

## MEMORANDUM

To: Katherine Weir, AICP, Assistant Planner, City of Sedro Woolley  
 From: Zach Wieben, PE *ZW*  
 Subject: McGarigle Development Appeal Response  
 Date: February 14, 2020  
 Project: GTC #19-229

This memo responds to the written appeal of the proposed 85-unit McGarigle Development by signed by 11 citizens. GTC has reviewed the letter submitted by the appellants and it does not change GTC’s prior conclusions or required City analysis. However, GTC has provided additional analysis to provide additional context to the TIA that was prepared in September 2019. The general concerns of the appeal letter can be summarized below:

1. Use of 4-6 PM as the peak-period analysis. Specifically, the letter identifies school pick-up/drop-off times as when McGarigle Road is most congested.
2. Development’s impact to McGarigle Road at Carter Road
3. Development’s impact to Carter Road at SR-20
4. “McGarigle Road to SR-9” / “McGarigle from SR-9 to Site Access”
5. Air pollution generated by idling cars
6. Pedestrian/bicycle safety
7. Access to McGarigle Road
8. Conditions of Carter Road

It should be noted that the TIA identified two different scenarios for the McGarigle development. One scenario assumed the units would be age restricted while the other assumed there would be no age restriction on the units. The level of service analysis completed for the TIA assumed the higher trip generation (no age restriction) for the development. The applicant has confirmed the units will be age-restricted and will therefore have a lower impact on the surrounding road network than what was identified in the original TIA. Additionally, the mix of attached and detached units has changed slightly from what was identified in the TIA. Table 1 summarizes the current trip generation estimate.

**Table 1: Trip Generation Summary – Age-Restricted Scenario**

Land Use	# Units	ADT	AM Peak-Hour			PM Peak-Hour		
			In	Out	Total	In	Out	Total
LUC 251, Senior Housing, Detached	52	222	4	8	12	9	6	15
LUC 252, Senior Housing, Attached	33	122	2	5	7	5	4	9
<b>TOTAL</b>		<b>344</b>	<b>6</b>	<b>13</b>	<b>19</b>	<b>14</b>	<b>10</b>	<b>24</b>

Therefore, the final development proposal generates 386 average daily trips, 34 AM peak-hour trips, and 46 PM peak-hour trips less than what was analyzed in the prior GTC study.

Below are the concerns stated from the appeal letter:

1. *Use of 4-6 PM as the peak-period analysis. Specifically, the letter identifies school pick-up/drop-off times as when McGarigle Road is most congested.*

Use of the 4-6 PM peak period for intersection analysis is a consistent methodology for Sedro Woolley and most other jurisdictions. Sedro Woolley bases their concurrency determination for proposed developments on the 4-6 PM peak period to ensure that adequate infrastructure is in place to support development during the time period the total traffic is typically the highest each day – which is the weekday PM peak hour. This is shown in a report written by the City’s transportation reviewing consultant TSI titled “Citywide Transportation Concurrency Review” and is included in the attachments.

However, to address the neighbors’ concerns, GTC conducted an additional count at the intersection of SR-9 at McGarigle/John Liner Road from 1:45 PM to 4:00 PM to capture the volume of the intersection during the school dismissal peak. The total intersection volume of the highest hour in that period (2:45 PM to 3:45 PM) was 794 vehicles which is similar to the 804 total intersection volume used in the TIA for the 4:00-5:00 PM peak hour. This confirms that analysis of the 4-6 PM peak-period was appropriate for the TIA.

The analysis completed for the TIA already forecasted the intersection as operating at LOS F in the 2025 Baseline (without the McGarigle development) scenario. Even before McGarigle development trips are added to the roadway network, the intersection is expected to need improvements. This is corroborated in the TSI report as well. Therefore, additional analysis of the school peak-hours was not needed to determine whether improvements to the intersection are needed as a result of added development trips. The City has identified construction of a roundabout or a signal at the intersection as the preferred improvements. Either improvement is expected to allow the intersection to operate at an acceptable level of service of LOS D or better. The TSI report identifies the improvement as being constructed in 2023. The McGarigle development will be paying traffic mitigation fees which will contribute to the cost of the improvement. The improvement project is listed in the City’s transportation impact fee project list and six-year transportation improvement plan as #S17.

2. *Development’s impact to McGarigle Road at Carter Road*

The intersection of McGarigle Road at Carter Road was analyzed in the TSI report for its operation in the 4-6 PM peak period in the year 2025. The intersection was identified as operating at LOS A in the 2025 baseline scenario and is not expected to reach a deficient level of service with the age-restricted trip generation.

3. *Development’s impact to Carter Road at SR-20*

An AM peak-hour turning movement count was obtained at the intersection to document the average delay for southbound vehicles turning on to SR-20. The count showed that delay experienced by drivers traveling southbound on Carter Road to turn onto SR-20 is influenced by school traffic.

Southbound volume at the intersection ranged from 1 vehicle to 57 vehicles in the 15-minute increments. This shows depending on when drivers travel down the roadway, their delay could be very different. Per standard HCM intersection analysis methodology this intersection is expected to operate at LOS C even if all units are detached and 100% of the development trips travel on Carter Road. However, drivers travelling southbound at this intersection may experience LOS D conditions (average of 29 seconds of delay) if they travel southbound during peak 15 minutes in the AM peak-hour. Note LOS D is acceptable for intersections along SR-20. Level of service print outs are included in the attachments.

4. *“McGarigle Road to SR-9” / “McGarigle from SR-9 to Site Access”*

It's assumed these descriptions are discussing the same road section. While congestion was documented in the appeal letter, the cause of the congestion is not a public road or intersection but rather the efficiency of the schools' pick-up/drop-off loops. This congestion would occur whether or not the development is constructed. McGarigle Road is classified as a Major Collector with a capacity of 600 vehicles per hour per lane. McGarigle Road is expected to only reach approximately 30-33% of its capacity in the 2025 Future with Development conditions during the school PM peak-hour which includes 18 peak-hour trips generated by the McGarigle development.

5. *Air pollution generated by idling cars*

The scope of the TIA is not intended to cover impacts from air pollution and only focuses on the operation and safety of the public street network. GTC does not have the expertise to comment on the impacts of air pollution.

6. *Pedestrian/bicycle safety*

Collision data from the Washington State Department of Transportation (WSDOT) was reviewed along McGarigle Road from SR-9 to Fruitdale Road from 2014 through June 2019. There was one reported collision along the corridor in that time frame. The collision happened on the west end of the street in snowy/slushy conditions and was a rear-end collision. No pedestrians or cyclists were involved, and no injuries or fatalities were reported. McGarigle Road has continuous pedestrian/bicycle facilities on both sides of the street from SR-9 to Fruitdale Road. Additionally, no collisions were reported on Carter Road in the 5.5 years of collision data reviewed. The McGarigle Development will therefore not be contributing to a known high-collision area in its immediate vicinity. The development will be paying traffic mitigation fees which will help fund pedestrian and bicycle improvements in the City. A figure showing the reported collisions in the site vicinity is included in the attachments (E-2).

7. *Access to McGarigle Road*

The development site does not have frontage along SR-20. Therefore, its only feasible access is to McGarigle Road. If access to SR 20 was proposed via an easement, WSDOT would likely decline the access request because the development has frontage along a lower classification roadway (McGarigle Road). It is typically safer and less impactful to access a lower volume street.

8. *Conditions of Carter Road*

The development does not have direct access to Carter Road and is therefore not required to construct improvements to the roadway. Operational and safety analyses do not show any documented issues with Carter Road.

# **Trip Generation Calculations**

Trip Generation for: Development Peak Weekday  
 (a.k.a.): Average Weekday Daily Trips (AWDT)

LAND USES	VARIABLE	ITE LU code	Gross Trips				Internal Crossover		NET EXTERNAL TRIPS BY TYPE			
			Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	Trips In+Out (Total)	IN BOTH DIRECTIONS		DIRECTIONAL ASSIGNMENTS	
									TOTAL	PASS-BY	NEW	PASS-BY
								In+Out (Total)	% of Ext. Trips	In+Out (Total)	In	Out
Senior Housing Detached	52 units	251	4.27	50%	50%	222.04	0%	0.00	0%	222.04	0.00	0.00
Senior Housing Attached	33 units	252	3.70	50%	50%	122.10	0%	0.00	0%	122.10	0.00	0.00
<b>Total</b>						344.14		0.00		344.14	0.00	0.00
											111.02	111.02
											61.05	61.05
											172.07	172.07

McGarigle Development  
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**Trip Generation for: Development Peak Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 7 and 9 AM  
 (a.k.a.): Weekday AM Peak Hour**

LAND USES	VARIABLE	ITE LU code	Gross Trips						Internal Crossover		NET EXTERNAL TRIPS BY TYPE				
			Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	Trips In+Out (Total)	IN BOTH DIRECTIONS		DIRECTIONAL ASSIGNMENTS				
									TOTAL	PASS-BY	NEW	PASS-BY	NEW		
										In+Out (Total)	% of Ext. Trips	In+Out (Total)	In	Out	
Senior Housing Detached	52 units	251	0.24	33%	67%	12.48	0%	0.00	12.48	0%	0.00	12.48	0.00	0.00	8.36
Senior Housing Attached	33 units	252	0.20	35%	65%	6.60	0%	0.00	6.60	0%	0.00	6.60	0.00	0.00	4.29
<b>Total</b>						19.08		0.00	19.08		0.00	19.08	0.00	0.00	12.65

**Trip Generation for: Development Peak Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 4 and 6 PM  
 (a.k.a.): Weekday PM Peak Hour**

LAND USES	VARIABLE	ITE LU code	Gross Trips				Internal Crossover		NET EXTERNAL TRIPS BY TYPE						
			Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	In+Out (Total)	IN BOTH DIRECTIONS		DIRECTIONAL ASSIGNMENTS				
								TOTAL	PASS-BY	NEW	PASS-BY	NEW			
Senior Housing Detached	52 units	251	0.30	61%	39%	15.60	0%	0.00	15.60	0.00	15.60	0.00	0.00	9.52	6.08
Senior Housing Attached	33 units	252	0.26	55%	45%	8.58	0%	0.00	8.58	0.00	8.58	0.00	0.00	4.72	3.86
<b>Total</b>						24.18		0.00	24.18	0.00	24.18	0.00	0.00	14.24	9.94



# **Citywide Transportation Concurrency Review**



8250 - 165th Avenue NE  
Suite 100  
Redmond, WA 98052-6628  
T 425-883-4134  
F 425-867-0898  
www.tsinw.com

January 7, 2020

**TO:** Mark Freiburger, PE  
Director of Public Works  
City of Sedro-Woolley

**FROM:** Andrew Bratlien, PE

**SUBJECT:** Citywide Transportation Concurrency Review

## **INTRODUCTION**

This memorandum describes the methods, assumptions, and findings of the Sedro-Woolley Citywide Transportation Concurrency Review. This includes a review of intersection and segment Levels of Service (LOS) in 2019 and for two pipeline (2025) development scenarios as well as mitigation recommendations to maintain minimum LOS standards.

## **CONCURRENCY MANAGEMENT BACKGROUND**

Concurrency is mandated under the 1990 Growth Management Act (GMA) passed by the Washington State legislature to address and mitigate problems associated with growth. The GMA requires that transportation improvements or strategies necessary to accommodate development must be made concurrently with land development. Concurrency requires transportation improvements to be either (a) in place at the time of development or (b) that a financial commitment is in place to complete the improvements within six years of development (RCW 36.70A.070(6)(b)).

Transportation concurrency requires that the transportation impacts of land use development actions do not reduce transportation Level of Service (LOS) below the responsible agency's adopted LOS standards. If it is determined during the development review process that the proposed land use action would reduce LOS below the adopted standard, the development must be modified to reduce its transportation impact or provide corrective transportation improvements. Transportation improvements, which may include project funding, must be identified and programmed within a six-year period from development permitting. Should any of these requirements fail to be met, the development proposal cannot be granted approval.

## **2019 CONDITIONS**

### Traffic Counts

Traffic counts were collected at 45 intersections in and near Sedro-Woolley on non-holiday weekdays in April 2015. Updated traffic counts were collected in 2019 at the following five intersections:

- SR 20 & Township St (October 2019)
- SR 20 & Fruitdale Rd (October 2019)
- SR 9 & John Liner Rd/McGarigle Rd (April 2019)
- Fruitdale Rd & McGarigle Rd (April 2019)
- Fruitdale Rd & Portobello Ave (October 2019)

Intersection turning movement counts were collected from 4:00 – 6:00 PM to capture the PM peak period of travel. Counts were then reviewed to identify the PM peak hour of travel, defined as the highest four consecutive fifteen-minute volume intervals during the PM peak period. The PM peak hour represents the one-hour period when traffic volumes are typically at their peak, and generally corresponds to the period of rush hour traffic with commuters returning home from work. The Sedro-Woolley travel demand and intersection LOS models reflect conditions during the PM peak hour of travel.

#### Travel Demand Model

The Sedro-Woolley travel demand model was most recently updated in 2015 to reflect PM peak hour traffic volumes in April 2015. As part of this analysis, the travel demand model was updated to include significant land use changes and transportation network improvements which occurred between April 2015 and November 2019.

A list of recently completed (2015-2019) developments was provided by City staff and input to the travel demand model. Recent development growth included a total of 215 new PM peak hour trips internal to the City of Sedro-Woolley. Regional (external) travel demand growth was updated based on 2019 PM peak hour traffic counts.

The updated travel demand model was used to estimate traffic volume growth at intersections which were most recently counted in April 2015.

#### 2019 Level of Service

##### *Level of Service Definition*

Level of service (LOS) is a qualitative description of the operating performance of an element of transportation infrastructure such as a roadway or an intersection. LOS is typically expressed as a letter score from LOS A, representing free flow conditions with minimal delays, to LOS F, representing breakdown flow with high delays.

Intersection LOS is based on the average delay experienced by a vehicle traveling through an intersection. Delay at a signalized intersection can be caused by waiting for the signal or waiting for the queue ahead to clear the signal. Delay at roundabouts and stop-controlled intersections is caused by waiting for a gap in traffic or waiting for a queue to clear the intersection or roundabout.

Delay for signalized and stop-controlled intersections was calculated in Synchro 9 software using Highway Capacity Manual 2010 (HCM2010) methodology. Roundabout delay was calculated in Sidra Intersection 8 software using the Sidra capacity model and signalized level of service thresholds, per WSDOT October 2019 Sidra policy guidelines.

Delay is defined differently for signalized and all-way stop controlled intersections than for two-way stop controlled (i.e. stop control on minor approach) intersections. For signalized and all-way stop controlled intersections, level of service thresholds are based upon average control delay for all vehicles (on all approach legs) entering the intersection. For minor-approach-only stop controlled intersections, delay is reported for the movement with the worst (highest) delay. **Table 1** shows the amount of delay used to determine LOS for signalized and unsignalized intersections.

**Table 1. Level of Service Thresholds**

LOS	Signalized and Roundabout Delay (sec/veh)	Unsignalized Delay (sec/veh)	Segment V/C Ratio
A	≤10	≤10	≤ 0.60
B	>10 – 20	>10 – 15	> 0.60 – 0.70
C	>20 – 35	>15 – 25	> 0.70 – 0.80
D	>35 – 55	>25 – 35	> 0.80 – 0.90
E	>55 – 80	>35 – 50	> 0.90 – 1.00
F	>80	>50	> 1.00

Segment LOS was evaluated for each of 75 arterial segments, as identified in the Transportation Element. Street segment LOS is based on the ratio of traffic volume to street capacity. The Transportation Element defines local standards for street capacity based on functional classification, number of lanes, and other physical characteristics, as shown in **Table 2**.

**Table 2. Sedro-Woolley Segment Capacity Standards**

Functional Classification	Base Peak Hr Capacity (vphpl)	Has Left-Turn Lane (vph)	Has Access Management (vph)	No Bike Lane (vph)	No Sidewalk (vph)	On-Street Parking (vph)
Principal Arterial	900	+450	+540	-90	-180	-45
Minor Arterial	800	+400	+480	-40	-80	-40
Major Collector	600	+300	+360	-30	-60	-30
Local Access	400	0	0	0	0	0

*Level of Service Policy*

The Sedro-Woolley Comprehensive Plan defines minimum LOS standards as LOS D on principal and LOS C on all other streets.

Minimum LOS standards for State facilities are set by the Washington State Department of Transportation (WSDOT). SR 20 and SR 9 are both designated by WSDOT as Highways of Statewide Significance (HSS) with minimum LOS D through Sedro-Woolley. In order to maintain consistency with WSDOT LOS standards, the City of Sedro-Woolley has similarly adopted a minimum LOS D standard for both routes.

*2019 Level of Service Deficiencies*

Existing LOS deficiencies are summarized in **Table 3**.

**Table 3. 2019 Intersection LOS Deficiencies**

ID	Location	Control Type <sup>1</sup>	2019 LOS (Delay) <sup>2</sup>
11	SR 20 & Reed St	TWSC	F (131)
17	Cook Rd & Trail Rd	TWSC	D (31.9)

<sup>1</sup>TWSC = minor approach stop control; AWSC = all-way stop control; Signal = signalized; RAB=roundabout  
<sup>2</sup>For TWSC intersections, delay is reported for the worst (i.e. highest-delay) movement; for all other control types, average intersection delay is reported.

The intersection of SR 20 and Reed St operates with high delay on the stop-controlled (Reed St) approaches during the PM peak hour due to high volumes along SR 20. Mitigation may include prohibition of left-turn

movements from Reed St during the PM peak hour. Mitigation options are described in greater detail later in this document.

The intersection of Cook Rd and Trail Rd currently operates at LOS D, which is below the minimum LOS C standard. The intersection will be impacted by the Trail Rd extension, identified as project C3 in the Sedro-Woolley Transportation Element.

The intersection of Township St (SR 9) and John Liner Rd/McGarigle Rd currently operates at LOS C with 20.5 seconds of delay on the westbound (McGarigle Rd) approach. Minimum LOS D is satisfied.

No street segments currently operate below minimum LOS standards. Full intersection and segment LOS summaries are provided in **Attachment 1**.

## 2025 PIPELINE CONDITIONS

### Scenario Design

Pipeline conditions were analyzed for two development scenarios, as shown below. The land use and network improvement assumptions for each scenario are described in greater detail in the following sections.

1. 2025 with Approved Development (**2025 Baseline**):
  - 1A. Without Jones Rd/John Liner Rd/Trail Rd corridor project
  - 1B. With Jones/John Liner/Trail Rd corridor project
2. 2025 with Additional Development (**2025 Pending Applications**):
  - 2A. Without Jones Rd/John Liner Rd/Trail Rd corridor project
  - 2B. With Jones/John Liner/Trail Rd corridor project

The 2025 Baseline land use scenario included developments which were permitted but not occupied as of November 2019. Two network improvement scenarios were evaluated under the 2025 Baseline development scenario: without (1A) and with (1B) the Jones/John Liner/Trail Rd corridor projects. Transportation network improvement assumptions are described in greater detail later in this document.

The 2025 Pending Applications land use scenario included developments which have submitted permit applications but have not been approved as of November 2019. The 2025 Pending Applications scenarios also included development-constructed transportation improvement projects which were identified by City staff, as described in the following section. Similar to the 2025 Baseline scenarios, the 2025 Pending Applications scenarios included two transportation network improvement scenarios: without (2A) and with (2B) the Jones/John Liner/Trail Rd corridor projects.

### Land Development

#### *2025 Baseline*

A 2025 Baseline travel demand forecast was calculated based on the sum of local (internal) and regional (external) growth forecasts. Sedro-Woolley staff developed a list of four “pipeline” developments which have permitted but not occupied as of November 2019, representing a total of 115 new PM peak hour trips in the City. Pipeline regional travel demand growth was calculated based on SCOG regional travel demand forecasts for arterials at the City boundaries.

#### *2025 Pending Applications*

Sedro-Woolley staff provided a list of five development applications which are pending approval. The developments, identified in **Table 4**, constitute a total of 362 new PM peak hour trips.

**Table 4. Pipeline Developments Pending Approval**

Name	Description	New PM Trips
Dukes Hill Subdivision	201 single-family units	179
McGarigle Subdivision	85 age-restricted single-family units	70
Gateway Golf Course Subdivision	99 single-family detached units; 16 townhome units	76
F&S Grade Rd Subdivision	31 single-family detached units	31
Debbie Dr Subdivision	6 single-family detached units	6
<b>Total New PM Peak Hour Trips</b>		<b>362</b>

Two of the developments identified in **Table 4** include construction of new roadways which are identified in the Sedro-Woolley Transportation Element. Dukes Hill Subdivision will construct project C18, an extension of Portobello Ave from its existing terminus west to Township St (SR 9). F&S Grade Rd Subdivision will construct project C9B, an extension of Garden of Eden Rd from Jones Rd to intersect F&S Grade Rd to the south. Transportation improvement project assumptions are described in greater detail in the following section.

#### Transportation Improvement Projects

Sedro-Woolley staff provided a list of 14 capacity-related transportation improvement projects which are planned for construction by 2026. Per Sedro-Woolley segment LOS policy, capacity-related projects include nonmotorized improvements on arterial routes. **Table 5** summarizes transportation improvement projects which were assumed for each scenario of this analysis.

Development-driven improvement projects, including the Trail Rd/Garden of Eden Rd extension and the Portobello Ave arterial extension, were assumed to be constructed in both 2025 Pending Applications scenarios (2A, 2B).

The six-year transportation improvement project list included four intersection improvements, as identified in **Table 5**, which were evaluated and modeled as necessary to mitigate intersection LOS deficiencies. The necessity of these intersection improvement projects is described in the following section.

**Table 5. 2020-2026 Transportation Capacity Improvement Projects by Scenario**

ID	Project Name	From/To	Description	Expected Cn Year
<i>2025 Baseline Transportation Capacity Improvement Projects (All Scenarios)</i>				
S16	SR 20 & Township St (SR 9) Intersection Imp.		Signal & channelization impr.	2021
S14C	SR 20/Cascade Trail West Extension Phase 2A	Holtcamp Rd to Hodgkin Rd	Shared use path	2022
C1C	John Liner Rd Bike/Ped Imp.	Reed St to SR 9	Shared use path	2023
<i>Jones/John Liner/Trail Rd Corridor Projects (Scenarios 1B, 2B)</i>				
C19	Patrick St Arterial Extension	Michael St to Jones St	New major collector w/sidewalks	2021
C1B	Jones/John Liner RR Crossing	Sapp Rd to Reed St	New RR undercrossing and new major collector street	2022
C1D	John Liner Rd Arterial Imp.	Reed St to Township St	Reconstruct to major collector section	2024
C9A	Trail Rd Arterial Extension	Cook Rd to F&S Grade Rd	New major collector	2025
C1A	Jones Rd Arterial Imp.	F&S Grade Rd to Sapp Rd	Reconstruct to major collector including sidewalk	2026
<i>2025 Development-Driven Transportation Capacity Improvement Projects (Scenarios 2A, 2B)</i>				
C9B	Trail Rd – Garden of Eden Rd Extension	F&S Grade Rd to Jones Rd	New major collector	TBD
C18	Portobello Ave Arterial Extension	Township St to Cascadia Dr	New major collector	TBD
<i>Intersection Capacity Improvement Projects (Applied as Necessary)</i>				
S2	SR 20 & Reed St Intersection Imp.		Restrict minor approaches to right-in/right-out only	2021
S17	Township St (SR 9) & John Liner Rd/McGarigle Rd Intersection Imp.		New signal or roundabout	2023
S18	SR 9 & State St Intersection Imp.		Add dedicated right-turn lane on west leg	2024
C3	Cook Rd & Trail Rd Intersection Imp.		Intersection improvements	2025

2025 Level of Service

Intersection and segment LOS were analyzed for the 2025 Baseline and 2025 Pending Applications scenarios. Intersection LOS deficiencies are summarized in **Table 6**.

**Table 6. Pipeline (2025) Intersection Level of Service Deficiencies**

ID	Location	Control Type <sup>1</sup>	2025 Baseline LOS (Delay) <sup>2</sup>	2025 Pending LOS (Delay) <sup>2</sup>
11	SR 20 & Reed St			
	<i>w/o Jones/John Liner Rd Crossing</i>	TWSC	F (154)	F (204)
	<i>w/ Jones/John Liner Rd Crossing</i>	TWSC	F (54.8)	F (58.5)
	<i>w/ crossing + right-in/right-out (Project S2)</i>	RIRO	C (17.9)	C (17.8)
17	Cook Rd & Trail Rd			
	<i>w/o Trail Rd Extension / TWSC</i>	TWSC	E (35.3)	E (39.5)
	<i>w/ Trail Rd Extension / TWSC</i>	TWSC	F (493)	F (>999)
	<i>w/ Trail Rd Ext. / roundabout (Project C3)</i>	RAB	A (7.9)	B (9.6)
29	Township St (SR 9) & John Liner/McGarigle Rd			
	<i>w/o Jones/John Liner Rd Crossing</i>	TWSC	C (22.6)	D (28.5)
	<i>w/ crossing &amp; two-way stop control</i>	TWSC	F (50.2)	F (181)
	<i>w/ crossing &amp; roundabout (Project S17)</i>	RAB	A (7.5)	A (7.8)
	<i>w/ crossing &amp; signal control (Project S17)</i>	Signal	A (9.3)	B (10.7)

<sup>1</sup>TWSC = minor approach stop control; AWSC = all-way stop control; Signal = signalized; RAB=roundabout  
<sup>2</sup>For TWSC intersections, delay is reported for the worst (i.e. highest-delay) movement; for all other control types, average intersection delay is reported.

The intersection of SR 20 and Reed St will continue to operate at LOS F with high minor-approach delay during the PM peak hour. The traffic redistribution associated with the Jones/John Liner Rd undercrossing will reduce delay but will not mitigate the LOS deficiency. Prohibiting left-turns from Reed St onto SR 20 during the PM peak hour will allow the intersection to satisfy minimum LOS standards. This is consistent with improvement project S2 identified in Transportation Element.

The intersection of Cook Rd and Trail Rd will degrade to LOS E in the 2025 Baseline Without-Trail Rd scenario. The 2025 Pending Applications scenario will result in slightly higher delay but no reduction in LOS. After the construction of the Trail Rd extension, the intersection will operate at LOS F with very high delay on the north and south approaches. Mitigation may include a single-lane roundabout, which is consistent with improvement project C3 identified in the Transportation Element.

The intersection of Township St (SR 9) and John Liner Rd/McGarigle Rd will operate at LOS C in the 2025 Baseline Without Trail Rd scenario. The addition of pending applications will increase delay, resulting in LOS D, but will not trigger an LOS deficiency. The construction of the Jones/John Liner Rd undercrossing will result in LOS F, with very high delays on the John Liner Rd approach. Mitigation may include a single-lane roundabout or signal, which is consistent with project S17 identified in the Transportation Element.

The intersection of SR 9 and State St is identified for improvement in the Transportation Element, but the improvement will not be necessary in the six-year concurrency horizon. The intersection operates at LOS D in all 2025 analysis scenarios and satisfies the minimum LOS D standard for SR 9.

No segment LOS deficiencies will occur by 2025. 2025 Baseline intersection and segment LOS results are summarized in Attachment 2. 2025 Pending Applications LOS results are summarized in Attachment 3. Full intersection LOS reports may be provided upon request.



## **FINDINGS**

- Pending development will generate 362 new PM peak hour trips.
- Trips associated with pending development will increase delay at several intersections but will not cause any new LOS deficiencies.
- Township St (SR 9) and John Liner Rd/McGarigle Rd intersection:
  - The intersection of Township St (SR 9) and John Liner Rd/McGarigle Rd currently satisfies minimum LOS D standard but will reach LOS F by 2025, assuming the construction of the Jones/John Liner Rd corridor projects.
- Cook Rd and Trail Rd intersection:
  - Currently operates at LOS D, below the minimum LOS C standard.
  - Will degrade to LOS E by 2025, assuming no extension of Trail Rd
  - Will degrade to LOS F including very high minor-approach delays with the planned Trail Rd extension.
- SR 20 and Reed St intersection:
  - Currently operates at LOS F.
  - Will continue to operate at LOS F with high minor-approach delay during PM peak hour.
- All Comprehensive Plan street segments will satisfy minimum LOS standards through 2025.

## **RECOMMENDATIONS**

- Township St (SR 9) and John Liner Rd/McGarigle Rd intersection: A single-lane roundabout or signal is recommended concurrent with the Jones Rd/John Liner Rd undercrossing to maintain minimum LOS
- Cook Rd and Trail Rd intersection: A single-lane roundabout or traffic signal is recommended to mitigate the existing LOS deficiency.
- SR 20 and Reed St intersection: Prohibit left turn movements from Reed St during PM peak hour.

**Attachment 1.** 2019 LOS Results

**Attachment 2.** 2025 LOS Results



### 2019 Intersection LOS Results

ID	Location	Control Type <sup>1</sup>	2019 LOS (Delay) <sup>2</sup>	Deficient?
1	SR 20 & Collins Rd	Signal	B (11.3)	
2	SR 20 & Rhodes Rd	Signal	B (10.8)	
3	SR 20 & Trail Rd	Signal	C (26.7)	
4	SR 20 & SR 9 (west)	Signal	B (14.4)	
5	SR 20 & Ferry St	Signal	B (15.8)	
6	SR 20 & Cook Rd	RAB	A (9.5)	
7	SR 20 & F&S Grade Rd	TWSC	C (16.3)	
8	SR 20 & Patrick St	RAB	A (4.4)	
9	SR 20 & Metcalf St	TWSC	D (25.1)	
10	SR 20 & Murdock St	TWSC	D (26.1)	
11	SR 20 & Reed St	TWSC	D (31.3)	
12	SR 20 & Central Ave	TWSC	C (23.2)	
13	SR 20 & Ball St	TWSC	C (21.4)	
14	SR 20 & Township St (SR 9)	Signal	D (48.8)	
15	SR 20 & Fruitdale Rd	Signal	B (10.8)	
16	SR 20 & Helmick Rd	TWSC	B (10.4)	
17	Cook Rd & Trail Rd	TWSC	D (31.9)	Yes
18	Cook Rd & Ferry St	RAB	A (6.8)	
19	SR 9 & State St	Signal	D (40.9)	
20	State St & Metcalf St	AWSC	B (14.1)	
21	State St & Reed St	TWSC	B (13.2)	
22	State St & Township St	AWSC	B (13)	
23	State St & Railroad St	AWSC	A (8.1)	
24	Hoehn Rd & Fruitdale Rd	TWSC	A (9.3)	
26	Ferry St & Metcalf St	AWSC	B (12.2)	
27	Ferry St & Reed St	TWSC	B (11.8)	
28	Ferry St & Township St	TWSC	C (16.4)	
29	Township St (SR 9) & John Liner Rd	TWSC	C (20.5)	
30	SR 9 & Kalloch Rd	TWSC	B (11.2)	
31	Jameson St & 3rd St	AWSC	A (8.7)	
32	Jameson St & Township St	TWSC	B (12.7)	
33	John Liner Rd & Reed St	TWSC	B (10.7)	
34	McGarigle Rd & Carter St	TWSC	A (8.8)	
36	Fruitdale Rd & McGarigle Rd	TWSC	B (10)	
37	Fruitdale Rd & Portobello Ave	TWSC	B (10.6)	
41	Fruitdale Rd & Kalloch Rd	TWSC	A (8.6)	
42	Minkler Rd & Fruitdale Rd	TWSC	B (11.1)	
43	SR 9 & Jameson St	RAB	A (6.1)	

<sup>1</sup>TWSC = minor approach stop control; AWSC = all-way stop control; Signal = signalized; RAB = roundabout

<sup>2</sup>For TWSC intersections, delay is reported for the worst (i.e. highest-delay) movement; for all other control types, average intersection delay is reported.



### 2019 Segment LOS Results

ID	Name	Limits	Functional Classification	2019 V/C	2019 LOS
2001	SR 20	Collins Rd to Rhodes Rd	Principal Art.	0.82	D
2002	SR 20	Rhodes Rd to W State St	Principal Art.	0.80	D
2003	SR 20	State St to SR 9	Principal Art.	0.48	A
2004	SR 20	SR 9 to W Ferry St	Principal Art.	0.59	A
2005	SR 20	W Ferry St to Cook Rd	Principal Art.	0.45	A
2006	SR 20	Cook Rd to F&S Grade Rd	Principal Art.	0.76	C
2007	SR 20	F&S Grade Rd to Patrick St	Principal Art.	0.79	C
2008	SR 20	Patrick St to Metcalf St	Principal Art.	0.75	C
2009	SR 20	Metcalf St to Reed St	Principal Art.	0.80	D
2010	SR 20	Reed St to Township St	Principal Art.	0.73	C
3001	SR 20	Township St to Fruitdale	Minor Art.	0.57	A
3002	SR 20	Fruitdale Rd to Helmick Rd	Minor Art.	0.39	A
3003	SR 9	City Limit to W Nelson St	Minor Art.	0.76	C
3004	[reserved]			0.00	-
3005	SR 9	W Nelson St to W State St	Minor Art.	0.58	A
3006	SR 9	W State St to SR 20	Minor Art.	0.25	A
3007	[reserved]			0.00	-
3008	[reserved]			0.00	-
3009	[reserved]			0.00	-
3010	Cook Rd	City Limit to Trail Rd	Minor Art.	0.59	A
3011	Cook Rd	Trail Rd to Ferry St	Minor Art.	0.55	A
3012	Cook Rd	Ferry St to SR 20	Minor Art.	0.42	A
3013	F&S Grade Rd	City Limit to Murrow St	Minor Art.	0.09	A
3014	F&S Grade Rd	Murrow St to SR 20	Minor Art.	0.10	A
3015	[reserved]			0.00	-
3016	[reserved]			0.00	-
3017	Ferry St	SR 20 to Metcalf St	Minor Art.	0.42	A
3018	Ferry St	Metcalf St to Reed St	Minor Art.	0.28	A
3019	Ferry St	Reed St to Township St	Minor Art.	0.20	A
3020	State St	SR 20 to SR 9	Minor Art.	0.48	A
3021	State St	SR 9 to Metcalf St	Minor Art.	0.58	A
3022	State St	Metcalf St to 3rd St	Minor Art.	0.46	A
3023	State St	3rd St to Reed St	Minor Art.	0.45	A
3024	State St	Reed St to Township St	Minor Art.	0.45	A
3025	[reserved]			0.00	-
3026	Township St	State St to Ferry St	Minor Art.	0.32	A
3027	Township St	Ferry St to Wicker Rd	Minor Art.	0.38	A
3028	Township St	Wicker Rd to SR 20	Minor Art.	0.35	A
3029	Township St (SR 9)	SR 20 to McGarigle Rd	Minor Art.	0.51	A
3030	Township St (SR 9)	McGarigle Rd to Sapp Rd	Minor Art.	0.45	A
3031	Township St (SR 9)	Sapp Rd to Bassett Rd	Minor Art.	0.38	A
3032	Township St (SR 9)	Bassett Rd to Kalloch	Minor Art.	0.31	A
3033	[reserved]			0.00	-

ID	Name	Limits	Functional Classification	2019 V/C	2019 LOS
3034	[reserved]			0.00	-
4001	3rd St	Sterling St to Jameson St	Major Coll.	0.19	A
4002	3rd St	Jameson St to State St	Major Coll.	0.00	-
4003	Batey Rd	W Nelson St to Jameson St	Major Coll.	0.09	A
4004	Fruitdale Rd	River Rd to Hoehn Rd	Major Coll.	0.04	A
4005	Fruitdale Rd	Hoehn Rd to Minkler Rd	Major Coll.	0.05	A
4006	Fruitdale Rd	Minkler Rd to Wicker Rd	Major Coll.	0.14	A
4007	Fruitdale Rd	Wicker Rd to SR 20	Major Coll.	0.13	A
4008	Fruitdale Rd	SR 20 to McGarigle Rd	Major Coll.	0.18	A
4009	Fruitdale Rd	McGarigle to Thompson Dr	Major Coll.	0.20	A
4010	Fruitdale Rd	Thompson Dr to Kalloch	Major Coll.	0.01	A
4011	Jameson St	Batey Rd to 3rd St	Major Coll.	0.28	A
4012	Jameson St	3rd St to 6th St	Major Coll.	0.13	A
4013	Jameson St	6th St to Township St	Major Coll.	0.11	A
4014	Jameson St	Township St to Railroad Ave	Major Coll.	0.07	A
4015	John Liner Rd	Reed St to Township St	Major Coll.	0.06	A
4016	[reserved]			0.00	-
4017	McGarigle Rd	Township St to Fruitdale	Major Coll.	0.17	A
4018	Metcalf St	State St to Ferry St	Major Coll.	0.24	A
4019	Metcalf St	Ferry St to SR 20	Major Coll.	0.22	A
4020	Minkler Rd	State St to Fruitdale Rd	Major Coll.	0.13	A
4021	Nelson St	SR 9 to Batey Rd	Major Coll.	0.28	A
4022	Railroad Ave	Jameson St to State St	Major Coll.	0.20	A
4023	Reed St	State St to Ferry St	Major Coll.	0.02	A
4024	Reed St	Ferry St to SR 20	Major Coll.	0.02	A
4025	Reed St	SR 20 to John Liner Rd	Major Coll.	0.20	A
4026	Reed St	John Liner Rd to Sapp Rd	Major Coll.	0.18	A
4027	Rhodes Rd	SR 20 to SR 9	Major Coll.	0.05	A
4028	[reserved]			0.00	-
4029	Sapp Rd	Reed St to Township Rd	Major Coll.	0.09	A
4030	State St	Township to Railroad Ave	Major Coll.	0.19	A
4031	Sterling St	3rd St to 6th St	Major Coll.	0.09	A
4032	Sterling St	6th St to Township St	Major Coll.	0.02	A
4033	Township St	River Rd to Sterling St	Major Coll.	0.21	A
4034	Township St	Sterling St to Jameson St	Major Coll.	0.23	A
4035	Township St	Jameson St to State St	Major Coll.	0.25	A
4036	Trail Road	SR 20 to Cook Rd	Major Coll.	0.27	A
4037	Wicker Rd	Township St to Fruitdale	Major Coll.	0.30	A
4038	[reserved]			0.00	-
5001	Jones Rd	F&S Grade Rd to Garden of Eden	Local	0.24	A
5002	Jones Rd	Garden of Eden to Sapp Rd	Local	0.05	A
5003	Garden of Eden Rd	F&S Grade Rd to Jones Rd	Local	0.19	A
5004	Garden of Eden Rd	Jones Rd to Kiens Ln (Pvt)	Local	0.31	A
5005	[reserved]		Local	0.00	-

ID	Name	Limits	Functional Classification	2019 V/C	2019 LOS
5006	[reserved]			0.00	-
5007	Bassett Rd	Eikleberry Ct (Pvt) to SR 9	Local	0.03	A
5008	[reserved]			0.00	-
5009	[reserved]			0.00	-
5010	[reserved]			0.00	-
5011	[reserved]			0.00	-



**2025 Intersection LOS Results**

ID	Location	Control Type <sup>1</sup>	2025 LOS (Delay) <sup>2</sup>		Deficient?	
			Baseline	Alternative	Baseline	Alternative
1	SR 20 & Collins Rd	Signal	B (13.7)	B (13.6)		
2	SR 20 & Rhodes Rd	Signal	B (11.1)	B (10.7)		
3	SR 20 & Trail Rd	Signal	C (25.1)	C (23.8)		
4	SR 20 & SR 9 (west)	Signal	B (16.7)	B (16.8)		
5	SR 20 & Ferry St	Signal	B (15.6)	B (16.1)		
6	SR 20 & Cook Rd	RAB	B (11.8)	B (11.4)		
7	SR 20 & F&S Grade Rd	TWSC	C (16)	C (15.7)		
8	SR 20 & Patrick St	RAB	A (6.5)	A (6.5)		
9	SR 20 & Metcalf St	TWSC	D (25.7)	D (25.1)		
10	SR 20 & Murdock St	TWSC	C (23)	C (23)		
11	SR 20 & Reed St	TWSC	C (24.8)	D (25.3)		
12	SR 20 & Central Ave	TWSC	C (22.8)	C (22.6)		
13	SR 20 & Ball St	TWSC	C (21.2)	C (21)		
14	SR 20 & Township St (SR 9)	Signal	B (19.9)	C (21)		
15	SR 20 & Fruitdale Rd	Signal	B (11)	B (11.6)		
16	SR 20 & Helmick Rd	TWSC	B (10.6)	B (10.6)		
17	Cook Rd & Trail Rd	TWSC	F (492.8)	F (999)	Yes	Yes
18	Cook Rd & Ferry St	RAB	A (5.7)	A (5.6)		
19	SR 9 & State St	Signal	D (44.5)	D (43.6)		
20	State St & Metcalf St	AWSC	B (12.1)	B (12)		
21	State St & Reed St	TWSC	B (11.9)	B (11.9)		
22	State St & Township St	AWSC	B (11)	B (11.4)		
23	State St & Railroad St	AWSC	A (8.1)	A (8.1)		
24	Hoehn Rd & Fruitdale Rd	TWSC	A (9.4)	A (9.4)		
26	Ferry St & Metcalf St	AWSC	B (10.9)	B (10.6)		
27	Ferry St & Reed St	TWSC	B (11.4)	B (11.2)		
28	Ferry St & Township St	TWSC	B (12.7)	B (12.7)		
29	Township St & John Liner Rd	TWSC	F (50.2)	F (178.7)	Yes	Yes
30	SR 9 & Kalloch Rd	TWSC	B (12.1)	B (12.3)		
31	Jameson St & 3rd St	AWSC	A (8.2)	A (8.2)		
32	Jameson St & Township St	TWSC	B (11.6)	B (11.7)		
33	John Liner Rd & Reed St	TWSC	C (18.1)	C (21.8)		
34	McGarigle Rd & Carter St	TWSC	A (8.9)	A (9.8)		
36	Fruitdale Rd & McGarigle Rd	TWSC	B (10.3)	B (10.9)		
37	Fruitdale Rd & Portobello Ave	TWSC	B (13.9)	B (14.7)		
41	Fruitdale Rd & Kalloch Rd	TWSC	A (8.8)	A (8.8)		
42	Minkler Rd & Fruitdale Rd	TWSC	B (11.3)	B (11.2)		
43	SR 9 & Jameson St	RAB	A (6.7)	A (5.4)		
44	F&S Grade Rd & Trail Rd	TWSC	A (9.8)	C (15.2)		
45	Jones Rd & Garden of Eden Rd	TWSC	B (10.1)	C (16.4)		
46	Jones Rd & Patrick St	TWSC	B (11.6)	B (13.3)		

<sup>1</sup>TWSC = minor approach stop control; AWSC = all-way stop control; Signal = signalized; RAB = roundabout

<sup>2</sup>For TWSC intersections, delay is reported for the worst (i.e. highest-delay) movement; for all other control types, average intersection delay is reported.



### 2025 Segment LOS Results

ID	Name	Limits	Functional Classification	2025 V/C		2025 LOS	
				Base	Alt.	Base	Alt.
2001	SR 20	Collins Rd to Rhodes Rd	Principal Art.	0.72	0.72	C	C
2002	SR 20	Rhodes Rd to W State St	Principal Art.	0.80	0.80	D	D
2003	SR 20	State St to SR 9	Principal Art.	0.48	0.48	A	A
2004	SR 20	SR 9 to W Ferry St	Principal Art.	0.59	0.59	A	A
2005	SR 20	W Ferry St to Cook Rd	Principal Art.	0.45	0.45	A	A
2006	SR 20	Cook Rd to F&S Grade Rd	Principal Art.	0.76	0.76	C	C
2007	SR 20	F&S Grade Rd to Patrick St	Principal Art.	0.79	0.79	C	C
2008	SR 20	Patrick St to Metcalf St	Principal Art.	0.75	0.75	C	C
2009	SR 20	Metcalf St to Reed St	Principal Art.	0.80	0.80	D	D
2010	SR 20	Reed St to Township St	Principal Art.	0.73	0.73	C	C
3001	SR 20	Township St to Fruitdale	Minor Art.	0.57	0.57	A	A
3002	SR 20	Fruitdale Rd to Helmick Rd	Minor Art.	0.39	0.39	A	A
3003	SR 9	City Limit to W Nelson St	Minor Art.	0.76	0.76	C	C
3004	[reserved]			0.00	0.00	-	-
3005	SR 9	W Nelson St to W State St	Minor Art.	0.58	0.58	A	A
3006	SR 9	W State St to SR 20	Minor Art.	0.25	0.25	A	A
3007	[reserved]			0.00	0.00	-	-
3008	[reserved]			0.00	0.00	-	-
3009	[reserved]			0.00	0.00	-	-
3010	Cook Rd	City Limit to Trail Rd	Minor Art.	0.59	0.59	A	A
3011	Cook Rd	Trail Rd to Ferry St	Minor Art.	0.55	0.55	A	A
3012	Cook Rd	Ferry St to SR 20	Minor Art.	0.42	0.42	A	A
3013	F&S Grade Rd	City Limit to Murrow St	Minor Art.	0.09	0.09	A	A
3014	F&S Grade Rd	Murrow St to SR 20	Minor Art.	0.10	0.10	A	A
3015	[reserved]			0.00	0.00	-	-
3016	[reserved]			0.00	0.00	-	-
3017	Ferry St	SR 20 to Metcalf St	Minor Art.	0.42	0.42	A	A
3018	Ferry St	Metcalf St to Reed St	Minor Art.	0.28	0.28	A	A
3019	Ferry St	Reed St to Township St	Minor Art.	0.20	0.20	A	A
3020	State St	SR 20 to SR 9	Minor Art.	0.48	0.48	A	A
3021	State St	SR 9 to Metcalf St	Minor Art.	0.58	0.58	A	A
3022	State St	Metcalf St to 3rd St	Minor Art.	0.46	0.46	A	A
3023	State St	3rd St to Reed St	Minor Art.	0.45	0.45	A	A
3024	State St	Reed St to Township St	Minor Art.	0.45	0.45	A	A
3025	[reserved]			0.00	0.00	-	-
3026	Township St	State St to Ferry St	Minor Art.	0.32	0.32	A	A
3027	Township St	Ferry St to Wicker Rd	Minor Art.	0.38	0.38	A	A
3028	Township St	Wicker Rd to SR 20	Minor Art.	0.35	0.35	A	A
3029	Township St (SR 9)	SR 20 to McGarigle Rd	Minor Art.	0.51	0.51	A	A
3030	Township St (SR 9)	McGarigle Rd to Sapp Rd	Minor Art.	0.45	0.45	A	A
3031	Township St (SR 9)	Sapp Rd to Bassett Rd	Minor Art.	0.43	0.50	A	A
3032	Township St (SR 9)	Bassett Rd to Kalloch	Minor Art.	0.31	0.31	A	A
3033	[reserved]			0.00	0.00	-	-

ID	Name	Limits	Functional Classification	2025 V/C		2025 LOS	
				Base	Alt.	Base	Alt.
3034	[reserved]			0.00	0.00	-	-
4001	3rd St	Sterling St to Jameson St	Major Coll.	0.19	0.19	A	A
4002	3rd St	Jameson St to State St	Major Coll.	0.11	0.11	A	A
4003	Batey Rd	W Nelson St to Jameson St	Major Coll.	0.08	0.07	A	A
4004	Fruitdale Rd	River Rd to Hoehn Rd	Major Coll.	0.04	0.04	A	A
4005	Fruitdale Rd	Hoehn Rd to Minkler Rd	Major Coll.	0.05	0.05	A	A
4006	Fruitdale Rd	Minkler Rd to Wicker Rd	Major Coll.	0.14	0.14	A	A
4007	Fruitdale Rd	Wicker Rd to SR 20	Major Coll.	0.13	0.13	A	A
4008	Fruitdale Rd	SR 20 to McGarigle Rd	Major Coll.	0.18	0.18	A	A
4009	Fruitdale Rd	McGarigle to Thompson Dr	Major Coll.	0.20	0.20	A	A
4010	Fruitdale Rd	Thompson Dr to Kalloch	Major Coll.	0.01	0.01	A	A
4011	Jameson St	Batey Rd to 3rd St	Major Coll.	0.28	0.28	A	A
4012	Jameson St	3rd St to 6th St	Major Coll.	0.13	0.13	A	A
4013	Jameson St	6th St to Township St	Major Coll.	0.11	0.11	A	A
4014	Jameson St	Township St to Railroad Ave	Major Coll.	0.07	0.07	A	A
4015	John Liner Rd	Reed St to Township St	Major Coll.	0.06	0.06	A	A
4016	[reserved]			0.00	0.00	-	-
4017	McGarigle Rd	Township St to Fruitdale	Major Coll.	0.17	0.17	A	A
4018	Metcalf St	State St to Ferry St	Major Coll.	0.24	0.24	A	A
4019	Metcalf St	Ferry St to SR 20	Major Coll.	0.22	0.22	A	A
4020	Minkler Rd	State St to Fruitdale Rd	Major Coll.	0.13	0.13	A	A
4021	Nelson St	SR 9 to Batey Rd	Major Coll.	0.28	0.28	A	A
4022	Railroad Ave	Jameson St to State St	Major Coll.	0.20	0.20	A	A
4023	Reed St	State St to Ferry St	Major Coll.	0.02	0.02	A	A
4024	Reed St	Ferry St to SR 20	Major Coll.	0.02	0.02	A	A
4025	Reed St	SR 20 to John Liner Rd	Major Coll.	0.20	0.20	A	A
4026	Reed St	John Liner Rd to Sapp Rd	Major Coll.	0.18	0.18	A	A
4027	Rhodes Rd	SR 20 to SR 9	Major Coll.	0.05	0.05	A	A
4028	[reserved]			0.00	0.00	-	-
4029	Sapp Rd	Reed St to Township Rd	Major Coll.	0.07	0.07	A	A
4030	State St	Township to Railroad Ave	Major Coll.	0.19	0.19	A	A
4031	Sterling St	3rd St to 6th St	Major Coll.	0.09	0.09	A	A
4032	Sterling St	6th St to Township St	Major Coll.	0.02	0.02	A	A
4033	Township St	River Rd to Sterling St	Major Coll.	0.21	0.21	A	A
4034	Township St	Sterling St to Jameson St	Major Coll.	0.23	0.23	A	A
4035	Township St	Jameson St to State St	Major Coll.	0.25	0.25	A	A
4036	Trail Road	SR 20 to Cook Rd	Major Coll.	0.27	0.27	A	A
4037	Wicker Rd	Township St to Fruitdale	Major Coll.	0.35	0.33	A	A
4038	[reserved]			0.00	0.00	-	-
5001	Jones Rd	F&S Grade Rd to Garden of Eden Rd	Local	0.24	0.10	A	A
5002	Jones Rd	Garden of Eden to Sapp Rd	Local	0.25	0.38	A	A
5003	Garden of Eden Rd	F&S Grade Rd to Jones Rd	Local	0.48	0.14	A	A

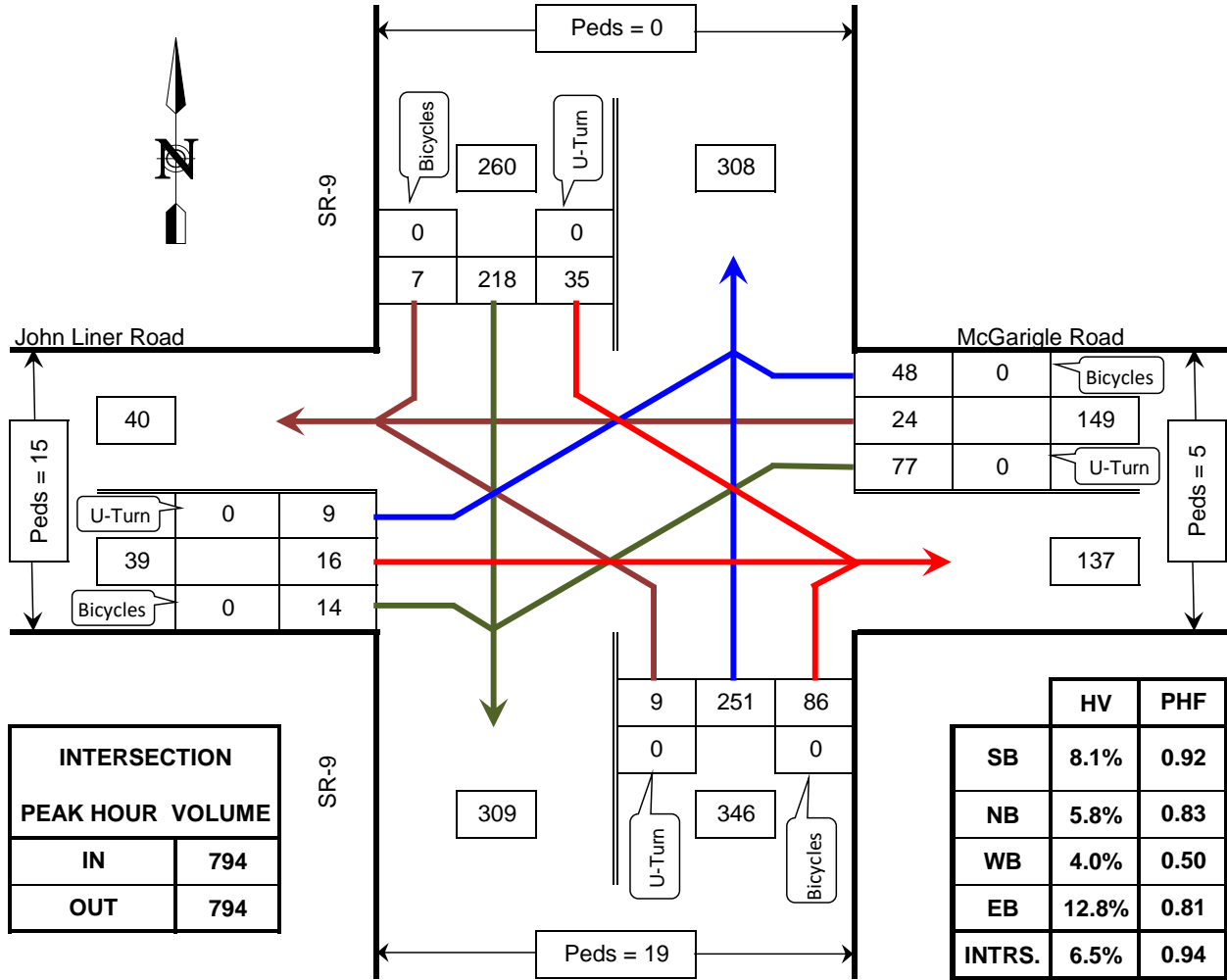


ID	Name	Limits	Functional Classification	2025 V/C		2025 LOS	
				Base	Alt.	Base	Alt.
5004	Garden of Eden Rd	Jones Rd to Kiens Ln (Pvt)	Local	0.24	0.26	A	A
5005	[reserved]		Local	0.00	0.00	-	-
5006	[reserved]			0.00	0.00	-	-
5007	Bassett Rd	Eikleberry Ct (Pvt) to SR 9	Local	0.03	0.03	A	A
5008	[reserved]			0.00	0.00	-	-
5009	[reserved]			0.00	0.00	-	-
5010	[reserved]			0.00	0.00	-	-
5011	[reserved]			0.00	0.00	-	-

# Counts

**TURNING MOVEMENTS DIAGRAM**

1:45 PM - 4:00 PM PEAK HOUR: 2:45 PM TO 3:45 PM



**SR-9 @ McGarigle Road**

**Sedro Woolley, WA**

COUNTED BY: TDG

DATE OF COUNT: Tue. 2/11/20

REDUCTION DATE: Thu. 2/13/20

TIME OF COUNT: 1:45 PM - 4:00 PM

**INTERSECTION TURNING MOVEMENTS REDUCTION SHEET**

LOCATION: SR-9 @ McGarigle Road Sedro Woolley, WA DATE OF COUNT: Tue, 2/11/2020 1:45 PM - 4:00 PM COUNTED BY: TDG DATE OF REDUCTION: 2/13/2020

TIME INTERVAL ENDING AT	FROM NORTH ON SR-9					FROM SOUTH ON SR-9					FROM EAST ON McGarigle Road					FROM WEST ON John Liner Road					INTERVAL TOTALS								
	Peds	Bicycle	HV	U-Turn	Left	Thru	Right	Peds	Bicycle	HV	U-Turn	Left	Thru	Right	Peds	Bicycle	HV	U-Turn	Left	Thru		Right	Peds	Bicycle	HV	U-Turn	Left	Thru	Right
12:15 PM	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
12:30 PM	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
12:45 PM	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
01:00 PM	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
01:15 PM	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
01:30 PM	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
01:45 PM	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
02:00 PM	0	0	12	0	6	55	0	1	0	2	0	3	42	17	0	0	0	4	0	4	2	0	1	0	1	0	1	0	3
02:15 PM	0	0	5	0	5	40	1	5	0	6	0	2	46	26	0	0	0	6	3	2	5	0	1	0	0	1	0	1	4
02:30 PM	0	0	4	0	2	35	3	12	0	5	0	1	58	19	8	0	3	0	25	8	4	11	0	0	0	0	2	7	164
02:45 PM	0	0	3	0	1	42	0	0	0	8	0	2	67	13	0	0	3	0	16	4	4	1	0	1	0	1	1	2	153
03:00 PM	0	0	3	0	5	56	2	3	0	4	0	3	65	15	0	0	1	0	14	5	9	2	0	1	0	5	3	3	187
03:15 PM	0	0	8	0	19	48	1	1	0	6	0	1	78	25	0	0	10	1	9	3	0	2	0	2	0	1	4	4	201
03:30 PM	0	0	6	0	8	61	2	2	0	4	0	2	52	32	1	0	1	0	19	1	6	2	0	2	0	2	6	4	195
03:45 PM	0	0	4	0	3	51	2	13	0	6	0	3	56	14	4	0	4	0	34	17	24	8	0	0	0	1	3	3	211
04:00 PM	0	0	4	0	3	49	2	2	0	6	0	2	80	13	0	0	7	0	16	6	9	3	0	1	0	3	2	2	187
PEAK HOUR TOTALS	0	0	21	0	35	218	7	19	0	20	0	9	251	86	5	0	6	0	77	24	48	15	0	5	0	9	16	14	INTERSECTION
ALL MOVEMENTS	280					346					149					39					794								
% HV	8.1%					5.8%					4.6%					12.8%					6.5%								
PEAK HOUR FACTOR	0.92					0.83					0.50					0.81					0.94								

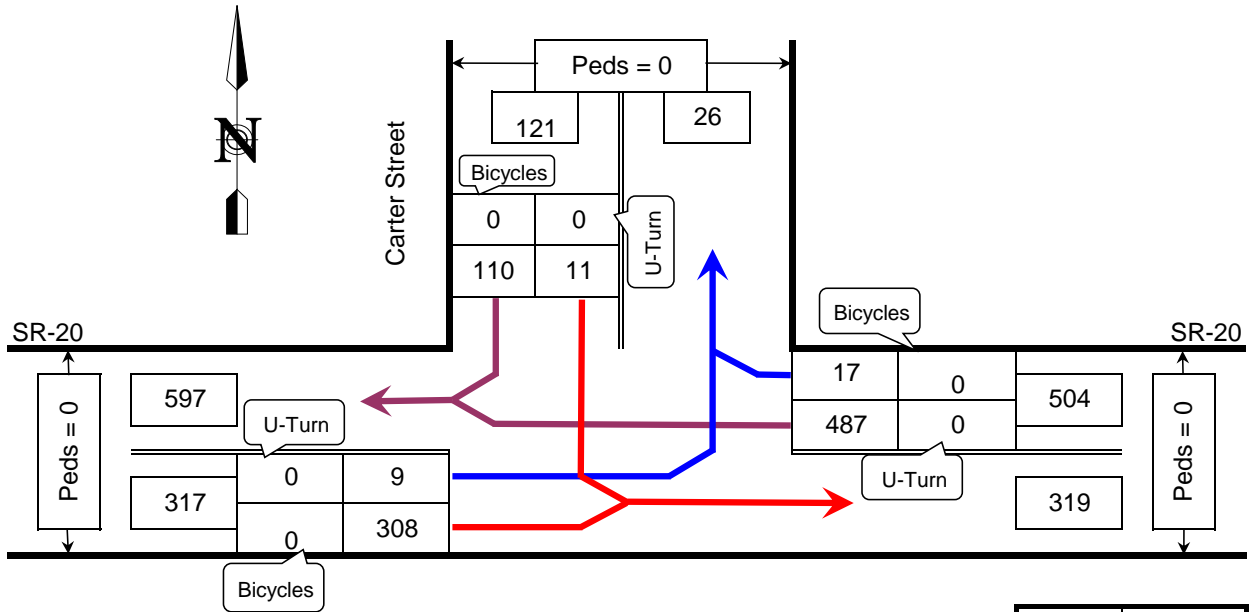
HV = Heavy Vehicle  
PHF = Peak Hour Factor  
1:45 PM - 4:00 PM PEAK HOUR: 2:45 PM TO 3:45 PM

**ROLLING HOUR COUNT**

TIME INTERVAL	FROM NORTH ON SR-9					FROM SOUTH ON SR-9					FROM EAST ON McGarigle Road					FROM WEST ON John Liner Road					INTERVAL TOTALS								
	Peds	Bicycle	HV	U-Turn	Left	Thru	Right	Peds	Bicycle	HV	U-Turn	Left	Thru	Right	Peds	Bicycle	HV	U-Turn	Left	Thru		Right	Peds	Bicycle	HV	U-Turn	Left	Thru	Right
12:00 PM - 1:00 PM	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
12:15 PM - 1:15 PM	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
12:30 PM - 1:30 PM	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
12:45 PM - 1:45 PM	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
1:00 PM - 2:00 PM	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
1:15 PM - 2:15 PM	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
1:30 PM - 2:30 PM	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
1:45 PM - 2:45 PM	0	0	24	0	14	172	4	18	0	21	0	8	213	75	8	0	6	0	51	15	14	19	0	3	0	2	4	16	588
2:00 PM - 3:00 PM	0	0	15	0	13	175	6	20	0	23	0	8	236	73	8	0	7	0	61	20	19	0	3	0	6	7	16	640	
2:15 PM - 3:15 PM	0	0	18	0	27	183	6	16	0	23	0	7	268	72	8	0	7	0	65	18	26	17	0	4	0	7	10	16	705
2:30 PM - 3:30 PM	0	0	20	0	33	209	5	6	0	22	0	8	262	95	1	0	5	0	59	11	28	8	0	6	0	9	14	13	726
2:45 PM - 3:45 PM	0	0	21	0	35	218	7	19	0	20	0	9	251	86	5	0	6	0	77	24	48	15	0	5	0	9	16	14	794
3:00 PM - 4:00 PM	0	0	22	0	33	209	7	18	0	22	0	8	266	84	5	0	12	0	79	25	48	16	0	5	0	7	15	13	794
1:45 PM - 4:00 PM Total:	0	0	49	0	52	439	13	39	0	47	0	19	544	174	13	0	19	0	144	45	71	37	0	9	0	14	22	32	1569

**TURNING MOVEMENTS DIAGRAM**

7:00 AM - 9:00 AM PEAK HOUR: 7:00 AM TO 8:00 AM



INTERSECTION	
PEAK HOUR VOLUME	
IN	942
OUT	942

	HV	PHF
SB	0.0%	0.53
WB	4.8%	0.86
EB	7.9%	0.78
INTRS.	5.2%	0.91

HV = Heavy Vehicles  
PHF = Peak Hour Factor

**SR-20 @ Carter Street**

**Sedro Woolley, WA**

COUNTED BY: TDG

DATE OF COUNT: Wed. 2/12/20

REDUCTION DATE: Thu. 2/13/20

TIME OF COUNT: 7:00 AM - 9:00 AM

INTERSECTION TURNING MOVEMENTS REDUCTION SHEET

LOCATION: SR-20 @ Carter Street Sedro Woolley, WA DATE OF COUNT: Wed. 2/12/2020 TIME OF COUNT: 7:00 AM - 9:00 AM COUNTED BY: TDG DATE OF REDUCTION: 2/13/2020

TIME INTERVAL ENDING AT	FROM NORTH ON Carter Street						FROM SOUTH ON						FROM EAST ON SR-20						FROM WEST ON SR-20						INTERVAL TOTALS				
	Peds		Bicycle		HV		U-Turn		Left		Thru		Right		Peds		Bicycle		HV		U-Turn		Left			Thru		Right	
05:15 AM	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
05:30 AM	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
05:45 AM	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
06:00 AM	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
06:15 AM	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
06:30 AM	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
06:45 AM	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
07:00 AM	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
07:15 AM	0	0	0	0	1	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	6	0	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	3	0	54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	1	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	1	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00 AM	0	0	0	0	0	0	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HOUR TOTALS	0	0	0	0	11	0	110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ALL MOVEMENTS	121						0						504						317						942				
% HV	0.0%						#N/A						4.8%						7.9%						5.2%				
PEAK HOUR FACTOR	0.53						#N/A						0.86						0.78						0.91				

HV = Heavy Vehicle  
PHF = Peak Hour Factor

7:00 AM - 9:00 AM PEAK HOUR: 7:00 AM TO 8:00 AM

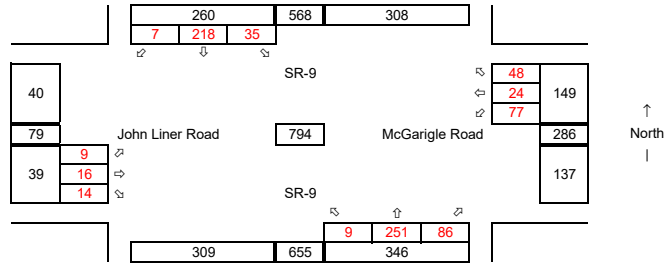
ROLLING HOUR COUNT

TIME INTERVAL	FROM NORTH ON Carter Street						FROM SOUTH ON						FROM EAST ON SR-20						FROM WEST ON SR-20						INTERVAL TOTALS				
	Peds		Bicycle		HV		U-Turn		Left		Thru		Right		Peds		Bicycle		HV		U-Turn		Left			Thru		Right	
5:00 AM - 6:00 AM	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	
5:15 AM - 6:15 AM	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
5:30 AM - 6:30 AM	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
5:45 AM - 6:45 AM	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
6:00 AM - 7:00 AM	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
6:15 AM - 7:15 AM	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
6:30 AM - 7:30 AM	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
6:45 AM - 7:45 AM	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
7:00 AM - 8:00 AM	0	0	0	0	11	0	110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 8:15 AM	2	0	0	0	10	0	105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 8:30 AM	2	0	0	0	4	0	66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:45 AM	2	0	1	0	1	0	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 9:00 AM	2	0	1	0	0	0	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM - 9:00 AM Total:	2	0	1	0	11	0	149	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

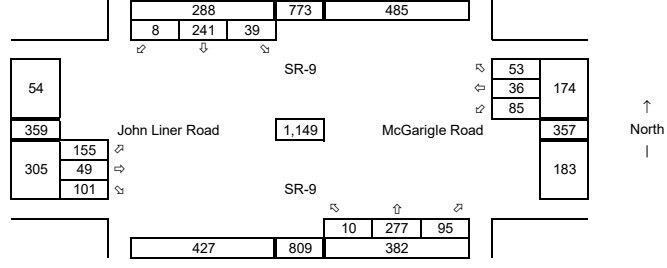
# Turning Movement Calculations and LOS

1 SR-9 @ McGarigle Rd

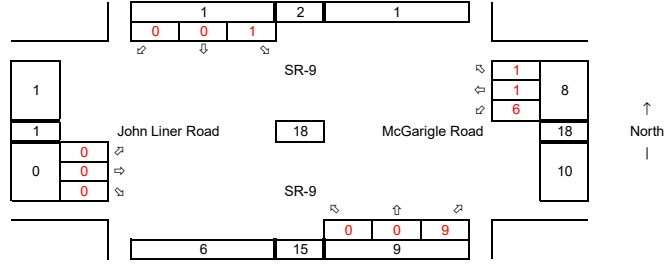
Synchro ID: 1  
**Existing**  
 Average Weekday  
 School PM Peak-Hour  
 Year: 2/11/2020  
 Data Source: TDG



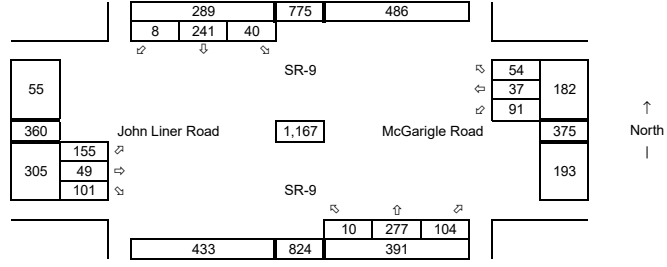
**Future without Project**  
 Average Weekday  
 School PM Peak-Hour  
 Future Year 2025  
 % Growth 2.0%  
 # of Years 5  
 Growth Rate 1.1041



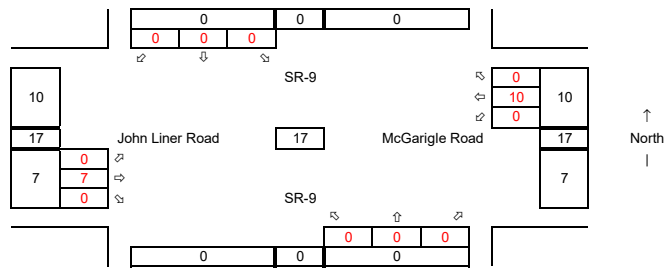
**Total Project Trips**  
 Average Weekday  
 School PM Peak-Hour



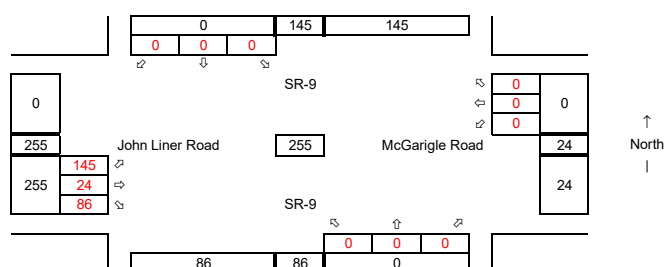
**Future with Project**  
 Average Weekday  
 School PM Peak-Hour



**Northern State Campus Pipeline Trips**  
 Average Weekday  
 School PM Peak-Hour



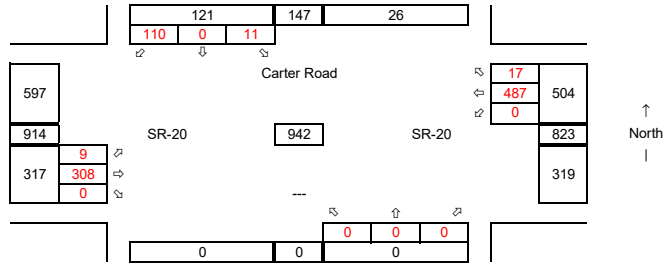
**John Liner Corridor Diversion**  
 Average Weekday  
 School PM Peak-Hour



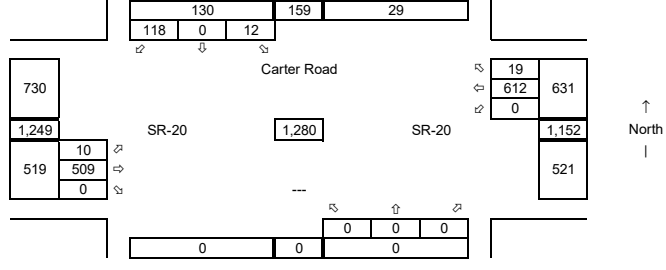


4 SR-20 @ Carter Rd

Synchro ID: 4  
**Existing**  
 Average Weekday  
 AM Peak-Hour  
 Year: 2/13/2020  
 Data Source: TDG

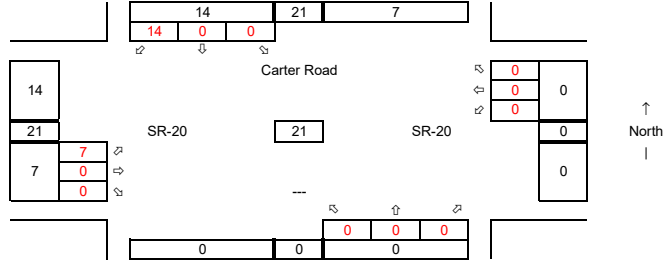


**Future without Project**  
 Average Weekday  
 AM Peak-Hour  
 Future Year 2025  
 % Growth 2.0%  
 # of Years 5  
 Growth Rate 1.1041

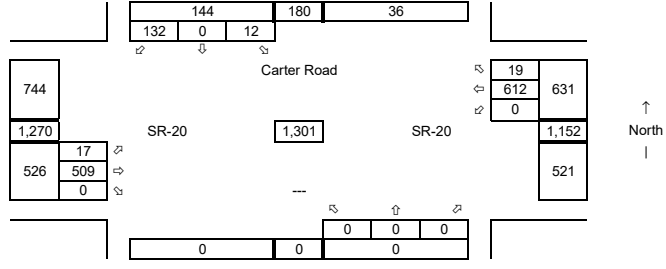


**Total Project Trips**  
 Average Weekday  
 AM Peak-Hour

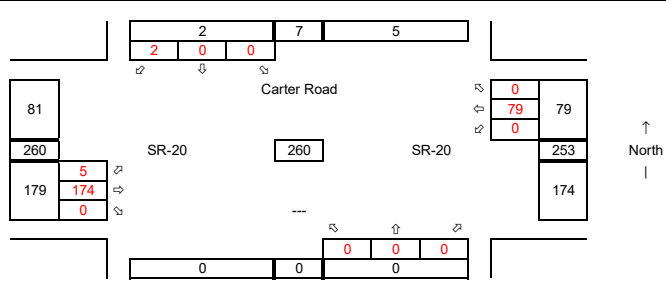
Assumes 100% Senior Housing -  
 Detached units with 100% of trips  
 routed through intersection



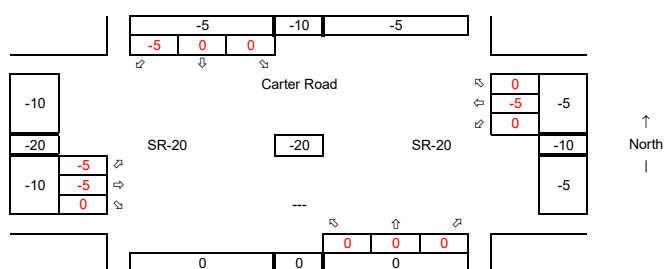
**Future with Project**  
 Average Weekday  
 AM Peak-Hour



**Northern State Campus Pipeline  
 Trips**  
 Average Weekday  
 AM Peak-Hour



**John Liner Corridor Diversion**  
 Average Weekday  
 AM Peak-Hour



HCM 6th TWSC  
4: SR-20 & Carter Rd

McGarigle Development

Intersection

Int Delay, s/veh	1.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	509	612	19	12	119
Future Vol, veh/h	11	509	612	19	12	119
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	8	8	5	5	0	0
Mvmt Flow	12	559	673	21	13	131

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	694	0	-	0	1267
Stage 1	-	-	-	-	684
Stage 2	-	-	-	-	583
Critical Hdwy	4.18	-	-	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	2.272	-	-	-	3.5
Pot Cap-1 Maneuver	874	-	-	-	188
Stage 1	-	-	-	-	505
Stage 2	-	-	-	-	562
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	874	-	-	-	185
Mov Cap-2 Maneuver	-	-	-	-	323
Stage 1	-	-	-	-	498
Stage 2	-	-	-	-	562

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	17.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	874	-	-	-	436
HCM Lane V/C Ratio	0.014	-	-	-	0.33
HCM Control Delay (s)	9.2	-	-	-	17.3
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	1.4

HCM 6th TWSC  
4: SR-20 & Carter Rd

McGarigle Development

Intersection

Int Delay, s/veh	4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	509	612	19	12	119
Future Vol, veh/h	11	509	612	19	12	119
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	78	86	86	53	53
Heavy Vehicles, %	8	8	5	5	0	0
Mvmt Flow	14	653	712	22	23	225

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	734	0	0	1404	723
Stage 1	-	-	-	723	-
Stage 2	-	-	-	681	-
Critical Hdwy	4.18	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	5.4	-
Follow-up Hdwy	2.272	-	-	3.5	3.3
Pot Cap-1 Maneuver	844	-	-	155	430
Stage 1	-	-	-	484	-
Stage 2	-	-	-	506	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	844	-	-	152	430
Mov Cap-2 Maneuver	-	-	-	290	-
Stage 1	-	-	-	476	-
Stage 2	-	-	-	506	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	26
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	844	-	-	-	412
HCM Lane V/C Ratio	0.017	-	-	-	0.6
HCM Control Delay (s)	9.3	-	-	-	26
HCM Lane LOS	A	-	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	3.8

HCM 6th TWSC  
4: SR-20 & Carter Rd

McGarigle Development

Intersection

Int Delay, s/veh 2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	509	612	19	12	132
Future Vol, veh/h	17	509	612	19	12	132
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	8	8	5	5	0	0
Mvmt Flow	19	559	673	21	13	145

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	694	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.18	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.272	-	-
Pot Cap-1 Maneuver	874	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	874	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	17.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	874	-	-	-	437
HCM Lane V/C Ratio	0.021	-	-	-	0.362
HCM Control Delay (s)	9.2	-	-	-	17.8
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.6

HCM 6th TWSC  
4: SR-20 & Carter Rd

McGarigle Development

Intersection

Int Delay, s/veh	4.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	509	612	19	12	132
Future Vol, veh/h	17	509	612	19	12	132
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	78	86	86	53	53
Heavy Vehicles, %	8	8	5	5	0	0
Mvmt Flow	22	653	712	22	23	249

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	734	0	-	0	1420
Stage 1	-	-	-	-	723
Stage 2	-	-	-	-	697
Critical Hdwy	4.18	-	-	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	2.272	-	-	-	3.5
Pot Cap-1 Maneuver	844	-	-	-	152
Stage 1	-	-	-	-	484
Stage 2	-	-	-	-	498
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	844	-	-	-	148
Mov Cap-2 Maneuver	-	-	-	-	284
Stage 1	-	-	-	-	471
Stage 2	-	-	-	-	498

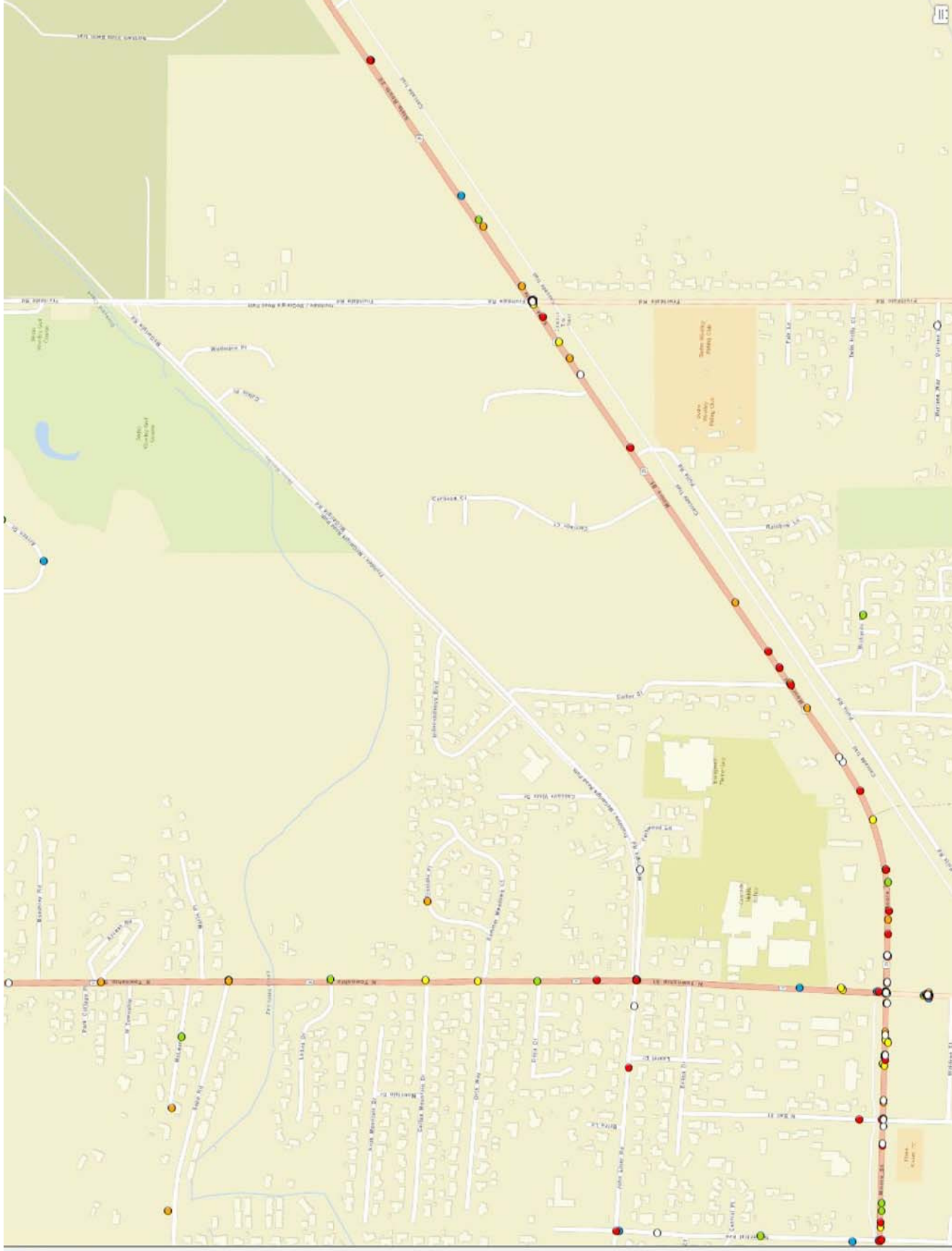
Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	29.1
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	844	-	-	-	412
HCM Lane V/C Ratio	0.026	-	-	-	0.659
HCM Control Delay (s)	9.4	-	-	-	29.1
HCM Lane LOS	A	-	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	4.6

# Collision Data

JURISDICTION	COUNTY	CITY	PRIMARY TRAFFICWAY	DIST FROM REF POINT	MI OF FT	COMP DIR FROM REF POINT	REFERENCE POINT NAME	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	# I N J U R I E S	# P E R I C U L O U S	WEATHER	ROADWAY SURFACE CONDITION	FIRST COLLISION TYPE / OBJECT STRUCK	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)	
City Street	Skagit	Sedro-WMCGARGLE RD	PARKWOOD LN	116 F	W			E894251	2019-02-08	13:52	No Apparent Injury	0	0	0	Showing	Snow/Slush	From same direction - both going straight - one stopped - rear-end	Follow Too Closely

- Layers
- State Collision Data
  - WA\_State\_All\_Collisions\_available\_2019
  - WA\_State\_All\_Collisions\_2018
  - WA\_State\_All\_Collisions\_2017
  - WA\_State\_All\_Collisions\_2016
  - WA\_State\_All\_Collisions\_2015
  - WA\_State\_All\_Collisions\_2014
  - WA\_State\_All\_Collisions\_2013
- Basemap
  - World Imagery
  - Basemap
  - World Street Map





# Planning Documents



# Six Year Transportation Improvement Program From 2020 to 2025

Agency: Sedro Woolley  
 County: Skagit  
 MPO/RTPO: SCOG

N Outside

Y Inside

Functional Class	16	Priority Number	10	A. PIN/Project No. C. Project Title D. Road Name or Number E. Begin & End Termini F. Project Description	B. STIP ID G. Structure ID	Hearing	06/26/19	Adopted	07/10/19	Amendment	Resolution No.	1030-19	Improvement Type	03	Utility Codes	Total Length	0.100 CE	Environmental Type		RW Required	Yes
				SR9N/T ownship St & John Liner/McGarigle Intersection Improvements SR 9 MP 57.38 to MP 57.48 Intersection Improvements, including signalization or Single Lane Roundabout.																	

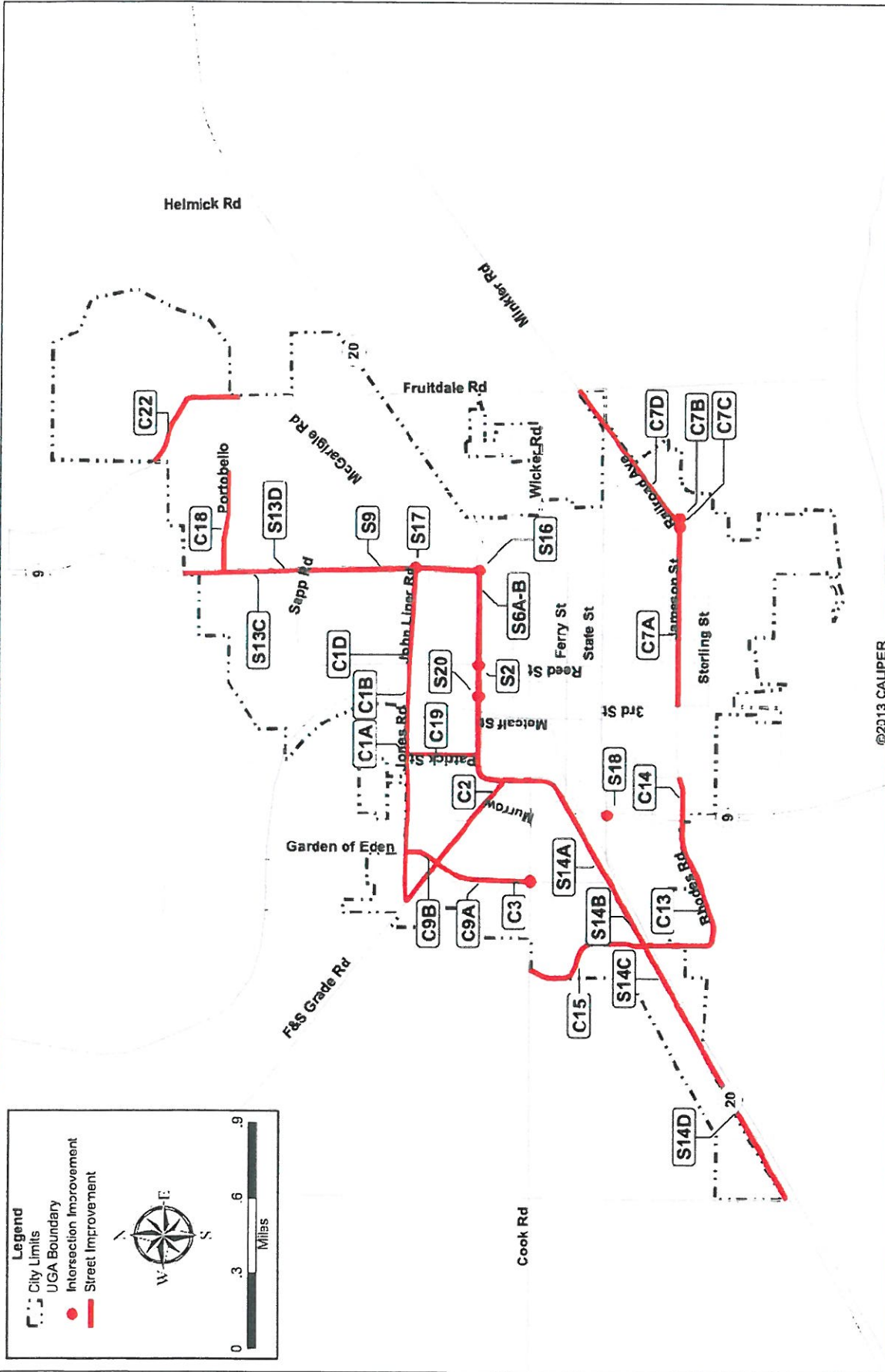
Funding									
Status	Phase	Phase Start Year (YYYY)	Federal Fund Code	Federal Funds	State Fund Code	State Funds	Local Funds	Total Funds	Total Funds
P	ALL	2023		0	WSDOT	2,763,000		921,000	3,684,000
Totals				0		2,763,000		921,000	3,684,000

Expenditure Schedule						
Phase	1st	2nd	3rd	4th	5th & 6th	Totals
ALL	1,476,000	2,208,000	0	0	0	0
Totals	1,476,000	2,208,000	0	0	0	0



Figure 9  
Impact Fee Eligible Projects  
City of Sedro-Woolley

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### Transportation Impact Fee Project List

ID	Project Name	Project Limits	Description	Total Est. Cost (\$)
C14	Jameson Arterial Extension	SR 9 / Batey Rd	New arterial segment	3,020,000
S14A	SR20/Cascade Trail West Extension Ph.1A	Trail Rd / SR 9 South	Shared use path	575,000
S14B	SR20/Cascade Trail West Extension Ph.1B	Hodgin Rd / Trail Rd	Shared use path	288,000
C22	Fruitdale Rd Arterial Improvements	Portobello / North City Limit	Reconstruct to arterial standards incl. roundabout at Northern State Rd	2,320,000
C1B	Jones/John Liner RR Undecrossing	Sapp Rd / Reed St	New BNSF undercrossing and new arterial from E Jones Rd to John Liner Rd	7,700,000
C1C	John Liner Bike/Ped Impr	Redd St / SR 9	Complete Streets completion	555,000
C19	Patrick St Extension	Michael St/E Jones St	New major collector w/sidewalks	2,100,000
C1A	Jones Rd Improvements	F&S Grade Rd / Sapp Rd	Reconstruct to arterial section including sidewalk & shared use path	3,200,000
S16	SR20 & SR9 (Township) Intersection Impr.		Channelization and signal improvements	1,000,000
C18	Portobello Arterial Extension	Township / Cascadia	New major collector connecting Fruitdale w/ SR 9	1,700,000
S2	SR20 & Reed St Intersection Impr.		RIRO access restriction	50,000
S18	SR 9 / W State St Intersection Impr		Intersection improvements	250,000
C3	Cook Rd / Trail Rd Intersection Improvements		Intersection improvements	1,000,000
C9A	Trail Rd Arterial Extension	Cook Rd / F&S Grade	Construct new minor arterial	4,000,000
C9B	Trail Rd – Garden of Eden Rd Extension	F&S Grade / Jones Rd	Construct new minor arterial	850,000
S13C	SR9N Ped/Bike Safety Improvements	Park Cottage / N City Limits	Bike lane & sidewalk improvements	434,000
S17	Township St (SR 9) & John Liner/McGarigle Rd Intersection Improvements		Intersection improvements	1,000,000
C1D	John Liner Rd Arterial Improvements	Reed St / Township St	Reconstruct to arterial section	1,600,000
S6 A-B	SR 20 East Lane Widening & Safety Improvements	SR 9 / Fruitdale Rd	Improve and widen to 3 lanes	960,000
C7A	Jameson St Arterial Improvements	600' e/o Batey to Railroad St	Widen to arterial standards w/3 lanes, bike lane, sidewalk	3,600,000
C7B	Jameson / 11 <sup>th</sup> St Intersection Improvements		Change access to RIRO	70,000
C7C	Railroad St / Jameson Intersection Improvements		Intersection improvements to include new roundabout	750,000
C7D	Railroad St Arterial Improvements	Jameson St / Fruitdale	Reconstruct to arterial standards incl. 3 lanes, bike lanes, sidewalks	2,880,000
C2	F&S Grade Rd Arterial Improvements	SR20 MP 65.16 / Jones Rd	Reconstruct to arterial standards	2,960,000
S14C	SR20/Cascade Trail West Extension Ph.2A	Holtcamp Rd/Hodgin Rd	Shared use path	600,000
S20	SR 20 / Central Ave Intersection Improvements		Intersection improvements or RIRO	150,000
S14D	SR20/Cascade Trail West Extension Ph.2B	Collins Rd/Holtcamp Rd	Shared use path	620,000

<b>ID</b>	<b>Project Name</b>	<b>Project Limits</b>	<b>Description</b>	<b>Total Est. Cost (\$)</b>
C13	Rhodes Rd Arterial Impr	SR 9 / SR 20	Reconstruct to arterial standards incl. bike lanes, sidewalks	3,200,000
C15	Hodgin Rd Arterial Ext.	SR 20 / Cook	New collector arterial	2,225,000
S9	SR9/N Township St Arterial Improvements	SR 20 / City limits	Planning phase – reconstruct to arterial standards incl. 3 lanes, bike lanes, sidewalk	100,000
S13D	SR9 / Centennial Trail Ped/Bike Safety Improvements	Summer Meadows P1 / North City Limits	Construct bicycle lane and sidewalk improvements incl. ped crossing bridge at Brickyard Crk	1,700,000