the 2026 Budget.		
COUNCIL COMMITTEE REVIEW AND RECOMMENDATION:		

RECOMMENDED ACTION: **MOTION to approve Resolution No. 26-1729, authorizing the Mayor to execute a contract with BERK Consulting for Strategic Planning Services.**

RECORD OF COUNCIL ACTION

<i>Meeting Date</i>	<i>Action</i>	<i>Vote</i>
February 19, 2026		

RESOLUTION NO. 26-1729

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF
BLACK DIAMOND, KING COUNTY, WASHINGTON
AUTHORIZING THE MAYOR TO EXECUTE A CONTRACT
WITH BERK CONSULTING, FOR STRATEGIC PLANNING
SERVICES**

WHEREAS, the City Council desires to establish a Strategic Plan to provide clear direction for policy decisions, resource allocation, and organizational priorities; and

WHEREAS, the Strategic Plan will align community expectations, Council goals, and staff work across departments; and

WHEREAS, the City seeks to develop a plan that is aspirational, actionable, and results-oriented, with clear implementation steps and performance measures; and

WHEREAS, the City conducted a process to identify a qualified consultant to assist with facilitation, stakeholder engagement, and development of the Strategic Plan; and

WHEREAS, BERK Consulting has demonstrated experience in municipal strategic planning and is qualified to assist the City in developing a Strategic Plan and Implementation Framework; and

WHEREAS, the City Council finds that entering into an agreement with BERK Consulting is in the best interest of the City.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF BLACK DIAMOND, WASHINGTON, DOES RESOLVE AS FOLLOWS:

Section 1. The City Council hereby authorizes the Mayor to execute a contract with BERK Consulting for strategic planning services; substantially in the form attached hereto as Exhibit A.

PASSED BY THE CITY COUNCIL OF THE CITY OF BLACK DIAMOND, WASHINGTON, AT A REGULAR MEETING THEREOF, THIS 19TH DAY OF FEBRUARY, 2026.

CITY OF BLACK DIAMOND:

John Adler, Mayor

Attest:

Brenda L. Martinez, City Clerk

**CONSULTANT SERVICES CONTRACT
BETWEEN THE CITY OF BLACK DIAMOND AND
BERK CONSULTING FOR
STRATEGIC PLANNING SERVICES**

THIS AGREEMENT is made by and between the City of Black Diamond, a Washington municipal corporation (hereinafter the "City"), and BERK Consulting (hereinafter the "Consultant"), a corporation organized under the laws of the State of Washington, located and doing business at 2200 6th Ave #1000, Seattle, WA 98121.

RECITALS

WHEREAS, the City desires to create a Citywide Strategic Plan; and

WHEREAS, the City selected the Consultant through a competitive process whereby three firms were solicited to provide Strategic Planning services; and

WHEREAS, the Consultant has agreed to provide such services on the terms and conditions provided in this Agreement;

NOW, THEREFORE, in consideration of the mutual promises set forth herein, it is agreed by and between the parties as follows:

TERMS

I. Description of Work.

The scope of Consultant's work under this Agreement is set forth in Exhibit A, attached hereto. Consultant shall assign professional staff to perform such work consistent with the milestones and phasing described in Exhibit A. Plan development is expected to take up to six months to complete. The Consultant represents and warrants that it and any staff member assigned to the work will have the requisite training, skill, and experience necessary to provide the services required by this Agreement and if required, are appropriately accredited and licensed by all applicable agencies and governmental entities. Services provided by Consultant and its subconsultant(s) under this Agreement will be performed in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing in similar circumstances. The Consultant shall not subcontract with any subconsultant for the performance of any work under this Agreement without prior written permission of the City.

II. Payment

A. The City shall pay the Consultant actual time and materials, based upon an hourly rate from the current fee schedule in Exhibit B. The payment made by the City to the Consultant shall not exceed \$30,000 (Thirty Thousand Dollars) for the services

described in Section I herein. This is the maximum amount to be paid under this Agreement for the work described in Exhibit A, and shall not be exceeded without the prior written authorization of the City in the form of a negotiated and executed supplemental agreement. PROVIDED, HOWEVER, the City reserves the right to suspend or terminate the Consultant's compensated services under the time frame set forth in Section IV herein before reaching the maximum amount.

B. The Consultant shall submit monthly invoices to the City for each Task Order after such services have been performed, and a final bill upon completion of all the services described in the Task Order. The City shall pay the full amount of an invoice within sixty (60) days of receipt. If the City objects to all or any portion of any invoice, it shall so notify the Consultant of the same within fifteen (15) days from the date of receipt and shall pay that portion of the invoice not in dispute, and the parties shall immediately make every effort to settle the disputed portion.

C. The Consultant will not undertake any work or otherwise financially obligate the City in excess of the not-to-exceed amount in Section II(A) above, without a duly authorized amendment to this Agreement. The amount paid by the City for each invoice shall not exceed the amount in Section II(A) above and the Hourly Billing Rates set forth in Exhibit B, attached hereto.

III. Relationship of Parties

The parties intend that an independent contractor-client relationship will be created by this Agreement. As the Consultant is customarily engaged in an independently established trade which encompasses the specific service provided to the City hereunder, no agent, employee, representative or sub-consultant of the Consultant shall be or shall be deemed to be the employee, agent, representative or sub-consultant of the City. In the performance of the work, the Consultant is an independent contractor with the ability to control and direct the performance and details of the work, the City being interested only in the results obtained under this Agreement. None of the benefits provided by the City to its employees including, but not limited to, compensation, insurance, and unemployment insurance are available from the City to the employees, agents, representatives, or sub-consultants of the Consultant. The Consultant will be solely and entirely responsible for its acts and for the acts of its agents, employees, representatives and sub-consultants during the performance of this Agreement. The City may, during the term of this Agreement, engage other independent contractors to perform the same or similar work that the Consultant performs hereunder.

IV. Duration of Work

This Agreement is effective as of February 19, 2026 and shall remain effective through December 31, 2026, unless terminated by written notice in accordance with Section V, below. The Consultant shall not begin any work under this Agreement until the City has issued a Notice to Proceed.

V. Termination

A. Termination of Agreement. The City may terminate this Agreement for public convenience, the Consultant's default, the Consultant's insolvency or bankruptcy, or the Consultant's assignment for the benefit of creditors, at any time prior to completion of the work described in Section I. Termination shall be effective immediately upon posting or transmission of written notice by the City, or on such date as stated in the City's notice, whichever is later.

B. Rights Upon Termination. In the event of termination, the City shall pay for all services satisfactorily performed by the Consultant to the effective date of termination, as described on a final invoice submitted to the City. Said amount shall not exceed the amount in Section II above. After termination, the City may take possession of all records and data within the Consultant's possession pertaining to this Agreement, which records and data may be used by the City without restriction. Upon termination, the City may take over the work and prosecute the same to completion, by contract or otherwise.

VI. Discrimination

In the hiring of employees for the performance of work under this Agreement or any sub-contract hereunder, the Consultant, its Subcontractors, or any person acting on behalf of such Consultant or sub-consultant shall not by reason of race, religion, color, sex, national origin, or the presence of any sensory, mental, or physical disability, discriminate against any person who is qualified and available to perform the work to which the employment relates.

VII. Indemnification

The Consultant shall defend, indemnify and hold the City, its officers, officials, employees, agents and volunteers harmless from any and all claims, injuries, damages, losses or suits, including all legal costs and attorneys' fees, arising out of or in connection with the performance of this Agreement, except for injuries and damages caused by the sole negligence of the City. The City's inspection or acceptance of any of the Consultant's work when completed shall not be grounds to avoid any of these covenants of indemnification.

Should a court of competent jurisdiction determine that this Agreement is subject to RCW 4.24.115, then, in the event of liability for damages arising out of bodily injury to persons or damages to property caused by or resulting from the concurrent negligence of the Consultant and the City, its officers, officials, employees, agents and Volunteers, the Consultant's liability hereunder shall be only to the extent of the Consultant's negligence.

IT IS FURTHER SPECIFICALLY AND EXPRESSLY UNDERSTOOD THAT THE INDEMNIFICATION PROVIDED HEREIN CONSTITUTES THE CONSULTANT'S

WAIVER OF IMMUNITY UNDER INDUSTRIAL INSURANCE, TITLE 51 RCW, SOLELY FOR THE PURPOSES OF THIS INDEMNIFICATION. THE PARTIES FURTHER ACKNOWLEDGE THAT THEY HAVE MUTUALLY NEGOTIATED THIS WAIVER. THE CONSULTANT'S WAIVER OF IMMUNITY UNDER THE PROVISIONS OF THIS SECTION DOES NOT INCLUDE, OR EXTEND TO ANY CLAIMS BY THE CONSULTANT'S EMPLOYEES DIRECTLY AGAINST THE CONSULTANT.

The provisions of this section shall survive the expiration or termination of this Agreement.

VIII. Insurance

A. The Consultant shall procure and maintain for the duration of this Agreement, insurance against claims for injuries to persons or damage to property which may arise from or in connection with the performance of the work hereunder by the Consultant, its agents, representatives, or employees.

B. Minimum Scope of Insurance. Consultant shall obtain insurance of the types described below:

1. Automobile Liability insurance covering all owned, non-owned, hired and leased vehicles. Coverage shall be written on Insurance Services Office (ISO) form CA 00 01 or a substitute form providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide contractual liability coverage.
2. Commercial General Liability insurance shall be written on ISO occurrence form CG 00 01 or a substitute form providing equivalent liability coverage and shall cover liability arising from premises, operations, independent contractors and personal injury and advertising injury. The City shall be named by endorsement as an insured under the Consultant's Commercial General Liability insurance policy with respect to the work performed for the City.
3. Workers' Compensation coverage as required by the Industrial Insurance laws of the State of Washington.

C. Minimum Amounts of Insurance. Consultant shall maintain the following insurance limits:

1. Automobile Liability insurance with a minimum combined single limit for bodily injury and property damage of \$1,000,000 per accident.
2. Commercial General Liability insurance shall be written with limits no less than \$1,000,000 each occurrence, \$2,000,000 general aggregate.

D. Other Insurance Provisions. The insurance policies are to contain, or be endorsed to contain, the following provisions for Automobile Liability, Professional Liability and Commercial General Liability insurance:

1. The Consultant's insurance coverage shall be primary insurance as respect the City. Any insurance, self-insurance, or insurance pool coverage maintained by the City shall be excess of the Consultant's insurance and shall not contribute with it.

2. The Consultant's insurance shall be endorsed to state that coverage shall not be cancelled by either party, except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the City.

3. The City will not waive its right to subrogation against the Consultant. The Consultant's insurance shall be endorsed acknowledging that the City will not waive its right to subrogation. The Consultant's insurance shall be endorsed to waive the right of subrogation against the City, or any self-insurance, or insurance pool coverage maintained by the City.

4. If any coverage is written on a "claims made" basis, then a minimum of three (3) year extended reporting period shall be included with the claims made policy, and proof of this extended reporting period provided to the City.

D. Acceptability of Insurers. Insurance is to be placed with insurers with a current A.M. Best rating of not less than A:VII.

E. Verification of Coverage. Consultant shall furnish the City with original certificates and a copy of the amendatory endorsements, including but not necessarily limited to the additional insured endorsement, evidencing the insurance requirements of the Consultant before commencement of the work.

IX. Exchange of Information

The City warrants the accuracy of any information supplied by it to the Consultant for the purpose of completion of the work under this Agreement. The parties agree that the Consultant will notify the City of any inaccuracies in the information provided by the City as may be discovered in the process of performing the work, and that the City is entitled to rely upon any information supplied by the Consultant which results as a product of this Agreement.

X. Ownership and Use of Records and Documents

Original documents, drawings, designs, reports, and other work products developed under this Agreement shall belong to and become the joint property of the City and the Consultant. The City and Consultant each shall have the nonexclusive right to do or authorize any of the acts enumerated in 17 U.S.C. § 106, including without limitation reproduction, distribution, performance, or display of the work. The parties agree that there shall be no liability or accounting for profits or revenues made on account of the exercise of any of the aforementioned rights. Each party will retain exclusive interest in and ownership of its intellectual property that was developed before this Agreement takes effect or that was developed outside the scope of this Agreement. All written information submitted by the City to the Consultant in connection with the services performed by the

Consultant under this Agreement will be safeguarded by the Consultant to at least the same extent as the Consultant safeguards like information relating to its own business. If such information is publicly available or is already in Consultant's possession or known to it, or is rightfully obtained by the Consultant from third parties, the Consultant shall bear no responsibility for its disclosure, inadvertent or otherwise.

XI. City's Right of Inspection

Even though the Consultant is an independent contractor with the authority to control and direct the performance, and details of the work authorized under this Agreement, the work must meet the applicable deadlines established by the City for completion, the work must meet the approval of the City, and shall be subject to the City's general right of inspection to secure the satisfactory completion thereof. The Consultant agrees to comply with all federal, state, and municipal laws, rules, and regulations that are now effective or become applicable within the terms of this Agreement to the Consultant's business, equipment, and personnel engaged in operations covered hereby or accruing out of the performance of such operations.

XII. Consultant to Maintain Records to Support Independent Contractor Status

On the effective date of this Agreement (or shortly thereafter), the Consultant shall comply with all federal and state laws applicable to independent contractors including, but not limited to the maintenance of a separate set of books and records that reflect all Items of income and expenses of the Consultant's business, pursuant to the Revised Code of Washington (RCW) Section 51.08.195, as required to show that the services performed by the Consultant under this Agreement shall not give rise to an employer-employee relationship between the parties which is subject to RCW Title 51, Industrial Insurance.

XIII. Work Performed at the Consultant's Risk

The Consultant shall take all precautions necessary and shall be responsible for the safety of its employees, agents, and sub-consultants in the performance of the work hereunder and shall utilize all protection necessary for that purpose. All work shall be done at the Consultant's own risk, and the Consultant shall be responsible for any loss of or damage to materials, tools, or other articles used or held by the Consultant for use in connection with the work.

XIV. Non-Waiver of Breach

The failure of the City to insist upon strict performance of any of the covenants and agreements contained herein, or to exercise any option herein conferred in one or more instances, shall not be construed to be a waiver or relinquishment of said covenants, agreements, or options and the same shall be and remain in full force and effect.

XV. Resolution of Disputes and Governing Law

Should any dispute, misunderstanding, or conflict arise as to the terms and conditions contained in this Agreement, the matter shall first be referred to the Mayor of the City of Black Diamond, who shall determine the term or provision's true intent or meaning. The Mayor of the City of Black Diamond shall also decide all questions that may arise between the parties relative to the actual services provided or to the sufficiency of the performance hereunder.

If any dispute arises between the City and the Consultant under any of the provisions of this Agreement that cannot be resolved by the Mayor's determination in a reasonable time, or if the Consultant does not agree with the City's decision on the disputed matter, then any resulting litigation must be filed in King County Superior Court, King County, Washington, which shall be the exclusive venue for disputes relating to the interpretation, performance, or enforcement of this Agreement. This Agreement is governed by and shall be construed in accordance with the laws of the State of Washington, without reference to its choice-of-law rules. The non-prevailing party in any action brought to enforce this Agreement shall pay the other party's expenses and reasonable attorney's fees.

XVI. Written Notice

Unless otherwise specified, any written notice required by this Agreement shall become effective upon the date of mailing by registered or certified mail, and shall be deemed sufficiently given if sent to the addressee at the address stated below:

CONSULTANT:

Attn: Brian Murphy
BERK Consulting
2200 6th Ave #1000
Seattle, WA 98121

CITY:

Attn: Kevin O'Neill
City of Black Diamond
P.O. Box 599
24301 Roberts Drive
Black Diamond, WA 98010

With a copy to the "City Clerk" at the same address.

XVII. Assignment

Any assignment of this Agreement by the Consultant without the written consent of the City is void. If the City gives its consent to any assignment, this paragraph shall continue in full force and effect and no further assignment may be made without the City's consent.

XVIII. Modification and Severability

No waiver, alteration, or modification of any of the provisions of this Agreement is binding unless in writing and signed by the duly authorized representatives of the City and the Consultant.

The provisions of this Agreement are declared to be severable. If any provision of this Agreement is for any reason held to be invalid or unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other provision.

XIX. Entire Agreement

The written provisions and terms of this Agreement, together with any Exhibits attached hereto, supersede all prior verbal statements of any officer or other representative of the City, and such statements shall not be effective or be construed as entering into or forming a part of or altering in any manner whatsoever this Agreement. The entire agreement between the parties with respect to the subject matter hereunder is contained in this Agreement and any Exhibits attached hereto, which may or may not have been executed prior to the execution of this Agreement. All of the above documents are hereby made a part of this Agreement and form the Agreement as fully as if the same were set forth herein. Should any language in any of the Exhibits to this Agreement conflict with any language contained herein, then this Agreement controls.

[signatures on following page]

AGREED TO AND EXECUTED BY:

CONSULTANT

By: _____
Brian Murphy, Project Manager

CITY OF BLACK DIAMOND

By: _____
John Adler, Mayor

APPROVED AS TO FORM:

City Attorney

ATTEST:

City Clerk

EXHIBIT A

Scope of Work and Schedule

The Black Diamond Strategic Plan will provide a cohesive framework to align community expectations, policymaker priorities, and staff work across departments. The final plan should be aspirational, actionable, and results-oriented, designed to guide decision-making for the City Council and focus resource allocation on the community's most important needs.

Project Kick-off and Ongoing Project Management

Project Kick-Off, Scoping, and Background Document Review. We will schedule a kick-off meeting with the City Administrator to identify desired project outcomes and talk through our proposed approach. Based on the kick-off meeting, we will finalize a project calendar and project workplan. As part of this process, the BERK team will review key background documents, including any recent community input, the 2024-2044 Comprehensive Plan, and recent budget documents.

City Council Retreat. We will participate in a half-day City Council retreat in February to discuss the Council's desired outcomes. This early conversation will help set direction for the planning process, including identifying major focus areas City Councilmembers expect the Strategic Plan to address.

Ongoing Project Management/City Coordination Meetings. Over 5 months, we will hold regular check-in meetings with the City Administrator over the remainder of the project to review project status and proactively address challenges that arise.

Products

- Project calendar and workplan.
- City Council retreat materials.

Phase 1: Priority Setting and Implementation Planning

Councilmember, Mayor, or Staff Interviews (Up to 8, virtual). Given the number of new Councilmembers and potential specialized subjects to be addressed in the plan, we will conduct individual virtual interviews with the Mayor and each Councilmember.

Council Strategic Planning Workshops (2, in person). We will hold two work sessions with Council during the plan development phase to iterate on and review the draft strategic plan. We will also focus on discussing implementation and performance management, ensuring a clear Implementation Framework is integrated in the final Strategic Plan. This Framework will describe how the City commits to using the Strategic Plan to guide ongoing decision making, including budget setting and departmental workplans. It will also describe the milestones and performance metrics to be tracked and communicated to the public as the Strategic Plan is implemented.

Staff Strategic Planning Workshops (2, virtual). BERK will host two virtual planning sessions with City staff. We envision the first session will focus on translating Council goals into actionable strategies and the second session will focus on identifying performance measures to track progress over time.

Development of Draft Plan and Implementation Framework. We will work iteratively with the City team to outline and flesh out a draft Strategic Plan, ordering strategies by priority level and establishing a phased timeline for next steps. We will prepare a draft Strategic Plan and Implementation Framework for Council consideration at the second Council Strategic Planning Workshop and refine the draft based on feedback from Council and staff, ensuring clear alignment between goals, strategies, actions, and performance measures.

Phase 1 Products

- Council and Staff Strategic Planning Workshop materials.
- Draft Strategic Plan.
- Draft Implementation Framework.

Phase 2: Plan Finalization and Adoption

Development of Final Recommended Draft Plan. BERK will design and lay out the final Strategic Plan to be clear, accessible, and visually engaging.

Presentation of Final Plan to Council (virtual). BERK will present the final Strategic Plan and Implementation Framework to City Council in a virtual meeting, focusing on changes made at the second Council Strategic Planning Workshop and answering questions to prepare for City Council adoption.

Phase 2 Products

- Final Strategic Plan with Implementation Framework

EXHIBIT B**Fees and Charges**

The table below reflects our anticipated level of effort by person and by task with a total not-to-exceed amount of \$30,000. We would be happy to revise this initial thinking to best reflect the City's priorities. We anticipate this strategic planning process to start in February and end in June 2026.

	Brian Murphy Project Manager and Lead Facilitator 2026 Hourly Rate	Maddie Immel Co-Facilitator \$185	Ruby Barnes Design Support \$110	Total Hours and Estimated Cost by Task
Project Kick-off and Management				
Project Kick-Off, Scoping, and Background Document Review	2	4		
Council Retreat (in-person, half day)	8	10		
Ongoing Project Management/City Coordination Meetings (over 5 m	4	2		
Subtotal	14	16	0	30 \$6,810
Phase 1: Priority Setting and Implementation Planning				
Councilmember, Mayor, or Staff Interviews (Up to 8, 30min, virtual)	4	6		
Council Strategic Planning Workshops (2, in person)	14	16		
Staff Strategic Planning Workshops (2, virtual)	4	8		
Development of Draft Plan and Implementation Framework	10	14		
Subtotal	32	44	0	76 \$16,940
Phase 2. Plan Finalization and Adoption				
Development of Final Recommended Draft Plan	6	10	10	
Presentation of Final Plan to Council (virtual)	2	4		
Subtotal	8	14	10	32 \$5,890
Total Estimated Hours	54	74	10	138
Cost (Hours*Rate)	\$14,850	\$13,690	\$1,100	\$29,640
Subtotal Consultant Cost	\$29,640			
Project Expenses (printing, gas)	\$360			
Estimated Project Total	\$30,000			

CITY COUNCIL AGENDA BILL

City of Black Diamond
Post Office Box 599
Black Diamond, WA 98010

ITEM INFORMATION		
SUBJECT: Professional services agreement with Parametrix, Inc. to prepare the Central Area Parking Study.	Agenda Date: February 19, 2026	
	AB26-024	
	Mayor John Adler	
	City Administrator - Kevin O'Neill	
	City Attorney - David Linehan	
	City Clerk – Brenda L. Martinez	
	Com Dev –Andy Williamson	
	Finance – Xavier Mason	
	MDRT/Ec Dev – Andy Williamson	
Cost Impact (see also Fiscal Note): \$79,350.00	Police – Chief Kiblinger	
Fund Source: Street Fund Capital Budget	Public Works – Scott Hanis	X
Timeline: 2026	Court – Judge Swain/Tawnya Parks	
Agenda Placement: ☒ Mayor ☐ Two Councilmembers ☐ Committee Chair ☐ City Administrator		
Attachments: Resolution; Professional Services Agreement		
SUMMARY STATEMENT: The City has planned and budgeted to look at options for pedestrian and parking improvements in the central downtown area. This study has been in the 2023-2028 Capital Improvement Program and originally included in the 2022 budget. Funds were carried over from 2025. Options to be explored are improvements to the current parking area on Railroad Ave., particularly pedestrian features and accessibility through that corridor. Currently, there is a crosswalk on Railroad Avenue that does not seem to get used. This study will explore options to designate a larger stretch as a shared pedestrian and vehicle corridor and requirements to make that change. This study will also explore options to create more parking in the downtown area for businesses and City events, such as Miners Day and Labor Days. This will look at potentially available property or partnerships with other organizations for shared parking. Parametrix has the staff necessary to assist the City in completion of this study. This study will help analyze possible improvements for parking and pedestrian system through the downtown area. FISCAL NOTE (Finance Department): This capital project has \$87,747.87 in budgeted funds remaining.		
COUNCIL COMMITTEE REVIEW AND RECOMMENDATION: PW Committee recommends bringing to the full Council for consideration.		

RECOMMENDED ACTION: MOTION to adopt Resolution No. 26-1730, authorizing the Mayor to execute a Professional Services Agreement with Parametrix to prepare the Central Area Parking Study.		
RECORD OF COUNCIL ACTION		
<i>Meeting Date</i>	<i>Action</i>	<i>Vote</i>
February 19, 2026		

RESOLUTION NO. 26-1730

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF
BLACK DIAMOND, KING COUNTY, WASHINGTON
AUTHORIZING THE MAYOR TO EXECUTE A
PROFESSIONAL SERVICE AGREEMENT WITH
PARAMETRIX, INC. TO PREPARE THE CENTRAL AREA
PARKING STUDY**

WHEREAS, the City has planned and budgeted for the Central Area Parking Study; and

WHEREAS, this study will help the City identify improvements for pedestrians and additional options for added downtown parking; and

WHEREAS, this study will help identify if there is any land or right-of-way acquisition needed in the downtown area; and

WHEREAS, Parametrix, Inc. has the necessary experience to complete this study;

**NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF BLACK DIAMOND,
WASHINGTON, DOES RESOLVE AS FOLLOWS:**

Section 1. The Mayor is hereby authorized to execute a professional services agreement with Parametrix, Inc. to prepare the Central Area Parking Study, substantially in the form attached hereto.

**PASSED BY THE CITY COUNCIL OF THE CITY OF BLACK DIAMOND,
WASHINGTON, AT A REGULAR MEETING THEREOF, THIS 19TH DAY OF
FEBRUARY, 2026.**

CITY OF BLACK DIAMOND:

John Adler, Mayor

Attest:

Brenda L. Martinez, City Clerk

**CITY OF BLACK DIAMOND PROFESSIONAL SERVICES AGREEMENT
FOR CIVIL ENGINEERING SERVICES**

This Professional Services Agreement (“Agreement”) is entered into by and between:

CITY OF BLACK DIAMOND, WASHINGTON (the “City”)

Physical Address: 24301 Roberts Drive

Mailing Address: PO Box 599

Black Diamond, WA 98010

Contact: Ryan Sweet Phone: 360-469-9314 Fax : 360-851-4501

and

PARAMETRIX, INC. (“Consultant”)

Physical Address: 1019 39th Avenue SE, Suite 100

Puyallup, WA 98374

Mailing Address: Same as above.

Contact: Emily Welter, P.E. Phone: 253-604-6600 Fax: 855-542-6353

Tax Id No.: 91-0914810

for non-exclusive professional civil engineering services in connection with the following project:

City of Black Diamond CENTRAL AREA PARKING STUDY.

WHEREAS, the City has conducted an RFQ and qualifications-based selection process for civil engineering services, and based on that process the City desires to work with the Consultant on City matters under the terms and conditions set forth herein; and

WHEREAS, the Consultant has agreed to provide the services described in Exhibit A (scope of work) under the terms and conditions set forth herein;

NOW, THEREFORE, in consideration of the mutual promises set forth herein, it is agreed by and between the parties as follows:

TERMS AND CONDITIONS

1. Services by Consultant

1.1 Consultant has been retained by the City to provide professional civil engineering services as generally described in the Scope of Work attached to this Agreement as Exhibit "A". The services performed by Consultant shall not exceed the Scope of Work nor shall the Consultant be entitled to a greater amount of compensation as that provided in this Agreement without the prior written authorization of the City.

1.2 The City may from time to time require changes or modifications in the Scope of Work. Such changes, including any decrease or increase in the amount of compensation, shall be agreed to by the parties and incorporated in written amendments to this Agreement.

1.3 Consultant represents and warrants that it, its staff to be assigned to the Project, and its subconsultants and their staff have the requisite training, skill, and experience necessary to provide the services required by this Agreement and are appropriately accredited and licensed by all applicable agencies and governmental entities. Services provided by Consultant and its subconsultants under this Agreement will be performed in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing in similar circumstances.

2. Schedule of Work

2.1 The City and the Consultant agree that work will begin on the tasks described in Exhibit A upon execution of this Agreement. The goal of this design effort will be to have tasks outlined in Exhibit A as set in the Schedule outlined in Exhibit A.

2.2 Additional time may be granted by the City for unforeseen delays or for extra work requested by the City.

3. Compensation

3.1 Rates. Compensation for the services provided according to the tasks outlined in Exhibit "A" shall be on a time and materials basis according to the list of billing rates and reimbursable expenses attached hereto as Exhibit "B" and shall not exceed SEVENTY-NINE THOUSAND THREE HUNDRED FIFTY DOLLARS (\$79,350). This amount shall not be exceeded without the prior written authorization of the City in the form of a negotiated and executed Agreement amendment.

4. Payment

4.1 Consultant shall maintain time and expense records and provide them to the City monthly, along with monthly invoices, in a format acceptable to the City for work performed to the date of the invoice.

4.2 All invoices shall be paid by City warrant within sixty (60) days of actual receipt by the City of an invoice conforming in all respects to the terms of this Agreement.

4.3 Consultant shall keep cost records and accounts pertaining to this Agreement available for inspection by City representatives for three (3) years after final payment unless a longer period is required by a third-party agreement. Consultant shall make copies available to the City on request.

4.4 If the services rendered do not meet the requirements of the Agreement, Consultant will correct or modify the work to comply with the Agreement. The City may withhold payment for such work until the work meets the requirements of the Agreement.

5. Discrimination and Compliance with Laws

5.1 Consultant agrees not to discriminate against any employee or applicant for employment or any other person in the performance of this Agreement because of race, creed, color, national origin, marital status, sex, age, disability, or other circumstance prohibited by federal, state, or local law or ordinance, except for a bona fide occupational qualification.

5.2 Consultant and its subconsultants shall comply with all federal, state, and local laws and ordinances applicable to the work to be done under this Agreement.

5.3 Any violation of this Section 5 shall be a material breach of this Agreement and grounds for immediate cancellation, termination, or suspension of the Agreement by the City, in whole or in part, and may result in Consultant's ineligibility to conduct further work for the City.

6. Duration, Suspension, and Termination of Agreement

6.1 This Agreement is an "Open End" Agreement that is signed by both parties, unless the City provides written notice of earlier termination pursuant to this Section 6, below.

6.2 The City reserves the right to terminate or suspend this Agreement at any time, without cause, by giving Consultant notice in writing no fewer than ten (10) days prior to the stated termination or suspension date. In the event of termination, all finished or unfinished reports, or other material prepared by Consultant pursuant to this Agreement, shall be submitted to the City. In the event the City terminates this Agreement prior to completion without cause, Consultant may complete such analyses and records as may be necessary to place its files in order. Consultant shall be entitled to compensation for any satisfactory work completed on the Project prior to the date of suspension or termination.

6.3 Any notice from the City to Consultant regarding the suspension of this Agreement shall specify the anticipated period of suspension. Any reimbursement for expenses incurred due to the suspension shall be limited to Consultant's reasonable expenses and shall be subject to verification. Consultant shall resume performance of services under this Agreement without delay when the suspension period ends.

7. Standard of Care

7.1 Consultant represents and warrants that it has the requisite training, skill, and experience necessary to provide the services under this Agreement and is appropriately accredited and licensed by all applicable agencies and governmental entities. Services Consultant provides under this Agreement will be performed in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing in similar circumstances. Consultant understands and agrees that the services rendered pursuant to this

Agreement are for the sole exclusive benefit of the City and that no third party shall have authority to authorize, approve, direct or control any of the services rendered to the City pursuant to this Agreement.

8. Ownership of Work Product

8.1 Ownership of the originals of any reports, data, studies, surveys, charts, maps, drawings, specifications, figures, photographs, memoranda, and any other documents which are developed, compiled, or produced as a result of this Agreement, whether or not completed, shall be vested in the City and shall be submitted to the City upon termination of this Agreement. Consultant assigns to the City all of Consultant's right, title, and interest in any such documents. Any reuse of these materials by the City for projects or purposes other than those that fall within the scope of this Agreement and the Project to which it relates, without written concurrence by Consultant, will be at the sole risk of the City.

8.2 The City acknowledges Consultant's documents as instruments of professional service. Nevertheless, the documents prepared under this Agreement shall become the property of the City upon completion of the work. The City agrees to hold harmless and indemnify Consultant against all claims made against Consultant for damage or injury, including defense costs, arising out of the City's reuse of such documents beyond the use for which they were originally intended without the written authorization of Consultant.

8.3 Methodology, software, logic, and systems developed under this Agreement are the property of Consultant and the City, and may be used as either Consultant or the City see fit, including the right to revise or publish the same without limitation.

9. Indemnification/Hold Harmless

9.1 Consultant shall defend, indemnify, and hold the City, its officers, officials, employees, volunteers, and agents harmless from any and all claims, injuries, damages, losses or suits including attorney fees, arising directly or indirectly out of or resulting from the acts, errors, or omissions of Consultant or its subconsultants in performance of this Agreement, except for injuries and damages caused by the sole negligence of the City. PROVIDED, HOWEVER, THAT IF ANY SUCH CLAIMS, INJURIES, DAMAGES, LOSSES OR SUITS RESULT FROM THE CONCURRENT NEGLIGENCE OF CONSULTANT AND THE CITY, IT IS EXPRESSLY AGREED THAT CONSULTANT'S OBLIGATIONS AND INDEMNITY UNDER THIS PARAGRAPH SHALL BE EFFECTIVE ONLY TO THE EXTENT OF CONSULTANT'S NEGLIGENCE.

9.2 The City's inspection or acceptance of any of the Consultant's work when completed shall not be grounds to avoid any of these covenants of indemnification.

9.3 IT IS FURTHER SPECIFICALLY AND EXPRESSLY UNDERSTOOD THAT THE INDEMNIFICATION PROVIDED HEREIN CONSTITUTES THE CONSULTANT'S WAIVER OF IMMUNITY UNDER INDUSTRIAL INSURANCE, TITLE 51 RCW, SOLELY FOR THE PURPOSES OF THIS INDEMNIFICATION. THE PARTIES FURTHER ACKNOWLEDGE THAT THEY HAVE MUTUALLY NEGOTIATED THIS WAIVER. THE CONSULTANT'S WAIVER OF IMMUNITY UNDER THE PROVISIONS OF THIS SECTION

DOES NOT INCLUDE, OR EXTEND TO, ANY CLAIMS BY THE CONSULTANT'S EMPLOYEES DIRECTLY AGAINST THE CONSULTANT.

9.4 The provisions of this Section 9 shall survive the expiration or termination of this Agreement.

10. Insurance

10.1 Consultant shall procure and maintain for the duration of the Agreement, and shall provide proof satisfactory to the City that such insurance is procured and maintained by each of its subconsultants, insurance against claims for injuries to persons or damage to property which may arise from or in connection with the performance of the work hereunder by Consultant, its agents, representatives, or employees.

10.2 Consultant shall procure and maintain the following types and amounts of insurance:

a. Automobile Liability insurance covering all owned, non-owned, hired, and leased vehicles. Coverage shall be written on Insurance Services Office (ISO) form CA 00 01 or a substitute form providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide contractual liability coverage. This insurance shall have a minimum combined single limit for bodily injury and property damage of \$1,000,000 per accident.

b. Commercial General Liability insurance shall be written on ISO occurrence form CG 00 01 or a substitute form providing equivalent liability coverage and shall cover liability arising from premises, operations, independent contractors, personal injury, and advertising injury. This insurance shall be written with limits no less than \$2,000,000 each occurrence, \$2,000,000 general aggregate.

c. Workers' Compensation coverage as required by the Industrial Insurance laws of the State of Washington.

d. Professional Liability insurance appropriate to Consultant's profession, with limits no less than \$2,000,000 per claim and \$2,000,000 policy aggregate limit.

10.3 The Automobile Liability, Commercial General Liability, and Professional Liability insurance policies are to contain, or be endorsed to contain, the following provisions:

a. Consultant's insurance coverage shall be primary insurance vis-à-vis the City. Any insurance, self-insurance, or insurance pool coverage maintained by the City shall be excess over Consultant's insurance and shall not contribute with it.

b. Consultant's insurance shall be endorsed to state that coverage shall not be cancelled, except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the City.

10.4 The City shall be named as an additional insured under Consultant's Automobile Liability and Commercial General Liability insurance policies with respect to the work to be performed for the City pursuant to this Agreement.

10.5 Insurance shall be placed with insurers with a current A.M. Best rating of not less than A:VII.

10.6 Declaration pages issued by the insurance carriers for the policies mentioned in this Section 10 showing such insurance to be in force shall be filed with the City not less than ten (10) days following both parties signing this Agreement and before commencement of the work. In addition, the City may request, in writing, a full copy from Consultant of any insurance policy Consultant must procure and maintain pursuant to this Agreement and Consultant must provide such copy to the City within ten (10) days of Consultant's receipt of the City's request. Any policy or required insurance written on a claims-made basis shall provide coverage as to all claims arising out of the services performed under this Agreement and for three (3) years following completion of the services to be performed. It shall be a material breach of this Agreement for Consultant to fail to procure and maintain the insurance required by this Section 10 or to provide the proof of such insurance to the City as provided for in this Agreement.

11. Assigning or Subcontracting

11.1 Consultant shall not assign, transfer, subcontract, or encumber any rights, duties, or interests accruing from this Agreement without the express prior written consent of the City, which consent may be withheld at the sole discretion of the City.

12. Independent Contractor

12.1 Consultant and its subconsultants are, and shall be at all times during the term of this Agreement, independent contractors. As the Consultant is customarily engaged in an independently established trade which encompasses the specific service provided to the City hereunder, no agent, employee, representative or sub-consultant of the Consultant shall be or shall be deemed to be the employee, agent, representative or sub-consultant of the City. In the performance of the work, the Consultant is an independent contractor with the ability to control and direct the performance and details of the work, the City being interested only in the results obtained under this Agreement. None of the benefits provided by the City to its employees including, but not limited to, compensation, insurance, and unemployment insurance are available from the City to the employees, agents, representatives, or sub-consultants of the Consultant. The Consultant will be solely and entirely responsible for its acts and for the acts of its agents, employees, representatives and sub-consultants during the performance of this Agreement. The City may, during the term of this Agreement, engage other independent contractors to perform the same or similar work that the Consultant performs hereunder.

12.2 The Consultant shall take all precautions necessary and shall be responsible for the safety of its employees, agents, and sub-consultants in the performance of the work hereunder and shall utilize all protection necessary for that purpose. All work shall be done at the Consultant's own risk, and the Consultant shall be responsible for any loss of or damage to materials, tools, or other articles used or held by the Consultant for use in connection with the work.

16.2 Even though the Consultant is an independent contractor with the authority to control and direct the performance, and details of the work authorized under this Agreement, the work must meet the approval of the City and shall be subject to the City's general right of inspection to secure the satisfactory completion thereof. The Consultant agrees to comply with all federal, state, and municipal laws, rules, and regulations that are now effective or become applicable within the terms of this Agreement to the Consultant's business, equipment, and personnel engaged in operations covered by this Agreement or accruing out of the performance of such operations.

16.3 The failure of the City to insist upon strict performance of any of the covenants and agreements contained herein, or to exercise any option herein conferred in one or more instances, shall not be construed to be a waiver or relinquishment of said covenants, agreements, or options and the same shall be and remain in full force and effect.

17. Extent of Agreement/Modification

17.1 This Agreement, together with any attachments or addenda, represents the entire and integrated Agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either written or oral. This Agreement may only be amended, modified, or added to by written instrument properly signed by both parties. The parties acknowledge the general contract rule that a clause in a contract, such as this one, prohibiting oral modifications is itself generally subject to oral modification. However, in order to ensure certainty as to the terms and conditions of this Agreement, the parties waive this general contract rule.

18. Conflict of Interest; Non-Collusion

18.1 No officer, employee or agent of the City, nor any member of the immediate family of any such officer, employee or agent, shall have any personal financial interest, direct or indirect, in this Contract, either in fact or in appearance. The Consultant shall comply with all federal, state, and City conflict of interest laws, statutes and regulations. The Consultant represents that the Consultant presently has no interest and shall not acquire any interest, direct or indirect, in the project to which this Contract pertains which would conflict in any manner or degree with the performance of the Consultant's services and obligations hereunder. The contractor's officers, employees or agents shall neither solicit nor accept gratuities, favors or anything of monetary value from the project applicant or any affiliate or agent of the project applicant.

18.2 The Consultant warrants and represents that the Consultant has not, nor has any other member, employee, representative, agent or officer of the Consultant, entered into or offered to enter into any combination, collusion or agreement with any person or entity to receive or pay, and that he has not received or paid, any sum of money or other consideration for the execution of this Contract other than the consideration offered pursuant to the terms and conditions hereof.

AGREED TO BY:

CITY OF BLACK DIAMOND

PARAMETRIX, INC.

By: _____

John Adler

Its: Mayor

By: _____

Austin Fisher

Its: Vice President

Date: _____

Date: _____

Attest:

By:

Brenda L. Martinez

City Clerk

APPROVED AS TO FORM:

David A. Linehan

City Attorney

EXHIBIT A

(General Scope of Work)

City of Black Diamond Central Area Parking Study

Introduction

The City of Black Diamond has included a Central Area Parking Study as part of the Six-Year Transportation Improvement Plan. This study is intended to evaluate potential improvements to the downtown area to expand the available parking while improving pedestrian mobility and safety.

Task 01 – Project Management

Approach

The Consultant will facilitate a project kickoff meeting that includes City and Consultant team members. The purpose of the meeting will be to review study goals, objectives, scope, and schedule.

The Consultant will facilitate and attend bi-weekly Project Management Team (PMT) meetings. The City and Consultant Project Managers will meet biweekly to review the status of work in progress and deliverables, schedule, budget, and risk items. Meetings will also include discussions of technical topics or review of draft deliverables as applicable. Additional technical staff may attend as needed.

The Consultant will:

- Track the project budget to verify that progress is keeping pace with spending.
- Prepare a monthly progress report and invoice for Consultant services in a format approved by the City.
- Maintain all project files on an online project site, such as SharePoint or Teams, that is hosted by the Consultant. Materials shall be hosted on this site and made available to all project team members. Access to this service will be limited to project team members and outside agencies as determined acceptable by the City.

Task 01 Assumptions

- Project duration is 6 months and includes 12 biweekly PMT meetings.
- Biweekly PMT meetings are 30 minutes.
- All coordination meetings occur virtually.

Task 01 Deliverables

- Monthly progress reports and invoices
- Meeting agendas and notes
- All project files

Task 02 – Engagement

Approach

The Consultant will support the City outreach efforts through participation at community outreach events. The Consultant will assist in preparing materials for and participating in one (1) in-person open house.

Parametrix will provide technical support to the City for engaging with additional interested parties, such as King County Metro, businesses, and private landowners.

Task 02 Assumptions

- The City is responsible for promoting community involvement, which may include posters/fliers, website information, email lists, social media posts, and mailers.
- The Consultant will design and provide up to three (3) display boards for the in-person open house.
- Up to two Consultant team members will attend the in-person open house.
- The Consultant will attend up to three (3) virtual meetings with project partners.

Task 02 Deliverables

- Display boards for the in-person open house.
- Presentation materials for meetings with project partners.

Task 03 – Existing Conditions

Approach

The study area for this project is Railroad Avenue between Merino Place and Commission Avenue. Parking occupancy counts will be collected along Railroad Avenue between Merino Place and Baker Street on a Saturday and a weekday evening to understand existing parking use.

The Consultant will use the Comprehensive Plan, the Downtown Pedestrian and Bicycle Link Study, and available GIS data to summarize the existing conditions in the study area, which may include the following:

- Parking facilities
- Weekend, evening, and special event parking needs
- Pedestrian and bicycle facilities
- Safety (based on crash data and local observations)
- Traffic operations

Any planned projects or future stormwater needs will also be evaluated. The Consultant and City will review the findings of the existing conditions evaluation to determine key opportunities and challenges in the study area. The existing conditions will be documented in an Existing Conditions Summary Memo.

Task 03 Assumptions

- Parking occupancy data will be collected for one hour each on two different days.
- Traffic and safety data will not be collected for this study. Data from the recently updated Comprehensive Plan will be used for this study.
- City staff will have one round of review for each deliverable.

Task 03 Deliverables:

- Draft and Final Existing Conditions Summary Memo.

Task 04: Alternatives Evaluation

Approach

The Consultant and City will develop individual improvements to parking, pedestrian and bicycle, traffic operations, safety, and/or stormwater to address the opportunities and challenges identified in Task 03. These individual improvements may be evaluated through a fatal flaw screening and then combined into three (3) overall concepts. Fatal flaw screening would utilize yes/no questions to confirm that any individual improvements would provide benefit, are in the scope of this study, and would be feasible.

The Consultant will develop up to eight (8) screening criteria with which to qualitatively evaluate the alternative concepts. Screening criteria may include performance metrics like benefits to parking, safety, pedestrian and bicycle mobility, environmental impacts, right-of-way impacts, and feasibility. The City will review the screening criteria prior to the completion of the alternatives evaluation.

The three concepts will be evaluated by assigning scores for each screening criteria. The Consultant will share the results in an Alternatives Evaluation matrix.

Task 04 Assumptions

- City staff will have one round of review for each deliverable.
- Cost will not be considered as part of the alternatives evaluation.

Task 04 Deliverables:

- Draft and Final Alternatives Evaluation matrix.

Task 05: Implementation and Summary Report

Approach

The Consultant and City will select a Preferred Alternative, which may be a modified version of one of the three concepts evaluated in Task 04. The Consultant will prepare a schematic drawing of the Preferred Alternative to be shared with the community and included in the Summary Report.

The Consultant will demonstrate how the improvements included in the Preferred Alternative should be prioritized for implementation, prepare planning-level cost estimates for each improvement included in the Preferred Alternative, and identify possible funding sources.

The Consultant will prepare a report summarizing the alternatives evaluation process and recommendations for the preferred alternative and implementation.

Task 05 Assumptions

- City staff will have one round of review for each deliverable.
- This study does not include engineering design, but the Consultant will prepare schematic drawing of the Preferred Alternative. The base map will be based on publicly available aerial photography and approximate right of way mapping (GIS-based maps or assessor parcel maps).
- Design cost estimates are not being developed for this study.
- The Summary Report will be a public facing document that summarizes the study process and findings for community members, elected officials, and agency staff; appendices will document the technical component of the project.

Task 05 Deliverables

- Draft and Final schematic of the Preferred Alternative.
- Draft and Final Summary Report.

EXHIBIT B

(Billing Rates and Reimbursable Expenses)

Black Diamond Central Area Parking Study
Budget Estimate

				Fred Young	Emily Welter	Kate Bradbury	Rachel Graff	Brenna Tumbling	Bowen Spellman	Palmer Sandeno	Amanda Lucas	Kristen Zimmerman
				Sr Consultant	Sr Engineer	Sr Engineer	Planner IV	Sr Engineer	Engineer III	Planner II	Publications Supervisor	Sr Project Coord.
Burdened Rates:				\$305.00	\$230.00	\$240.00	\$180.00	\$245.00	\$170.00	\$145.00	\$155.00	\$140.00
Task	Description	Labor Dollars	Labor Hrs									
01	Project Management	\$10,280.00	46	6	22	0	6	6	0	0	0	6
02	Engagement	\$12,060.00	52	10	16	0	16	10	0	0	0	0
03	Existing Conditions	\$20,120.00	96	4	26	14	24	8	12	0	8	0
04	Alternatives Evaluation	\$12,910.00	58	6	16	8	12	8	8	0	0	0
05	Implementation and Summary Report	\$22,480.00	114	8	28	0	6	16	16	32	8	0
Labor Totals:		\$77,850.00	366	34	108	22	64	48	36	32	16	6
Totals:		\$77,850.00		\$10,370.00	\$24,840.00	\$5,280.00	\$11,520.00	\$11,760.00	\$6,120.00	\$4,640.00	\$2,480.00	\$840.00

Subconsultant - IDAX

Parking Occupancy Counts	\$1,500.00
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Total Budget Estimate	\$79,350.00
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