

Western Canyon Communities Circulation Plan Technical Memorandum

Community Planning Association



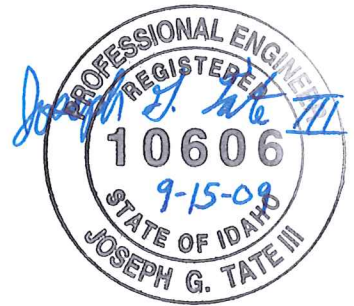
September 15, 2009

Parametrix

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FINAL TECHNICAL MEMORANDUM

Date: **September 15, 2009**
To: **Don Matson**
Community Planning Association (COMPASS)
800 S. Industry Way Ste 100
Meridian, ID 83642
From: **Joseph Tate, PE, PTOE**
Subject: **Technical Memorandum of Findings**
cc: **PMX Project File**
Project Number: **P.O. # 741026**
Project Name: **Western Canyon Communities Circulation Plan (WCCCP)**



1. INTRODUCTION

In July of 2008, the cities of Wilder and Greenleaf received a grant to determine the feasibility of economic development along Peckham Road, with the City of Wilder as the city of record for the project. As part of that study currently being completed by Sage Community Resources, all infrastructure along Peckham Road is being examined, including telephone, fiber optics, natural gas, water and sewer, with the intention of meeting future commercial and industrial needs, with long term scenarios assuming total build-out along Peckham Road. Peckham Road runs parallel to SH-19 between the cities of Wilder and Greenleaf, and is believed to have potential for development as an economic corridor with regional significance for a 'triangle' generally defined by Hwy 20-26, Hwy 95, and SH-19.

In conjunction with the aforementioned study, this study is being conducted separately through COMPASS to investigate potential growth scenarios for this area and to determine the impacts to the transportation infrastructure for each of the scenarios. This study includes determining the recommended roadway improvements and the associated costs for the growth scenarios determined to be carried forward. This study also includes determining rail, and bike lane and pathway recommendations and the associated costs for this area.

2. ROADWAY RECOMMENDATIONS AND COSTS

As part of the Western Canyon Communities Circulation Plan, the following five growth scenarios were evaluated by COMPASS to determine the future traffic projections beyond 2030:

- 1) Smart Growth
- 2) Commercial/Food Processing
- 3) Commercial/Industrial/Food Processing
- 4) Commercial/Industrial
- 5) Sprawl

Refer to Figure 1 for summary information regarding the five growth scenarios. COMPASS modeled the five growth scenarios and the traffic projections for Scenarios 2, 3, and 4 (commercial land uses) were determined to have similar results. Therefore the following three growth scenarios were carried forward for further evaluation:

- 1) Smart Growth
- 2) Commercial/Industrial
- 3) Sprawl

Western Canyon Communities Circulation Plan

3% Growth Rate Projection - 2030 beyond

Existing Conditions (approx.) 2,300 Households, 1,300 Jobs

With a 3% annual growth rate, a figure will double about every 25 years.

Existing		3% to 2030		3% to 2040		3% to 2050	
Households	Jobs	Households	Jobs	Households	Jobs	Households	Jobs
2,300	1,300	4,000 - 4,500	2,300 - 2,600	5,400 - 6,000	3,000 - 3,400	7,500 - 8,000	4,100 - 4,600

Scenarios at 3% Annual Rate

Smart Growth 11,600 - 13,400 HH 15,400 Jobs	Smart Growth scenario would reach residential build-out with 11,600 - 13,400 units by 2070 . Employment build-out of 15,400 jobs would occur after 2090 .
Commercial/Food Processing 11,600 - 13,400 HH 21,200 Jobs	Commercial/Food Processing scenario would reach residential build-out with 11,600 - 13,400 units by 2070 . Employment build-out of 21,200 jobs would occur after 2105 .
Commercial/Industrial/Food Processing 11,600 - 13,400 HH 24,500 Jobs	Commercial/industrial/Food Processing scenario would reach residential build-out with 11,600 - 13,400 units by 2070 . Employment build-out would occur around 2110 with 24,500 jobs.
Commercial/Industrial 11,600 - 13,400 HH 26,800 Jobs	Commercial/Industrial scenario would reach residential build-out with 11,600 - 13,400 units by 2070 . Employment build-out would occur after 2110 with 26,800 jobs.
Sprawl 7,800 HH 1,500 Jobs	Sprawl scenario would reach residential build-out around 2050 with 7,800 units. Employment build-out of 1,500 jobs would occur by 2015 .

Figure 1. Summary of Growth Scenarios

COMPASS utilized their Regional Travel Demand Model to provide traffic projections for the three scenarios and Parametrix performed an evaluation to determine the roadway improvements needed to accommodate the forecasted travel demand levels. COMPASS then updated the Traffic Demand Model with the changes in roadway improvements to generate updated traffic projections. This continued as an iterative process until COMPASS and Parametrix determined that the three models adequately reflected the necessary roadway improvements for the growth scenarios. Refer to Table 1 for a summary of the traffic capacity guidelines utilized for this study (taken from Table 4 -2 of the Florida DOT LOS Handbook - generalized annual average daily volumes for Florida's areas transitioning into urbanized areas or areas over 5,000 in population but not in urbanized areas). These guidelines were utilized because they are commonly used a practical planning tool, are deemed applicable to this study, and because COMPASS does not publish their own traffic capacity guidelines. Refer to Appendix A for Table 4-2 of the Florida DOT LOS Handbook. Refer to Appendix B for the final COMPASS travel demand projections for the three scenarios evaluated.

Table 1. Traffic Capacity Guidelines

Type of Roadway	Capacity (LOS D)
2-lane collector w/o left turn lanes	7,520
2-lane collector w/ left turn lanes (3 lanes)	9,400
4-lane collector w/o left turn lanes	15,150
4-lane collector w/ left turn lanes (5 lanes)	19,190
2-lane arterial w/o left turn lanes	10,880
2-lane arterial w/ left turn lanes (3 lanes)	13,600
4-lane arterial w/o left turn lanes	21,975
4-lane arterial w/ left turn lanes (5 lanes)	27,835
6-lane arterial w/o left turn lanes	33,075
6-lane arterial w/ left turn lanes (7 lanes)	41,895

Source: Table 4-2, Florida DOT LOS Handbook

Refer to Figure 2, Figure 3, and Figure 4 for sketch maps showing the recommended road improvements for the three traffic scenarios. Refer to Table 2, Table 3, and Table 4 for a summary of the recommended road improvements for the three traffic scenarios.

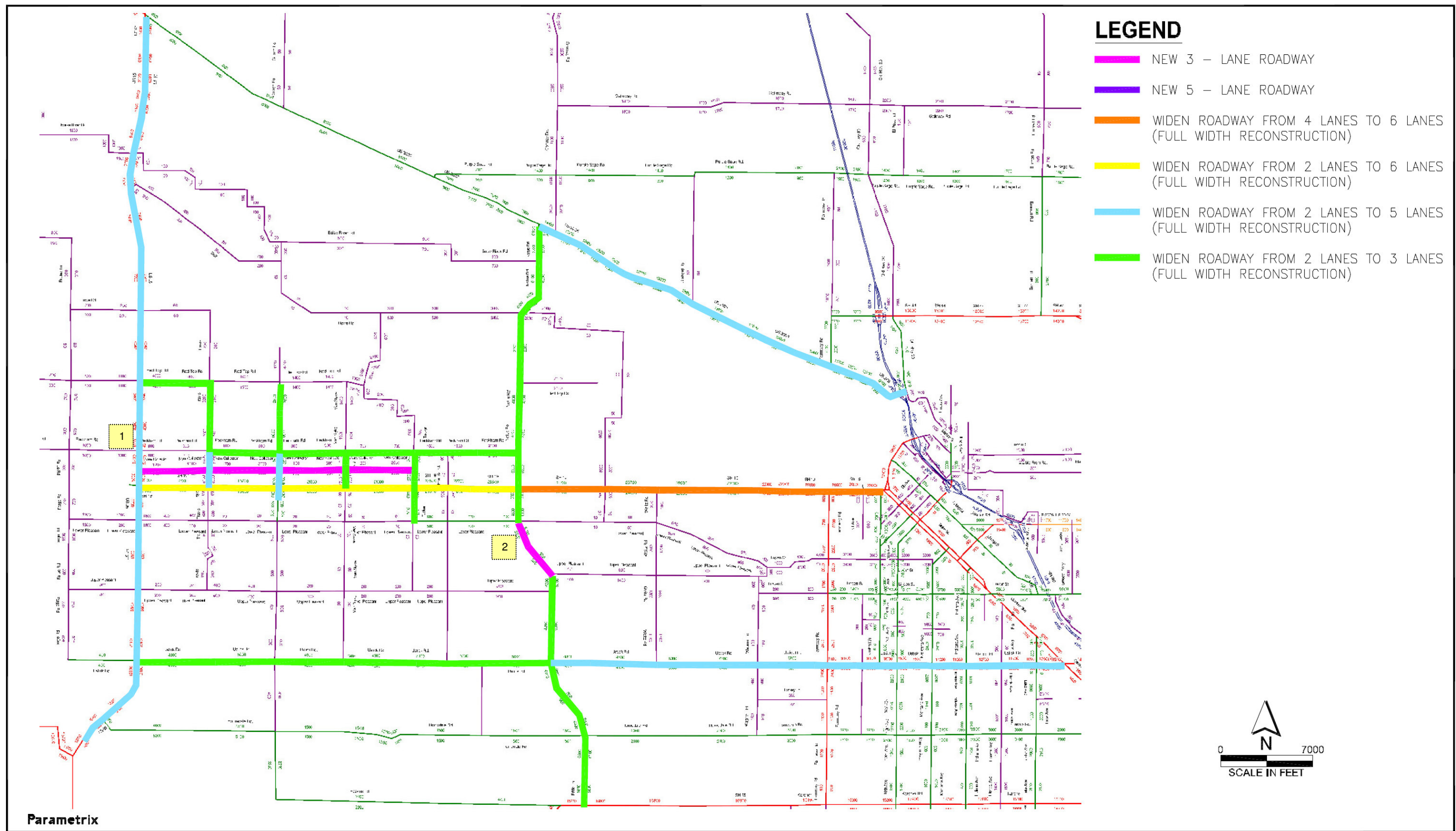


Figure 2. Sketch Map - Recommended Road Improvements for Smart Growth Scenario

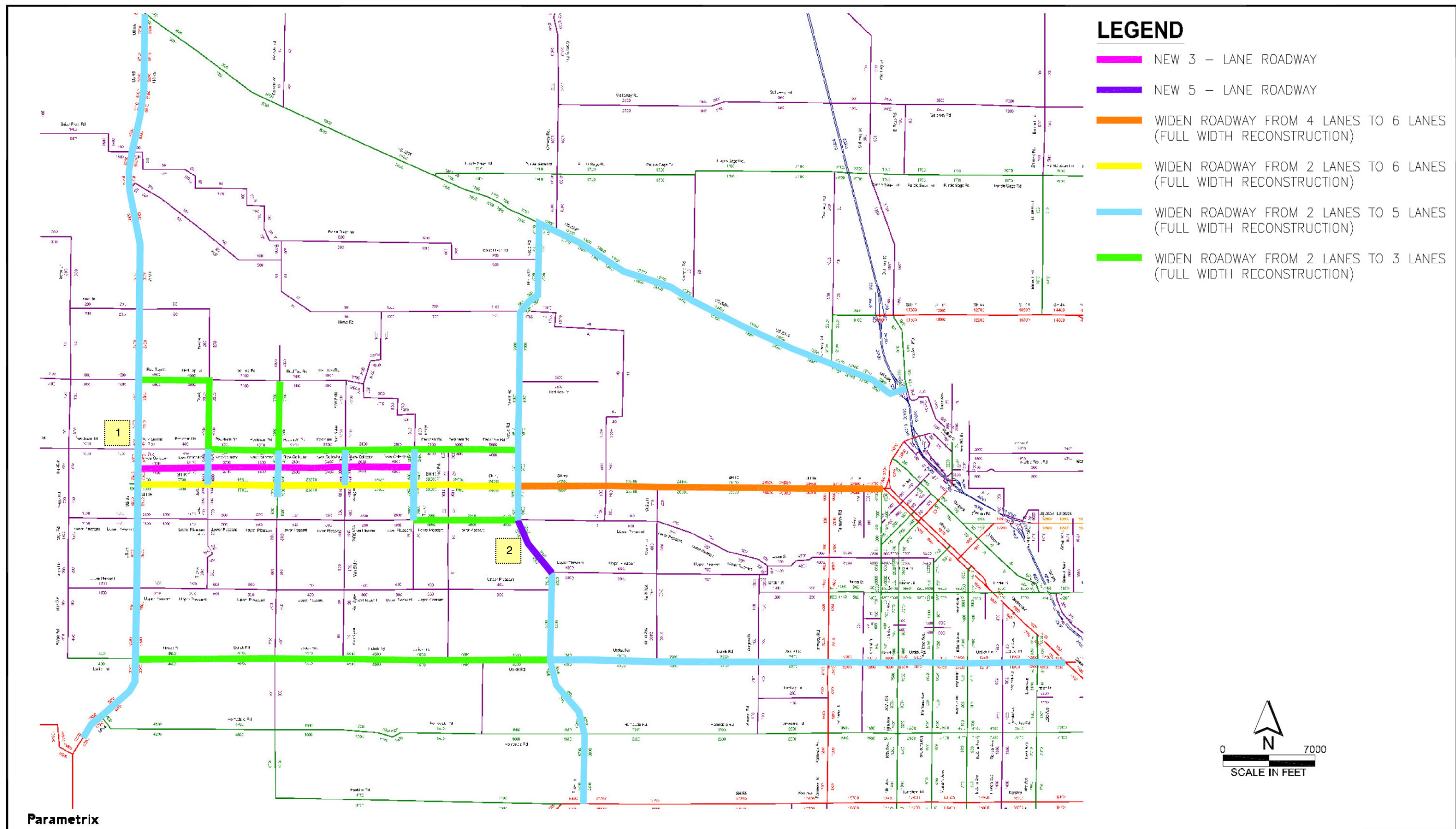
¹US 95 through Wilder is already at 4 lanes but would need to be widened.

²The appropriate location for a north/south connection to SH 55 is being studied by the Canyon County Highway Districts.

Table 2. Summary of Recommended Road Improvements for Smart Growth Scenario

Road	Dir	Begin	End	Lane Miles	# Lanes	Rural Section / Urban Section	Cross-Section	Figure	Minimum Thickness			³ ROW Width
									Pavement	Base	Subbase	
Allendale	N/S	Red Top	Peckham	1.0	3	Rural	40' Pavement / 54' Top Width	5	6"	9"	21"	130'
Allendale	N/S	Peckham	south of SH-19	0.75	5	Rural	64' Pavement / 78' Top Width	6	6"	9"	21"	130'
New E/W Collector	E/W	US 95	Tucker	4.0	3	Urban	40' Pavement / 40' Top Width	7	6"	9"	21"	100'
New N/S Connection ⁵	NW/SE	L. Pleasant/Notus	U. Pleasant/Pride	1.25	3	Rural	40' Pavement / 54' Top Width	5	6"	9"	21"	130'
Notus	N/S	US 20/26	Lower Pleasant	4.5	3	Rural	40' Pavement / 54' Top Width	5	6"	9"	21"	130'
Peckham	E/W	Travis	Notus	4.5	3	Urban	40' Pavement / 40' Top Width	7	6"	9"	21"	130'
Pride ⁵	N/S	Upper Pleasant	SH-55	3.25	3	Rural	40' Pavement / 54' Top Width	5	6"	9"	21"	130'
Red Top	E/W	US 95	Travis	1.0	3	Rural	40' Pavement / 54' Top Width	5	6"	9"	21"	130'
SH-19	E/W	US 95	Notus	5.5	6	Rural	88' Pavement / 88' Top Width	²	6"	9"	21"	150'
SH-19	E/W	Notus	Centennial	5.25	6	Rural	88' Pavement / 88' Top Width	²	6"	9"	21"	150'
Travis	N/S	Red Top	Peckham	1.0	3	Rural	40' Pavement / 54' Top Width	5	6"	9"	21"	130'
Travis	N/S	Peckham	SH-19	0.5	5	Rural	64' Pavement / 78' Top Width	6	6"	9"	21"	130'
Tucker	N/S	Peckham	Lower Pleasant	1.0	3	Rural	40' Pavement / 54' Top Width	5	6"	9"	21"	130'
US 20/26	NW/SE	Notus	I-84	6.0	5	¹ Rural	78' Pavement / 78' Top Width	6	6"	9"	21"	130'
US 95	N/S	SH-19	Snake River Bridge	3.5	5	¹ Rural	78' Pavement / 78' Top Width	6	6"	9"	21"	130'
US 95 ⁴	N/S	Roswell Blvd. (Hwy 18)	SH-19	9.2	5	¹ Rural	78' Pavement / 78' Top Width	6	6"	9"	21"	130'
Ustick	E/W	US 95	Pride	6.5	3	Rural	40' Pavement / 54' Top Width	5	6"	9"	21"	130'
Ustick	E/W	Pride	Cleveland	7.0	5	Rural	64' Pavement / 78' Top Width	6	6"	9"	21"	130'
Van Slyke	N/S	Peckham	SH-19	0.5	3	Rural	40' Pavement / 54' Top Width	5	6"	9"	21"	130'

¹Shoulders are to be paved (8' width) and outside travel lanes are to be 12'.
²ACCHD does not have a typical section for a 6-lane roadway; section is assumed to consist of 6 - 12' lanes and 8' paved shoulders.
³ACCHD Policy - For the purpose of future planning, all section and quarter section line roads or boundaries are considered as potential arterials or collector highways. Section line roads will require a 130 foot right-of-way and quarter section line roads will require a 100 foot right-of-way. Some other roads may also be similarly designated. Presently these roads, where established, serve as farm-to-market and/or commuter routes. The District desires to preserve the integrity of these routes by designating them as potential arterials or collectors, and for this reason it is also deemed advisable to restrict the number of access points (driveways, etc.) in order to reduce safety problems and allow traffic to flow expeditiously and unimpeded.
⁴US 95 through Wilder is already at 4 lanes but would need to be widened.
⁵The appropriate location for a north/south connection to SH 55 is being studied by the Canyon County Highway Districts.



¹US 95 through Wilder is already at 4 lanes but would need to be widened.
²The appropriate location for a north/south connection to SH 55 is being studied by the Canyon County Highway Districts.

Table 3. Summary of Recommended Road Improvements for Commercial/Industrial Scenario

Road	Dir	Begin	End	Lane Miles	# Lanes	Rural Section / Urban Section	Cross-Section	Figure	Minimum Thickness			³ ROW Width
									Pavement	Base	Subbase	
Allendale	N/S	Red Top	Peckham	1.0	3	Rural	40' Pavement / 54' Top Width	5	6"	9"	21"	130'
Allendale	N/S	Peckham	south of SH-19	0.75	5	Rural	64' Pavement / 78' Top Width	6	6"	9"	21"	130'
Lower Pleasant	E/W	Tucker	Notus	1.5	3	Rural	40' Pavement / 54' Top Width	5	6"	9"	21"	130'
New E/W Collector	E/W	US 95	Tucker	4.0	3	Urban	40' Pavement / 40' Top Width	7	6"	9"	21"	100'
New N/S Connection ⁵	NW/SE	L. Pleasant/Notus	U. Pleasant/Pride	1.25	5	Rural	64' Pavement / 78' Top Width	6	6"	9"	21"	130'
Notus	N/S	US 20/26	Lower Pleasant	4.5	5	Rural	64' Pavement / 78' Top Width	6	6"	9"	21"	130'
Peckham	E/W	Travis	Notus	4.5	3	Urban	40' Pavement / 40' Top Width	7	6"	9"	21"	130'
Pride ⁵	N/S	Upper Pleasant	SH-55	3.25	5	Rural	64' Pavement / 78' Top Width	6	6"	9"	21"	130'
Red Top	E/W	US 95	Travis	1.0	3	Rural	40' Pavement / 54' Top Width	5	6"	9"	21"	130'
SH-19	E/W	US 95	Notus	5.5	6	Rural	88' Pavement / 88' Top Width	²	6"	9"	21"	150'
SH-19	E/W	Notus	Centennial	5.25	6	Rural	88' Pavement / 88' Top Width	²	6"	9"	21"	150'
Travis	N/S	Red Top	Peckham	1.0	3	Rural	40' Pavement / 54' Top Width	5	6"	9"	21"	130'
Travis	N/S	Peckham	SH-19	0.5	5	Rural	64' Pavement / 78' Top Width	6	6"	9"	21"	130'
Tucker	N/S	Peckham	Lower Pleasant	1.0	5	Rural	64' Pavement / 78' Top Width	6	6"	9"	21"	130'
US 20/26	NW/SE	Notus	I-84	6.0	5	¹ Rural	78' Pavement / 78' Top Width	6	6"	9"	21"	130'
US 95	N/S	SH-19	Snake River Bridge	3.5	5	¹ Rural	78' Pavement / 78' Top Width	6	6"	9"	21"	130'
US 95 ⁴	N/S	Roswell Blvd. (Hwy 18)	SH-19	9.2	5	¹ Rural	78' Pavement / 78' Top Width	6	6"	9"	21"	130'
Ustick	E/W	US 95	Pride	6.5	3	Rural	40' Pavement / 54' Top Width	5	6"	9"	21"	130''
Ustick	E/W	Pride	Cleveland	7.0	5	Rural	64' Pavement / 78' Top Width	6	6"	9"	21"	130'
Van Slyke	N/S	Peckham	SH-19	0.5	5	Rural	64' Pavement / 78' Top Width	6	6"	9"	21"	130'

¹Shoulders are to be paved (8' width) and outside travel lane is to be 12'.

²ACCHD does not have a typical section for a 6-lane roadway; section is assumed to consist of 6 - 12' lanes and 8' paved shoulders

³ACCHD Policy - For the purpose of future planning, all section and quarter section line roads or boundaries are considered as potential arterials or collector highways. Section line roads will require a "130 foot right-of-way and quarter section line roads will require a 100 foot right-of-way. Some other roads may also be similarly designated. Presently these roads, where established, serve as farm-to-market and/or commuter routes. The District desires to preserve the integrity of these routes by designating them as potential arterials or collectors, "and for this reason it is also deemed advisable to restrict the number of access points (driveways, etc.) in order to reduce safety problems and allow traffic to flow expeditiously and unimpeded.

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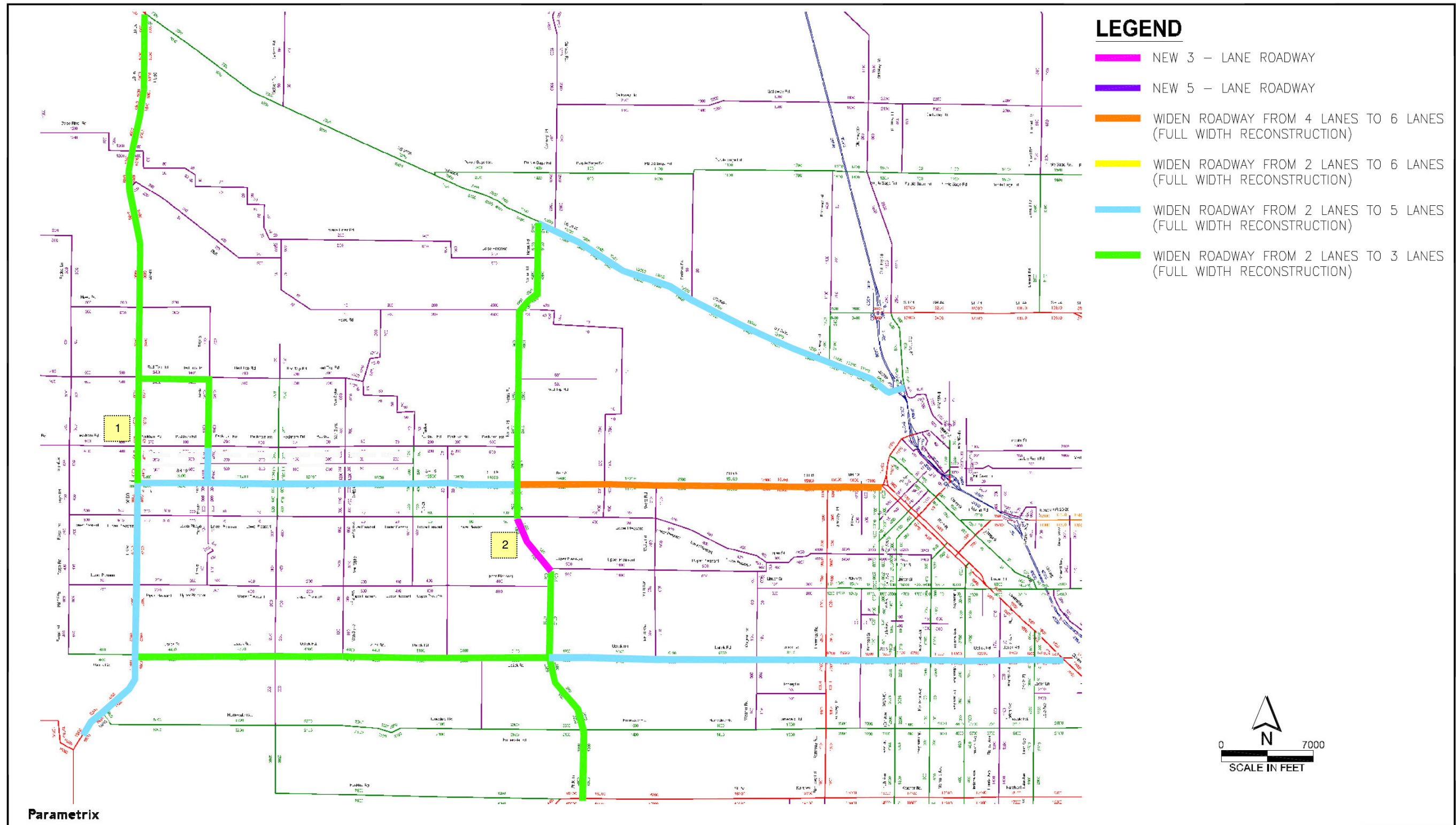


Figure 4. Sketch Map - Recommended Road Improvements for Sprawl Scenario

¹US 95 through Wilder is already at 4 lanes.

²The appropriate location for a north/south connection to SH 55 is being studied by the Canyon County Highway Districts.

Table 4. Summary of Improvements for Sprawl Scenario

Road	Dir	Begin	End	Lane Miles	# Lanes	Rural Section / Urban Section	Cross-Section	Figure	Minimum Thickness			³ ROW Width
									Pavement	Base	Subbase	
New N/S Connection ⁵	NW/SE	L. Pleasant/Notus	U. Pleasant/Pride	1.25	3	Rural	40' Pavement / 54' Top Width	5	6"	9"	21"	130'
Notus	N/S	US 20/26	Lower Pleasant	4.5	3	Rural	40' Pavement / 54' Top Width	5	6"	9"	21"	130'
Pride ⁵	N/S	Upper Pleasant	SH-55	3.25	3	Rural	40' Pavement / 54' Top Width	5	6"	9"	21"	130'
Red Top	E/W	US 95	Travis	1.0	3	Rural	40' Pavement / 54' Top Width	5	6"	9"	21"	130'
SH-19	E/W	US 95	Notus	5.5	5	¹ Rural	78' Pavement / 78' Top Width	6	6"	9"	21"	130'
SH-19	E/W	Notus	Centennial	5.25	6	Rural	88' Pavement / 88' Top Width	²	6"	9"	21"	150'
Travis	N/S	Red Top	Peckham	1.0	3	Rural	40' Pavement / 54' Top Width	5	6"	9"	21"	130'
Travis	N/S	Peckham	SH-19	0.5	5	Rural	64' Pavement / 78' Top Width	6	6"	9"	21"	130'
US 20/26	NW/SE	Notus	I-84	6.0	5	¹ Rural	78' Pavement / 78' Top Width	6	6"	9"	21"	130'
US 95	N/S	SH-19	Snake River Bridge	3.5	5	¹ Rural	78' Pavement / 78' Top Width	6	6"	9"	21"	130'
US 95 ⁴	N/S	Roswell Blvd. (Hwy 18)	SH-19	9.2	3	¹ Rural	54' Pavement / 54' Top Width	6	6"	9"	21"	130'
Ustick	E/W	US 95	Pride	6.5	3	Rural	40' Pavement / 54' Top Width	5	6"	9"	21"	130'
Ustick	E/W	Pride	Cleveland	7.0	5	Rural	64' Pavement / 78' Top Width	6	6"	9"	21"	130'

¹Shoulders are to be paved (8' width) and outside travel lane is to be 12'.
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⁴US 95 through Wilder is already at 4 lanes.
⁵The appropriate location for a north/south connection to SH 55 is being studied by the Canyon County Highway Districts.

Refer to Figure 5, Figure 6, and Figure 7 for the typical sections utilized for this study, as called-out in the summary tables (Table 2, Table 3, and Table 4).

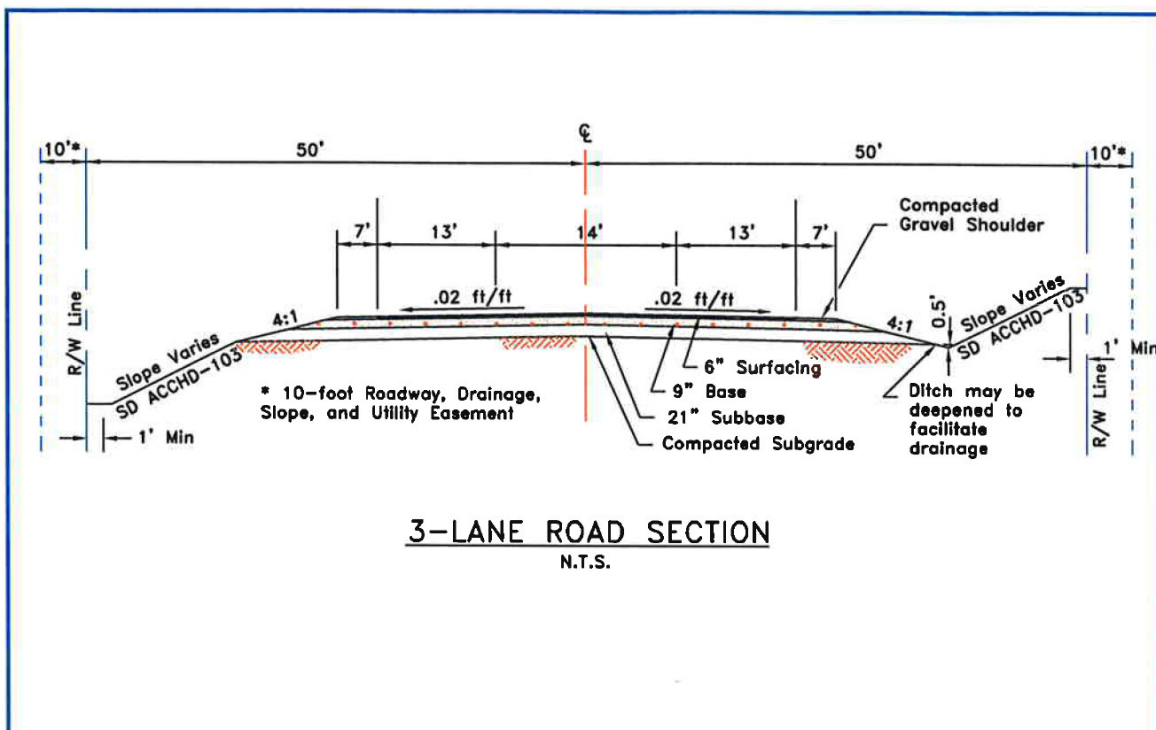


Figure 5. ACCHD 3-Lane Rural Road Typical Section

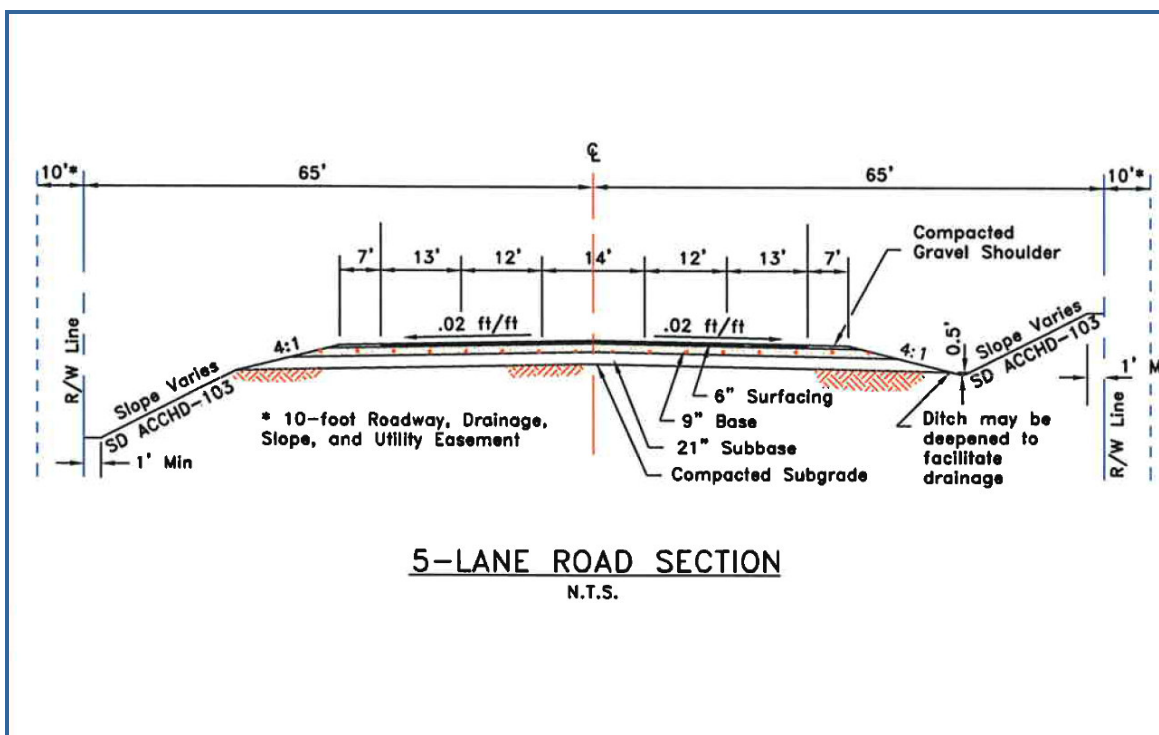


Figure 6. ACCHD 5-Lane Rural Road Typical Section

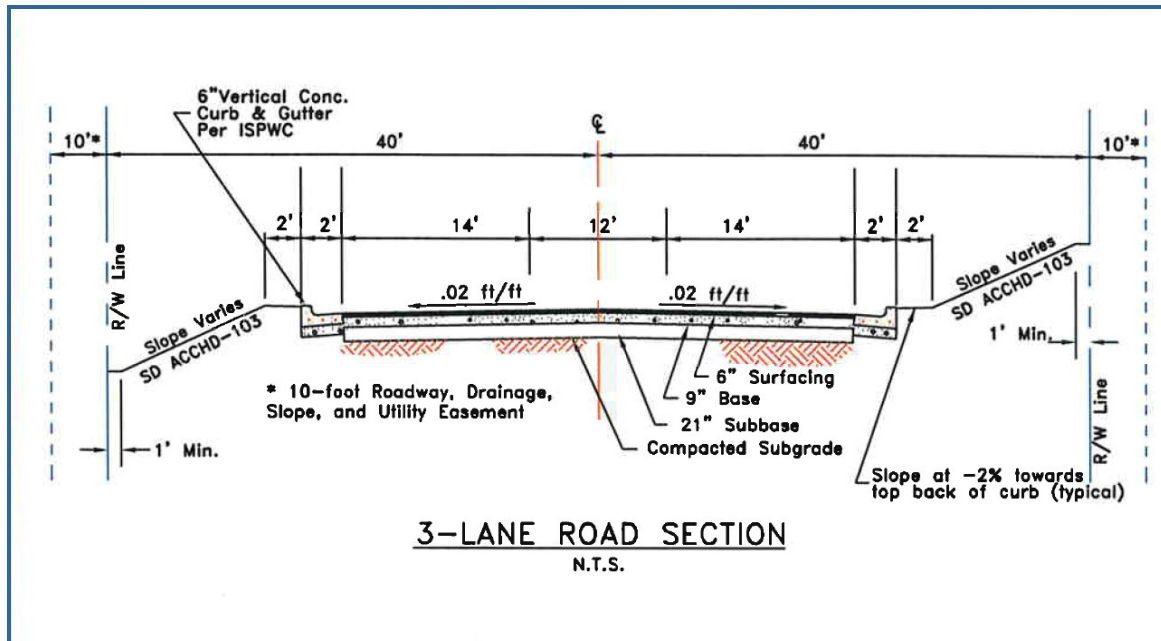


Figure 7. ACCHD 3-Lane Urban Road Typical Section

The three typical sections shown above that are being utilized for this study are referenced from the Highway Standards & Development Procedures for the Association of Canyon County Highway Districts (ACCHD). However, per the ACCHD Standards, during the design phase of a project, the asphalt thickness for all industrial developments shall be designed by a Professional Engineer, in accordance with Section 3060.070, to meet the projected traffic level of the development. ACCHD does not have a typical section for a 6-lane roadway. For the purpose of this study, the proposed 6-lane roadways (all state highways) are assumed to consist of 6-12' lanes, 8' shoulders, and 150' of Right-of-Way, with 6" of asphalt, 9" of base, and 21" of subbase.

Refer to Table 5 for a summary of the access management recommendations for this study. The access management recommendations for the state highways are taken from the ITD Access Control Policy for Type IV Urban Access Control. Per the policy, frontage roads and shared access are encouraged on these roadways. The access management recommendations for all the other roadways are taken from Section 3061 - Intersection and Approach Policy of the Highway Standards & Development Procedures for ACCHD. The access management recommendations are assumed to be implemented through the redevelopment process.

A brief traffic capacity analysis to determine the required additional turn lanes to achieve a Level-of-Service (LOS) D for the regional model year 2030 was completed for the following intersections for both the Smart Growth and Commercial/Industrial Scenarios due to their assumed relative need. The Sprawl Scenario was not considered because the relative projected traffic volumes are much lower for that scenario.

- 1) SH-19/US 95
- 2) SH-19/Allendale
- 3) SH-19/Tucker
- 4) SH-19/Notus
- 5) New E/W Collector/Allendale

Refer to Appendix C for a summary of the intersection turning movement volumes provided by COMPASS. Refer to Table 6 for the recommended intersection lane configurations. The SH-19/Travis, SH-19/Van Slyke, and the New E/W Collector/Travis intersections were not separately evaluated, however recommendations are provided based on the similarity to intersections that were evaluated, as indicated in Table 6.

Table 5. Access Management Recommendations

Road	Begin	End	Rural / Urban Section	Classification	Arterial Separation	Collector Separation		Local Road Separation		Driveway Separation ¹		
						Same Side	Opp. Side	Same Side	Opp. Side	Min Use	Mnr Gen	Maj Gen
Allendale	Peckham	south of SH-19	Rural	Collector - Major	n/a	1/4 mile	1/8 mile	1/8 mile	1/16 mile	-	-	-
Allendale	Red Top	Peckham	Rural	Collector - Minor	n/a	1/4 mile	1/8 mile	1/8 mile	1/16 mile	180'	315'	405'
Lower Pleasant	Tucker	19/55 Cnx	Rural	Collector - Minor	n/a	1/4 mile	1/8 mile	1/8 mile	1/16 mile	180'	315'	405'
New E/W Collector	US 95	Tucker	Urban	Collector - Major	n/a	1,300'	1,300'	500'	250'	-	-	-
New N/S Connection	L. Pleasant/Notus	U. Pleasant/Pride	Rural	Arterial - Minor	1/2 mile	1/4 mile	1/4 mile	-	-	-	-	-
Notus	US 20/26	Lower Pleasant	Rural	Arterial - Minor	1/2 mile	1/4 mile	1/4 mile	-	-	-	-	-
Peckham	Travis	Notus	Urban	Collector - Major	n/a	1,300'	1,300'	500'	250'	-	-	-
Pride	Upper Pleasant	SH-55	Rural	Arterial - Minor	1/2 mile	1/4 mile	1/4 mile	-	-	-	-	-
Red Top	US 95	Travis	Rural	Collector - Minor	n/a	1/4 mile	1/8 mile	1/8 mile	1/16 mile	180'	315'	405'
SH-19	US 95	Notus	Rural	Arterial - Principal ²	1/2 mile	1/2 mile	1/2 mile	-	-	-	-	-
SH-19	Notus	Centennial	Rural	Arterial - Principal ²	1/2 mile	1/2 mile	1/2 mile	-	-	-	-	-
Travis	Peckham	SH-19	Rural	Collector - Major	n/a	1/4 mile	1/8 mile	1/8 mile	1/16 mile	-	-	-
Travis	Red Top	Peckham	Rural	Collector - Minor	n/a	1/4 mile	1/8 mile	1/8 mile	1/16 mile	180'	315'	405'
Tucker	Peckham	Lower Pleasant	Rural	Collector - Major	n/a	1/4 mile	1/8 mile	1/8 mile	1/16 mile	-	-	-
US 20/26	Notus	I-84	Rural	Arterial - Principal ²	1/2 mile	1/2 mile	1/2 mile	-	-	-	-	-
US 95	SH-19	Bridge	Rural	Arterial - Principal ²	1/2 mile	1/2 mile	1/2 mile	-	-	-	-	-
US 95	Roswell Blvd.(Hwy 18)	SH-19	Rural	Arterial - Principal ²	1/2 mile	1/2 mile	1/2 mile	-	-	-	-	-
Ustick	US 95	Pride	Rural	Arterial - Minor	1/2 mile	1/4 mile	1/4 mile	-	-	-	-	-
Ustick	Pride	Cleveland	Rural	Arterial - Minor	1/2 mile	1/4 mile	1/4 mile	-	-	-	-	-
Van Slyke	Peckham	SH-19	Rural	Collector - Major	n/a	1/4 mile	1/8 mile	1/8 mile	1/16 mile	-	-	-

Unless noted, access management recommendations are taken from Section 3061 - Intersection and Approach Policy of the Highway Standards & Development Procedures for the Association of Canyon County Highway Districts (ACCHD).

¹ACCHD policy defined driveway classifications:

Minimum Use: less than 50 trips/day, or 5 trips/peak hour (two-way total)

Minor Generator: 51 to 5,000 trips/day, or less than 500 trips/peak hour (two-way total)

Major Generator: more than 5,000 trips/day, or more than 500 trips/peak hour (two-way total)

For this study, the major generator driveway spacing is recommended - smaller generators would likely be required to share driveways or take access from a local street.

²Based on ITD's Access Control Policy for Type IV Urban Access Control; frontage roads and shared access are encouraged.

Table 6. Recommended Intersection Lane Configurations

Intersection	Demographics	Eastbound			Westbound			Northbound			Southbound		
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
SH-19 / US 95	Smart Growth	1	3	0	1	3	0	1	2	0	1	2	0
SH-19 / US 95	Commercial / Industrial	1	3	0	1	3	0	1	2	0	1	2	0
SH-19 / Allendale	Smart Growth	1	3	0	1	3	0	1	2	0	2	2	0
SH-19 / Allendale	Commercial / Industrial	2	3	1	2	3	1	1	2	1	2	2	1
¹ SH-19 / Travis	Smart Growth	1	3	0	1	3	0	1	2	0	2	2	0
¹ SH-19 / Travis	Commercial / Industrial	2	3	1	2	3	1	1	2	1	2	2	1
SH-19 / Tucker	Smart Growth	1	3	0	1	3	0	1	2	0	1	2	0
SH-19 / Tucker	Commercial / Industrial	2	3	1	2	3	1	2	2	1	2	2	1
² SH-19 / Van Slyke	Smart Growth	1	3	0	1	3	0	1	2	0	1	2	0
² SH-19 / Van Slyke	Commercial / Industrial	2	3	1	2	3	1	2	2	1	2	2	1
SH-19 / Notus	Smart Growth	2	3	0	1	3	0	2	2	0	1	2	0
SH-19 / Notus	Commercial / Industrial	2	3	1	2	3	1	2	2	1	1	2	1
New Collector / Allendale	Smart Growth	1	1	0	1	1	0	1	2	0	1	2	0
New Collector / Allendale	Commercial / Industrial	2	1	0	2	1	0	2	2	0	1	2	0
³ New Collector / Travis	Smart Growth	1	1	0	1	1	0	1	2	0	1	2	0
³ New Collector / Travis	Commercial / Industrial	2	1	0	2	1	0	2	2	0	1	2	0

¹The SH-19 / Travis intersection was not evaluated separately but functions similar to the SH-19 / Allendale intersection; therefore it is assumed to have the same need.

²The SH-19 / Van Slyke intersection was not evaluated separately but functions similar to the SH-19 / Tucker intersection; therefore it is assumed to have the same need.

³The New Collector / Travis intersection was not evaluated separately but functions similar to the New Collector / Allendale intersection; therefore it is assumed to have the same need.

Cost Estimates were completed to determine the approximate cost per mile for each of the roadway sections (refer to Appendix D for the calculations). Refer to Table 7, Table 8, and Table 9 for a summary of the Road Improvement Costs for the Smart Growth, Commercial/Industrial, and Sprawl Scenarios.

Table 7. Approximate Road Improvement Costs for Smart Growth Scenario

Road	Dir.	Begin	End	Length (miles)	# Lanes	Section Type	Cost Per Mile	Total Cost	³ Additional Intersection Costs	Total Cost
Allendale	N/S	Red Top	Peckham	1.0	3	Rural	\$3,600,000	\$3,600,000	N/A	\$7,425,000
Allendale	N/S	Peckham	south of SH-19	0.75	5	Rural	\$5,100,000	\$3,825,000		
New E/W Col.	E/W	US 95	Tucker	4.0	3	Urban	\$3,200,000	\$12,800,000	\$500,000	\$13,300,000
New N/S Con. ⁴	NW/SE	L. Pleasant/Notus	U. Pleasant/Pride	1.25	3	Rural	\$3,600,000	\$4,500,000	N/A	\$4,500,000
Notus	N/S	US 20/26	Lower Pleasant	4.5	3	Rural	\$3,600,000	\$16,200,000	N/A	\$16,200,000
Peckham	E/W	Travis	Notus	4.5	3	Urban	\$3,200,000	\$14,400,000	N/A	\$14,400,000
Pride ⁴	N/S	Upper Pleasant	SH-55	3.25	3	Rural	\$3,600,000	\$11,700,000	N/A	\$11,700,000
Red Top	E/W	US 95	Travis	1.0	3	Rural	\$3,600,000	\$3,600,000	N/A	\$3,600,000
SH 19	E/W	US 95	Notus	5.5	6	² Rural	\$6,900,000	\$37,950,000	\$3,150,000	\$77,325,000
SH 19	E/W	Notus	Centennial	5.25	6	² Rural	\$6,900,000	\$36,225,000		
Travis	N/S	Red Top	Peckham	1.0	3	Rural	\$3,600,000	\$3,600,000	N/A	\$6,150,000
Travis	N/S	Peckham	SH-19	0.5	5	Rural	\$5,100,000	\$2,550,000		
Tucker	N/S	Peckham	Lower Pleasant	1.0	3	Rural	\$3,600,000	\$3,600,000		\$3,600,000
US 20/26	NW/SE	Notus	I-84	6.0	5	¹ Rural	\$5,500,000	\$33,000,000	N/A	
US 95	N/S	SH-19	Snake River Bridge	3.5	5	¹ Rural	\$5,500,000	\$19,250,000	N/A	\$69,850,000
US 95	N/S	Roswell Blvd.(Hwy 18)	SH-19	9.2	5	¹ Rural	\$5,500,000	\$50,600,000		
US 95 Snake River Structure								\$15,700,000	N/A	\$15,700,000
US 95 Boise River Structure								\$7,900,000	N/A	\$7,900,000
US 95 RR/US 20/26 Structure								\$5,500,000	N/A	\$5,500,000
US 95 Irrigation Crossing Structure (45' Span)								\$1,060,000	N/A	\$1,060,000
Ustick	E/W	US 95	Pride	6.5	3	Rural	\$3,600,000	\$23,400,000	N/A	\$59,100,000
Ustick	E/W	Pride	Cleveland	7.0	5	Rural	\$5,100,000	\$35,700,000		
Van Slyke	N/S	Peckham	SH-19	0.5	3	Rural	\$3,600,000	\$1,800,000	N/A	\$1,800,000
Total								\$348,460,000	\$3,650,000	\$352,110,000

¹Shoulders are to be paved (8' width) and outside travel lanes are to be 12'.

²ACCHD does not have a typical section for a 6-lane roadway; section is assumed to consist of 6 - 12' lanes and 8' paved shoulders.

³Additional costs for intersections requiring additional turn lanes and/or a traffic signal (costs beyond what is covered in the roadway segment costs). The costs for all additional intersection improvements along SH-19 are shown for SH-19 and not for the intersecting roadways. The costs for all additional intersection improvements along the New E/W Collector are shown for the E/W Collector and not for the intersecting roadways.

⁴The appropriate location for a north/south connection to SH 55 is being studied by the Canyon County Highway Districts.

Table 8. Approximate Road Improvement Costs for Commercial/Industrial Scenarios

Road	Dir.	Begin	End	Length (miles)	# Lanes	Section Type	Cost Per Mile	Segment Costs Sub-total	³ Additional Intersection Costs	Total Cost
Allendale	N/S	Red Top	Peckham	1.0	3	Rural	\$3,600,000	\$3,600,000	N/A	\$7,425,000
Allendale	N/S	Peckham	south of SH-19	0.75	5	Rural	\$5,100,000	\$3,825,000		
Lower Pleasant	E/W	Tucker	Notus	1.5	3	Rural	\$3,600,000	\$5,400,000	N/A	\$5,400,000
New E/W Col.	E/W	US 95	Tucker	4.0	3	Urban	\$3,200,000	\$12,800,000	\$1,100,000	\$13,900,000
New N/S Con. ⁴	NW/SE	L. Pleasant/Notus	U. Pleasant/Pride	1.25	5	Rural	\$5,100,000	\$6,375,000	N/A	\$6,375,000
Notus	N/S	US 20/26	Lower Pleasant	4.5	5	Rural	\$5,100,000	\$22,950,000	N/A	\$22,950,000
Peckham	E/W	Travis	Notus	4.5	3	Urban	\$3,200,000	\$14,400,000	N/A	\$14,400,000
Pride ⁴	N/S	Upper Pleasant	SH-55	3.25	5	Rural	\$5,100,000	\$16,575,000	N/A	\$16,575,000
Red Top	E/W	US 95	Travis	1.0	3	Rural	\$3,600,000	\$3,600,000	N/A	\$3,600,000
SH 19	E/W	US 95	Notus	5.5	6	² Rural	\$6,900,000	\$37,950,000	\$5,050,000	\$79,225,000
SH 19	E/W	Notus	Centennial	5.25	6	² Rural	\$6,900,000	\$36,225,000		
Travis	N/S	Red Top	Peckham	1.0	3	Rural	\$3,600,000	\$3,600,000	N/A	\$6,150,000
Travis	N/S	Peckham	SH-19	0.5	5	Rural	\$5,100,000	\$2,550,000		
Tucker	N/S	Peckham	Lower Pleasant	1.0	5	Rural	\$5,100,000	\$5,100,000	N/A	\$5,100,000
US 20/26	NW/SE	Notus	I-84	6.0	5	¹ Rural	\$5,500,000	\$33,000,000	N/A	\$33,000,000
US 95	N/S	SH-19	Snake River Bridge	3.5	5	¹ Rural	\$5,500,000	\$19,250,000	N/A	\$69,850,000
US 95	N/S	Roswell Blvd. (Hwy 18)	SH-19	9.2	5	¹ Rural	\$5,500,000	\$50,600,000		
US 95 Snake River Structure								\$15,700,000	N/A	\$15,700,000
US 95 Boise River Structure								\$7,900,000	N/A	\$7,900,000
US 95 RR/US 20/26 Structure								\$5,500,000	N/A	\$5,500,000
US 95 Irrigation Crossing Structure (45' Span)								\$1,060,000	N/A	\$1,060,000
Ustick	E/W	US 95	Pride	6.5	3	Rural	\$3,600,000	\$23,400,000	N/A	\$59,100,000
Ustick	E/W	Pride	Cleveland	7.0	5	Rural	\$5,100,000	\$35,700,000		
Van Slyke	N/S	Peckham	SH-19	0.5	5	Rural	\$5,100,000	\$2,550,000	N/A	\$2,550,000
Total								\$369,610,000	\$6,150,000	\$375,760,000

¹Shoulders are to be paved (8' width) and outside travel lane is to be 12'.

²ACCHD does not have a typical section for a 6-lane roadway; section is assumed to consist of 6 - 12' lanes and 8' paved shoulders

³Additional costs for intersections requiring additional turn lanes and/or a traffic signal (costs beyond what is covered in the roadway segment costs). The costs for all additional intersection improvements along SH-19 are shown for SH-19 and not for the intersecting roadways. The costs for all additional intersection improvements along the New E/W Collector are shown for the E/W Collector and not for the intersecting roadways.

⁴The appropriate location for a north/south connection to SH 55 is being studied by the Canyon County Highway Districts.

Table 9. Approximate Road Improvement Costs for Sprawl Scenario

Road	Dir.	Begin	End	Length (miles)	# Lanes	Section Type	Cost Per Mile	Total Cost	³ Additional Intersection Costs	Total Cost
New N/S Con. ⁴	NW/SE	L. Pleasant/Notus	U. Pleasant/Pride	1.25	3	Rural	\$3,600,000	\$4,500,000	N/A	\$4,500,000
Notus	N/S	US 20/26	Lower Pleasant	4.5	3	Rural	\$3,600,000	\$16,200,000	N/A	\$16,200,000
Pride ⁴	N/S	Upper Pleasant	SH-55	3.25	3	Rural	\$3,600,000	\$11,700,000	N/A	\$11,700,000
Red Top	E/W	US 95	Travis	1.0	3	Rural	\$3,600,000	\$3,600,000	N/A	\$3,600,000
SH 19	E/W	US 95	Notus	5.5	5	¹ Rural	\$5,500,000	\$30,250,000	\$1,500,000	\$67,975,000
SH 19	E/W	Notus	Centennial	5.25	6	² Rural	\$6,900,000	\$36,225,000		
Travis	N/S	Red Top	Peckham	1.0	3	Rural	\$3,600,000	\$3,600,000	N/A	\$6,150,000
Travis	N/S	Peckham	SH-19	0.5	5	Rural	\$5,100,000	\$2,550,000		
US 20/26	NW/SE	Notus	I-84	6.0	5	¹ Rural	\$5,500,000	\$33,000,000	N/A	\$33,000,000
US 95	N/S	SH-19	Snake River Bridge	3.5	5	¹ Rural	\$5,500,000	\$19,250,000	N/A	\$69,850,000
US 95	N/S	Roswell Blvd. (Hwy 18)	SH-19	9.2	3	¹ Rural	\$4,000,000	\$36,800,000		
US 95 Snake River Structure								\$15,700,000	N/A	\$15,700,000
US 95 Boise River Structure								\$7,900,000	N/A	\$7,900,000
US 95 RR/US 20/26 Structure								\$5,500,000	N/A	\$5,500,000
US 95 Irrigation Crossing Structure (45' Span)								\$1,060,000	N/A	\$1,060,000
Ustick	E/W	US 95	Pride	6.5	3	Rural	\$3,600,000	\$23,400,000	N/A	\$59,100,000
Ustick	E/W	Pride	Cleveland	7.0	5	Rural	\$5,100,000	\$35,700,000		
Total								\$286,935,000	\$1,500,000	\$288,435,000

¹Shoulders are to be paved (8' width) and outside travel lane is to be 12'.

²ACCHD does not have a typical section for a 6-lane roadway; section is assumed to consist of 6 - 12' lanes and 8' paved shoulders.

³Additional costs for intersections requiring additional turn lanes and/or a traffic signal (costs beyond what is covered in the roadway segment costs). The costs for all additional intersection improvements along SH-19 are shown for SH-19 and not for the intersecting roadways.

⁴The appropriate location for a north/south connection to SH 55 is being studied by the Canyon County Highway Districts.

3. RAIL RECOMMENDATIONS AND COSTS

Existing Conditions

An existing railroad line owned by Idaho Northern & Pacific Railroad Company crosses multiple roads identified in the Western Canyon Communities Circulation Plan (refer to Figure 8). Starting at Notus Road, the existing rail crosses Notus Rd. at grade, south of SH-19. The railroad crossing at Notus Road includes safety flashers and gates. Heading west, the rail runs parallel to SH-19 (Simplot Blvd.) for approximately 1500-feet. The rail then veers northwest and crosses SH-19 (Main Street) at a skew. The crossing is at grade, and is not protected with flashers or gates. The rail continues northwest before veering west (uphill) and running south of, and parallel to, Peckham Road. The rail crosses Friends Road, Tucker Road, Van Slyke Road, Allendale Road and Travis Road from east to west. At these five crossings, the existing roads are all two-lane roads. All of these crossings are perpendicular, at grade, and none include safety flashers or gates. An additional crossing of Peckham Road is located approximately 600' east of Allendale Road. This crossing is from a split in the railroad line south of Peckham Road that crosses Peckham Road to get to a farm on the north. This crossing is at grade, and does not include safety flashers or gates. This railroad crossing is at a skew to Peckham Road. The railroad running west continues past Travis Road, and crosses US 95 approximately 100-feet south of the intersection of US 95 and Peckham Road. (Please note that Peckham Road changes names to Golden Gate Ave E. just east of the US 95 intersection). The railroad crossing at US 95 is at grade, and does not include flashers or gates.

Future Improvements

Except for potentially at the SH-19 (Main Street) railroad crossing, the crossings are proposed to remain at-grade crossings, with no elevation changes to the existing railroad tracks. The railroad crossings at SH-19, Friends Road, Tucker Road, Van Slyke Road, Allendale Road and Travis Road will all require improvements to the railroad crossing due to the recommended future road widening. Improvements will consist of providing a concrete crossing pad, and replacement of the existing track rails, ballast rock, cross ties, tie plate system, and geotextile fabric. A turnout will also need to be constructed, to allow for maintenance access for the Idaho Northern & Pacific Railroad Company. These crossing would also be improved with safety flashers and gates to provide additional driver warning of an oncoming train. Due to the widths of the proposed roadways, raised median islands may need to be constructed within the widened roads for the purpose of having two safety gates in each direction of travel. Idaho Northern & Pacific Railroad Company performs all of the work related to the crossing, and is reimbursed (with the exception of any required raised medians).

Additionally, the crossing of SH-19 (Main Street) has been identified as a potential location where a grade separated crossing (roadway over the existing railroad tracks) could potentially be beneficial. Estimated costs for an at-grade crossing and a roadway structure crossing have been developed (refer to Appendix E for all of the rail cost calculations).

Estimated costs have been developed for the railroad improvements required to take an existing 2-lane, non-protected railroad crossing to a 5-lane protected crossing. Additionally, an estimated cost for the rehabilitation of the railroad line has been provided on a per mile cost. Estimated costs have been taken from recent projects completed by the Idaho Northern & Pacific Railroad Company. Below is a summary of Estimated Costs for the railroad improvements.

Existing 2 lane to future 5 lane	\$550,000
One Mile Track Rehabilitation	\$1,900,000
SH-19 At-Grade Crossing	\$610,000
SH-19 Structure Crossing	\$6,500,000

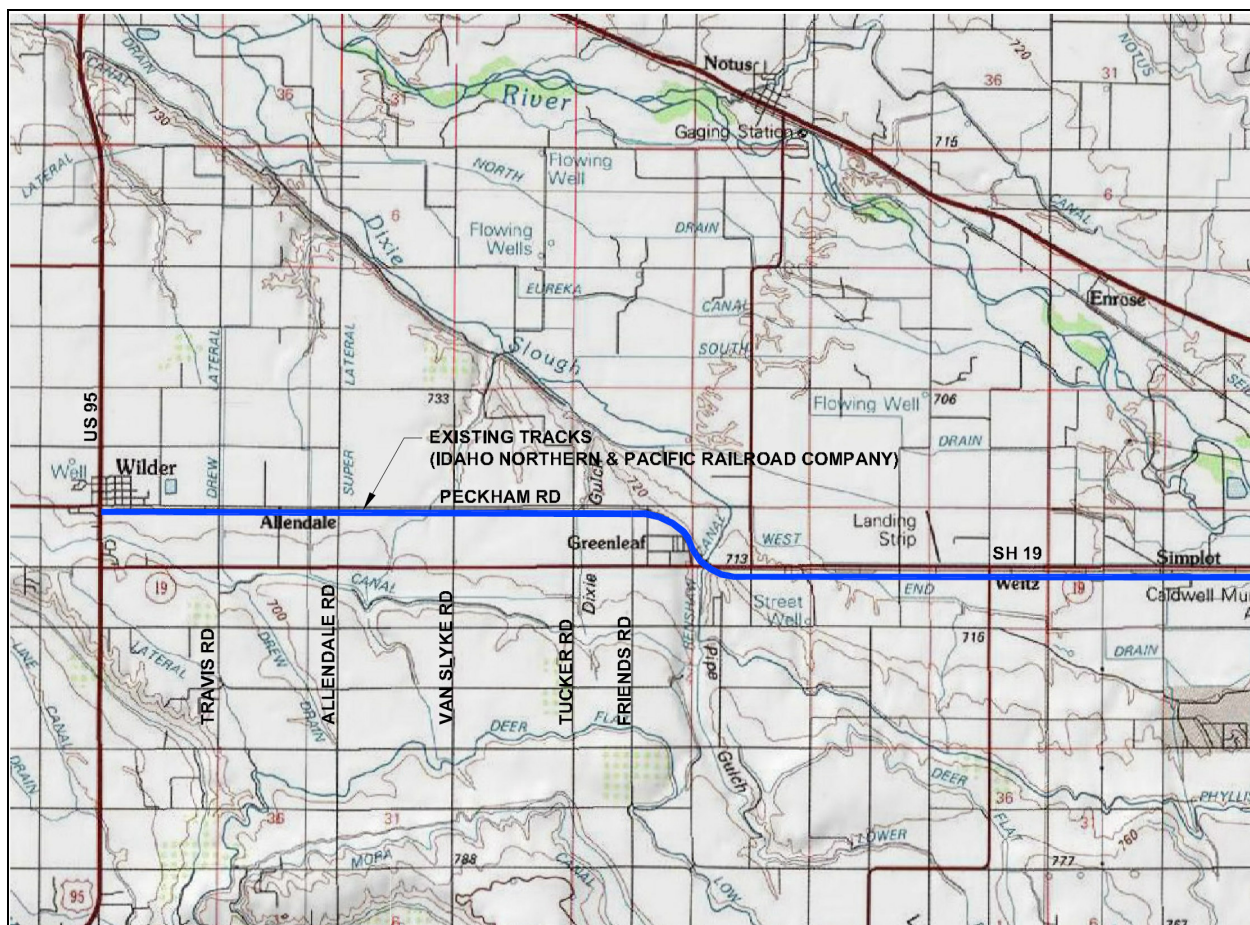


Figure 8. Railroad Vicinity Map

4. BIKE LANE AND PATHWAY RECOMMENDATIONS AND COSTS

As part of the Western Canyon Communities Circulation Plan, pedestrian facilities connecting Wilder to Greenleaf, and Parma to Homedale have been analyzed with different pedestrian facilities, and associated costs for the construction of each facility have been developed.

Wilder to Greenleaf

Approximately four miles separate the cities of Wilder and Greenleaf. Future bike lanes or pathways between the two cities are desired and anticipated. Peckham Road is a favored choice for a bicycle/pedestrian facility, but it is also being considered as an industrial corridor. Future land uses and potential conflicts should be considered before determining a pathway location, such as along an irrigation canal, utility easement, or SH-19.

For the purposes of this circulation study, estimates were prepared based on a possible alignment associated with SH-19 – which could have higher right-of-way costs. The amount of required additional right-of-way would be essentially the same for an alignment on Peckham Road or another east/west public road.

The existing land uses along SH-19 are predominately agricultural, with portions of residential and commercial. Currently, SH-19 is a two lane road between Wilder and Greenleaf. This circulation plan identifies SH-19 as a five or six lane roadway in the future. For cost estimate purposes, it is assumed that SH-19 in the future is a 6-lane roadway with 150-foot Right-of-Way width. Three different options for pedestrian facilities have been identified for consideration. These pedestrian facility options are as follows:

Option 1: The first design option for pedestrian facilities between Wilder and Greenleaf is an 8-foot attached asphalt pathway on both sides of the widened roadway, beyond the limits of the roadway shoulder. It is anticipated that the attached 8-foot pathway would not require any additional Right-of-Way beyond the 150-feet needed for the roadway.

Option 2: Pathway Design Option 2 is a 10-foot wide separated asphalt pedestrian pathway along one side of the roadway. It is assumed that the separated pedestrian pathway is 10-feet off of the proposed edge of asphalt shoulder. It is anticipated that 10-feet of additional Right-of-Way (160-feet total) would be needed for the detached pathway option.

Option 3: Pathway Design Option 3 is a 10-foot wide separated asphalt pedestrian pathway (10-feet off of the proposed edge of asphalt shoulder) and an adjacent 10-foot non-paved pathway that accommodates equestrian use. It is anticipated that an additional 20-feet of Right-of-Way (170-feet total) would be needed.

A Summary of the Estimated Costs for the above three pedestrian facility options are as follows (refer to Appendix F for the Bike Lane and Pathway Cost Calculations):

Option 1: (2) – 8-foot attached asphalt pathways	\$360,000/mile
Option 2: Single Separated 10-foot wide pathway	\$300,000/mile
Option 3: Single Separated pathway and equestrian path	\$390,000/mile

Parma to Homedale

Approximately 11 miles separate the cities of Parma and Homedale. Pedestrian facilities along US 95 have been investigated for the area between Parma and Homedale. This area is predominately used for agriculture, with some residential and commercial properties along US 95. Currently, US 95 is primarily a two lane road between Parma and Homedale. For cost estimate purposes, it is assumed that US 95 in the future is a 5-lane roadway with 130-foot Right-of-Way width. Bridge structures cross the Snake River, Boise River, and US 20/26 between Parma and Homedale.

Two pedestrian facility options for US 95 from Parma to Homedale have been evaluated. Option 1 is an 8-foot attached asphalt pathway along both sides of US 95. It is anticipated that it would require an additional 10-feet of Right-of-Way beyond the 130-feet needed for the roadway section (140-feet total). Option 2 is a single 10-foot wide pedestrian pathway located 10-feet off of the edge of shoulder. It is anticipated that this option would require an additional 20-feet of Right-of-Way (150-feet total).

A Summary of the Estimated Pathway Costs for the above two pedestrian facility options are as follows:

Option 1: (2) – 8-foot attached asphalt pathways	\$400,000/mile
Option 2: Single Separated 10-foot wide pathway	\$340,000/mile

Bridges cross the Snake River, Boise River, and US 20/26 along US 95. All of these existing structures are 2-lane bridges. The Snake River bridge crossing has an existing sidewalk on the west side of the bridge. The Boise River bridge and US 20/26 bridge do not have any existing pedestrian facilities or bike lanes. None of the three structures will accommodate 2030 CIM traffic volumes. All three bridges will need to be widened or reconstructed to meet projected traffic volumes. It is recommended that pedestrian facilities be constructed with the bridge widenings, and/or reconstructions.

In addition to the bridge structures, US 95 crosses several irrigation canals/creeks between Parma and Homedale. These range from large regional irrigation facilities to small local irrigation crossings. Estimated costs for crossings have been researched. These costs assume a stand alone pedestrian facility structure, separate from the roadway for a separated pathway option. Structures are anticipated to be 10-feet wide. Costs provided are construction costs for structures along US 95. Below is a summary of these US 95 pedestrian facility structure costs (refer to Appendix F for the calculations).

Snake River Pedestrian Crossing	\$2,000,000
Boise River Crossing	\$1,000,000
US 20/26 Crossing	\$700,000
Regional Irrigation Crossing (75' span)	\$300,000
Local Irrigation Crossing (45' span)	\$140,000
Small Irrigation Ditch (36" pipe)	\$120/lf

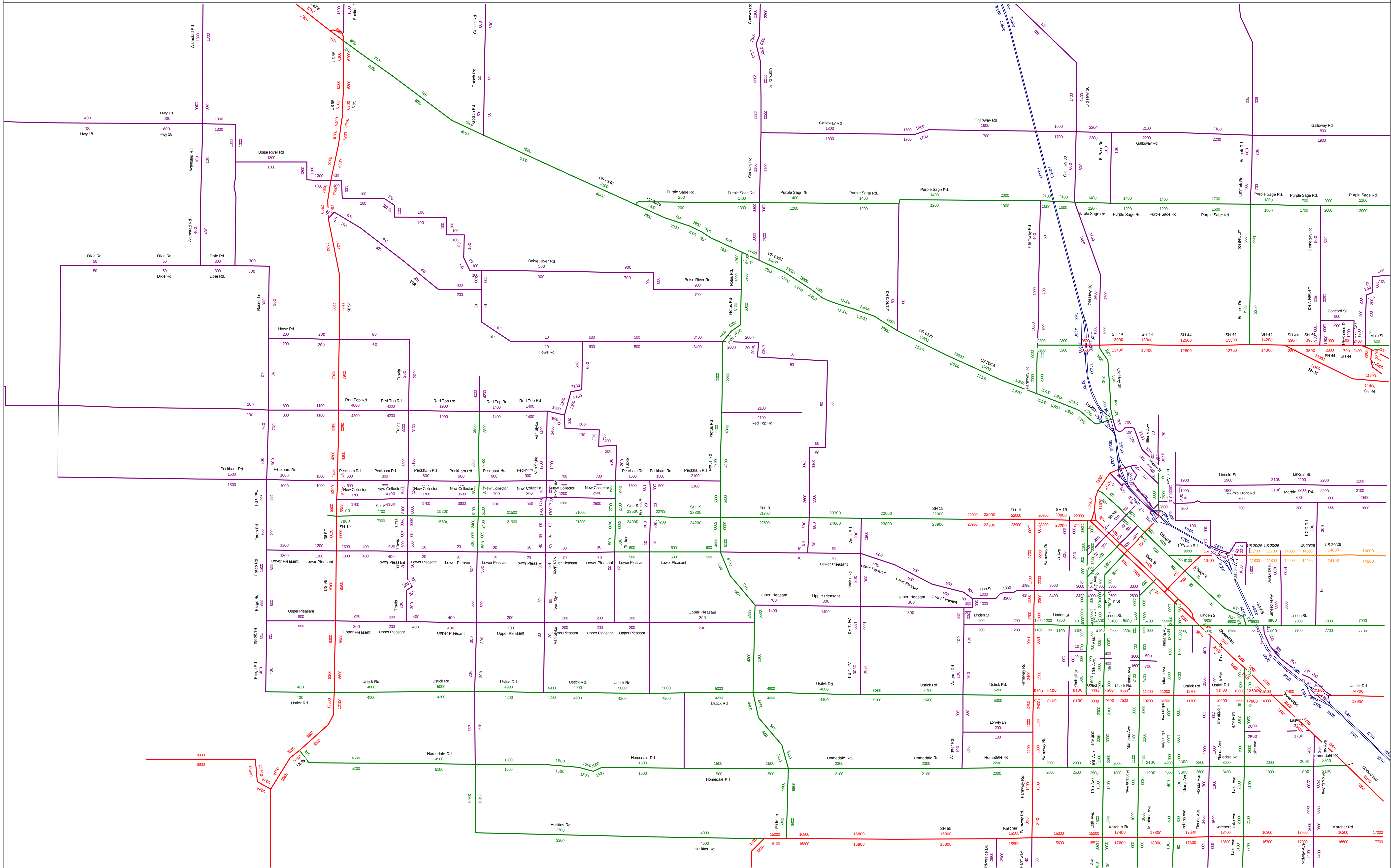
Appendix A – Figure 4-2 of the Florida DOT LOS Handbook

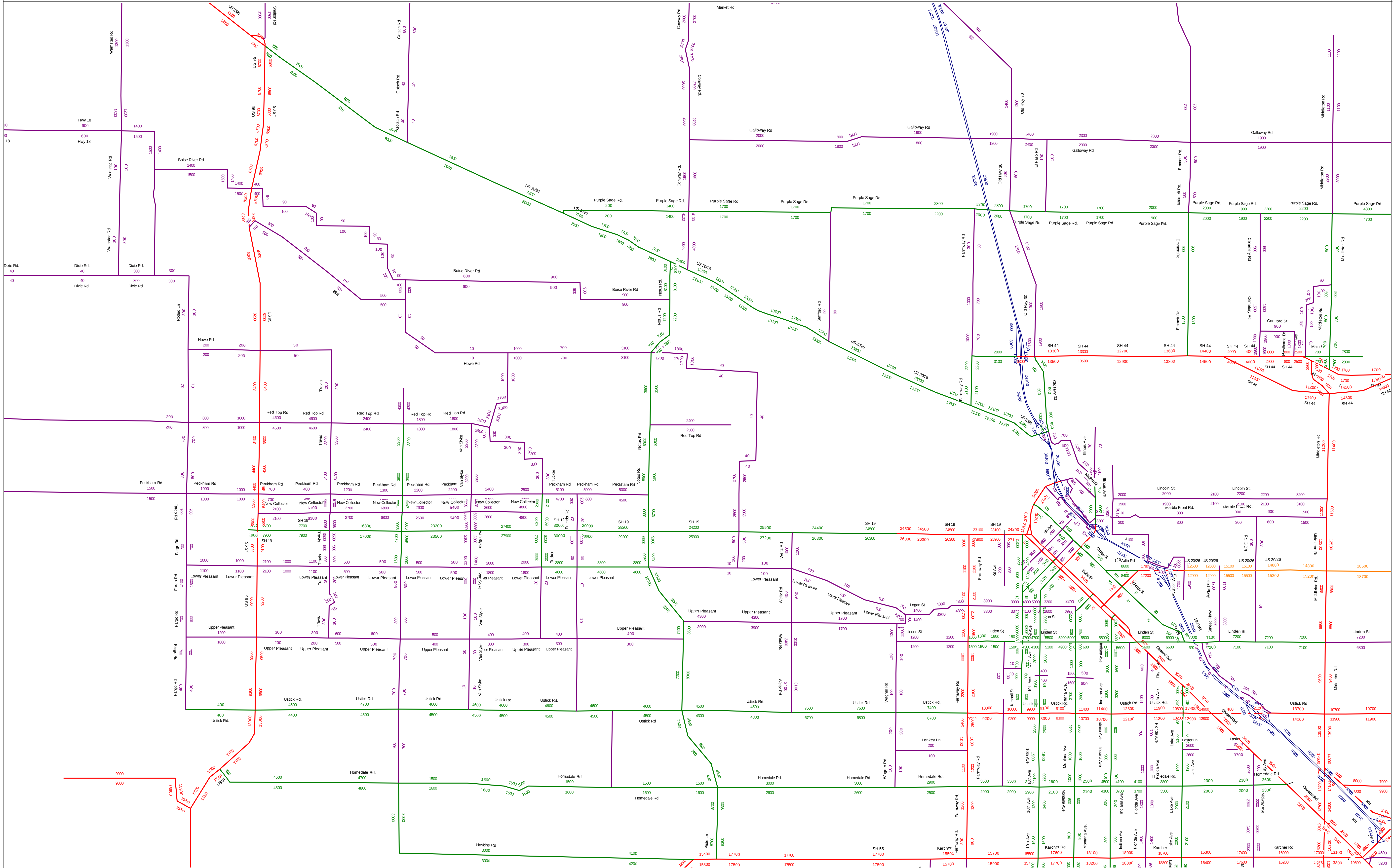
TABLE 4 – 2
GENERALIZED ANNUAL AVERAGE DAILY VOLUMES FOR FLORIDA'S
AREAS TRANSITIONING INTO URBANIZED AREAS OR
AREAS OVER 5,000 NOT IN URBANIZED AREAS*

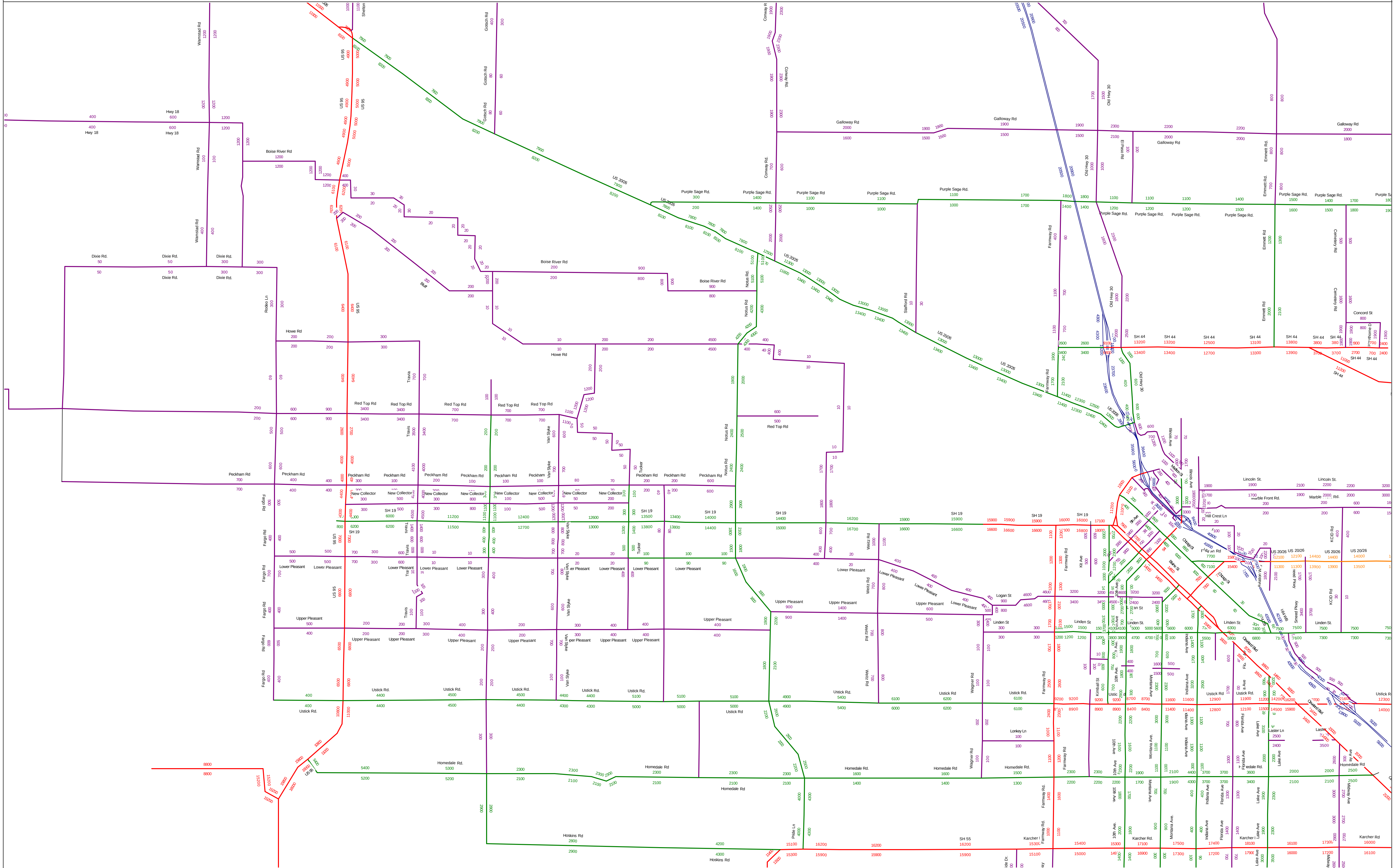
UNINTERRUPTED FLOW HIGHWAYS						FREEWAYS					
Level of Service						Level of Service					
Lanes Divided	A	B	C	D	E	Lanes	A	B	C	D	E
2 Undivided	2,100	6,900	12,900	18,200	24,900	4	23,500	38,700	52,500	62,200	69,100
4 Divided	18,600	30,200	43,600	56,500	64,200	6	36,400	59,800	81,100	96,000	106,700
6 Divided	27,900	45,200	65,500	84,700	96,200	8	49,100	80,900	109,600	129,800	144,400
						10	61,800	101,800	138,400	163,800	182,000
STATE TWO-WAY ARTERIALS						BICYCLE MODE					
Class I (>0.00 to 1.99 signalized intersections per mile)						(Note: Level of service for the bicycle mode in this table is based on roadway geometrics at 40 mph posted speed and traffic conditions, not number of bicyclists using the facility.) (Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes)					
Level of Service						Level of Service					
Lanes Divided	A	B	C	D	E	Paved Shoulder/ Bicycle Lane Coverage	A	B	C	D	E
2 Undivided	**	4,000	13,100	15,500	16,300	0-49%	**	1,900	3,300	13,600	>13,600
4 Divided	4,600	27,900	32,800	34,200	***	50-84%	**	2,500	4,000	>4,000	***
6 Divided	6,900	42,800	49,300	51,400	***	85-100%	3,200	7,100	>7,100	***	***
Class II (2.00 to 4.50 signalized intersections per mile)						PEDESTRIAN MODE					
Level of Service						(Note: Level of service for the pedestrian mode in this table is based on roadway geometric at 40 mph posted speed and traffic conditions, not number of pedestrians using the facility.) (Multiply motorized vehicle volumes shown by number of directional roadway lanes to determine two-way maximum service volumes)					
Lanes Divided	A	B	C	D	E	% Sidewalk Coverage	A	B	C	D	E
2 Undivided	**	**	10,500	14,500	15,300	0-49%	**	**	**	6,300	15,400
4 Divided	**	3,700	24,400	30,600	32,200	50-84%	**	**	**	9,800	18,800
6 Divided	**	6,000	38,000	46,100	48,400	85-100%	**	2,200	11,200	>11,200	***
Class III (more than 4.5 signalized intersections per mile)						ARTERIAL/NON-STATE ROADWAY ADJUSTMENTS DIVIDED/UNDIVIDED					
Lanes Divided	A	B	C	D	E	Lanes	Median	Left Turn Lanes	Adjustment Factors		
2 Undivided	**	**	7,000	13,600	14,600	2	Divided	Yes	+5%		
4 Divided	**	**	16,400	29,300	30,900	2	Undivided	No	-20%		
6 Divided	**	**	25,700	44,100	46,400	Multi	Undivided	Yes	-5%		
Other Signalized Roadways (signalized intersection analysis)						Multi	Undivided	No	-25%		
Level of Service						ONE-WAY FACILITIES					
Lanes Divided	A	B	C	D	E	Decrease corresponding two-directional volumes in this table by 40% to obtain the equivalent one directional volume for one-way facilities.					
2 Undivided	**	**	4,400	9,400	12,000						
4 Divided	**	**	10,300	20,200	24,000						
Source: Florida Department of Transportation Systems Planning Office 605 Suwannee Street, MS 19 Tallahassee, FL 32399-0450 http://www.flm.com/planning/systems/sm/los/default.htm						02/22/02					
*This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Values shown are two-way annual average daily volumes (based on K ₉₀ factors) for levels of service and are for the automobile/truck modes unless specifically stated. Level of service letter grade thresholds are probably not comparable across modes and, therefore, cross modal comparisons should be made with caution. Furthermore, combining levels of service of different modes into one overall roadway level of service is not recommended. The table's input value defaults and level of service criteria appear on the following page. Calculations are based on planning applications of the Highway Capacity Manual, Bicycle LOS Model, and Pedestrian LOS Model, respectively for the automobile/truck, bicycle and pedestrian modes.											
**Cannot be achieved using table input value defaults											
***Not applicable for the level of service letter grade. For automobile/truck modes, volumes greater than level of service D become F because intersection capacities have been reached. For bicycle and pedestrian modes, the level of service letter grade (including F) is not achievable, because there is no maximum vehicle volume threshold using table input value defaults.											

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Appendix B – COMPASS Travel Demand Projections







Appendix C – Summary of Intersection Turning Movement Volumes

Westerm Canyon Communities Circulation Plan

Summary of ADT Intersection Turning Movement Demand for Scenarios

Intersection	Scenario	Eastbound			Westbound			Northbound			Southbound		
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
SH-19 / US 95	Smart Growth	375	1255	276	4913	1255	1534	276	3626	5074	1533	3540	375
SH-19 / US 95	Commercial / Industrial	343	1334	255	4839	1334	1517	255	3786	5048	1519	3699	343
SH-19 / Allendale	Smart Growth	408	14798	383	1689	14471	5389	383	288	1718	5401	288	408
SH-19 / Allendale	Commercial / Industrial	1441	14297	1286	2390	14050	6741	1286	1043	2425	6795	1043	1441
SH-19 / Tucker	Smart Growth	331	19896	1139	1932	19526	2072	1139	312	2025	2073	312	331
SH-19 / Tucker	Commercial / Industrial	1058	23509	3367	2532	23662	3834	2393	1017	2813	3630	1353	1319
SH-19 / Notus	Smart Growth	1477	19179	3570	980	18358	2514	3780	1264	1070	2401	1311	1625
SH-19 / Notus	Commercial / Industrial	732	23563	4868	678	22029	1500	6854	1467	757	1564	1340	347
New Collector / Allendale	Smart Growth	520	81	3040	50	81	1	3040	2995	50	1	3007	520
New Collector / Allendale	Commercial / Industrial	1244	486	5092	1355	486	722	5056	2814	1355	722	2833	1246

Summary of Peak Hour Intersection Turning Movement Demand for Scenarios

Intersection	Scenario	Eastbound			Westbound			Northbound			Southbound		
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
SH-19 / US 95	Smart Growth	38	126	28	491	126	153	28	363	507	153	354	38
SH-19 / US 95	Commercial / Industrial	34	133	26	484	133	152	26	379	505	152	370	34
SH-19 / Allendale	Smart Growth	41	1480	38	169	1447	539	38	29	172	540	29	41
SH-19 / Allendale	Commercial / Industrial	144	1430	129	239	1405	674	129	104	243	680	104	144
SH-19 / Tucker	Smart Growth	33	1990	114	193	1953	207	114	31	203	207	31	33
SH-19 / Tucker	Commercial / Industrial	106	2351	337	253	2366	383	239	102	281	363	135	132
SH-19 / Notus	Smart Growth	148	1918	357	98	1836	251	378	126	107	240	131	163
SH-19 / Notus	Commercial / Industrial	73	2356	487	68	2203	150	685	147	76	156	134	35
New Collector / Allendale	Smart Growth	52	8	304	5	8	0	304	300	5	0	301	52
New Collector / Allendale	Commercial / Industrial	124	49	509	136	49	72	506	281	136	72	283	125

Appendix D – Roadway Cost Calculations

**Western Canyon Communities Circulation Plan
3-Lane Rural Roadway
(Flat Terrain)
Full Reconstruction**

**40' Pavement / 54' Top Width
1 Mile Length**

All costs shown in table are in 2009 Dollars

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
Asphalt (6")	7700	TON	\$ 70.00	\$ 539,000	
Gravel Base (9")	10500	CY	\$ 20.00	\$ 210,000	
Subbase (21")	24300	CY	\$ 15.00	\$ 364,500	
Excavation/Embankment	31700	CY	\$ 9.00	\$ 285,300	\$ 1,398,800
Drainage	10%	EST	LUMP SUM	\$ 139,880	
Irrigation	15%	EST	LUMP SUM	\$ 209,820	
SWPP	5%	EST	LUMP SUM	\$ 69,940	
Clearing & Grubbing	5%	EST	LUMP SUM	\$ 69,940	
Traffic Control	10%	EST	LUMP SUM	\$ 139,880	
Miscellaneous	5%	EST	LUMP SUM	\$ 69,940	\$ 2,098,200
Mobilization	10%	EST	LUMP SUM	\$ 209,820	\$ 2,308,020
Contingency	20%	EST	LUMP SUM	\$ 461,604	
CONSTRUCTION TOTAL				\$ 2,769,624	
Engineering	20%	EST	LUMP SUM	\$ 553,925	\$ 3,323,549
Right-of-Way ¹	9.70	ACRE	\$30,000	\$ 290,909	\$ 3,614,458

¹Assumes 50' existing ROW and 130' proposed ROW

TOTAL \$ 3,614,458

USE \$ 3,600,000 Per Mile

**Western Canyon Communities Circulation Plan
3-Lane Rural Roadway
(Paved Shoulders)
(Flat Terrain)
Full Reconstruction**

**54' Pavement / 54' Top Width
1 Mile Length**

All costs shown in table are in 2009 Dollars

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
Asphalt (6")	10300	TON	\$ 70.00	\$ 721,000	
Gravel Base (9")	9100	CY	\$ 20.00	\$ 182,000	
Subbase (21")	24300	CY	\$ 15.00	\$ 364,500	
Excavation/Embankment	31700	CY	\$ 9.00	\$ 285,300	\$ 1,552,800
Drainage	10%	EST	LUMP SUM	\$ 155,280	
Irrigation	15%	EST	LUMP SUM	\$ 232,920	
SWPP	5%	EST	LUMP SUM	\$ 77,640	
Clearing & Grubbing	5%	EST	LUMP SUM	\$ 77,640	
Traffic Control	10%	EST	LUMP SUM	\$ 155,280	
Miscellaneous	5%	EST	LUMP SUM	\$ 77,640	\$ 2,329,200
Mobilization	10%	EST	LUMP SUM	\$ 232,920	\$ 2,562,120
Contingency	20%	EST	LUMP SUM	\$ 512,424	
CONSTRUCTION TOTAL				\$ 3,074,544	
Engineering	20%	EST	LUMP SUM	\$ 614,909	\$ 3,689,453
Right-of-Way ¹	9.70	ACRE	\$30,000	\$ 290,909	\$ 3,980,362

¹Assumes 50' existing ROW and 130' proposed ROW

TOTAL \$ 3,980,362

USE \$ 4,000,000 Per Mile

**Western Canyon Communities Circulation Plan
3-Lane Urban Roadway
(Flat Terrain)
Full Reconstruction**

**40' Pavement / 40' Top Width
1 Mile Length**

All costs shown in table are in 2009 Dollars

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
6" Vertical Conc. Curb & Gutter	10600	LF	\$ 10.00	\$ 106,000	
Asphalt (6")	7700	TON	\$ 70.00	\$ 539,000	
Gravel Base (9")	6500	CY	\$ 20.00	\$ 130,000	
Subbase (21")	13700	CY	\$ 15.00	\$ 205,500	
Excavation/Embankment	23500	CY	\$ 9.00	\$ 211,500	\$ 1,192,000
Drainage	15%	EST	LUMP SUM	\$ 178,800	
Irrigation	15%	EST	LUMP SUM	\$ 178,800	
SWPP	5%	EST	LUMP SUM	\$ 59,600	
Clearing & Grubbing	5%	EST	LUMP SUM	\$ 59,600	
Traffic Control	10%	EST	LUMP SUM	\$ 119,200	
Miscellaneous	5%	EST	LUMP SUM	\$ 59,600	\$ 1,847,600
Mobilization	10%	EST	LUMP SUM	\$ 184,760	\$ 2,032,360
Contingency	20%	EST	LUMP SUM	\$ 406,472	
CONSTRUCTION TOTAL				\$ 2,438,832	
Engineering	20%	EST	LUMP SUM	\$ 487,766	\$ 2,926,598
Right-of-Way ¹	9.70	ACRE	\$30,000	\$ 290,909	\$ 3,217,507

¹Assumes 50' existing ROW and 130' proposed ROW

TOTAL \$ 3,217,507

USE \$ 3,200,000 Per Mile

**Western Canyon Communities Circulation Plan
5-Lane Rural Roadway
(Flat Terrain)
Full Reconstruction**

**64' Pavement / 78' Top Width
1 Mile Length**

All costs shown in table are in 2009 Dollars

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
Asphalt (6")	12200	TON	\$ 70.00	\$ 854,000	
Gravel Base (9")	14000	CY	\$ 20.00	\$ 280,000	
Subbase (21")	32500	CY	\$ 15.00	\$ 487,500	
Excavation/Embankment	45800	CY	\$ 9.00	\$ 412,200	\$ 2,033,700
Drainage	10%	EST	LUMP SUM	\$ 203,370	
Irrigation	15%	EST	LUMP SUM	\$ 305,055	
SWPP	5%	EST	LUMP SUM	\$ 101,685	
Clearing & Grubbing	5%	EST	LUMP SUM	\$ 101,685	
Traffic Control	10%	EST	LUMP SUM	\$ 203,370	
Miscellaneous	5%	EST	LUMP SUM	\$ 101,685	\$ 3,050,550
Mobilization	10%	EST	LUMP SUM	\$ 305,055	\$ 3,355,605
Contingency	20%	EST	LUMP SUM	\$ 671,121	
	CONSTRUCTION TOTAL			\$ 4,026,726	
Design and Construction Engineering	20%	EST	LUMP SUM	\$ 805,345	\$ 4,832,071
Right-of-Way ¹	9.70	ACRE	\$30,000	\$ 290,909	\$ 5,122,980

¹ Assumes 50' existing ROW and 130' proposed ROW

TOTAL \$ 5,122,980

USE \$ 5,100,000 Per Mile

**Western Canyon Communities Circulation Plan
5-Lane Rural Roadway
(Paved Shoulders)
(Flat Terrain)
Full Reconstruction**

**78' Pavement / 78' Top Width
1 Mile Length**

All costs shown in table are in 2009 Dollars

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
Asphalt (6")	14900	TON	\$ 70.00	\$ 1,043,000	
Gravel Base (9")	12500	CY	\$ 20.00	\$ 250,000	
Subbase (21")	32500	CY	\$ 15.00	\$ 487,500	
Excavation/Embankment	45800	CY	\$ 9.00	\$ 412,200	\$ 2,192,700
Drainage	10%	EST	LUMP SUM	\$ 219,270	
Irrigation	15%	EST	LUMP SUM	\$ 328,905	
SWPP	5%	EST	LUMP SUM	\$ 109,635	
Clearing & Grubbing	5%	EST	LUMP SUM	\$ 109,635	
Traffic Control	10%	EST	LUMP SUM	\$ 219,270	
Miscellaneous	5%	EST	LUMP SUM	\$ 109,635	\$ 3,289,050
Mobilization	10%	EST	LUMP SUM	\$ 328,905	\$ 3,617,955
Contingency	20%	EST	LUMP SUM	\$ 723,591	
CONSTRUCTION TOTAL				\$ 4,341,546	
Engineering	20%	EST	LUMP SUM	\$ 868,309	\$ 5,209,855
Right-of-Way ¹	9.70	ACRE	\$30,000	\$ 290,909	\$ 5,500,764

¹Assumes 50' existing ROW and 130' proposed ROW

TOTAL \$ 5,500,764

USE \$ 5,500,000 Per Mile

**Western Canyon Communities Circulation Plan
6-Lane Rural Roadway
(Paved Shoulders)
(Flat Terrain)
Full Reconstruction**

**88' Pavement / 88' Top Width
1 Mile Length**

All costs shown in table are in 2009 Dollars

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
Asphalt (6")	16800	TON	\$ 70.00	\$ 1,176,000	
Gravel Base (9")	13900	CY	\$ 20.00	\$ 278,000	
Subbase (21")	35900	CY	\$ 15.00	\$ 538,500	
Excavation/Embankment	51600	CY	\$ 9.00	\$ 464,400	
Median Island (Access Control)	5300	LF	\$ 50.00	\$ 265,000	\$ 2,721,900
Drainage	10%	EST	LUMP SUM	\$ 272,190	
Irrigation	15%	EST	LUMP SUM	\$ 408,285	
SWPP	5%	EST	LUMP SUM	\$ 136,095	
Clearing & Grubbing	5%	EST	LUMP SUM	\$ 136,095	
Traffic Control	10%	EST	LUMP SUM	\$ 272,190	
Miscellaneous	5%	EST	LUMP SUM	\$ 136,095	\$ 4,082,850
Mobilization	10%	EST	LUMP SUM	\$ 408,285	\$ 4,491,135
Contingency	20%	EST	LUMP SUM	\$ 898,227	
CONSTRUCTION TOTAL				\$ 5,389,362	
Engineering	20%	EST	LUMP SUM	\$ 1,077,872	\$ 6,467,234
Right-of-Way ¹	13.33	ACRE	\$30,000	\$ 400,000	\$ 6,867,234

¹Assumes 50' existing ROW and 160' proposed ROW

TOTAL \$ 6,867,234

USE \$ 6,900,000 Per Mile

**Western Canyon Communities Circulation Plan
US 95 Snake River Structure
(5-Lane Section with a 78' Top Width)**

All costs shown in table are in 2009 Dollars

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
Bridge Construction (+/- 500 LF)	39000	SF	\$ 160.00	\$ 6,240,000	
Drainage	10% EST	LUMP SUM	\$	624,000	
Irrigation	15% EST	LUMP SUM	\$	936,000	
SWPP	5% EST	LUMP SUM	\$	312,000	
Clearing & Grubbing	5% EST	LUMP SUM	\$	312,000	
Traffic Control	10% EST	LUMP SUM	\$	624,000	
Miscellaneous	20% EST	LUMP SUM	\$	1,248,000	\$ 10,296,000
Mobilization	10% EST	LUMP SUM	\$	624,000	\$ 10,920,000
Contingency	20% EST	LUMP SUM	\$	2,184,000	
	CONSTRUCTION TOTAL			\$ 13,104,000	
Design and Construction Engineering	20% EST	LUMP SUM	\$	2,620,800	\$ 15,724,800
TOTAL				\$ 15,724,800	
USE				\$ 15,700,000	TOTAL

**Western Canyon Communities Circulation Plan
US 95 Boise River Structure
(5-Lane Section with a 78' Top Width)**

All costs shown in table are in 2009 Dollars

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
Bridge Construction (+/-250 LF)	19500	SF	\$ 160.00	\$ 3,120,000	
Drainage	10%	EST	LUMP SUM	\$ 312,000	
Irrigation	15%	EST	LUMP SUM	\$ 468,000	
SWPP	5%	EST	LUMP SUM	\$ 156,000	
Clearing & Grubbing	5%	EST	LUMP SUM	\$ 156,000	
Traffic Control	10%	EST	LUMP SUM	\$ 312,000	
Miscellaneous	20%	EST	LUMP SUM	\$ 624,000	\$ 5,148,000
Mobilization	10%	EST	LUMP SUM	\$ 312,000	\$ 5,460,000
Contingency	20%	EST	LUMP SUM	\$ 1,092,000	
	CONSTRUCTION TOTAL			\$ 6,552,000	
Design and Construction Engineering	20%	EST	LUMP SUM	\$ 1,310,400	\$ 7,862,400
				TOTAL \$ 7,862,400	
				USE \$ 7,900,000	TOTAL

**Western Canyon Communities Circulation Plan
US 95 RR/US 20/26 Structure
(5-Lane Section with a 78' Top Width)**

All costs shown in table are in 2009 Dollars

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
Bridge Construction (+/-200 LF)	15600	SF	\$ 140.00	\$ 2,184,000	
Drainage	10%	EST	LUMP SUM	\$ 218,400	
Irrigation	15%	EST	LUMP SUM	\$ 327,600	
SWPP	5%	EST	LUMP SUM	\$ 109,200	
Clearing & Grubbing	5%	EST	LUMP SUM	\$ 109,200	
Traffic Control	10%	EST	LUMP SUM	\$ 218,400	
Miscellaneous	20%	EST	LUMP SUM	\$ 436,800	\$ 3,603,600
Mobilization	10%	EST	LUMP SUM	\$ 218,400	\$ 3,822,000
Contingency	20%	EST	LUMP SUM	\$ 764,400	
	CONSTRUCTION TOTAL			\$ 4,586,400	
Design and Construction Engineering	20%	EST	LUMP SUM	\$ 917,280	\$ 5,503,680
				TOTAL \$ 5,503,680	
				USE \$ 5,500,000	TOTAL

Western Canyon Communities Circulation Plan US 95 Irrigation Crossing Structure

Local Irrigation Crossing (45' Span)

All costs shown in table are in 2009 Dollars

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
Crossing Construction (45 LF)	3510	SF	\$ 120.00	\$ 421,200	
Drainage	10%	EST	LUMP SUM	\$ 42,120	
Irrigation	15%	EST	LUMP SUM	\$ 63,180	
SWPP	5%	EST	LUMP SUM	\$ 21,060	
Clearing & Grubbing	5%	EST	LUMP SUM	\$ 21,060	
Traffic Control	10%	EST	LUMP SUM	\$ 42,120	
Miscellaneous	20%	EST	LUMP SUM	\$ 84,240	\$ 694,980
Mobilization	10%	EST	LUMP SUM	\$ 42,120	\$ 737,100
Contingency	20%	EST	LUMP SUM	\$ 147,420	
	CONSTRUCTION TOTAL			\$ 884,520	
Design and Construction Engineering	20%	EST	LUMP SUM	\$ 176,904	\$ 1,061,424
TOTAL				\$ 1,061,424	
USE				\$ 1,060,000	TOTAL

Western Canyon Communities Circulation Plan Additional Intersection Costs

All costs shown in tables are in 2009 Dollars

Smart Growth Scenario

Intersection	Approx. Cost
SH-19 / US 95	\$ 550,000
SH-19 / Allendale	\$ 550,000
SH-19 / Travis	\$ 550,000
SH-19 / Tucker	\$ 400,000
SH-19 / Van Slyke	\$ 400,000
SH-19 / Notus	\$ 700,000
New Collector / Allendale	\$ 250,000
New Collector / Travis	\$ 250,000

Commercial/Industrial Scenarios

Intersection	Approx. Cost
SH-19 / US 95	\$ 550,000
SH-19 / Allendale	\$ 900,000
SH-19 / Travis	\$ 900,000
SH-19 / Tucker	\$ 900,000
SH-19 / Van Slyke	\$ 900,000
SH-19 / Notus	\$ 900,000
New Collector / Allendale	\$ 550,000
New Collector / Travis	\$ 550,000

Sprawl Scenario

Intersection	Approx. Cost
SH-19 / US 95	\$ 250,000
SH-19 / Allendale	\$ 250,000
SH-19 / Travis	\$ 250,000
SH-19 / Tucker	\$ 250,000
SH-19 / Van Slyke	\$ 250,000
SH-19 / Notus	\$ 250,000

Appendix E – Rail Cost Calculations

Western Canyon Communities Circulation Plan Typical Railroad Costs

Existing 2 Lane Crossing to 5 lane Future

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Traffic Warning				
Materials	1	LS	\$ 200,000.00	\$ 225,000
labor	1	LS	\$ 40,000.00	\$ 50,000
Equipment, Freight, Etc.	1	LS	LUMP SUM	\$ 100,000
At Grade Crossing				
Materials	1	LS	LUMP SUM	\$ 85,000
Labor	1	LS	LUMP SUM	\$ 28,000
Equipment	1	EST	LUMP SUM	\$ 14,000
RAILROAD CROSSING TOTAL				\$ 502,000
Engineering	10%	EST	LUMP SUM	\$ 50,200
TOTAL				\$ 552,200

Assumptions:

Traffic Warning assumes the installation of four gates with 4 pedestrian gates, constant warning circuitry, and bungalow at location of crossing

At Grade Crossing assumes an at grade crossing, 96 LF

All work, including Engineering, to be performed by Idaho Northern and Pacific Railroad Company

One Mile of Track Rehabilitation

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Materials	1	LS	\$ 1,225,000.00	\$ 1,225,000
labor	1	LS	\$ 350,000.00	\$ 350,000
Equipment, Freight, Etc.	1	LS	\$ 145,000.00	\$ 145,000
RAILROAD CROSSING TOTAL				\$ 1,720,000
Engineering	10%	EST	LUMP SUM	\$ 172,000
TOTAL				\$ 1,892,000

Assumptions:

Rail is rehabilitation only (new rail, tie, and ballast). No changes to railroad track location horizontal or vertical

Western Canyon Communities Circulation Plan Typical Railroad Costs

At Grade Greenleaf Crossing

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Traffic Warning				
Materials	1	LS	\$ 200,000.00	\$ 225,000
labor	1	LS	\$ 40,000.00	\$ 50,000
Equipment, Freight, Etc.	1	LS	LUMP SUM	\$ 100,000
At Grade Crossing				
Materials	1	LS	LUMP SUM	\$ 120,000
Labor	1	LS	LUMP SUM	\$ 40,000
Equipment	1	EST	LUMP SUM	\$ 20,000
RAILROAD CROSSING TOTAL				\$ 555,000
Engineering	10%	EST	LUMP SUM	\$ 55,500
TOTAL				\$ 610,500

Assumptions:

Traffic Warning assumes the installation of four gates with 4 pedestrian gates, constant warning circuitry, and bungalow at location of crossing

At Grade Crossing assumes an at grade crossing, 135 LF

All work, including Engineering, to be performed by Idaho Northern and Pacific Railroad Company

Western Canyon Communities Circulation Plan Typical Railroad Costs

Roadway Structure Crossing over RR at Greanleaf

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
Bridge Construction	27280	SF	\$ 120.00	\$ 3,273,600	
Drainage	10%	EST	LUMP SUM	\$ 327,360	
Irrigation	15%	EST	LUMP SUM	\$ 120,000	
SWPP	5%	EST	LUMP SUM	\$ 163,680	
Clearing & Grubbing	5%	EST	LUMP SUM	\$ 163,680	
Traffic Control	10%	EST	LUMP SUM	\$ 327,360	
Miscellaneous	20%	EST	LUMP SUM	\$ 654,720	\$ 1,320,000
Mobilization	10%	EST	LUMP SUM	\$ 132,000	\$ 1,400,000
Contingency	20%	EST	LUMP SUM	\$ 280,000	
CONSTRUCTION TOTAL				\$ 5,442,400	
Design and Construction Engineering	20%	EST	LUMP SUM	\$ 1,088,480	\$ 6,530,880

TOTAL \$ 6,530,880

USE \$ 6,500,000 TOTAL

Assumptions:

Bridge length of 310 feet. Width of 88 feet.

Appendix F – Bike Lane and Pathway Cost Calculations

Western Canyon Communities Circulation Plan Typical Railroad Costs

Existing 2 Lane Crossing to 5 lane Future

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Traffic Warning				
Materials	1	LS	\$ 200,000.00	\$ 225,000
labor	1	LS	\$ 40,000.00	\$ 50,000
Equipment, Freight, Etc.	1	LS	LUMP SUM	\$ 100,000
At Grade Crossing				
Materials	1	LS	LUMP SUM	\$ 85,000
Labor	1	LS	LUMP SUM	\$ 28,000
Equipment	1	EST	LUMP SUM	\$ 14,000
RAILROAD CROSSING TOTAL				\$ 502,000
Engineering	10%	EST	LUMP SUM	\$ 50,200
TOTAL				\$ 552,200

Assumptions:

Traffic Warning assumes the installation of four gates with 4 pedestrian gates, constant warning circuitry, and bungalow at location of crossing

At Grade Crossing assumes an at grade crossing, 96 LF

All work, including Engineering, to be performed by Idaho Northern and Pacific Railroad Company

One Mile of Track Rehabilitation

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Materials	1	LS	\$ 1,225,000.00	\$ 1,225,000
labor	1	LS	\$ 350,000.00	\$ 350,000
Equipment, Freight, Etc.	1	LS	\$ 145,000.00	\$ 145,000
RAILROAD CROSSING TOTAL				\$ 1,720,000
Engineering	10%	EST	LUMP SUM	\$ 172,000
TOTAL				\$ 1,892,000

Assumptions:

Rail is rehabilitation only (new rail, tie, and ballast). No changes to railroad track location horizontal or vertical

Western Canyon Communities Circulation Plan Typical Railroad Costs

At Grade Greenleaf Crossing

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL
Traffic Warning				
Materials	1	LS	\$ 200,000.00	\$ 225,000
labor	1	LS	\$ 40,000.00	\$ 50,000
Equipment, Freight, Etc.	1	LS	LUMP SUM	\$ 100,000
At Grade Crossing				
Materials	1	LS	LUMP SUM	\$ 120,000
Labor	1	LS	LUMP SUM	\$ 40,000
Equipment	1	EST	LUMP SUM	\$ 20,000
RAILROAD CROSSING TOTAL				\$ 555,000
Engineering	10%	EST	LUMP SUM	\$ 55,500
TOTAL				\$ 610,500

Assumptions:

Traffic Warning assumes the installation of four gates with 4 pedestrian gates, constant warning circuitry, and bungalow at location of crossing

At Grade Crossing assumes an at grade crossing, 135 LF

All work, including Engineering, to be performed by Idaho Northern and Pacific Railroad Company

Western Canyon Communities Circulation Plan Typical Railroad Costs

Roadway Structure Crossing over RR at Greanleaf

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
Bridge Construction	27280	SF	\$ 120.00	\$ 3,273,600	
Drainage	10%	EST	LUMP SUM	\$ 327,360	
Irrigation	15%	EST	LUMP SUM	\$ 120,000	
SWPP	5%	EST	LUMP SUM	\$ 163,680	
Clearing & Grubbing	5%	EST	LUMP SUM	\$ 163,680	
Traffic Control	10%	EST	LUMP SUM	\$ 327,360	
Miscellaneous	20%	EST	LUMP SUM	\$ 654,720	\$ 1,320,000
Mobilization	10%	EST	LUMP SUM	\$ 132,000	\$ 1,400,000
Contingency	20%	EST	LUMP SUM	\$ 280,000	
CONSTRUCTION TOTAL				\$ 5,442,400	
Design and Construction Engineering	20%	EST	LUMP SUM	\$ 1,088,480	\$ 6,530,880
TOTAL				\$ 6,530,880	
USE				\$ 6,500,000	TOTAL

Assumptions:

Bridge length of 310 feet. Width of 88 feet.

Western Canyon Communities Circulation Plan

Pedestrian Facilities

Wilder to Greenleaf

(2) - 8-foot attached Asphalt Bike Lanes 1 Mile Length

All costs shown in table are in 2009 Dollars

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
Asphalt (3")	1500	TON	\$ 70.00	\$ 105,000	
Gravel Base (9")	2300	CY	\$ 20.00	\$ 46,000	\$ 151,000
Drainage	10%	EST	LUMP SUM	\$ 15,100	
Irrigation	15%	EST	LUMP SUM	\$ 22,650	
SWPP	5%	EST	LUMP SUM	\$ 7,550	
Clearing & Grubbing	5%	EST	LUMP SUM	\$ 7,550	
Traffic Control	10%	EST	LUMP SUM	\$ 15,100	
Miscellaneous	5%	EST	LUMP SUM	\$ 7,550	\$ 226,500
Mobilization	10%	EST	LUMP SUM	\$ 22,650	\$ 249,150
Contingency	20%	EST	LUMP SUM	\$ 49,830	
	CONSTRUCTION TOTAL			\$ 298,980	
Design and Construction Engineering	20%	EST	LUMP SUM	\$ 59,796	\$ 358,776
Right-of-Way ¹	0.00	ACRE	\$30,000	\$ -	\$ 358,776

¹Assumes no additional Right-of-Way

TOTAL \$ 358,776

USE \$ 360,000 Per Mile

Western Canyon Communities Circulation Plan

Pedestrian Facilities

Wilder to Greenleaf

Single Separated 10-foot wide Asphalt Pedestrian Pathway 1 Mile Length

All costs shown in table are in 2009 Dollars

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
Asphalt (3")	1000	TON	\$ 70.00	\$ 70,000	
Gravel Base (9")	1500	CY	\$ 20.00	\$ 30,000	\$ 100,000
Topsoil/ Repair	650	CY	\$ 20.00	\$ 13,000	\$ 113,000
Drainage	10%	EST	LUMP SUM	\$ 11,300	
Irrigation	15%	EST	LUMP SUM	\$ 16,950	
SWPP	5%	EST	LUMP SUM	\$ 5,650	
Clearing & Grubbing	5%	EST	LUMP SUM	\$ 5,650	
Traffic Control	10%	EST	LUMP SUM	\$ 11,300	
Miscellaneous	5%	EST	LUMP SUM	\$ 5,650	\$ 169,500
Mobilization	10%	EST	LUMP SUM	\$ 16,950	\$ 186,450
Contingency	20%	EST	LUMP SUM	\$ 37,290	
	CONSTRUCTION TOTAL			\$ 223,740	
Design and Construction Engineering	20%	EST	LUMP SUM	\$ 44,748	\$ 268,488
Right-of-Way ¹	1.21	ACRE	\$30,000	\$ 36,364	\$ 304,852

¹Assumes 10' of additional Right-of-Way

TOTAL \$ 304,852

USE \$ 300,000 Per Mile

Western Canyon Communities Circulation Plan

Pedestrian Facilities

(Wilder to Greenleaf)

Single Separated 10-foot wide Asphalt Pedestrian Pathway and 10-foot wide Equestrian Use Pathway

1 Mile Length

All costs shown in table are in 2009 Dollars

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
Asphalt (3")	1000	TON	\$ 70.00	\$ 70,000	
Gravel Base (9")	1500	CY	\$ 20.00	\$ 30,000	\$ 100,000
Topsoil/ Repair	650	CY	\$ 20.00	\$ 13,000	
Equestrian Path	1956	CY	\$ 10.00	\$ 19,556	\$ 132,556
Drainage	10%	EST	LUMP SUM	\$ 13,256	
Irrigation	15%	EST	LUMP SUM	\$ 19,883	
SWPP	5%	EST	LUMP SUM	\$ 6,628	
Clearing & Grubbing	5%	EST	LUMP SUM	\$ 6,628	
Traffic Control	10%	EST	LUMP SUM	\$ 13,256	
Miscellaneous	5%	EST	LUMP SUM	\$ 6,628	\$ 198,833
Mobilization	10%	EST	LUMP SUM	\$ 19,883	\$ 218,717
Contingency	20%	EST	LUMP SUM	\$ 43,743	
CONSTRUCTION TOTAL				\$ 262,460	
Design and Construction Engineering	20%	EST	LUMP SUM	\$ 52,492	\$ 314,952
Right-of-Way ¹	2.42	ACRE	\$30,000	\$ 72,727	\$ 387,679

¹Assumes 20' of additional Right-of-Way

TOTAL \$ 387,679

USE \$ 390,000 Per Mile

Western Canyon Communities Circulation Plan

Pedestrian Facilities

US 95 (Parma to Homedale)

(2) - 8-foot attached Asphalt Bike Lanes
1 Mile Length

All costs shown in table are in 2009 Dollars

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
Asphalt (3")	1500	TON	\$ 70.00	\$ 105,000	
Gravel Base (9")	2300	CY	\$ 20.00	\$ 46,000	\$ 151,000
Drainage	10%	EST	LUMP SUM	\$ 15,100	
Irrigation	15%	EST	LUMP SUM	\$ 22,650	
SWPP	5%	EST	LUMP SUM	\$ 7,550	
Clearing & Grubbing	5%	EST	LUMP SUM	\$ 7,550	
Traffic Control	10%	EST	LUMP SUM	\$ 15,100	
Miscellaneous	5%	EST	LUMP SUM	\$ 7,550	\$ 226,500
Mobilization	10%	EST	LUMP SUM	\$ 22,650	\$ 249,150
Contingency	20%	EST	LUMP SUM	\$ 49,830	
	CONSTRUCTION TOTAL			\$ 298,980	
Design and Construction Engineering	20%	EST	LUMP SUM	\$ 59,796	\$ 358,776
Right-of-Way ¹	1.21	ACRE	\$30,000	\$ 36,364	\$ 395,140

¹Assumes 10' additional Right-of-Way

TOTAL \$ 395,140

USE \$ 400,000 Per Mile

Western Canyon Communities Circulation Plan

Pedestrian Facilities

US 95 (Parma to Homedale)

Single Separated 10-foot wide Asphalt Pedestrian Pathway 1 Mile Length

All costs shown in table are in 2009 Dollars

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
Asphalt (3")	1000	TON	\$ 70.00	\$ 70,000	
Gravel Base (9")	1500	CY	\$ 20.00	\$ 30,000	\$ 100,000
Topsoil/ Repair	650	CY	\$ 20.00	\$ 13,000	\$ 113,000
Drainage	10%	EST	LUMP SUM	\$ 11,300	
Irrigation	15%	EST	LUMP SUM	\$ 16,950	
SWPP	5%	EST	LUMP SUM	\$ 5,650	
Clearing & Grubbing	5%	EST	LUMP SUM	\$ 5,650	
Traffic Control	10%	EST	LUMP SUM	\$ 11,300	
Miscellaneous	5%	EST	LUMP SUM	\$ 5,650	\$ 169,500
Mobilization	10%	EST	LUMP SUM	\$ 16,950	\$ 186,450
Contingency	20%	EST	LUMP SUM	\$ 37,290	
	CONSTRUCTION TOTAL			\$ 223,740	
Design and Construction Engineering	20%	EST	LUMP SUM	\$ 44,748	\$ 268,488
Right-of-Way ¹	2.42	ACRE	\$30,000	\$ 72,727	\$ 341,215

¹Assumes 20' of additional Right-of-Way

TOTAL \$ 341,215

USE \$ 340,000 Per Mile

Western Canyon Communities Circulation Plan Pedestrian Facilities US 95 (Parma to Homedale)

Snake River Crossing

All costs shown in table are in 2009 Dollars

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
Bridge Construction (+/- 500 LF)	5000	SF	\$ 160.00	\$ 800,000	
Drainage	10%	EST	LUMP SUM	\$ 80,000	
Irrigation	15%	EST	LUMP SUM	\$ 120,000	
SWPP	5%	EST	LUMP SUM	\$ 40,000	
Clearing & Grubbing	5%	EST	LUMP SUM	\$ 40,000	
Traffic Control	10%	EST	LUMP SUM	\$ 80,000	
Miscellaneous	20%	EST	LUMP SUM	\$ 160,000	\$ 1,320,000
Mobilization	10%	EST	LUMP SUM	\$ 80,000	\$ 1,400,000
Contingency	20%	EST	LUMP SUM	\$ 280,000	
	CONSTRUCTION TOTAL			\$ 1,680,000	
Design and Construction Engineering	20%	EST	LUMP SUM	\$ 336,000	\$ 2,016,000
TOTAL				\$ 2,016,000	
USE				\$ 2,000,000	TOTAL

Western Canyon Communities Circulation Plan Pedestrian Facilities US 95 (Parma to Homedale)

Boise River Crossing

All costs shown in table are in 2009 Dollars

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
Bridge Construction (+/-250 LF)	2500	SF	\$ 160.00	\$ 400,000	
Drainage	10%	EST	LUMP SUM	\$ 40,000	
Irrigation	15%	EST	LUMP SUM	\$ 60,000	
SWPP	5%	EST	LUMP SUM	\$ 20,000	
Clearing & Grubbing	5%	EST	LUMP SUM	\$ 20,000	
Traffic Control	10%	EST	LUMP SUM	\$ 40,000	
Miscellaneous	20%	EST	LUMP SUM	\$ 80,000	\$ 660,000
Mobilization	10%	EST	LUMP SUM	\$ 40,000	\$ 700,000
Contingency	20%	EST	LUMP SUM	\$ 140,000	
	CONSTRUCTION TOTAL			\$ 840,000	
Design and Construction Engineering	20%	EST	LUMP SUM	\$ 168,000	\$ 1,008,000
TOTAL				\$ 1,008,000	
USE				\$ 1,000,000	TOTAL

**Western Canyon Communities Circulation Plan
Pedestrian Facilities
US 95 (Parma to Homedale)**

US 20/26 Crossing

All costs shown in table are in 2009 Dollars

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
Bridge Construction (+/-200 LF)	2000	SF	\$ 140.00	\$ 280,000	
Drainage	10%	EST	LUMP SUM	\$ 28,000	
Irrigation	15%	EST	LUMP SUM	\$ 42,000	
SWPP	5%	EST	LUMP SUM	\$ 14,000	
Clearing & Grubbing	5%	EST	LUMP SUM	\$ 14,000	
Traffic Control	10%	EST	LUMP SUM	\$ 28,000	
Miscellaneous	20%	EST	LUMP SUM	\$ 56,000	\$ 462,000
Mobilization	10%	EST	LUMP SUM	\$ 28,000	\$ 490,000
Contingency	20%	EST	LUMP SUM	\$ 98,000	
	CONSTRUCTION TOTAL			\$ 588,000	
Design and Construction Engineering	20%	EST	LUMP SUM	\$ 117,600	\$ 705,600
TOTAL				\$ 705,600	
USE				\$ 700,000	TOTAL

**Western Canyon Communities Circulation Plan
Pedestrian Facilities
US 95 (Parma to Homedale)**

Regional Irrigation Crossing (75' Span)

All costs shown in table are in 2009 Dollars

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
Crossing Construction (75 LF)	750	SF	\$ 160.00	\$ 120,000	
Drainage	10%	EST	LUMP SUM	\$ 12,000	
Irrigation	15%	EST	LUMP SUM	\$ 18,000	
SWPP	5%	EST	LUMP SUM	\$ 6,000	
Clearing & Grubbing	5%	EST	LUMP SUM	\$ 6,000	
Traffic Control	10%	EST	LUMP SUM	\$ 12,000	
Miscellaneous	20%	EST	LUMP SUM	\$ 24,000	\$ 198,000
Mobilization	10%	EST	LUMP SUM	\$ 12,000	\$ 210,000
Contingency	20%	EST	LUMP SUM	\$ 42,000	
	CONSTRUCTION TOTAL			\$ 252,000	
Design and Construction Engineering	20%	EST	LUMP SUM	\$ 50,400	\$ 302,400
TOTAL				\$ 302,400	
USE				\$ 300,000	TOTAL

**Western Canyon Communities Circulation Plan
Pedestrian Facilities
US 95 (Parma to Homedale)**

Local Irrigation Crossing (45' Span)

All costs shown in table are in 2009 Dollars

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
Crossing Construction (45 LF)	450	SF	\$ 120.00	\$ 54,000	
Drainage	10%	EST	LUMP SUM	\$ 5,400	
Irrigation	15%	EST	LUMP SUM	\$ 8,100	
SWPP	5%	EST	LUMP SUM	\$ 2,700	
Clearing & Grubbing	5%	EST	LUMP SUM	\$ 2,700	
Traffic Control	10%	EST	LUMP SUM	\$ 5,400	
Miscellaneous	20%	EST	LUMP SUM	\$ 10,800	\$ 89,100
Mobilization	10%	EST	LUMP SUM	\$ 5,400	\$ 94,500
Contingency	20%	EST	LUMP SUM	\$ 18,900	
	CONSTRUCTION TOTAL			\$ 113,400	
Design and Construction Engineering	20%	EST	LUMP SUM	\$ 22,680	\$ 136,080
TOTAL				\$ 136,080	
USE				\$ 140,000	TOTAL

**Western Canyon Communities Circulation Plan
Pedestrian Facilities
US 95 (Parma to Homedale)**

Small Irrigation Ditch (36" dia pipe)

All costs shown in table are in 2009 Dollars

ITEM	QUANTITY	UNITS	UNIT COST	TOTAL	SUBTOTAL
36" Pipe	100	LF	\$ 85.00	\$ 8,500	
Miscellaneous	5%	EST	LUMP SUM	\$ 425	\$ 8,925
Mobilization	10%	EST	LUMP SUM	\$ 850	\$ 9,775
Contingency	20%	EST	LUMP SUM	\$ 1,955	
	CONSTRUCTION TOTAL			\$ 11,730	
Design and Construction Engineering	5%	EST	LUMP SUM	\$ 587	\$ 12,317
TOTAL				\$ 12,317	
USE				\$ 12,000	TOTAL