State Road (S.R.) 50 Corridor Planning Study

Technical Memorandum

Project Limits: 12th Street to Bloxham Avenue

FPID #: 442924-1

Date: December 2020

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1.0 Introduction

Report Purpose

This report is intended to document the S.R. 50 Corridor Planning Study that evaluated multi-modal improvements to the approximately 1.73-mile section of S.R. 50 from 12th Street (C.R. 561) to Bloxham Avenue in Lake County. Additional information about the existing conditions is available under a separate cover titled the *S.R. 50 Corridor Study Existing Conditions Technical Memorandum*.

Project Description

In 2015, the City of Clermont passed a proclamation making "people" the top transportation priority in the City; regardless of the transportation mode. Additionally, based on crash data analysis provided by the Lake-Sumter Metropolitan Planning Organization (MPO), this corridor has one of the highest rates of traffic incidents in the area. The high vehicle crash rates, coupled with limited pedestrian/bicycle infrastructure and crossing facilities, raises safety concerns for the pedestrians and bicyclists that use this corridor. Therefore, the intent of this project is to define the issues that currently limit active transportation travel and access and identify potential opportunities for improvements that will accommodate the most vulnerable of multi-modal users.

This Corridor Planning Study will provide potential context sensitive improvements to meet the multimodal needs and deficiencies along S.R. 50 from 12th Street (C.R. 561) to Bloxham Avenue.

Study Area Description

Currently, S.R. 50 is an urban principal arterial that is designated as an Access Classification 5 facility. The Annual Average Daily Traffic (AADT) ranges from approximately 32,500 AADT to approximately 44,500 AADT. Land uses along the study corridor are comprised of commercial and office uses, with surrounding medium density residential.

S.R. 50 is the primary east-west corridor in Lake County and provides direct access to rapidly growing communities to the east and west of historic Downtown Clermont, extending to both of Florida's coasts. The approximately 1.73 mile corridor is shown in **Figure 1-1**, and extends from 12th Street (C.R. 561) to Bloxam Avenue in the City of Clermont, Florida.

Figure 1-1 Study Area

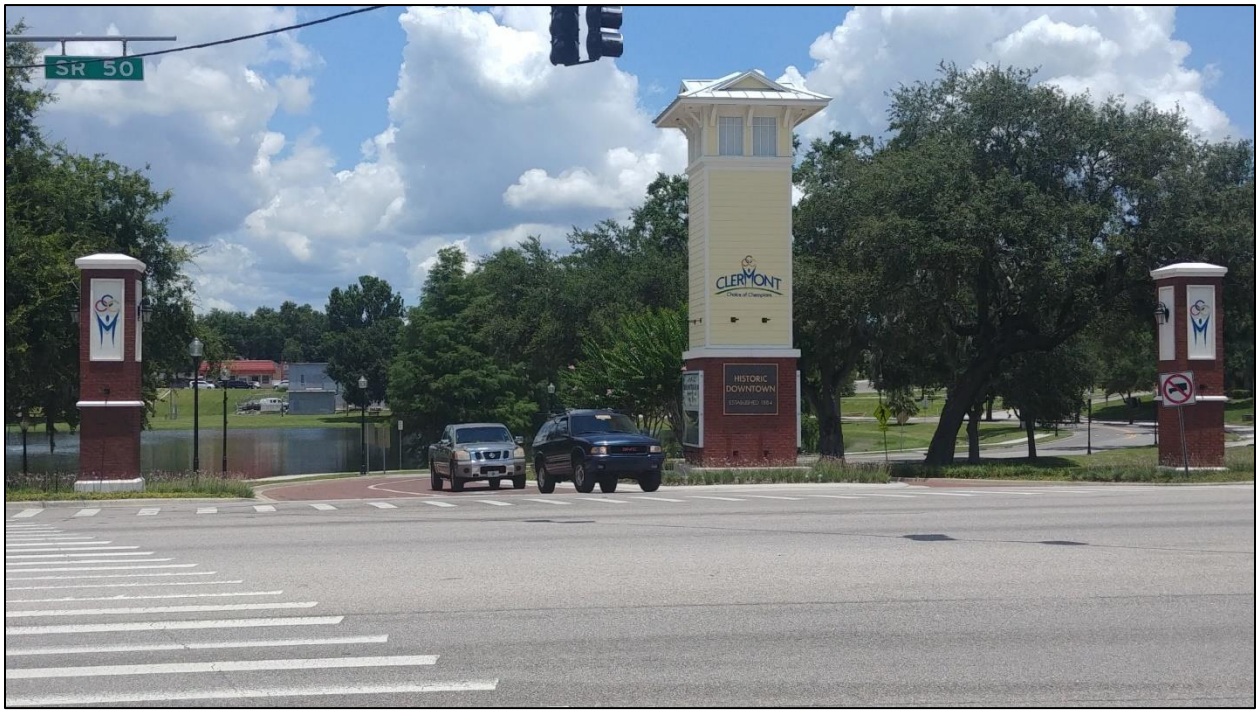
2.0 Purpose and Need

Purpose

The purpose of this project is to evaluate capacity, multimodal, and Transportation Systems Management and Operations (TSM&O) alternatives to improve mobility for all users of S.R. 50. Further, there is a desire to provide an enhanced multimodal transportation network that promotes the creation of a more walkable community, improves access to employment, supports economic development goals and provides safe and convenient access to users of all ages and abilities.

Need for Improvement

Unlike other projects, improvement on this segment of the S.R. 50 corridor was not primarily based on the need to provide an acceptable Level of Service (LOS). Instead, the primary need is for an enhanced multimodal network based on the desire for improved safety, improved accommodations for pedestrians/ bicyclists, and improved access to transit. As noted above, multimodal improvements would support the desire for economic development in the core of Clermont.



3.0 Traffic

3.1 Existing Year Volumes and Level of Service

Corridor LOS

The Level of Service (LOS) for the corridor is illustrated in the tables below. The daily volumes are the 2017 AADT values published within the FDOT Florida Traffic Online Database. The Daily directional volumes were field measured on May 16, 2018. The Daily and Directional Peak Hour Service volume are based on the 2012 FDOT Q/LOS Generalized Service Tables. The daily segment level of service analysis shows two of the three segments are over the LOS D target threshold (Bloxam Avenue to East Avenue and 8th Street to 12th Street). The peak period directional LOS analysis shows all segments are within the LOS D target thresholds. The reason the peak period shows a lower volume to service volume ratio is because the actual k-factor is closer to 0.075 rather than the standard K of 0.09 assumed in the daily generalized service tables.

Table 3-1 Daily Segment Level of Service Summary

Location	Description	FDOT Target LOS		2017 Data Collection		
		LOS	Daily Service Volume	AADT	LOS	Volume to Service Volume Ratio
Segment 1	Bloxam Avenue to East Avenue	D	39,800	40,500	F	1.02
Segment 2	East Avenue to 8th Street	D	39,800	38,000	D	0.95
Segment 3	8th Street to 12th Street	D	39,800	40,000	F	1.01

AADT volumes determined from 2017 Florida traffic online counts, Posted speed 40 mph

Table 3-2 Peak Period Directional Level of Service Summary

Description	FDOT Target LOS		2017 AM Data Collection (Eastbound)			2018 PM Data Collection (Westbound)		
	LOS	Daily Service Volume	Peak Hour Directional	LOS	Volume to Service Volume Ratio	Peak Hour Directional	LOS	Volume to Service Volume Ratio
Bloxam Avenue to East Avenue	D	2,000	1,660	C	0.83	1,660	C	0.83
East Avenue to 8th Street	D	2,000	1,777	C	0.89	1,777	C	0.89
8th Street to 12th Street	D	2,000	1,802	C	0.90	1,802	C	0.90

Peak hour volumes determined from 2018 field counts (May 16), Seasonal Factor =1.00, Posted speed 4

Intersection Analysis

An operational analysis was conducted using traffic analysis programs to analyze the existing conditions and the level of service (LOS) of the existing and proposed condition based on the Highway Capacity Manual (HCM). An intersection LOS analysis was performed at the five signalized intersections for AM and PM peak. The results of the analysis are displayed in **Tables 3-3 and 3-4**Table 3-4. Of the five intersections Bloxam Avenue is the only intersection operate less than a LOS C.

Table 3-3 2018 Existing AM Peak Delay and Level of Service

Analysis Period	Intersection	Approach Delay (LOS)				
		EB	WB	NB	SB	Intersection
2018 Existing AM Peak	12th Street	14.0 (B)	2.0 (A)	56.4 (E)	60.6 (E)	15.6 (B)
	8th Street	9.2 (A)	0.7 (A)	59.4 (E)	64.5 (E)	8.3 (A)
	5th Street	12.7 (B)	8.5 (A)	61.9 (E)	64.9 (E)	14.1 (B)
	East Avenue	16.2 (B)	16.0 (B)	53.4 (D)	57.6 (E)	21.7 (C)
	Bloxam Avenue	77.8 (E)	48.9 (D)	80.5 (F)	71.8 (E)	67.6 (E)

Table 3-4 2018 Existing PM Peak Delay and Level of Service

Analysis Period	Intersection	Approach Delay (LOS)				
		EB	WB	NB	SB	Intersection
2018 Existing PM Peak	12th Street	11.1 (B)	33.1 (C)	61.4 (E)	59.0 (E)	29.0 (C)
	8th Street	7.8 (A)	1.6 (A)	57.9 (E)	64.2 (E)	7.0 (A)
	5th Street	9.2 (A)	13.2 (B)	60.2 (E)	63.7 (E)	15.1 (B)
	East Avenue	13.2 (B)	22.8 (C)	56.7 (E)	62.1 (E)	22.8 (C)
	Bloxam Avenue	210.6 (F)	143.9 (F)	60.7 (E)	56.0 (E)	151.6 (F)

3.2 Traffic Analysis Methodology and Assumptions

The following section documents the traffic analysis methodology and assumptions used to determine the future traffic conditions along the study corridor. Traffic forecasts were developed for use in the future year (2040) operations analysis. Traffic forecasts were created for the AM and PM hour conditions, and for the interim (if applicable), projected failure year and design year conditions. The selected growth rate is based on sensitivity analyses from low, medium, and high growth rates for the area, including:

- Historical Traffic Counts: Annual average daily traffic counts on S.R. 50 have steadily increased over the past 15 years. There is a four-year span between 2008 and 2012 when traffic volumes declined; however, this was due to the reconstruction of the S.R. 50 and U.S. 27 interchange and the widening of the segment of S.R. 50 just east of Bloxam Avenue to six lanes. Due to the fluctuations in traffic count data resulting from the Interchange reconstruction, we are concerned about using traffic count histories to project future traffic on the corridor.

- BEBR Population Estimates: A review of Bureau of Economic and Business Research (BEBR) population growth forecasts in the area (BEBR Volume 50, Bulletin 177, April 2017). As shown on **Table 3-5**, population in the area has grown in recent years and is projected to continue through 2040. While 2010 Census and 2018 Estimates are available for cities in the area, future projections from BEBR are only available countywide. Using the commonly used BEBR Medium projections, the growth rate in Lake County is expected to be approximately 46% over the next 23 years, or 2.0% per year (based on a BEBR 2017 population estimate of 331,724).

Table 3-5 BEBR Population Projections

City/County	City of Clermont (Census)			Lake County (BEBR)					
Category	2010 Census (Clermont)	2018 Estimate Clermont)	Growth Rate from 2010 to 2018	2040 Low	Growth Rate using 2040 Low	2040 Medium	Growth Rate using 2040 Medium	2040 High	Growth Rate using 2040 High
Population/ Growth Rate	28,742	38,906	4.42%	397,700	0.86%	484,200	2.00%	576,300	3.21%

- CFRPM: The 2040 CFRPM data was examined in the area and compared the 2010 model volumes to the 2040 model volumes. As shown in **Table 3-6**, traffic volumes vary from east to west (2.07% to 2.60% per year), but generally average about 71% over the 30 years (or 2.37% per year).

Table 3-6 2040 CFRPM Traffic Data for S.R. 50 Corridor Area

Traffic Volumes	2010 AADT	2040 AADT	Total Growth	Annual Growth
Eastern end of corridor	30,763	49,840	62%	2.07%
Western end of corridor	25,599	45,558	78%	2.60%
Entire corridor segment	158,402	271,182	71%	2.37%

Recommended Growth Rate

Lake County and the City of Clermont are projected to steadily increase in both population and traffic volumes through year 2040. With the potential for future development and redevelopment along the study corridor, and the lack of options for “cut-through” traffic in this area, the medium to high annual growth rate of 2.3% for future traffic projections was utilized. The 2.3% is slightly higher than the BEBR Medium projections and falls in between the CFRPM growth rates for the various segments along the study corridor. Additionally, we the growth rate is consistent with the planned development/redevelopment in the area.

3.3 Future Year Traffic Volumes and Level of Service

Future 2040 operational analysis was conducted to determine the LOS for the roadway segments and the study area intersections in a no-build scenario. Future traffic volumes were projected by using the preferred growth rate and growing the existing traffic to the future year. Similar to the existing conditions analysis, future LOS was determined by using the 2012 FDOT Quality/Level of Service tables and HCM 2010 guidelines for roadway and intersection operations, respectively.

Using the future travel characteristics forecast for the short term and long-term conditions, the CONSULTANT performed a Level of Service (LOS) evaluation per Highway Capacity Manual (HCM) procedures to roadway segments and intersections.

A qualitative assessment to establish future conditions for multi-modal mobility will also be considered if future development is anticipated to occur along the corridor, and / or multimodal improvements are planned / programmed. As applicable, a summary of the Multimodal Quality of Service will also be documented for the corridor. The results of this assessment are displayed in **Tables 3-7 through 3-9**.

3.4 Long-Range Needs Assessment

Based on the LOS information presented in Tables 3-7 through 3-9, it may be appropriate to widen the roadway to six lanes in order to address vehicular capacity deficiencies in 2040. However, there are physical constraints that would make such an improvement difficult. Furthermore, as noted in the Purpose and Need, the primary community desire is to provide multimodal enhancements that improve the safety, walkability, and aesthetics of the corridor.

The results of the future conditions assessment, along with the Purpose and Need, assisted in the identification of improvements to be evaluated. Consideration was given to maximizing opportunities for utilization of non-vehicular modes such as bicycle, pedestrian, and transit. Finally, travel time and reliability along the corridor are often more meaningful measures of effectiveness than LOS. As such, this information was analyzed for future conditions, and is presented in Section 4.

Table 3-7 No-Build Daily Segment LOS

Location	Description	FDOT Target LOS		2017 Data Collection			2040 Projections		
		LOS	Daily Service Volume	AADT	LOS	Volume to Service Volume Ratio	AADT	LOS	Volume to Service Volume Ratio
Segment 1	Bloxam Ave to East Ave	D	39,800	40,500	F	1.02	58,320	F	1.47
Segment 2	East Ave to 8th St	D	39,800	38,000	D	0.95	54,720	F	1.37
Segment 3	8th St to 12th St	D	39,800	40,000	F	1.01	57,600	F	1.45

AADT volumes determined from 2017 Florida Traffic Online counts, Posted speed 40 mph

Table 3-8 No-Build AM Segment LOS

Location	Description	FDOT Target LOS		2017 Data Collection			2040 Projections		
		LOS	Hourly Service Volume	Peak Hour Directional	LOS	Volume to Service Volume Ratio	AADT	LOS	Volume to Service Volume Ratio
Segment 1	Bloxam Ave to East Ave (WB)	D	2,000	1,660	C	0.83	2,390	F	1.20
Segment 2	East Ave to 8th St (WB)	D	2,000	1,777	C	0.89	2,559	F	1.28
Segment 3	8th St to 12th St (WB)	D	2,000	1,802	C	0.90	2,595	F	1.30

Peak hour volumes determined from 2017 field measured counts (may 16), Seasonal Factor =1.00, Posted speed 40 mph

Table 3-9 No-Build PM Segment LOS

Location	Description	FDOT Target LOS		2017 Data Collection			2040 Projections		
		LOS	Hourly Service Volume	Peak Hour Directional	LOS	Volume to Service Volume Ratio	AADT	LOS	Volume to Service Volume Ratio
Segment 1	Bloxam Ave to East Ave (WB)	D	2,000	1,735	C	0.87	2,498	F	1.25
Segment 2	East Ave to 8th St (WB)	D	2,000	1,783	C	0.89	2,568	F	1.28
Segment 3	8th St to 12th St (WB)	D	2,000	1,599	C	0.80	2,303	F	1.15

Peak hour volumes determined from 2017 field measured counts (may 16), Seasonal Factor =1.00, Posted speed 40 mph

3.5 Transportation Systems Management and Operations (TSM&O)

Based on the results of the data in the previous sections, shorter term improvements including signal retiming were evaluated. As noted, signal timing was optimized along the corridor to maximize progression. Furthermore, the addition of a signal at Anderson Street would not significantly affect travel time, as it enhances spacing and minimizes vehicle platooning and stacking at adjacent signalized intersections. These TSM&O solutions were considered in the no-build alternative and the build alternatives presented in Section 4.

3.6 Purpose and Need

It is essential to understand the problem prior to determining practical solutions for a corridor. As part of the Corridor Planning Study, the existing and future conditions discovered for the study corridor were analyzed to define the Issues & Opportunities, Guiding Principles, and Purpose and Need Statement for the project.

Issues and Opportunities

This section is intended to summarize the issues and opportunities that were identified and used to develop the potential improvement strategies along the study corridor. During the data collection and existing conditions inventory process, elements within the corridor found to be deficient were noted appropriately. Wherever possible, other aspects of the corridor that represent potential opportunities to support future enhancements were also documents, with note of current local agency transportation plans. The following is an accumulation of the data collection and stakeholder input comprising of the Issues & Opportunities for the S.R. 50 study corridor:

Access Management

The following access management issues have been observed:

- High number of driveways that have direct access to S.R. 50
- Parcels with multiple driveways
- Vehicles using two-way center turn lane incorrectly (storage and thru lane)

Bicycle & Pedestrian Facilities

Based on data collection and stakeholder feedback, the following observations were made:

- Issues with utilization of existing pedestrian crosswalks and drivers' lack of understanding about the requirement to stop for pedestrians crossing S.R. 50
- No designated bike lanes on the corridor
- Sidewalks are sporadically obstructed with debris and overgrown landscaping

Transit

The following observations were made regarding transit through field review and coordination with stakeholders:

- Frequent bus stop spacing with most bus stop locations having ADA accessibility issues such as the absence of wheelchair-accessible boarding and alighting locations
- Minimal bus stop amenities such as benches are provided

Existing Operations

Based on analysis done for both the existing conditions and future traffic projections, the following opportunities were identified:

- Existing and 2040 future volume projects are anticipated to operate at acceptable roadway and intersection LOS conditions during the AM and PM peak hours. This may provide an opportunity for improvements while avoiding major capacity impacts.
- Spot speed study revealed that average speeds range from 24-33 mph in the 30-mph posted area; and 33-42 mph in the 40-mph posted area. Vehicles do not appear to be traveling at excessive speeds within the study area.
- Pedestrian perception is that vehicles are traveling at excessive speeds.

Safety

Based on crash history analysis the following opportunities were identified:

- From 2011 to 2015, there were 113 crashes at the US 1 and S.R. 406 (Garden Street) intersections, including 59 angle and 7 left turn crashes. Combined with the lack of capacity issues, this leaves opportunities to directly address safety.

Based on the results of the existing and future conditions analysis, the CONSULTANT shall develop a Purpose and Need Statement consistent with Part 2, Chapter 4 of the PD&E Manual.

4.0 Alternative Analysis and Development

In addition to the No Build alternative, two (2) initial roadway and intersection Build alternative concepts were developed. The alternatives are presented and analyzed in this section.

4.1 No Build Alternative

The No-Build (no action) alternative is the option in which the proposed project activity would not take place. For this project it considers leaving S.R. 50 in its present state as a five-lane roadway through the study corridor. The No-Build provides the baseline for establishing impacts of the Build alternatives. It has remained an option throughout this study and was used for comparison purposes in the evaluation of traffic operations. The existing conditions Synchro models were updated with future land uses and planned improvements (from LRTP's and other sources) to produce an operational analysis that looked at traffic volumes and turning movements in the design year (2040). The results of this analysis are displayed in **Tables 3-7 through 3**-9 in the previous section.

4.2 TSM&O and Multi-Modal Alternatives

Although there are no Federal requirements to develop a Transportation Systems Management and Operations (TSM&O) program plan, the FHWA has recognized that transportation agencies at all levels (such as state and local DOT's and MPO's) are realizing the importance of TSM&O activities as part of their core mission. As a result, FHWA has produced program guidance designed to optimize the performance of existing multimodal infrastructure through implementation of systems, services and projects to preserve capacity and improve the reliability of transportation systems. Goals of the TSM&O program include mode choice, minimization of connection gaps, transit availability, and bicycle/pedestrian network enhancements. Each phase of project development provides an opportunity to include TSM&O strategies that can improve safety and operations, beginning with this planning process. The study corridor has been identified as a future multimodal corridor by the City of Clermont. Providing mobility options is necessary due to the demand for multimodal travel based on both existing use and future economic growth anticipated along the corridor.

The FDOT TSM&O 2017 Strategic Plan provides several tools that have the potential to not only increase the safety of multimodal networks along the study corridor, but further FDOT program goals as well. While these tools will be developed and evaluated in greater detail during the concept development process, there is a benefit to noting TSM&O options now to ensure they are adequately considered moving forward. Tools that could be implemented for this project may include but are not limited to:

- Intersection Collision Avoidance
- Intersection System Detection
- Walk Smart/Bike Smart
- Active Arterial Management

The results of the optimized and travel time analysis are displayed in **Table 4-1.**

Table 4-1 Travel Time Simulation

				Anderson St. Unsignalized				Anderson St. Signalized			
		Travel Time Simulation		Travel Time Simulation		Travel Time Simulation		Travel Time Simulation		Travel Time Simulation	
Time	Location (From-To)	Existing		Existing Optimized		2040 Optimized		Existing Optimized		2040 Optimized	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Eastbound	12th St Approach	35.1	33.7	31.5	29.5	108	40.8	32.7	30	109.4	41.5
	12th St to 8th St	49.1	42.7	49.8	44.7	53.6	54.2	50.5	45.4	57.1	55.4
	8th St to 5th St	40.7	37.2	40.4	37.8	40.9	37.5	41.2	38.1	44.6	37.8
	5st St to East Ave	56.3	48.5	48.1	47.1	61.1	52.4	48.6	47.7	70.5	58.1
	East Ave to Anderson St							60.1	61.5	68.6	76.4
	Anderson St to Bloxam Ave	98.9	120.7	82	90.8	113.1	119.5	26.6	33.4	51.5	75.5
	Total (Sec)	**280.1**	**282.8**	**251.8**	**249.9**	**376.7**	**304.4**	**259.7**	**256.1**	**401.7**	**344.7**
	Total (Min)	**4.7**	**4.7**	**4.2**	**4.2**	**6.3**	**5.1**	**4.3**	**4.3**	**6.7**	**5.7**
Westbound	Bloxam Ave Approach	31.4	94.6	43.2	42.1	34.4	176.4	27.8	41.6	34.9	178.4
	Bioxam Ave to Anderson St							41.3	47.9	49.4	106
	Anderson St to East Ave	80.9	104.8	60.2	85	80.6	140.7	41.5	44.2	47.5	131.3
	East Ave to 5th St	46	54.4	41.3	49.5	49.7	54.7	41.5	49.4	50.4	57.5
	5th St to 8th St	34.4	42.5	36.9	40.2	37	39.6	37.4	39.5	39.1	40.3
	8th St to 12 Street	51.2	66.2	45	50.3	55.1	61.3	46.6	49.3	53.1	62
	Total (Sec)	**243.9**	**362.5**	**226.6**	**267.1**	**256.8**	**472.7**	**236.1**	**271.9**	**274.4**	**575.5**
	Total (Min)	**4.1**	**6.0**	**3.8**	**4.5**	**4.3**	**7.9**	**3.9**	**4.5**	**4.6**	**9.6**

^ Travel Time Updated to include the approach travel time at the beginning of each segment (1000' before first signal).

^ Added existing optimized and 2040 optimized travel times.

4.3 Design Criteria

Designs for roadway and bridge projects are based on established design controls for the various elements of the project. Prior to developing concept alternatives and typical sections, design guidance from the 2020 FDOT Design Manual was gathered, including the following:

- **Table 200.4.1 Context Classification Matrix**: The corridor and areas immediately adjacent fall within the C4 (Urban General) context classification.
- **Table 201.5.1 Design Speed**: The allowable design speed range for C4 is 30-45 mph.
- **Table 210.2.1 Minimum Travel and Auxiliary Lane Widths**: 10 to 11-foot travel lanes for design speeds 30-45 mph are recommended.
- **Table 210.3.1 Median Widths**: The median width is 15.5 to 22-feet for a curbed roadway and flush shoulder roadway for design speeds of 30-45 mph.

Photo from field visit. Source: Project Team.

- **Table 210.4.1 Shoulder Width**: For two lanes in the same direction without a shoulder gutter: outside - full width 10-feet and paved width 5-feet; median or left – full width 8-feet and paved width 0-feet. [Note: consider 12-foot outside full width shoulder adjacent to travel lanes with high AADT or greater than 10% trucks]. For two lanes in the same direction with a shoulder gutter: outside - full width 15.5-feet and paved width 8-feet; median or left – full width 13.5-feet and paved width 6-feet.
- **Table 210.7.1 Minimum Border Width**: For curbed shoulder and design speeds of 40 mph, the minimum border width from the shoulder break to ROW is 12-feet.
- **Table 210.8.1 Length of Horizontal Curve**: The horizontal curve length should be the greater of the lengths based on design speed or deflection angle. The curve length based on design speed is 600-feet (40 mph). The curve lengths based on deflection angle are 500-feet (5 deg.), 600-feet (4 deg.), 700-feet (3 deg.), 800-feet (2 deg.) and 900-feet (1 deg.).
- **Table 222.1.1 Sidewalk Widths**: Standard sidewalk width for C4 is 6-feet. However, the sidewalk width may be increased up to 8-feet when demand is demonstrated.

- **Sub-Section 223.2.1.1 Bicycle Lane Widths**: A 7-foot buffered bicycle lane is the highest priority design, working down to 4-feet minimum. Do not provide a bike lane when available pavement is less than 4-feet.

- **Sub-Section 223.2.2 Paved Shoulders**: A paved shoulder must be a minimum width of 4-feet to serve as a bicycle facility.

- **Sub-Section 224.4 Widths [shared-use path]**: The appropriate paved width for a two-directional shared use path is dependent on context, volume and mix of users. Widths range from 10- to 14-feet, with a standard width of 12-feet. Short 8-feet wide sections may be used in constrained conditions.

- **Sub-Section 224.12 Separation from Roadway [shared-use path]**: On roadways with design speeds of less than 45 mph, the edge of the shared use path should be at least 4-feet from the back of the curb, with consideration of other roadside obstructions (signs and light poles).

Photo from field visit. Source: Project Team.

4.4 Build Alternatives

Utilizing the future year traffic projections, two (2) build alternatives were evaluated to provide relief to the roadway congestion and improve level of service deficiencies expected along the corridor. The two alternatives are referred to as Alternative 2a and Alternative 2b. The main difference in the two alternatives is the Alternative 2a features a raised median along the full length of the corridor, and Alternative 2b utilizes median islands at isolated locations.

Additionally, consideration was given to maximizing opportunities for utilization of non-vehicular modes such as bicycle, pedestrian, and transit. The multimodal enhancements evaluated included the following:

- Narrowing travel lanes
- Reducing the speed limit
- New signal with pedestrian crossing at Anderson Street
- Raised medians and median islands
- Widening sidewalks
- Mid-block crossings
- Relocating bus stops closer to crossings
- Providing enhanced lighting

A series of planning level concepts were developed and included in the appendix illustrating a range of possible alternatives for improvements along the study corridor. The plans were created based on the land use context along the study corridor, as well as the issues and opportunities and purpose and need statements developed for this project. Example typical sections are provided here for the selected alternative. The alternatives are further detailed in the CAD drawings in the appendix and in Sections 4.5 and 4.6.

Figure 4-1 Example Typical Section 1

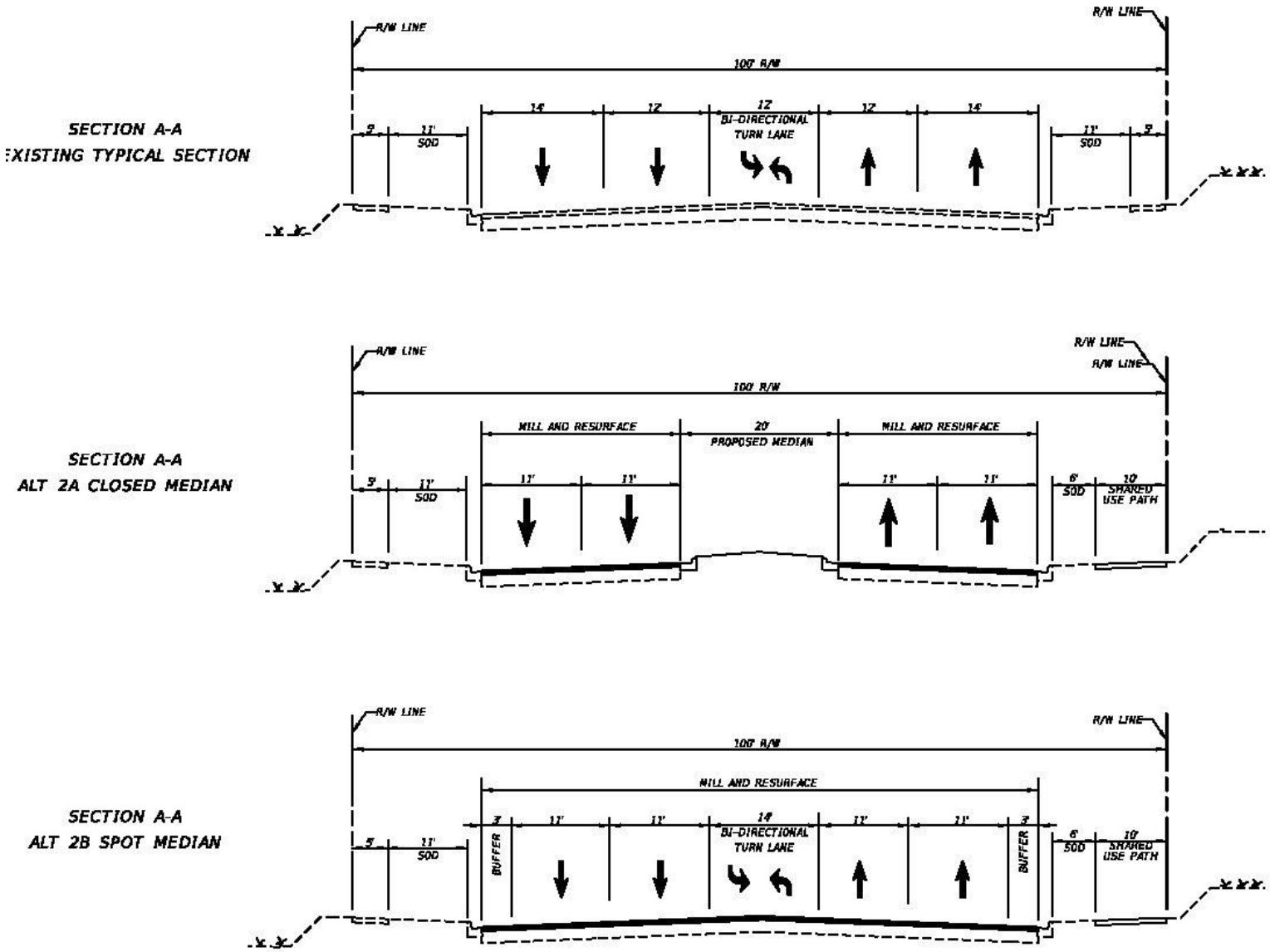
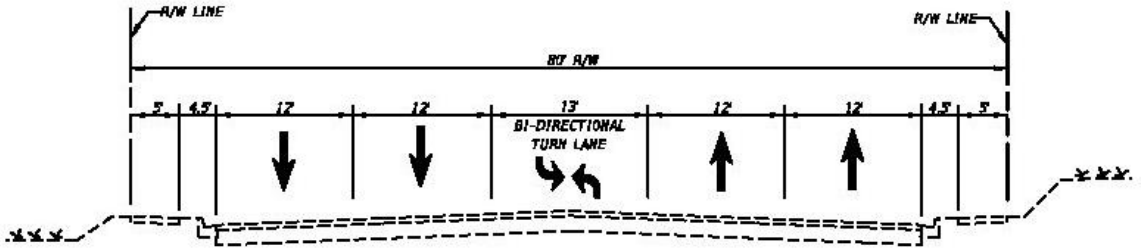
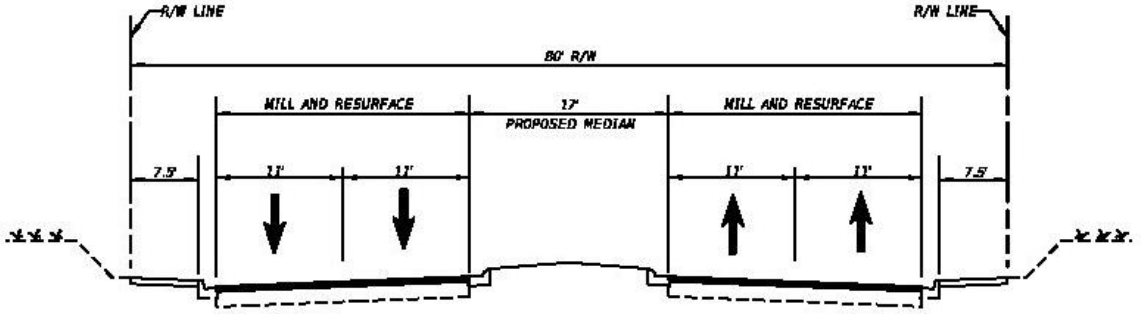


Figure 4-2 Example Typical Section 2

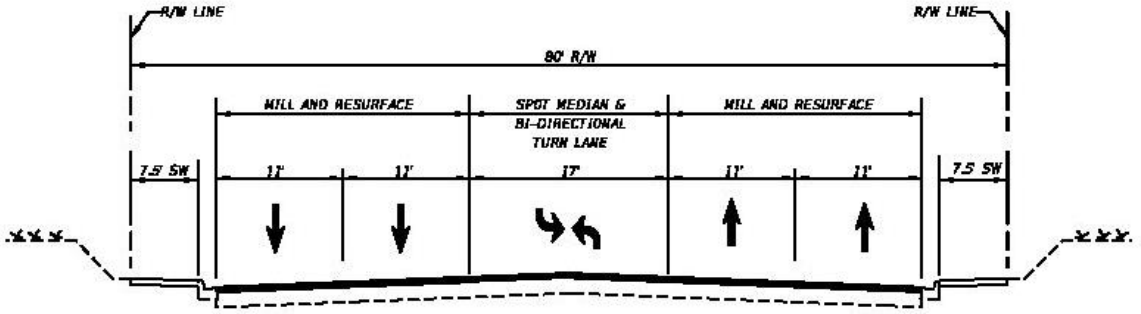
SECTION B-B
EXISTING TYPICAL SECTION



SECTION B-B
ALT 2A CLOSED MEDIAN



SECTION B-B
ALT 2B SPOT MEDIAN



4.5 Initial Alternatives Comparison and Matrix

To compare alternatives, two key components were considered – type of section and roadway vertical alignment. Various section and alignment combinations were compared for planning purposes, resulting in a final concept that has the potential to be evaluated during concept development.

Two evaluation matrices are provided in this section comparing the No Build scenario and the two build alternatives. The first matrix presents features of each scenario to be compared side by side. The second matrix evaluates the desirability if each evaluation criteria.

Figure 4-3 Alternatives Comparison Matrix

SR 50 Corridor Planning Study					
Comparative/Evaluation Criteria		No Build (Alt 1)	Build with Median (Alt 2a)	Build with Islands (Alt 2b)	Comments
Comparative	Construction Costs	-	~$7.7 million	~$7.5 million	Build alternatives have design/construction related costs to implement
	2040 PM Travel Time (WB)	7.9 minutes	9.6 minutes	9.6 minutes	Build alterternatives add approximately 1.7 minutes of travel time in the PM peak westbound direction
	No. of Lanes	5	4	5	Alt 2b maintains two-way center turn lane, with median islands to prevent use as a through lane
	Through Lane Width	12 to 14-feet	11-feet	11-feet	Alt 2b center lane varies from 14 to 17-feet
	Raised Median	no	yes	no	
	Raised Median Islands	no	no	yes	
	Shared-use Path	no	yes	yes	On north side of roadway
	Wide Sidewalks	no	yes	yes	7-feet wide sidwalks at locations where a shred-use path does not fit
	Anderson Street Signalized Intersection	no	yes	yes	
	Relocated Bus Stops	no	yes	yes	Bus stops moved to connect with intersections and crossings
	Midblock Crosswalks	0	2	1	Build alternatives include two midblock crossings along SR 50 (one midblock under Alt 2b).

Figure 4-4 Alternatives Evaluation Matrix

SR 50 Corridor Planning Study					
Comparative/Evaluation Criteria		No Build (Alt 1)	Build with Median (Alt 2a)	Build with Islands (Alt 2b)	Comments
Evaluation	Costs	◔	●	●	Build alternatives have design/construction related costs to implement
	2040 PM Travel Time (WB)	◔	◑	◑	Build alterternatives add approximately 1.7 minutes of travel time in the PM peak westbound direction
	ROW impacts	◔	◑	◑	Potential for small ROW imapcts with Build alternatives regarding shared use path
	Environmental considerations	◔	◑	◑	Potential for small environmental imapcts with Build alternatives regarding shared use path
	Historic resource considerations	◔	◔	◔	no impacts
	Social considerations	●	◑	◑	Build alternatives promote pedestrian and bicycle activity, and potentially increases social interactions, provide more transportation choices for the transportation disadvanted population, and promotes healthy lifestyles.
	Impacts to business access	◔	◕	◑	Build Alt 2a, would restrict left turns for some businesses along SR 50, and redirect those vehicles to u-turn at major intersections.
	Consistency with future development plans	●	◔	◑	Build alternatives are consistent with the City's Comprehensive Plan and various waterfront master plans/studies.
	Pedestrian/bicycle accessibility	●	◔	◑	Build alternatives promote pedestrian and bicycle activity, and allows for connections to trail network including the proposed East Avenue cycle track. Also includes two midblock crossings along SR 50 (one under Alt 2b).
	Improve Safety	●	◔	◑	Build alternatives promote pedestrian and bicycle activity, reduces driver conflict points throughout corridor, promotes lower driver speeds.

Legend

Symbol	*Meaning*
◔	More Desirable
◑	
◕	
●	Less Desirable

4.6 Selected Alternative(s) Description

Based on the analysis from the previous sections including input from the Project Visioning Team and the public, Alternative 2a was the selected alternative. Alternative 2a is summarized below. The plan sheets for Alternative 2a are provided in the appendix.

- 12th Street to West of 10th Street: Bus stop relocations, raised curb median, new 8-foot sidewalk on north side.
- 10th Street to 8th Street: Bus stop relocations, traffic separators in combination with raised curb median.
- East of 8th Street to west of 5th Street: New 7.5 to 8-foot sidewalks, raised median, bus stops removed on north and south sides of the road.
- 5th Street to west of 2nd Street: Bus stops relocated, new 8-foot sidewalks, new raised median.
- West of 2nd to East Avenue: New 7.5 to 8-foot sidewalks, relocated bus stops, raised median, 10-foot shared use path connecting to East Avenue cycle track corridor.
- East of East Avenue to Anderson Street: 10-foot shared use path on the north side of S.R. 50, sidewalks on the south side of S.R. 50, and a raised curb median.
- Anderson Street to Winn Dixie: Relocated bus stops, 10-foot shared use path on the north side of S.R. 50, raised curb median.
- Winn Dixie to Bloxham: Pedestrian crossing at Winn Dixie, 10-foot shared use path on the north side of S.R. 50, traffic separator, relocated bus stops.

4.7 Design Exceptions and Variations

Subsection *224.12 Separation from Roadway (shared use path)* specifies that there should be at least a 4-foot separation between the roadway and a shared use path. For the shared use path between 12th Street and Bloxham, there is not the minimum separation provided. This design variant is justified due to the transition from a bike lane to a shared use path in this segment resulting in less than a 4-foot buffer between the shared use path and the roadway.

4.8 Access Management

Access management is the coordinated planning and design of access between roadways and land development. It promotes the efficient and safe movement of people and goods by reducing conflicts on the roadway system. By reducing conflicts, safety is improved, and traffic capacity is increased.

The concept alternatives utilized the following criteria and guidance based on Table 201.4.2 of the 2020 FDOT Design Manual:

- 1,320-feet minimum spacing between full openings
- 660-feet minimum spacing between full openings and directional openings

The Alignment and Typical Sections text above summarizes median type and location for each segment of roadway.

4.9 Drainage Considerations

No changes are proposed for the existing curb and gutter configuration resulting in no increased drainage considerations for the proposed alternative.

4.10 Environmental Impacts

Roadway improvements can have multiple effects on the surrounding environment, both direct impacts and indirect impacts. Direct impacts are caused by the construction itself and are generally easier to inventory, assess and control. Indirect impacts, while linked to a project, can have a wider range of consequences and are more difficult to measure.

As part of this corridor planning study, existing environmental features were identified using GIS data base information, including flood zones and wetlands (included in the Existing Conditions Report). The environmental review focused on the potential protected wildlife impacts that could be related to the proposed medians/median island improvements and a shared-use path (8-10-feet wide) located on the north side of the corridor.

Two alternatives were reviewed, and both alternatives propose median improvements with the primary difference between the two alternatives being: one includes median islands and left-turn lane separators (restricting access throughout the corridor) and the other includes median islands, with no restricted corridor access. The proposed project does not include relocation of existing curbs and gutters.

The project also proposes widening improvements to an existing pathway. The proposed shared-use path (8-10-feet wide) improvements will all be located on the north side of the corridor. The proposed widening

will impact areas currently unpaved, therefore potential wildlife habitat impacts could result from the proposed project. Proposed improvements to the existing pathway will occur in both developed and undeveloped parcels. The undeveloped parcels support excessively well drained soils that have been mapped as the Candler Series, Natural Resources Conservation Service, (NRCS), and with elevations exceeding 82-ft MSL. These soils, elevations, and undeveloped condition of these areas could provide habitat for protected wildlife such as the Florida Sand Skink (Neoseps reynoldsi) and Florida gopher tortoise (Gopherus polyphemus), as well as commensal species.

Therefore, because suitable habitat appears to exist within the proposed project work areas, it is suggested that a preliminary field site assessment be conducted to determine the presence of protected species, or presence of protected species habitat within the proposed pathway project area.

4.11 ROW Impacts and Costs

No right-of-way will be impacted in any of the proposed alternatives.

4.12 Construction Cost Estimates

Construction cost estimates for the two build alternatives were developed in the fall of 2019 using FDOT's Long Range Estimating System. Costs included milling and resurfacing, addition of medians, reconstruction / widening of sidewalks, new lighting, and installation of a mast-arm traffic signal at Anderson Street. Summary costs for the selected alternative are shown below, and detailed LRE sheets for both build alternatives are provided in the Appendix.

Table 4-2 Construction Cost Estimate for Selected Alternative

Description	Cost
Earthwork Component	$79,110
Roadway Component	$2,143,982
Shoulder Component	$1,146,912
Median Component	$851,685
Signing Component	$69,673
Signalization Component	$384,063
Lighting Component	$796,244
Maintenance of Traffic (10%)	$547,167
Mobilization (10%)	$601,884
Initial Contingency	$66,207
GRAND TOTAL	$6,686,927

5.0 Public Involvement

The public involvement element of this project included # public meeting(s) and a Project Visioning Team (PVT). More details on the public involvement effort for this project are included in this section.

5.1 Project Visioning Team

A Project Visioning Team (PVT) was assembled to share their local knowledge and history of the study area, provide input on the planning and concept development process, and recommend corridor alternatives to be advanced for further study. Four meetings with the PVT were held during key project milestones on the following dates:

- PVT Meeting #1: August 23, 2018
- PVT Meeting #2: January 15, 2019
- PVT Meeting #3: November 26, 2019
- PVT Meeting #4: August 17, 2020

A summary of the PVT meetings is located in the appendix.

5.2 Public Workshop

A public workshop was held on April 8, 2019 from 5:30 p.m. to 7:00 p.m. at the Clermont City Center located at 620 West Montrose Avenue in Clermont, Florida. This informational workshop was held to explain the study goals and process, seek public and agency input, and provide interested persons an opportunity to express their views about the project. The input was used to develop proposed improvements that provide a safe, comfortable, and accessible corridor for users of all ages and abilities, including pedestrians, bicyclists, transit riders, and motorists.

Meeting Notification

The meeting notification process for the public workshop included the following:

- One-page mailer
- Handouts for physical distribution
- Letters to elected and appointed officials
- Orlando Sentinel Newspaper Ad
- Florida Administrative Register (FAR) advertisement
- Press Release
- Ads on the FDOT project website

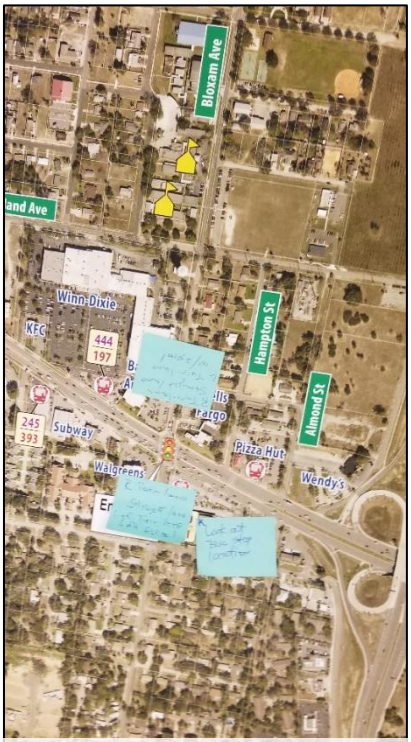
- **Reception**
  Doors were opened, and guests began arriving at 5:30 PM. Members from the project team were available

Photo from Public Workshop. Source: Project Team.

to explain the presentation boards and displays. Six presentation boards were on display at the meeting, including the following:

- Title VI Board – this board includes information ensuring that the meeting was solicited without race, color, national origin, age, sex, religion, disability or family status. The board also includes relevant contact information for anyone wishing to express their concerns.
- Welcome Board – this board was posted outside of the meeting room to clearly identify the meeting room and study name.
- Location Map – this board depicts the study corridor and adjacent areas.
- Travel Time Board – this board includes information on the existing and future (year 2040) intersection levels of service (LOS) and the times to drive from one end of the study corridor to the other. The LOS and travel times assume no changes are made to the corridor through year 2040[1].

- Potential Enhancements Board – this board provides examples of improvement types that have been implemented along State roadways in Florida.
- Aerial Basemap – this board depicts the existing conditions along the study corridor based on a 2018 aerial basemap, and includes general information on street names, transit stop locations and ridership, traffic signal locations, and community features.
- In addition to the six boards, two roll plots of the aerial basemap were placed at tables for the workshop attendees to mark-up and provide comments.



Location Map. Source: Project Team.

- **<u>Open Discussion Forum and Public Feedback</u>**

No formal presentation was used. The workshop was open house, and the more than 25 attendees were free to roam about and discuss the project with FDOT and consultant staff.

- As attendees arrived, they were encouraged to provide their contact information and to provide feedback via comment cards.

Public and and feedback was provided through discussion, comment forms, on post-it notes that were attached to the various roll plots display boards. All feedback received from the public meeting is provided in the attachments to this memorandum

[1] The 2040 LOS and travel times are based off an optimized signal network, which changes the length of green light for each traffic movement and the coordination between signalized intersections.

6.0 Next Steps and Commitments

Now that the corridor planning study has been completed, there are a series of additional steps and analyses that need to be undertaken prior to implementation of many of the recommendations. The most important step is for the Lake Sumter MPO to continue prioritizing improvements to S.R. 50. Every year, the agency develops and adopts their List of Priority Projects (LOPP). The 2020 LOPP does not list this segment of S.R. 50 in their Top 20 Priorities (Tier 1). It is included on Table 5, as the #10 ranked PD&E Priority (Tier 2). Given its position on the LOPP, it will likely be a number of years before a PD&E study could be funded.

However, many of the improvements outlined in this report would not require a PD&E study be completed. For example, raised medians could be installed as a safety project or as part of a resurfacing project. That said, a more detailed access management study would be necessary, along with additional engagement and outreach with business owners on the corridor and members of the community. Similarly, sidewalk enhancements and increased lighting could be funded as safety projects. Finally, the proposed traffic signal at Anderson Street could be implemented using numerous funding sources, including TSM&O programs.

Appendices

Appendix A: Selected Alternative Concept Plans

Appendix B: Public Involvement Materials

Appendix C: ETDM Screen Summary Report

Appendix D: Long Range Estimates

Appendix A. Selected Alternative Concept Plans

Appendix B. Public Involvement Materials

Appendix C. ETDM Screen Summary Report

Appendix D. Long Range Estimates