CRTPA RETREAT

MONDAY, NOVEMBER 26, 2018
8:45 AM – 12:00 PM

CARE POINT HEALTH & WELLNESS CENTER
Conference Room (2nd Floor)
2200 S Monroe St
TALLAHASSEE, FL 32301

8:45 – 9:00 COFFEE AND DANISH

9:00 – 9:20 CARE POINT HEALTH & WELLNESS CENTER WELCOME
Care Point Health & Wellness Center staff will provide a background on the center.

9:20 – 9:50 CRTPA CORRIDOR REPORTS Agenda Item
An update on the recent development of corridor reports for Pensacola Street and Tharpe Street will be provided by the project consultant.

9:50 – 10:20 TALLAHASSEE-LEON COUNTY BICYCLE AND PEDESTRIAN MASTER PLAN
An update will be provided on the Tallahassee-Leon County Bicycle and Pedestrian Master Plan by the project consultant.

10:20 – 10:30 BREAK

10:30 – 11:00 SOUTHWEST AREA TRANSPORTATION PLAN
A project update will be provided on the Southwest Area Transportation Plan by the project consultant.

11:00– 11:30 2045 REGIONAL MOBILITY PLAN (RMP)
A discussion of the upcoming initiation of the development of the CRTPA's Regional Mobility Plan will be provided.

11:30 – 12:00 INTELLIGENT TRANSPORTATION SYSTEMS (ITS) MASTER PLAN UPDATE
A discussion of the development of the ITS Master Plan will be provided.

12:00 LUNCH PROVIDED

November 26, 2018

RETREAT AGENDA ITEM

CRTPA CORRIDOR REPORTS

TYPE OF ITEM: Discussion

STATEMENT OF ISSUE

The Draft Traffic and Operations Analysis Reports for Pensacola Street and Tharpe Street have been submitted to the CRTPA for review. At this time, the project consultant, RS&H, would like to provide a summary presentation of the reports for CRTPA Board consideration. The Draft Reports have been provided as part of this agenda item.

HISTORY AND ANALYSIS

In February of 2018, the CRTPA directed its general consultant, RS&H, to initiate corridor studies for Pensacola Street and Tharpe Street, both of which are within Leon County. These corridors were identified as needing additional capacity improvements (roadway widening) in the currently adopted 2040 Regional Mobility Plan (RMP). The corridor studies were initiated to identify existing and projected future conditions along the corridor limits for Pensacola Street (Appleyard Drive to Capital Circle SW) and Tharpe Street (Ocala Road to Capital Circle, NW) and to identify potential projects to improve mobility and efficiency without major capacity expansions.

RECENT ACTIONS

The Reports of ***DRAFT*** Recommendations for the Tharpe Street Corridor and for the Pensacola Street Corridor were submitted to the CRTPA for review and consideration in October of 2018 and November of 2018, respectively. At this time, the consultant for the project is prepared to provide an overview to the CRTPA Board of the findings for each corridor study, which are briefly outlined on the following pages.

I. THARPE STREET CORRIDOR REPORT SUMMARY

The Tharpe Street Corridor Report identified three distinct sections along the corridor by characteristic. These sections are identified as the ***Industrial Section***, the ***Residential Section***, and the ***Sheridan Road Section***. The limits and roadway characteristics of the three sections are outlined in Table 1 below.

Table 1. Tharpe Street Section Characteristics

Section	Number of Travel Lanes	Lane Width (Feet)	ROW Width (Feet)
Industrial (East of Capital Circle NW to Mission Road)	2	12	100
Residential (Mission Road to Ivan Drive)	2	12	66
Residential (Devra Drive to West of Ocala Road)	2	12	76
Sheridan (Ivan Drive to Devra Drive)	2	12	123

Physical Deficiencies

The Tharpe Street Corridor Report identified five (5) main physical issues along the corridor that warrant addressing. These issues are as follows:

1. **Transit Accessibility -** Bus stops are not compliant with Americans With Disabilities Act (ADA), shelters and sidewalks are missing, informational materials about the stops are missing.
2. **Spot Congestion** – Spot congestion occurs as a result of frequent bus stops (including school bussing), and trash collections especially during am peak hours, without the means for traffic to maneuver safely around the congestion/delays.
3. **Lack of Bicycle and Pedestrian Facilities** – 90% of the land parcels along the corridor of Tharpe Street have no bicycle lanes or sidewalks.
4. **Desire Lanes –** "Goat Paths" showing where existing foot traffic is occurring alongside the roadway.
5. **Flooding and Runoff** - Storm water runoff is causing erosion and flooding alongside the existing roadway, further complicating the pedestrian's quest for safe travel.

Level of Service and Crash Data

The existing intersection analysis of Tharpe Street (summarized below in the table) reveals that the ***Mission Road intersection is currently operating at a LOS "E", which is below the adopted LOS standard considered acceptable for the peak hour.*** Based on this analysis, Capacity Improvements would be warranted.

Table 2. Existing Intersection Operation Analysis.

Intersection	AM	PM
CCNW (SR 366)	D	D
Mission Rd.	D	E
San Luis Rd./Devra Dr.	B	B
N. Ocala Rd. / Fairlane Rd.	C	D

With regard to crash data, analyses from this report show that the overall corridor has a crash rate of nearly twenty (20() times the state's average crash rate for similar locations within the region.

Recommended Priority of Improvement Types for the Corridor

With Tharpe Street classified as an urban minor arterial, it was recommended that priority be placed on improving/installing the following roadway features:

1. Sidewalks
2. Medians
3. Access management
4. Multimodal intersection design
5. Bicycle lanes
6. Sharrows
7. Bus pullouts
8. Bus shelters
9. Landscaping

Overall Recommendations for the Tharpe Street Corridor by Characteristic Segments

The following recommendations are proposed for the segments of Tharpe Street identified below.

A. Industrial Section Recommendations
(East of Capital Circle NW to Mission Road)

- Install 5-foot-wide concrete sidewalk with a 4 foot wide utility strip on the north side;
- Add shared lane markings (Sharrows);
- Convert Blountstown Hwy and Tharpe Street to a "T" Intersection;
- Install a Linear Park on Blountstown Hwy; and
- Install an 8-foot-wide concrete sidewalk (curb and gutter) along the east side of Blountstown Hwy.

B. Residential Section Recommendations
(Mission Road to Ivan Drive & Devra Drive to West of Ocala Road)

- Add 8-foot-wide concrete sidewalk, culvert system, and curb & gutter along north side of Tharpe Street;
- Add 8-foot-wide pedestrian bridge over central drainage system;
- Widen 10 feet along the south side of Tharpe Street for addition of medians;
- Add two Jug handle U turns;
- Install turnout bay; and
- Re-stripe east side of Tharpe Street near Ocala Road to include bike lanes.

C. Sheridan Section Recommendations
(Ivan Drive to Devra Drive)

- Add 8-foot-wide concrete sidewalk, culvert system, and curb & gutter along north side of Tharpe Street.

Attachment 1*: *DRAFT Tharpe Street Traffic and Operations Analysis Report, October 2018

II. PENSACOLA STREET CORRIDOR REPORT SUMMARY

Physical Deficiencies

The Pensacola Street Corridor Report identified four (4) main physical issues along the corridor that were identified and studied. These issues are as follows:

1. **Spot Congestion** – Spot congestion occurs as uniform dismissal from classes at Tallahassee Community College (TCC) spike traffic as students and faculty begin to exit the TCC parking lot.
2. **Lighting –** A review of the crash history along the Pensacola corridor was conducted in order to identify deficiencies with respect to existing lighting infrastructure. An analysis of data pulled from 2012-2016 revealed that **17** out of **160** crashes occurred during low visibility hours (dusk, dawn, and nighttime). These incidents comprised **9.4%** of total crashes. Additionally, referencing the associated long-form crash reports for these events, none cited low visibility as a primary cause. Therefore, no improvements to existing lighting infrastructure are recommended at this time.
3. **Bottleneck** - Recent road widening has developed the section of Pensacola Street from Capital Circle SW to Blountstown Hwy as a 6-lane section, but as Pensacola Street continues east, it condenses into a 2-lane section at the bridge, creating a bottleneck. Pensacola Street continues as this 2-lane roadway transitioning to a 4-lane roadway at TCC's access point. Increased east bound traffic volumes are likely to occur due to the increased capacity of the 6-lane section of Pensacola Street. The increases in traffic volumes could intensify congestion along Pensacola Street. For this reason, the existing bottleneck is a candidate for remediation.
4. **Lack of Bicycle and Pedestrian Facilities** – Currently, the 2-lane section between Blountstown Hwy and Progress Drive lacks bike and pedestrian facilities. For this reason, cyclists and pedestrians are given no choice but to travel along grassed areas to avoid interaction with motorists. However, grassed ditches are not always made available. The bridge located in this section poses a high-risk area for pedestrians as they are given no choice but to travel on the roadway with vehicular traffic.

Level of Service and Crash Data

The existing intersection analysis is summarized in **Table 2**, on the following page, which reveals that under current conditions, all major intersections appear to be operating at acceptable LOS values for peak hour operations. Based on this analysis, there appears to be no need for major capacity improvements along the Pensacola Street Corridor.

Table 2. Existing Intersection Operation Analysis.

Intersection	AM	PM
CCSW @ Blountstown Hwy	D	D
Progress Dr.	A	C
Nina Rd.	B	C
Appleyard Dr.	D	D

Review of the Annual Average Daily Traffic (AADT) from FDOT revealed that the highest volumes of traffic for the Pensacola Corridor under study appear to be east of Appleyard Drive and west of Blountstown Hwy.

With regard to crash data, analyses from this report show that TCC's current access point on Pensacola Street reported the highest segmental crash rate. Accordingly, the intersection of Appleyard Drive and Pensacola Street experience the highest ***intersection*** crash rate within the study area. In fact, this particular intersection experiences a crash rate of 1.74 per million vehicle miles of travel (MVMT), which is nearly five (5) times higher than Florida's state average crash rate of 0.299 MVMT for a similar location in the region.

Overall Recommendations for the Pensacola Street Corridor

A. Bottleneck - Widening Alternative of Bridge

- Widen Bridge adding two lanes (12' in width) and two 5-foot sidewalks for a total of 34' in widening (According to FDOT's Transportation Cost Reports (2014), the cost of construction for bridge widening falls between $85 and $160 per square foot. To be conservative, the value of $160 per square foot is applied. The bridge in question is approximately 285.1' in length (according to FDOT SLD). Using the bridge's length and the total widening width, approximately 9693.4 square feet would be added to the existing structure at a cost of $1,550,944); and

- Widen Pensacola Street at the approach tapers to make the roadway compatible with the widened bridge deck. (According to FDOT's LRE models "Adding 2 Lanes to Existing 3 Lane Undivided Arterial (1 Lane Each Side) with Center Turn Lane and 4' Bike Lanes" (in an urban setting) is approx. $4,732,174.28 per mile. The length of roadway in question is approximately 0.634 miles in length resulting in a cost estimate of $3,000,198.50).

NOTE: The combined/total cost estimate of widening Pensacola St. to 4 lanes and the accompanying bridge is $4,551,142.50. However, this cost does not incorporate closing down and/or altering the CSX lines to facilitate said widening.

B. Spot Congestion - Low Cost Alternative

- Add a "Private Drive, No U-Turn" sign is to entrance(s) of Disc Village, Grainger, and/or Pepsico.

C. Spot Congestion - Comprehensive Alternative

- Reconfigure access points to TCC from Pensacola.
  - Creating a dedicated two lane entrance for TCC -- restriped to create both a left turn and right through lane;
  - Add a two-lane dedicated exit -- southwest of the Social Science Wing of TCC; and
  - Add "Do Not Enter" signs at the heads of the one-way pair to alert drivers.

- Manage access and restrict illegal movements at the existing two-way access point at TCC near the intersection at Appleyard Dr.

Attachment 2*: *DRAFT Pensacola Street Traffic and Operations Analysis Report, November 2018

ATTACHMENTS

Attachment 1: ***DRAFT*** Tharpe Street Traffic and Operations Analysis Report, October 2018
Attachment 2: DRAFT Pensacola Street Traffic and Operations Analysis Report, November 2018

CRTPA

TRAFFIC AND OPERATIONS ANALYSIS

THARPE STREET

DRAFT RECOMMENDATIONS

October 2018

PREPARED FOR:

PREPARED BY:

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Tharpe Street

BACKGROUND

Capital Region Transportation Planning Agency (CRTPA) identified the need for additional capacity along Tharpe Street in the 2040 Regional Mobility Plan (RMP) (see **Figure 1**). The RMP proposes the widening of this corridor. The purpose of this study is to investigate existing conditions along Tharpe Street and identify potential projects to improve mobility and efficiency without major capacity expansions. This study will propose improvements from Ocala Road to Capital Circle NW.

Existing conditions were established using the following data sources:

Table 1. List of Data Collection Sources

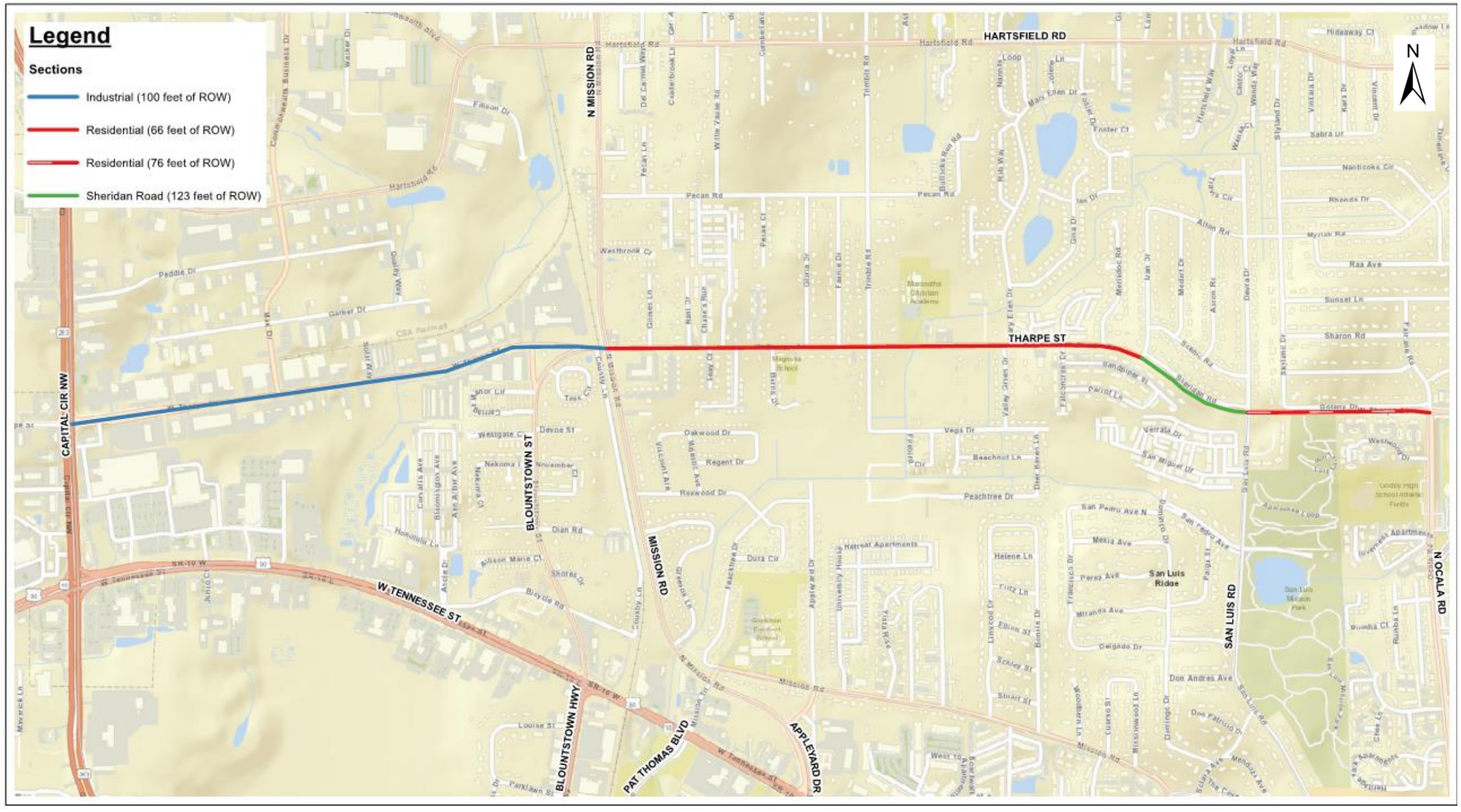
Data Source	Data Set	Dates of sources
Field Visit	Existing Issues	07-25-2018
StarMetro	Bus routes and schedules	2017
Congestion Management Plan Update (CMP)	Crash data	2012 – 2016
FDOT Transportation Data	Historical AADT (Annual Average Daily Traffic)	2012-2016
Tharpe Street Corridor Study by Kimley-Horn	Previous recommendations	2005

Recommendations from this package reference three distinct sections along the corridor. These sections are identified as the Industrial Section, the Residential Section, and the Sheridan Road Section (**see Figure 1**). The Residential Section is divided into two sections: Mission Road to Ivan Drive and Devra Drive to West of Ocala Road. Number of lanes, travel lanes widths, and right-of-way (ROW) widths are shown in **Table 2**. Following a review of the existing conditions, five major issues were identified and are discussed in this report.

Table 2. Tharpe Street Section Distinctions

Section	Number of Travel Lanes	Lane Width (Feet)	ROW Width (Feet)
Industrial (East of Capital Circle NW to Mission Road)	2	12	100
Residential (Mission Road to Ivan Drive)	2	12	66
Residential (Devra Drive to West of Ocala Road)	2	12	76
Sheridan (Ivan Drive to Devra Drive)	2	12	123

Figure 1. Project Overview



ISSUES

Issue #1 –Transit Accessibility

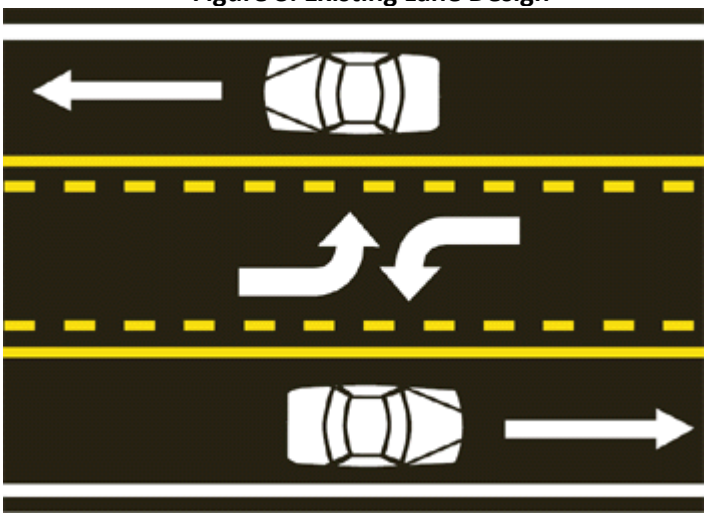
StarMetro serves as the public bus service for the City of Tallahassee and Florida State University. Currently, bus stops along Tharpe Street are not compliant with the Americans with Disabilities Act (ADA) and offer limited information to passengers (**see Figure 2**). Current ADA compliance is only required when bus shelters and sidewalks already exist. StarMetro desires to make all public transit links adhere to current ADA standards, making the system more accessible and safe for all riders. In addition, bus schedules and route maps should be available to riders at all stops.

Figure 2. Typical Bus Stop Along Tharpe Street

Issue #2 – Spot Congestion

Spot congestion along Tharpe Street is primarily caused by routine traffic events such as: bus pick up/drop off, trash collections, and left turn traffic. Some portions of the corridor have one through lane in each direction that is separated by a dual left turn lane (see **Figure 3**). Left turn traffic is especially common in the residential section of Tharpe Street where minor streets tend to cluster together. During routine bus stops, motorists often travel over painted medians due to the lack of maneuvering space provided by the current two lane design (as seen in **Figure 4**). For this reason, spot congestion is especially prevalent in the residential section of Tharpe Street during peak AM/PM hours.

Figure 3. Existing Lane Design



Source: Florida Driver Handbook

Figure 4. Lack of Manuevering space Along Tharpe

Issue #3 – Lack of Bicycle/Pedestrian Facilities

Presently 90% of the land parcels along Tharpe Street have no access to sidewalks or bicycle facilities. For this reason, cyclists and pedestrians are given no choice but to travel along grassed ditches to avoid interaction with motorists (**see Figure 5)**. However, grassed ditches are not always made available. One area in particular, located 500 feet east of Trimble Road, poses a high risk area for pedestrians as they are given no choice but to travel on the roadway with vehicular traffic (**see Figure 6**).

Figure 5. Pedestrian Travel Pattern

Figure 6. High Risk Area for Pedestrians

Issue #4 – Desire Lanes

Desire lanes are paths that result from on-going pedestrian foot traffic and can be found at multiple locations along Tharpe Street. This not only lacks pedestrian safety benefits but also uniformity throughout the corridor. Prevalence of desire lanes signify the need for sidewalks (**see Figure 7**).

Figure 7. Desire Lanes along Tharpe Street

Issue #5 – Flooding and Runoff

Evidence of roadside erosion can be observed throughout the corridor. Existing conditions show roadway drainage traveling to nearby roadside ditches that transports water runoff to the nearest outfall point (**see Figure 8**). Presently, no stormwater treatment is provided for the roadway other than the flow time in grassed ditches.

Figure 8. Slope Erosion Caused By Stormwater Runoff along Tharpe Street

ANALYSIS

Analysis Procedures

Analysis of traffic volumes is useful in understanding the general nature of traffic in an area, but by itself indicates neither the ability of the street network to carry additional traffic nor the quality of service afforded by the street facilities. For this, the concept of level of service (LOS) has been developed to subjectively describe traffic performance. LOS can be measured at intersections and along key roadway segments. LOS categories are similar to report card ratings for traffic performance. Intersections are typically the controlling bottlenecks of traffic flow and the ability of a roadway system to carry traffic efficiently. LOS A, B and C indicate conditions where traffic moves without significant delays over periods of peak travel demand. LOS D and E are progressively worse peak hour operating conditions and F conditions represent where demand exceeds the capacity of an intersection. Operational analysis for Tharpe Street was performed following the Highway Capacity Manual (HCM) 2000 methodologies.

Historical and county traffic sites provided the source of existing traffic for the Tharpe Street study area. Existing intersection analysis is summarized in **Table 3**. Under current conditions, the Mission Road intersection is not operating at an acceptable LOS for the peak hour. Mission Road operates at LOS E under existing traffic conditions, which does not meet established standards and would trigger the need for capacity improvements.

Table 3. Existing Intersection Operation Analysis.

Intersection	AM	PM
CCNW (SR 366)	D	D
Mission Rd.	D	E
San Luis Rd./Devra Dr.	B	B
N. Ocala Rd. / Fairlane Rd.	C	D

Crash rates are calculated values used in the comparison of crash experience of similar locations in the region. State agencies typically develop average crash rates for different types of intersections and roadway segment for statewide analyses. Incorporating crash rate with roadway information, such as traffic volume, aid in identifying roadway deficiencies.

Crash data was obtained from the Congestion Management Plan update that is currently underway. Sourced data encompassed the five-year period from 2012 to 2016. Crash data was then analyzed to determine types and locations of crashes that occurred along the corridor and at intersecting roadways. A total of 709 crashes were reported between 2012 to 2016. Of these, 333 were injury crashes, while only one reported fatality. Rear-end collisions were reported as the most common crash type in the residential section accounting for 50% total accidents. This is likely due to driver response with the frequent spot congestion during AM/PM peak hours.

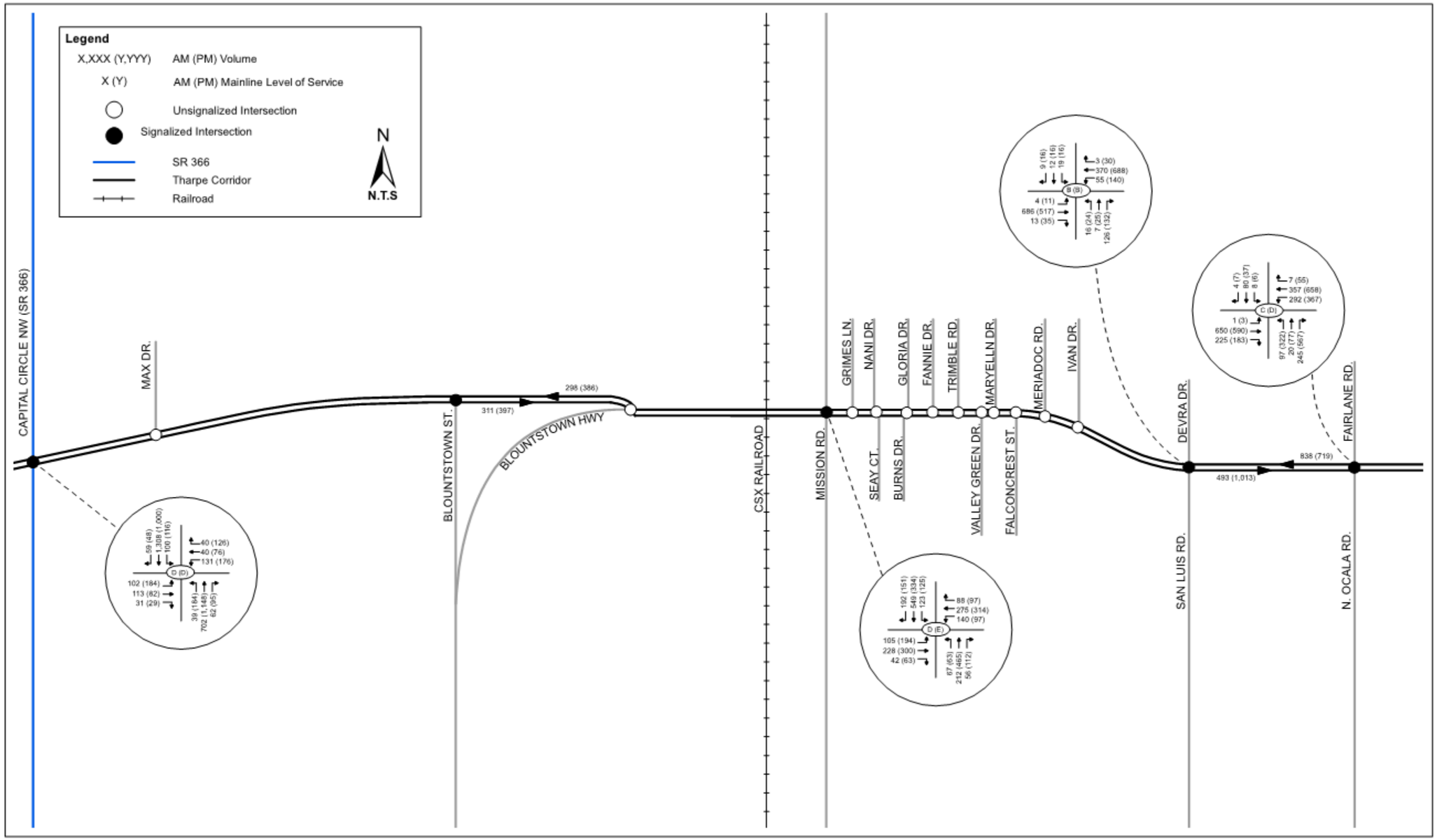
Currently Tharpe Street has a crash rate of 6.14 per million vehicle miles of travel (MVMT), nearly 20 times higher than Florida's state average crash rate of 0.299 MVMT for a similar location in the region.

Table 4. Tharpe Street Crash Rate vs. State Average

	Tharpe Street	Florida's State Average
Crash Rate (MVMT)	6.14	0.299*

Source:* Florida's five year average crash rate for 2-3 lane, 2 way, undivided roadway section.

Figure 9. Existing Peak Hour Volumes and Level of Service



RECOMMENDATIONS

The Street Design Priority Matrix is a reference tool used to assign priorities to various transportation recommendations (**see Table A-1**). With Tharpe Street classified as an urban minor arterial, priority was placed on improving/installing the following roadway features:

1. Sidewalks
2. Medians
3. Access management
4. Multimodal intersection design
5. Bicycle lanes
6. Sharrows
7. Bus pullouts
8. Bus shelters
9. Landscaping

Industrial Section Recommendations

Proposed recommendations for the Industrial section of Tharpe Street:

- Install 5 foot wide concrete sidewalk with a 4 foot wide utility strip on the north side.
- Addition of shared lane markings (Sharrows).
- Conversion of Blountstown Hwy and Tharpe Street to a “T” intersection.
- Install Linear Park on Blountstown Hwy.
- Install 8 foot wide concrete sidewalk and curb and gutter along east side of Blountstown Hwy.

Residential Section Recommendations

Proposed for the Residential section of Tharpe Street:

- Addition of 8 foot wide concrete sidewalk, culvert system, and curb & gutter along north side of Tharpe Street.
- Addition of 8 foot wide pedestrian bridge over central drainage system.
- Widen 10 feet along the south side of Tharpe Street for addition of medians.
- Addition of two Jug handle U turns.
- Install turnout bays.
- Re-striping east side of Tharpe Street near Ocala Road to include bike lane.

Sheridan Section Recommendations

- Addition of 8 foot wide concrete sidewalk, culvert system, and curb & gutter along north side of Tharpe Street.

Summary of Recommendations

Restricting allowed turning movements on the residential segments between Mission and Trimble Road may benefit traffic operations with the use of restrictive medians. By limiting the number of allowed turning movements, this segment would experience reduced crashes caused by crossover traffic from minor streets along the residential segment. Medians would eliminate spot congestion in the area by removing traffic events that block through movements. As a result this would improve operational efficiency. Addressing the issue of congestion would have the added benefit of eliminating the need for additional lanes. Furthermore, medians provide a refuge for pedestrian crossing Tharpe Street allowing them to be more visible to drivers, hence improving pedestrian safety.

In addition to safety and operations benefits, medians would improve the appearance of Tharpe Street. With a more unified street design a better sense of community is to be expected. Further details including supporting data, project limits, pros and cons for proposed recommendations can be found in **Table 2 and Table 3.** Concept drawings of proposed recommendations can be found in **Appendix A.**

Table 5. Summary of Industrial Section Recommendations

Tharpe Street (CR 185)

Section	Potential Improvement	Supporting Data	Pro	Con	Project Limits
Industrial	Addition of 5' concrete sidewalk with a 4' utility strip on the north	Addresses lack of Bicycle/Pedestrian facilities and runoff issue. Satisfies Street Design Priority Matrix	• Connects sidewalk network. • Improves pedestrian safety. • Reduces friction associated with drivers navigating between opposing flow and pedestrians. • Addresses pedestrian facility needs. • Improved visibility for motorists. • Encourages walking and biking	• Requires about 100' of gravity wall, and the extension of box culvert cross drains.	East of Capital Circle NW to Mission Road
	Addition of shared lane markings (Sharrows)	Address lack of bicycle facilities and satisfies Street Design Priority Matrix	• Facilitates advanced cyclists who prefer shared roadways in lieu of striped bike lanes and paths (represent about 20% of adult cyclists but account for nearly 80% of bicycle miles). • Keep the road as narrow as possible	• May cause spot congestion from cyclists.	East of Capital Circle NW to Mission Road
	Conversion of Blountstown Hwy and Tharpe Street to T intersection	Higher than average segmental crash rate (**see Table 3)**	• Reduce conflict points that exist with current roadway geometry thus improving segmental crash rate in this area.	• Limits access to Kim Seafood Market and adjacent mobile home development. • Requires removal of 600' of existing Blountstown Hwy roadway. • Possible right of way impacts • StarMetro bus routes will have to be redirected to Blountstown St. • Encroaches on submitted (TAP) project --Blountstown Street Sidewalk Improvement.	Blountstown Hwy at Tharpe St intersection
	Addition of Linear Park	Street Design Priority Matrix	• Addresses the poor sense of "community" (design) mentioned as a key issue identified by the CAC and project team from previous corridor study. • Includes sidewalks, luminaires, paths, trees, benches, and usable public open space	• Encroaches on submitted (TAP) project --Blountstown Street Sidewalk Improvement	Blountstown Hwy
	Addition of 8' wide concrete sidewalk and curb and gutter along east side of Blountstown Hwy.	-Addresses lack of Bicycle/Pedestrian facilities and runoff issue. Street Design Priority Matrix	• Connects sidewalk network. • Improves pedestrian safety. • Reduces friction associated with drivers navigating between opposing flow and pedestrians. • Addresses unsightly travel walkways along corridor created by pedestrian traffic. • Improved visibility for motorists. • Encourages walking and biking. • Control drainage and rainwater	• Drainage impact. Converting the open flow ditch to a closed flowing culvert system.	Intersection of Blountstown Hwy and Blountstown Street

Table 6. Summary of Residential Section Recommendations					
Tharpe Street (CR 185)					
Section	**Potential Improvement**	**Supporting Data**	**Pro**	**Con**	**Project Limits**
Residential	Addition of 8' concrete sidewalk, culvert system, and curb & gutter along north side of Tharpe Street	Addresses lack of Bicycle/Pedestrian facilities and runoff issue.	• Connects sidewalk network. • Improves pedestrian safety. • Benefits pedestrian safety. • Addresses unsightly travel walkways along corridor created by pedestrian traffic. • Improved visibility for motorists. • Encourages walking and biking. • Control drainage and rainwater.	• Drainage impact. Converting the open flow ditch to a closed flowing culvert system.	Mission Road to Falconcrest Street
	Addition of 8' wide pedestrian bridge over central drainage system	Addresses lack of Bicycle/Pedestrian facilities	• Avoid extension of box culvert over central drainage ditch. • Pre-fabricated bridges are an affordable building option. • Can be quickly constructed.	• Drainage impact. Converting the open flow ditch to a closed flowing culvert system. • Sign and utility pole might need to be relocated with the addition of pedestrian bridge. • Weaken as they get older. • Maintenance cost.	Box culvert over central drainage ditch
	Widen 10' along the south side of Tharpe Street for addition of medians	Addresses lack of Bicycle/Pedestrian facilities and runoff issue.	• Benefits safety, and operational efficiency. • Landscaped medians prevent crossover and head on accidents, • Provide refuge for pedestrians. • Addition of turn lanes increases the capacity of the roadway.	• Restricts single home owners from left turn access to their property. • Drainage impacts. Converting the open flow ditch to a closed flowing culvert system. • 12 Driveways will be impacted for residents living on this section of Tharpe Street	Mission Road to Trimble Road
	Addition of two Jug handle U turns	Solution to accessibility issue with addition of proposed medians	Resolves accessibility issue for single homeowners unable to make left turns to their properties.	• Right of way acquisition is required. • Proposed recommendation encroaches three land parcels.	At Mission Road and West of Gloria Drive
	Install turnout bays	Addresses spot congestion caused by truck traffic.	• Provide queue space for left turning vehicles allowing greater capacity. • Removes stopped vehicle from travel lane, reduces delay and increases vehicle capacity. • Reduced risk of rear-end crashes generally • Potential to consolidate and more clearly define StarMetro stops. • Locates riders awaiting pickup further from fast moving traffic. • Serves as safe pull off location for incapacitated vehicles.	• Buses utilizing turnout may have trouble re-entering travel lane, potentially effecting StarMetro schedules. • Increased risk of sideswipe crashes. • Creates additional paving and may require right-of-way acquisition.	West of Mission Road to West of Meridac Road
	Re-striping east side of Tharpe near Ocala Road to include bike lane	Evidence of desire lanes.	• Facilitates advanced cyclists who prefer shared roadways in lieu of striped bike lanes and paths (represent about 20% of adult cyclists but account for nearly 80% of bicycle miles). • Keep the road as narrow as possible	• May cause increase congestion.	Ocala Road to 800' West of Ocala Road

Summary of Recommendations					
Tharpe Street (CR 185)					
Section	**Potential Improvement**	**Supporting Data**	**Pro**	**Con**	**Project Limits**
Sheridan Road	Addition of 8' concrete sidewalk, culvert system, and curb & gutter along north side of Tharpe Street	Pedestrians and bicyclists travel through the grass alongside roadway.	• Connects sidewalk network. • Improves pedestrian safety. • Reduces friction associated with drivers navigating between opposing flow and pedestrians. • Addresses unsightly travel walkways along corridor created by pedestrian traffic. • Improved visibility for motorists. • Encourages walking and biking.	• Drainage impact. Converting the open flow ditch to a closed flowing culvert system. • Relocation of 9 COT Utility poles	Ivan Drive to Devra Drive

COST ANALYSIS

This cost estimate is based on preliminary data provided by FDOT cost per mile models and should be used for planning level purposes only. In no way should this estimate be construed as part of an appraisal. Estimated costs for recommendations can be found in **Table 8**. Estimates were based on what agencies typically paid over the past year for similar items. Though the CRTPA may choose different materials than this report estimates, the end cost should be similar. Further cost engineering is needed to generate a true accurate project. These estimates do not include pricing for any right-of-way (ROW) purchases.

Table 7. Cost Estimate

Tharpe Street (Capital Circle NW to Ocala Road)					
			Date	17-Jul-18	
ITEM No.	Description	Unit	Quantity	Unit Price	Amount
101-1	Mobilization (10% of Construction Cost not included LS items)	LS	1.00	$85,000.00	$ 85,000.00
102-1	Maintenance of Traffic (10% of Construction Cost Not Including LS Items)	LS	1.00	$85,000.00	$ 85,000.00
104-10-3	Sediment Barrier	LF	2067.00	$ 4.00	$ 8,268.00
107-2	Mowing	AC	0.72	$ 45.51	$ 32.87
110-1-1	Clearing and Grubbing	AC	0.72	$ 9,528.00	$ 6,860.16
120-1	Regular Excavation	CY	7964.00	$ 5.04	$ 40,138.56
160-4	Type B Stabilization	SY	3593.00	$ 3.65	$ 13,114.45
285-709	Optional Base, Base Group 9	SY	3504.00	$ 18.00	$ 63,072.00
334-1-23	Superpave ASPJ Concrete, TRAF C, PG76-22, PMA	TN	145.73	$ 99.35	$ 14,478.08
337-7-	ASPH CONC FC, Traffic B, FC-9.5, PG 76-22	TN	145.73	$ 95.59	$ 13,930.14
425-1-311	Inlet - Drainage (Type P-1)	EA	1.00	$ 4,317.00	$ 4,317.00
425-1-321	Inlet - Drainage (Type P-2)	EA	0.00	$ 4,840.00	$ -
425-1-521	Inlet - Drainage (Ditch Bottom Inlet)	EA	0.00	$ 3,270.00	$ -
425-5	Adjust Manhole	EA	0.00	$ 1,125.00	$ -
430-175-118	Pipe Culvert Optional Material (18")	LF	0.00	$ 58.00	$ -
430-175-124	Pipe Culvert Optional Material (24")	LF	0.00	$ 69.00	$ -
520-1-10	Concrete Curb & Gutter, Type "F" Modified (Including associated asphalt patching)	LF	6945.00	$ 30.00	$ 208,350.00
522-1	Concrete Sidewalk (4" Thick)	SY	5337.00	$ 63.00	$ 336,231.00
522-1A	Concrete Sidewalk (6") Ramps-New (Including Redimat Detectable Warnings)	EA	32.00	$ 2,100.00	$ 67,200.00
522-2A	Concrete Sidewalk (Driveways) (6" thick)	SY	193.00	$ 83.00	$ 16,019.00
522-2B	Concrete Sidewalk and Driveways (6" Thick) Exposed Aggregate	SY	0.00	$ 250.00	$ -
570-1-2	Performance Turf, Sod	SY	1070.00	$ 2.54	$ 2,717.80
575-1	Sodding, All Types (match existing)	SY	0.00	$ 4.75	$ -
580-1-1	Landscape Complete (Small Plants)	EA	0.00	$ 50.00	$ -
580-1-2	Landscape Complete (Large Plants)	EA	10.00	$ 300.00	$ 3,000.00
700-20-11	Single Post Sign, F&I, Less Than 12 SF	AS	4.00	$ 325.66	$ 1,302.64
711-11-113	Thermo, Stand, White, 12" Solid	LF	0.00	$ 5.50	$ -
711-11-115	Thermo, Stand, White, 24" Solid	LF	0.00	$ 9.80	$ -
710-11-111	Thermo, Stand. White, 6" Solid	LF	6592.00	$ 4.10	$ 27,027.20
711-11-211	Thermo, Stand. Yellow, 6" Solid	LF	5836.00	$ 4.10	$ 23,927.60
	Pedestrian Bridge**	SF	596.00	$ 228.00	$ 135,888.00
	Shared Lane Markings (Sharrows)**	MI	5.20	$12,500.00	$ 65,000.00
	Striped Bike Lane (Striping only)**	MI	0.36	$ 2,000.00	$ 720.00
	Subtotal				**$ 1,221,594.49**
	Design and Permitting				**$ 107,922.83**
	Project Subtotal				**$ 1,329,517.32**
	10% Contingency				**$ 132,951.73**
	Construction Administration (15% of EOPC Subtotal)				**$ 183,239.17**
	Total Opinion of Cost				**$ 1,645,708.23**

*Cost estimated using Bridge Cost for New Construction of Short Span Bridge Pre cast Concrete Slab Simple Span

**Unit cost from 2040 Regional Mobility Plan

APPENDIX A

Table A-1. Street Design Priority Matrix

	Freeway	Principal Arterial			Minor Arterial			Collector			Local		
		Urban	Suburban	Rural	Urban	Suburban	Rural	Urban	Suburban	Rural	Urban	Suburban	Rural
Shared Vehicle Zone													
Multiple travel lanes	H	H	H	H	M	M	M	M	M	L	L	L	L
Width of travel lanes	H	H	H	M	H	H	M	H	H	M	L	L	L
Vehicle capacity at intersections	M	H	H	H	H	H	M	H	M	M	L	L	L
Design for large vehicles	H	H	M	M	H	M	M	M	L	L	L	L	L
Multimodal intersection design	H	H	H	M	H	H	M	H	H	M	M	M	L
Bicycle Zone													
Bicycle lanes	L	M	M	L	H	M	L	H	H	L	L	L	L
Wide lanes / paved shoulders	L	H	H	M	M	M	M	M	M	M	L	L	L
Sharrows	L	L	L	L	M	M	L	H	M	L	L	L	L
Parking/Transit Zone													
On-street parking	L	L	M	L	M	M	L	H	H	L	H	L	L
Bus pullouts	L	H	M	L	M	M	L	M	L	L	L	L	L
Green Zone													
Landscaping	H	H	H	M	H	H	L	H	H	L	H	M	L
Lighting	H	H	H	L	H	H	L	H	H	L	H	M	L
Street furniture	L	M	M	L	M	M	L	M	M	L	L	L	L
Bus shelters	L	H	H	L	H	H	L	H	H	L	L	L	L
Sidewalk Zone													
Wide sidewalks	L	H	M	L	H	M	L	M	M	L	L	L	L
Standard sidewalks	L	M	H	L	H	H	L	H	H	L	H	M	L
Multiuse Paths	L	L	M	M	M	M	L	L	M	L	L	L	L
Median Zone													
Narrow medians	L	H	M	L	H	M	L	H	M	L	L	L	L
Wide medians	H	L	M	H	L	M	H	L	M	L	L	L	L
Other Elements													
Access management	H	H	H	M	H	H	M	M	M	M	L	L	L

H High Priority M Medium Priority L Low Priority

ATTACHMENT 2

CRTPA

TRAFFIC AND OPERATIONS ANALYSIS

PENSACOLA STREET

DRAFT RECOMMENDATIONS

November 2018

PREPARED FOR:

PREPARED BY:

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Pensacola Street

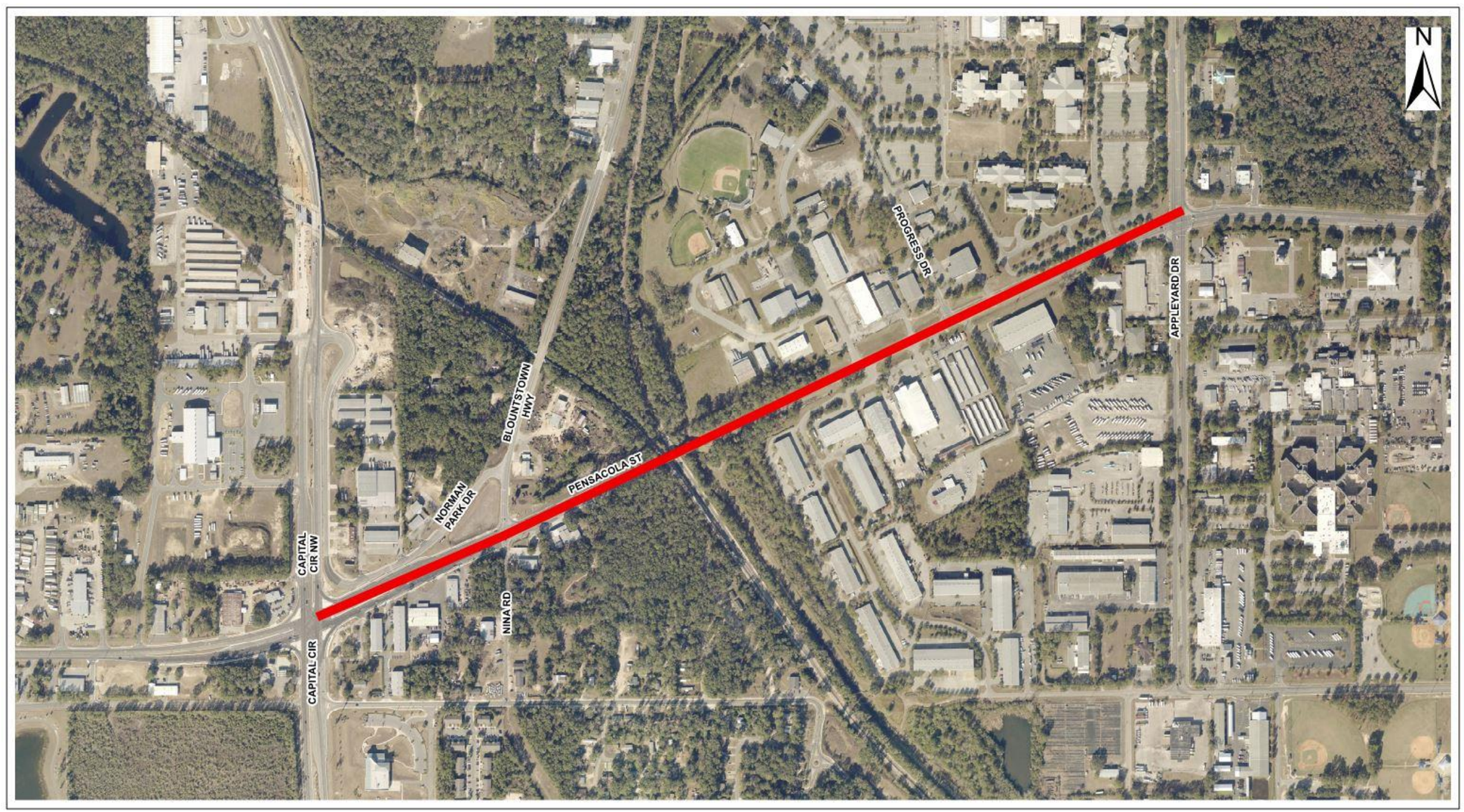
BACKGROUND

Capital Region Transportation Planning Agency's (CRTPA) identified the need for additional capacity for Pensacola Street in the 2040 Regional Mobility Plan (RMP). The RMP proposes the widening of this corridor. The purpose of this study is to investigate existing and future conditions along Pensacola Street (SR 366) and identify potential projects to improve mobility and efficiency without major capacity expansions. This study will propose improvements from Appleyard Drive to Capital Circle (see **Figure 1**). Existing conditions were established using the following data sources listed in **Table 1** below:

Table 1. List of Data Collection Sources

Data Source	Data Set	Dates of sources
Field Visit	Existing Issues	07-25-2018
Congestion Management Plan Update (CMP)	Crash data	2012 – 2016
FDOT Transportation Data	Historical AADT (Annual Average Daily Traffic) report	2012 - 2016

Figure 1. Study Limits



ISSUES

Spot Congestion

Field observations report uniform dismissal from classes at Tallahassee Community College (TCC) as the primary cause of congestion along the corridor. The result is a short term spike in traffic as students and faculty begin to exit the TCC parking lot. As congestion worsens internally, motorists tend to follow a "path of least resistance" strategy.

Figure 2. Typical Congestion from TCC Campus

Figure 2 above illustrates typical congestion conditions from high (red) to low (yellow). Field observations report drivers located in the southeast – Learning Commons - parking lot egress exit to the south onto Pensacola Street. Left turn movements are restricted at this location due to its proximity to the intersection at West Pensacola Street and Appleyard Drive. Despite left turn restrictions, motorists often make illegal left turns, crossing double yellow lane lines in U-turn maneuvers, utilizing private driveways to turn around. These traffic patterns exacerbate spot congestion during AM/PM peak hours.

Lighting

A review of the crash history along the Pensacola corridor was conducted in order to identify deficiencies with respect to existing lighting infrastructure. An analysis of data pulled from 2012-2016 revealed that **17** out of **160** crashes occurred during low visibility hours (dusk, dawn, and nighttime). These incidents comprised **9.4%** of total crashes. Additionally, referencing the associated long-form crash reports for these events, none cited low visibility as a primary cause. Therefore, no improvements to existing lighting infrastructure are recommended at this time.

Bottleneck

When a road has limited physical capacity (i.e., bottlenecks), it contributes to recurring congestion according to the Federal Highway Administration (FHWA). Recent road widening has developed the section of Pensacola Street from Capital Circle SW to Blountstown Hwy as a 6-lane section. As Pensacola Street continues east, it necks to a 2-lane section at the bridge seen in **Figure 2** creating a bottleneck. Pensacola Street continues as a 2-lane roadway transitioning to a 4-lane roadway at TCC's access point.

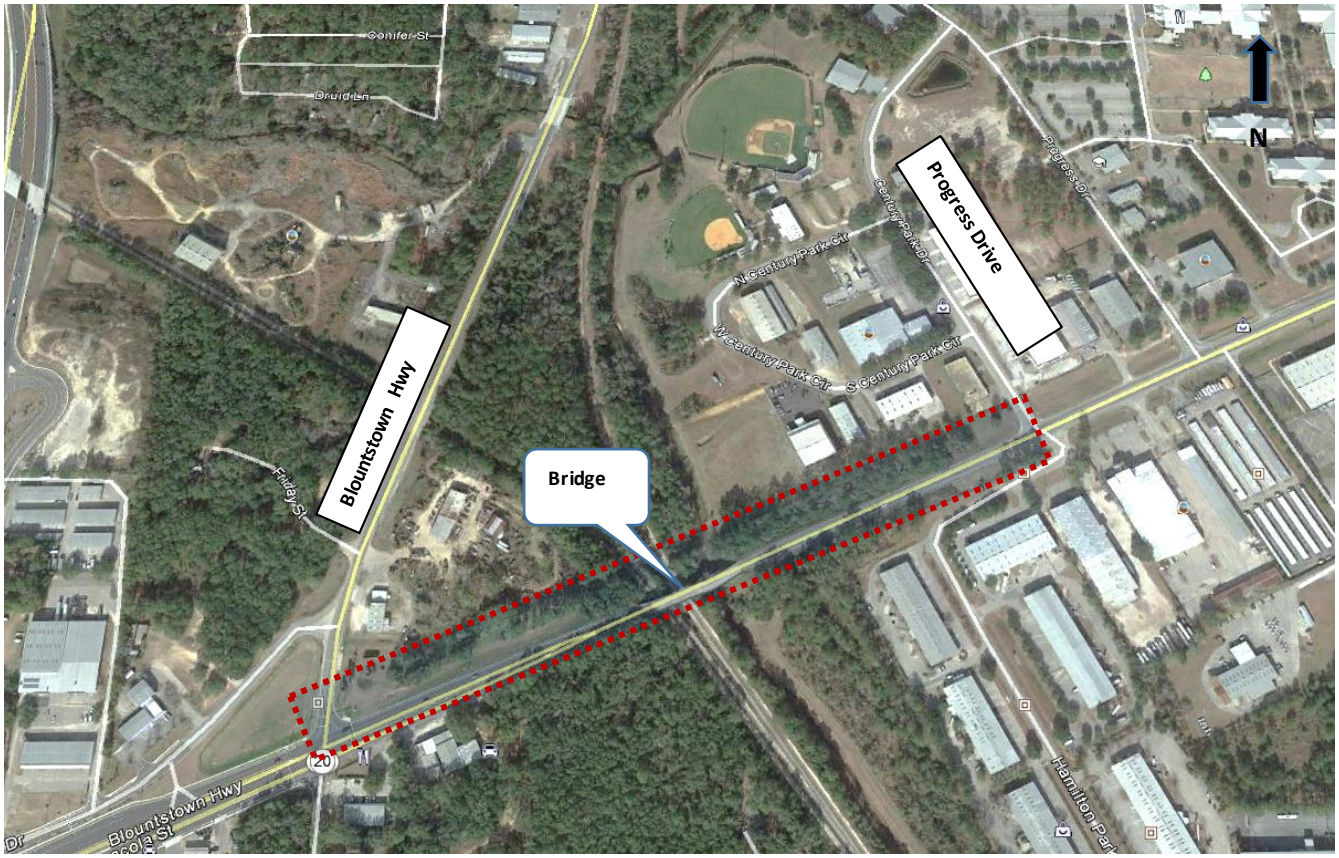
Increased east bound traffic volumes are likely to occur due to the increased capacity of the 6-lane section of Pensacola Street. Furthermore, increase in traffic volumes would intensify congestion along Pensacola Street. For this purpose, the existing bottleneck is a candidate for remediation.

Figure 3. Bottleneck along Pensacola Street

Lack of Bicycle/Pedestrian Facilities

Currently, the 2-lane section between Blountstown Hwy and Progress Drive lacks bike and pedestrian facilities (see **Figure 4**). For this reason, cyclists and pedestrians are given no choice but to travel along grassed areas to avoid interaction with motorists. However, grassed ditches are not always made available. The bridge located in this section poses a high risk area for pedestrians as they are given no choice but to travel on the roadway with vehicular traffic.

Figure 4. Lack of Bicycle/Pedestrian Facilities Along Pensacola Street



ANALYSIS

Analysis Overview

Analysis of traffic volumes is useful in understanding the general nature of traffic in an area, but by itself indicates neither the ability of the street network to carry additional traffic nor the quality of service afforded by the street facilities. For this, the concept of level of service (LOS) has been developed to subjectively describe traffic performance. LOS can be measured at intersections and along key roadway segments.

LOS categories are similar to report card ratings for traffic performance. Intersections are typically the controlling bottlenecks of traffic flow and the ability of a roadway system to carry traffic efficiently. LOS A, B and C indicate conditions where traffic moves without significant delays over periods of peak travel demand. LOS D and E are progressively worse peak hour operating conditions and F conditions represent where demand exceeds the capacity of an intersection. FDOT sets level of service D as the minimum acceptable level of service for peak hour operation and plan for level of service C or better for all other times of the day.

Congestion scans show how peak periods vary by roadway facility and location and help determine the number of congested hours that occur on a roadway. As a tool, it can indicate the cause of congestion at a certain location. INRIX is a private company that collects and process speed and travel time statistics gathered by volunteering individual vehicles equipped with global positioning system (GPS) tracking devices. Corridor scans utilize predetermined roadway links set forth by the Federal Highway Associate (FHWA). The existing link that encompass our study area lies between White Drive and Blountstown Hwy. Using INRIX data records, a corridor scan was performed for Pensacola Street.

The following sections provide interpretations of the operational analysis for Pensacola Street following the Highway Capacity Manual (HCM) methodologies.

Analysis Results

Traffic Analysis

Historical and county traffic sites provided the source of existing traffic for the Pensacola Street study area. **Figure 5** summarizes Annual Average Daily Traffic (AADT) from FDOT FTI. Highest volumes appear to be east of Appleyard Drive and west of Blountstown Hwy.

LOS Analysis

Existing intersection analysis is summarized in **Table 2.** Under current conditions, all major intersections appear to be operating at acceptable LOS values for peak hour operations. This signifies no need for major capacity improvements.

Table 2. Existing Intersection Operation Analysis.

Intersection	AM	PM
CCSW @ Blountstown Hwy	D	D
Progress Dr.	A	C
Nina Rd.	B	C
Appleyard Dr.	D	D

Crash Analysis

TCC's current access point (see **Figure 6**) reported the highest segmental crash rate. Accordingly, the intersection of Appleyard Drive and Pensacola Street experience the highest intersection crash rate within our study area. This particular intersection experience a crash rate of 1.74 per million vehicle miles of travel (MVMT). This is nearly 5 times higher than Florida's state average crash rate of 0.299 MVMT for a similar location in the region. **Table 3** summarizes comparison results for Pensacola Street and Florida's state average.

Table 3. Pensacola Street Crash Rate vs. State Average

	Pensacola Street	Florida's State Average
Crash Rate (MVMT)	1.74	0.299*

Source:* Florida's five year average crash rate for 2-3 lane, 2 way, undivided roadway section.

Figure 5. 2016 Traffic Volumes

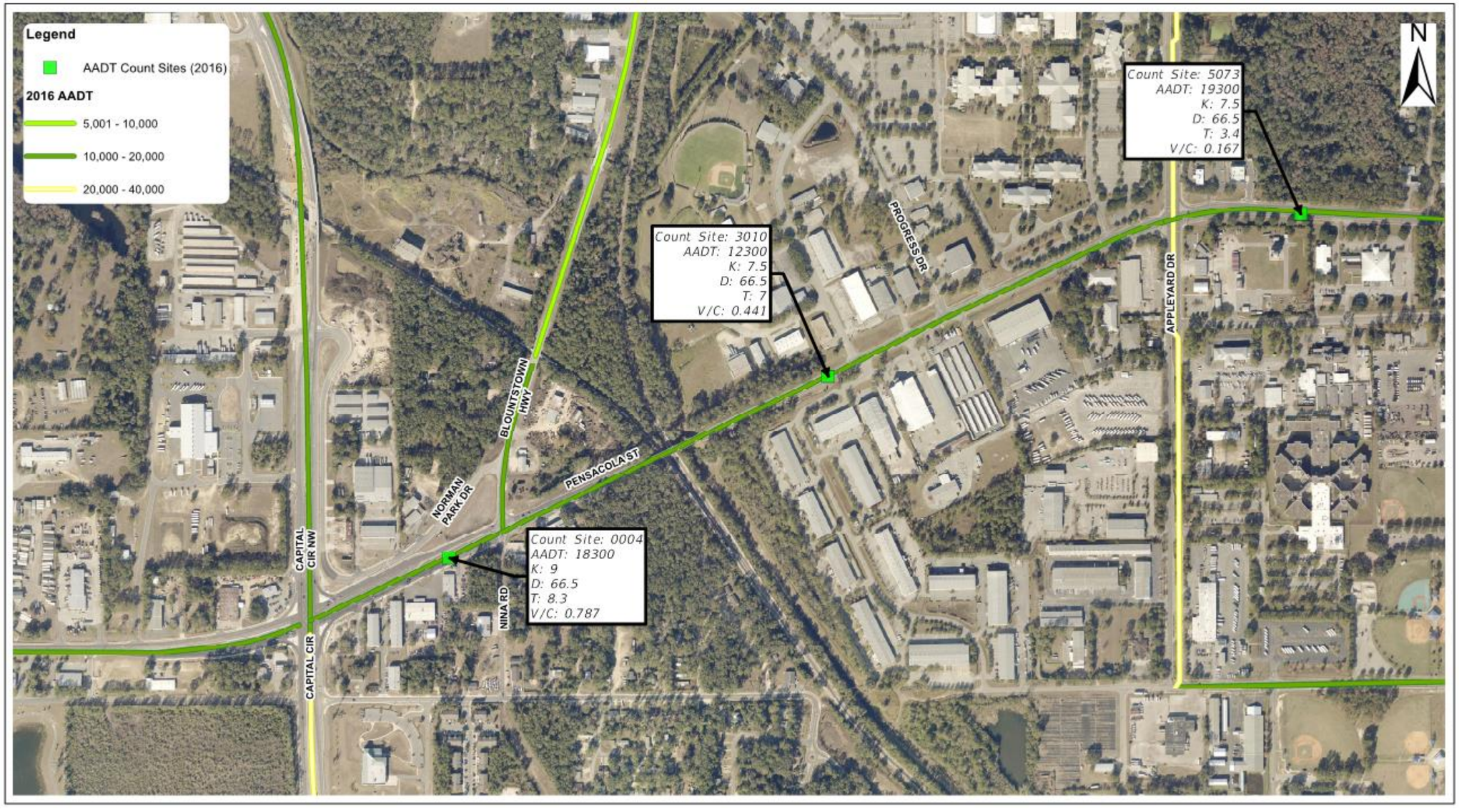
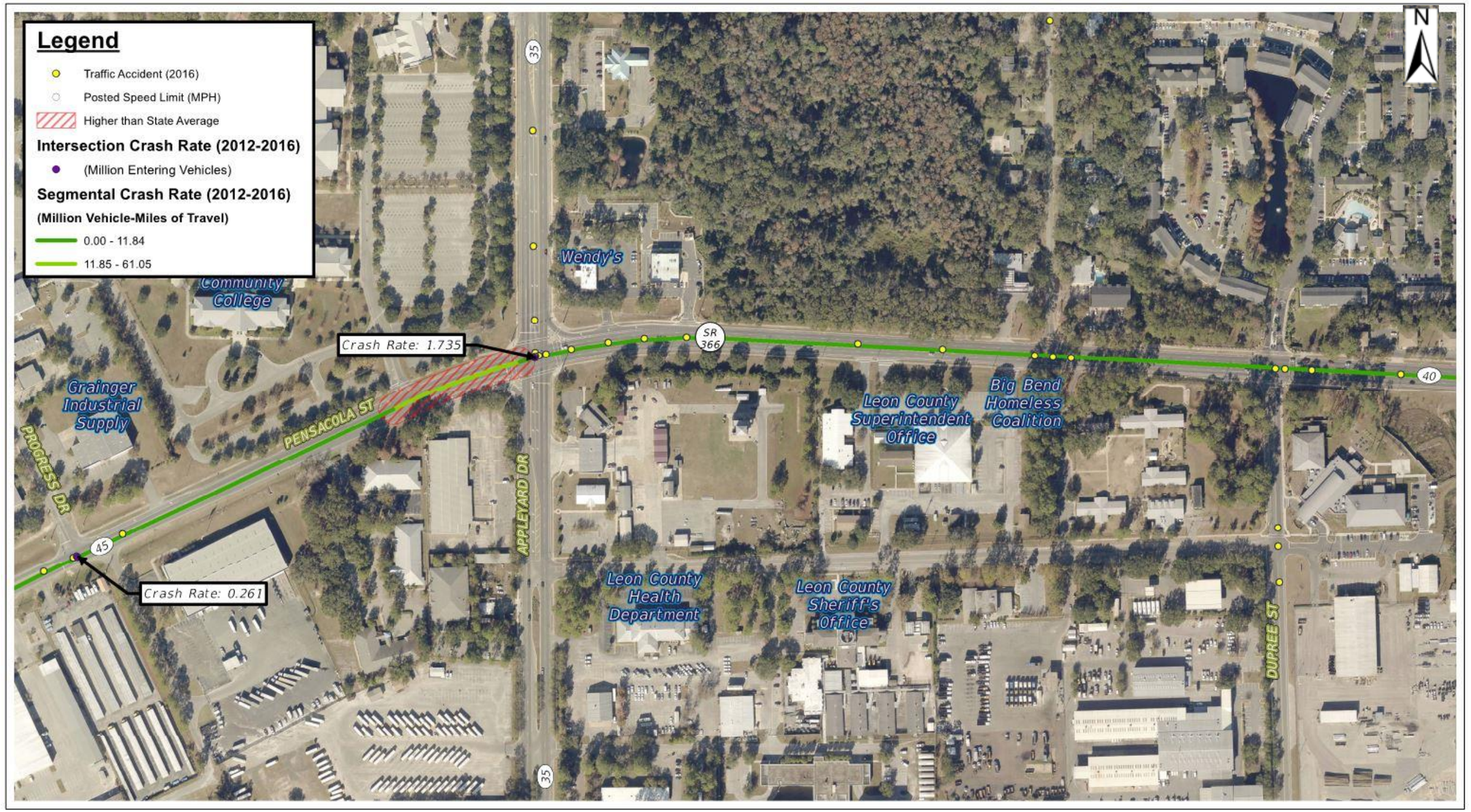


Figure 6. Highest Reported Crash Rate Along Pensacola Street



Congestion Analysis Scan Results

Westbound congestion analysis report average travel speed between Appleyard Drive and Blountstown Hwy as 20 miles-per-hour (mph) between the AM/PM peak hours (see **Figure 7**). This is significantly lower than the current posted speed limit of 45 mph. Similar results are reported for eastbound traffic. **Figure 8** illustrates the congestion scan output used to generalize average travel speed along Pensacola Street.

Figure 7. Generalized AM/PM Peak Hour Travel Speeds

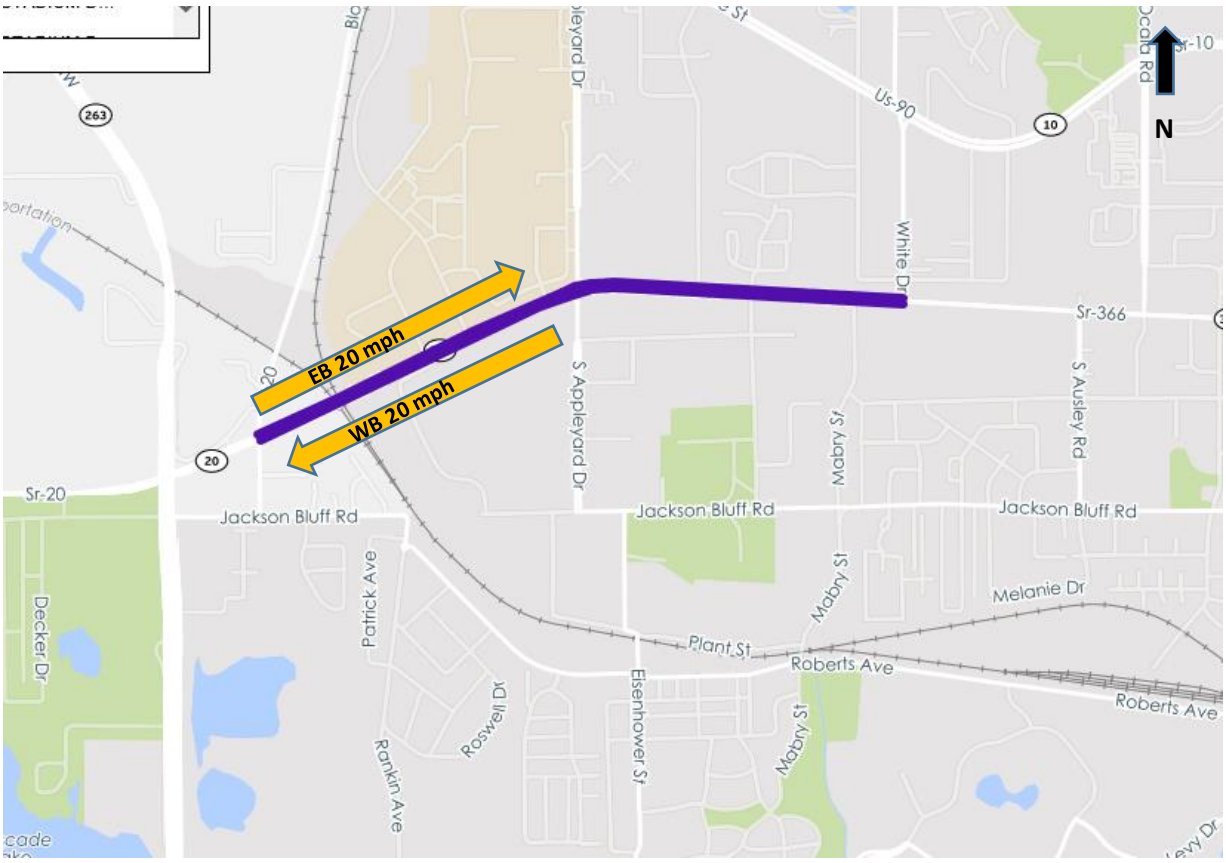
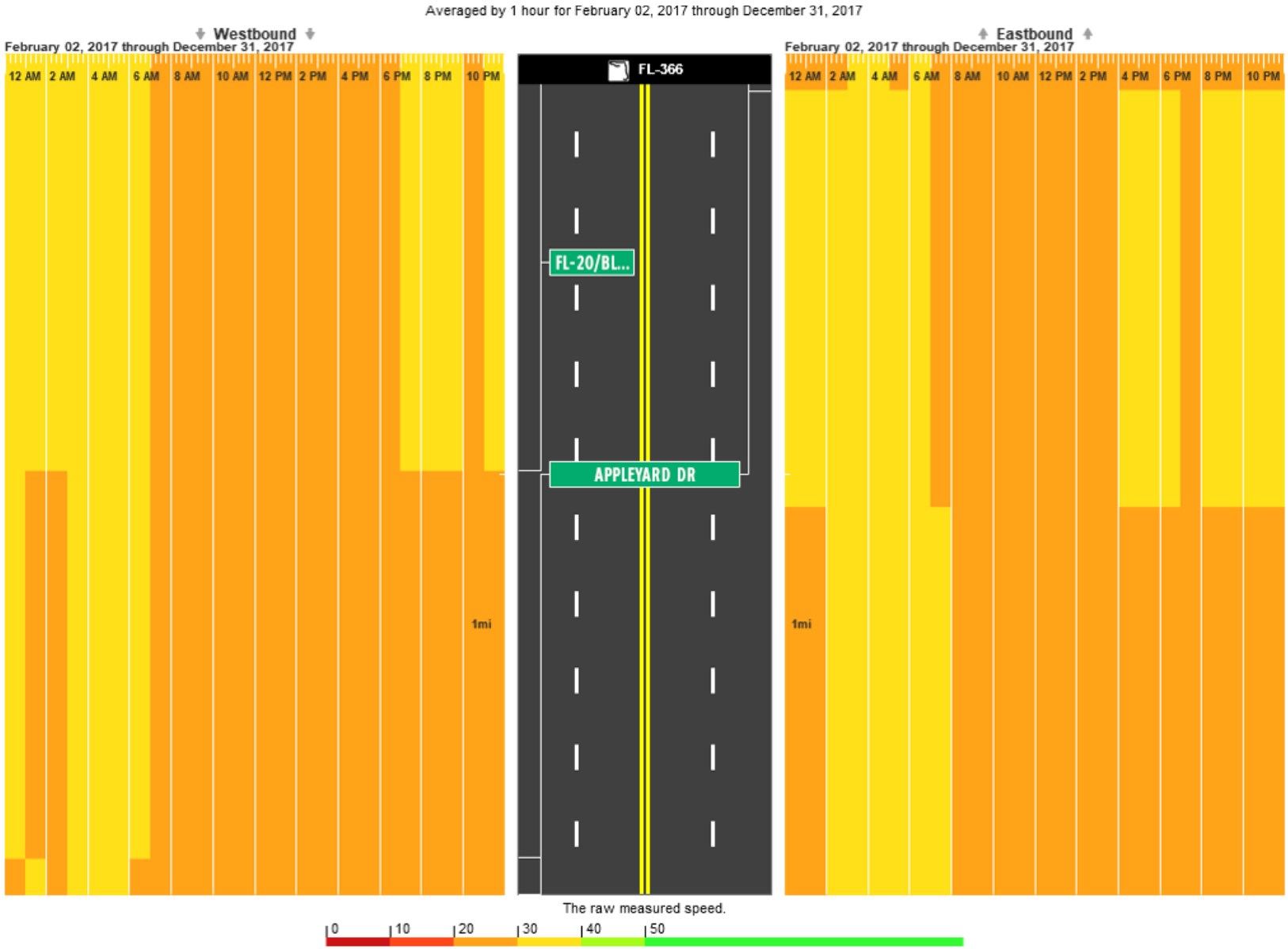


Figure 8. Pensacola Street Corridor Scan



RECOMMENDATIONS

Bottleneck - Widening Alternative

According to FDOT's Transportation Cost Reports (2014), the cost of construction for bridge widening falls between $85 and $160 per square foot. To be conservative, the value of $160 per square foot was applied. The bridge in question is approximately 285.1' in length (according to FDOT SLD). The addition of two lanes (12' in width) and two 5' foot sidewalks sums to a total of 34' in widening. Using the bridges length and the total widening width, approximately 9693.4 square feet would be added to the existing structure at a cost of $1,550,944. In order to make the roadway compatible with the widened bridge deck, similar widening would also need to be applied to both approach tapers. According to FDOT's LRE models "Adding 2 Lanes to Existing 3 Lane Undivided Arterial (1 Lane Each Side) with Center Turn Lane and 4' Bike Lanes" (in an urban setting) is approx. $4,732,174.28 per mile. The length of roadway in question is approximately 0.634 miles in length resulting in a cost estimate of $3,000,198.50. The combined/total cost estimate of widening Pensacola St. to 4 lanes and the accompanying bridge is $4,551,142.50. However, this cost does not incorporate closing down and/or altering the CSX lines to facilitate said widening.

Spot Congestion - Low Cost Alternative

As a low-cost alternative to address one of these unadvised movements, the addition of signage may deter a portion of motorists (see **Figure 9**). With the consent of all parties, a "Private Drive, No U-Turn" sign is proposed to be placed at the entrance(s) of Disc Village, Grainger, and/or Pepsico.

Figure 9. Proposed No U-Turn Sign

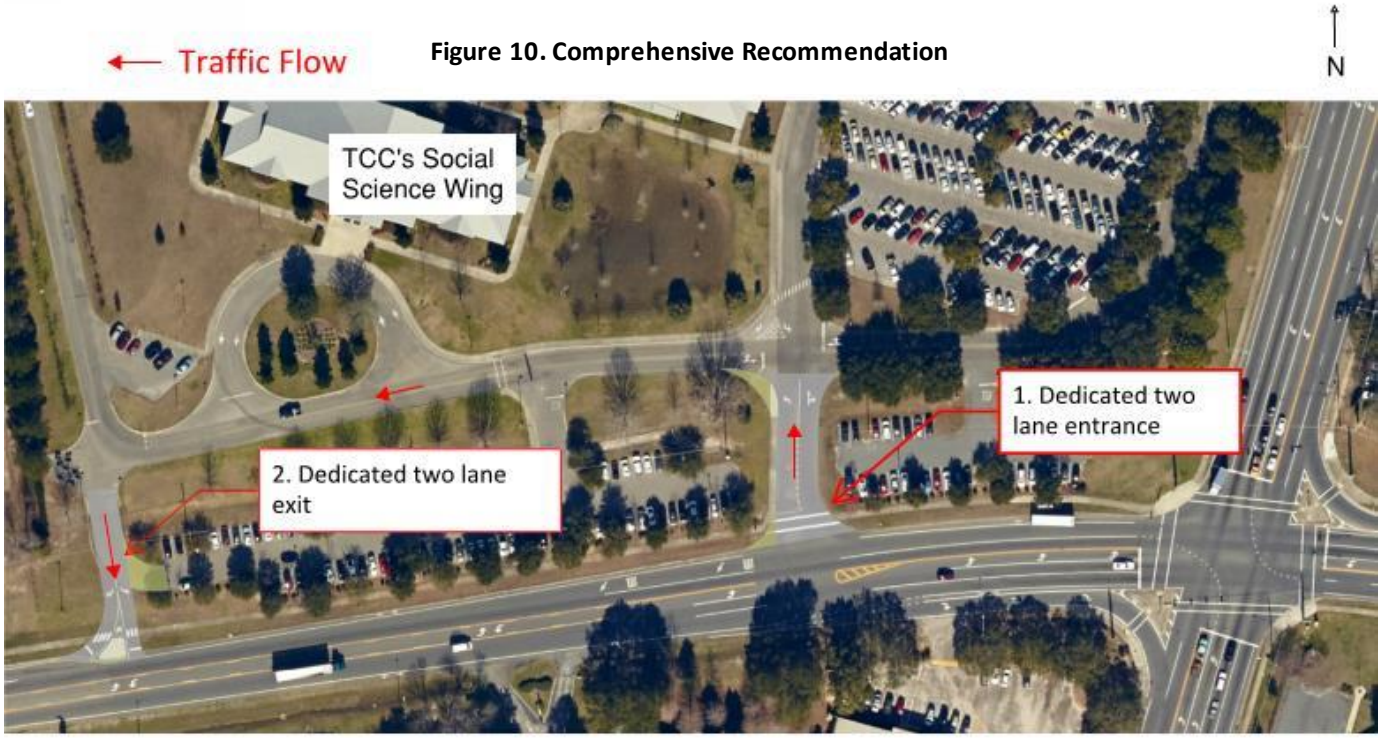
Spot Congestion - Comprehensive Alternative

A more comprehensive solution to the issues described above involves reconfiguring the points of access to TCC from Pensacola. The first element of the proposed scheme involves creating a dedicated two lane entrance for TCC. The entrance will be restriped to create both a left turn and right through lane.

A second element involves the addition of a two-lane dedicated exit -- southwest of the Social Science Wing of TCC (see **Figure 10**). Locating this access further upstream from the Pensacola/Appleyard intersection allows motorists to safely make left turns eastward without affecting the queue and increasing the site distance of oncoming traffic. Minor striping changes, depicted below, will need to take place in order to guide motorists in a seamless fashion. Additionally, "Do Not Enter" signs will be warranted at the heads of the one way pair to alert drivers who may be unaware of the scheme.

As described in **Figure 6**, the highest incidence of crashes occurs at the existing two-way access point near the intersection at Appleyard Dr. Managing access and reducing illegal movements will contribute to improved safety conditions along the corridor.

Figure 10. Comprehensive Recommendation



COST ANALYSIS

This cost estimate is based on preliminary data provided by FDOT cost per mile models and should be used for planning level purposes only. In no way should this estimate be construed as part of an appraisal. Estimated costs for recommendations can be found in **Table 4**. Estimates were based on what agencies typically paid over the past year for similar items. Though the CRTPA may choose different materials than this report estimates, the end cost should be similar. Further cost engineering is needed to generate a true accurate project. These estimates do not include pricing for any right-of-way (ROW) purchases.

Table 4. Cost Analysis

Engineers Opinion of Probable Cost				
Pensacola Street (Capital Circle NW to Appleyard Drive)				
Description	**Unit**	**Quantity**	**Unit Price**	**Amount**
Maintenance of Traffic (10% of Construction Cost Not Including LS Items)	LS	1.00	$457,000.00	$457,000.00
Mobilization (10% of Construction Cost not included LS items)	LS	1.00	$457,000.00	$457,000.00
Removal Of Existing Concrete	SY	59.50	$22.58	$1,343.51
TP Removal	SF	188.00	$52.01	$9,777.88
4" Concrete Sidewalk	SY	15.00	$66.44	$996.60
Concrete C&G, Type F	LF	58.00	$24.06	$1,395.48
Sod	SY	1384.00	$2.41	$3,335.44
ASPH CONC, TRAFF B, FC-9.5, PG 76-22	TN	8.87	$97.58	$865.53
Optional Base, Base Group 06	SY	51.30	$12.83	$658.18
Type B Stabilization	SY	51.30	$2.31	$118.50
Profiled TP, STD, White, Solid, 6"	GM	0.07	$5,300.00	$362.52
6" White 10'-30' Skip TP	GM	0.01	$1,864.93	$21.82
18" White	LF	161.00	$3.65	$587.65
6" Yellow	GM	0.01	$3,854.34	$24.67
TP, Preformed, White, Arrow	EA	8.00	$114.99	$919.92
Widening of Existing Bridge Deck	SF	9693.40	$160.00	$1,550,944.00
Adding 2 Lanes to Existing 3 Lane Undivided Arterial (1 Lane Each Side)	GM	0.63	$4,732,174.28	$3,000,198.49
Subtotal				$5,485,550.20
Design and Permitting				$493,699.52
Project Subtotal				$5,979,249.72
10% Contingency				$597,924.97
Construction Administration (15% of EOPC Subtotal)				$822,832.53
Total Opinion of Cost				**$7,400,007.22**