CRTPA

TRAFFIC AND OPERATIONS ANALYSIS

THARPE STREET

January 2019

PREPARED FOR:

PREPARED BY:

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BACKGROUND

The Capital Region Transportation Planning Agency (CRTPA) identified the need for additional capacity along Tharpe Street in the 2040 Regional Mobility Plan (RMP). The RMP proposes the widening of this corridor from Ocala Road to Capital Circle Northwest from two lanes to four lanes. 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.

Existing conditions were established using the following data sources:

Table 1. List of Data Collection Sources

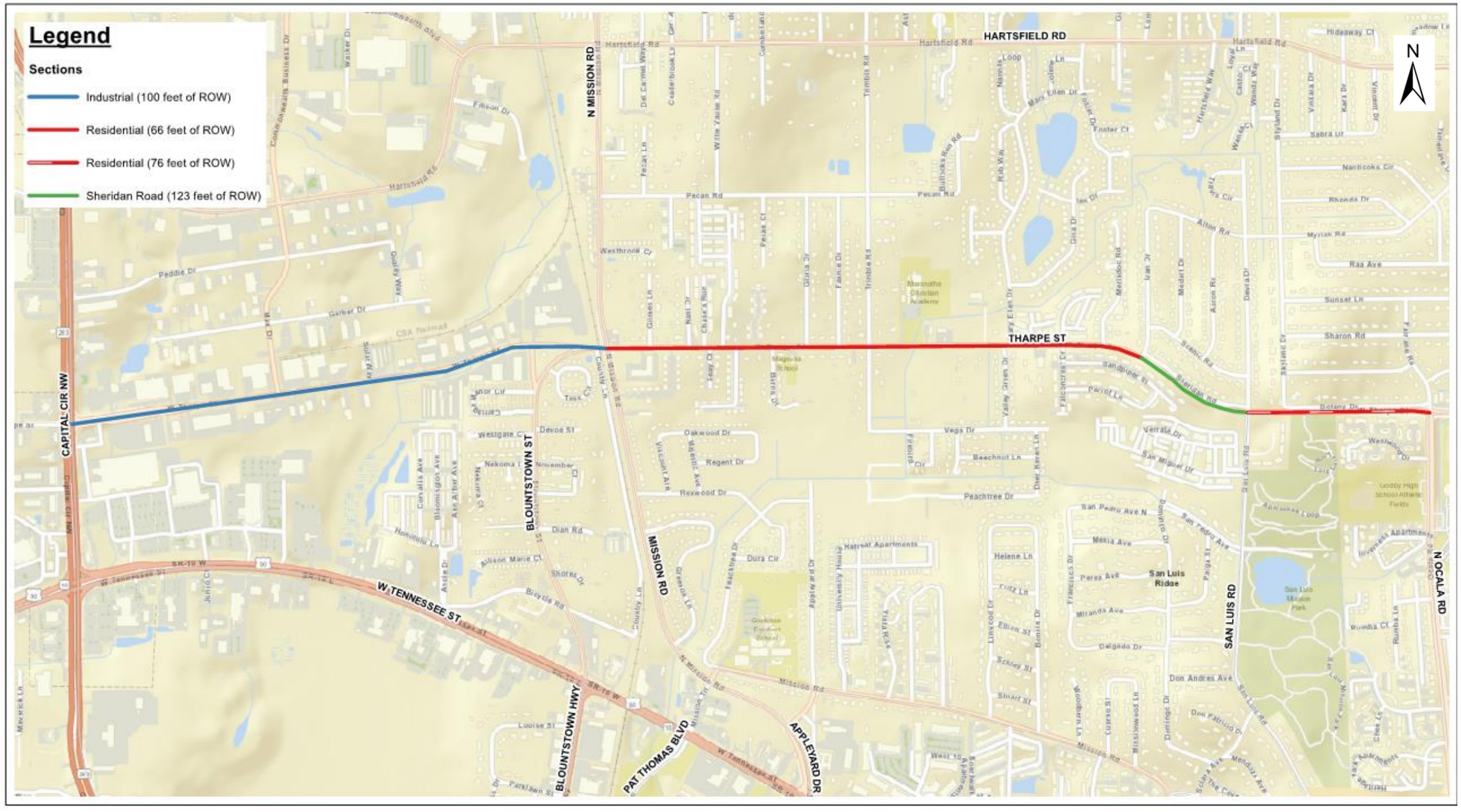
Data Source	Data Set	Dates of sources
Field Visit	Existing Issues	07-25-2018
City of Tallahassee	Operational Analysis	2017
StarMetro	Bus routes and schedules	2017
Congestion Management Plan Update (CMP)	Crash data	2012 – 2016
FDOT Transportation Data	Historical AADT (Annual Average Daily Traffic)	2012-2016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

The corridor exhibits three distinct sections based on character and land use. 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. The review of the existing conditions within the corridor resulted in the identification of five major issues and are discussed in the following sections.

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

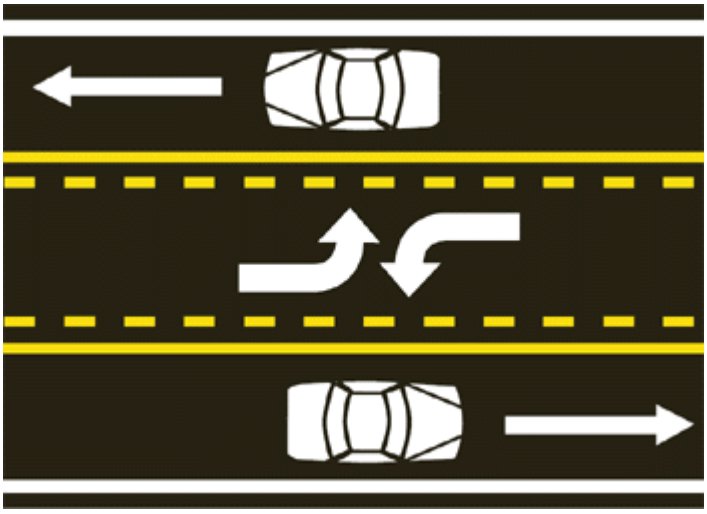
StarMetro serves as the public transit agency for the City of Tallahassee and Florida State University. Currently, bus stops along Tharpe Street are not compliant with the Americans with Disabilities Act (ADA) and offer limited information to passengers (see Figure 2). Current ADA compliance is only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

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 are clustered 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 shown in Figure 4. With these left turn movements, 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 Maneuvering 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 have 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

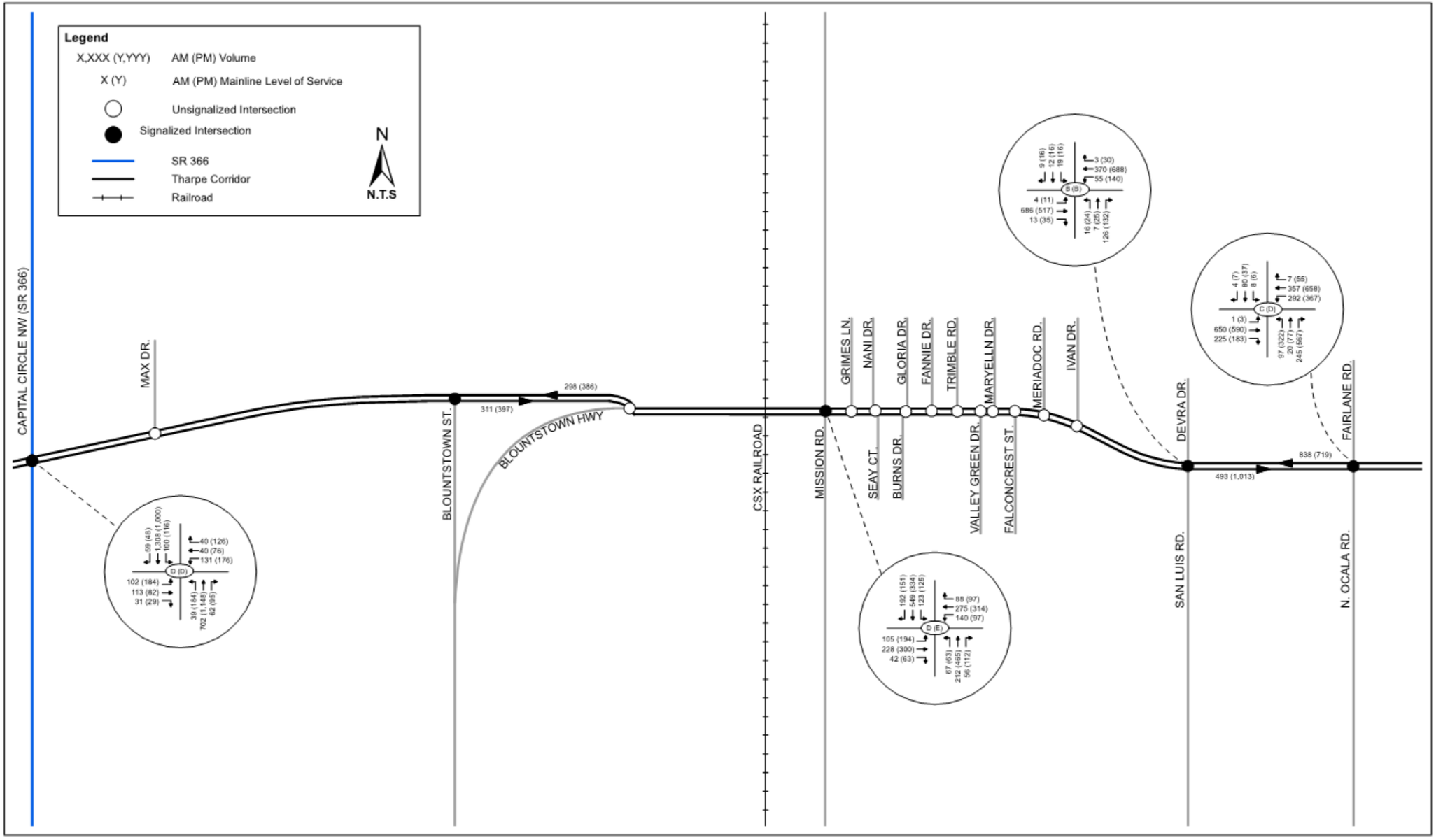
Analysis of traffic volumes is useful in understanding the general nature of traffic in an area, however, the volumes alone do not indicate the ability of the street network to carry additional traffic or the quality of service afforded by the street facilities. To fully understand the operations of the facility, Level of Service (LOS) is utilized to 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. 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 operating conditions and LOS F conditions represent gridlock where demand exceeds the capacity of an intersection or roadway segment. Operational analysis for Tharpe Street was performed following the Highway Capacity Manual (HCM) 2000 methodologies using Synchro software. This was made available by The City of Tallahassee and reflects AM/PM traffic operations during October 2017.

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 and shown in Figure 9. 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 identifies 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

Figure 9. Existing Peak Hour Volumes and Level of Service



Crash Rates

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 recently updated Congestion Management Plan update. Sourced data encompassed the five-year period from 2012 to 2016. Crash data were 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 number of rear-end collisions is likely due to driver response with the frequent spot congestion and left turning movements during AM/PM peak hours.

Currently Tharpe Street within the analysis segment has a crash rate of 6.14 per million vehicle miles of travel (MVMT). The state average for similar facilities consisting of undivided, two to three lanes with two-way traffic is 0.299.

Table 4. Tharpe Street (Ocala to Capital Circle) 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.*

RECOMMENDATIONS

The Street Design Priority Matrix, shown in Figure 10, is a tool used in the development of the Connections 2040 Regional Mobility Plan. This tool provides an understanding of the transportation facility elements and features and the connection to complete street components. The tool identifies priority features for different roadway classifications based on the overall character area. 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

Figure 10. 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

Source: Connections 2040 Regional Mobility Plan

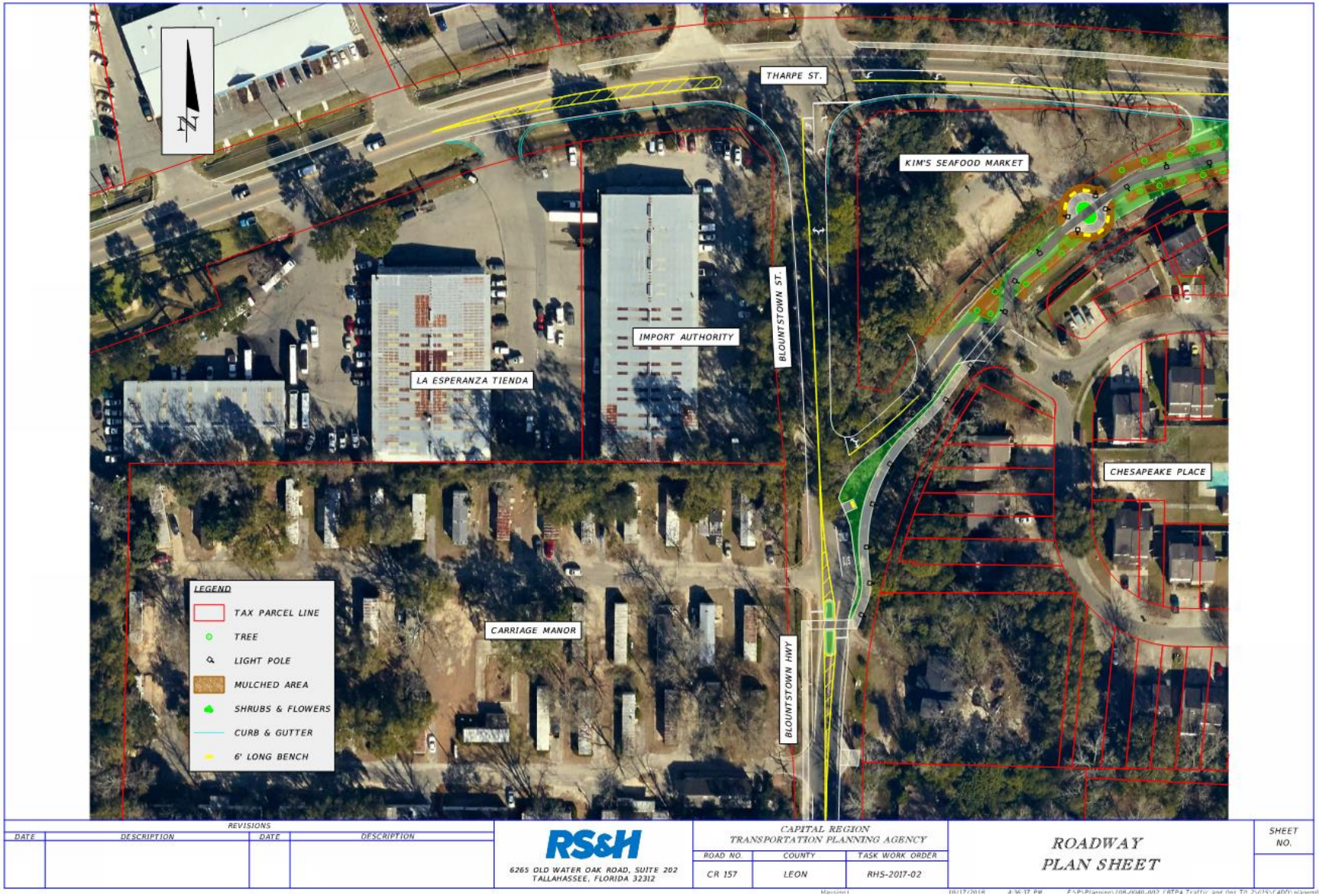
Industrial Section Recommendations

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 8-foot wide concrete sidewalk and curb and gutter along east side of Blountstown Hwy.

Figure 11 displays the recommended conversion of the Blountstown Highway and Tharpe Street intersection.

Figure 11. Blountstown Highway and Tharpe Street Intersection



Residential Section Recommendations

Proposed for the Residential section of Tharpe Street:

- Addition of 8-foot wide concrete sidewalk, culvert system, and curb and 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 from Mission Road to Trimble Road.
- Addition of two Jug handle U turns allowing U-turn for vehicles needing left turn access
- Install turnout bays.
- Re-striping east side of Tharpe Street near Ocala Road to include bike lane.

Figures 12 through 16 display the recommendations identified for this section.

Figure 12. Mission Road at Tharpe Street

Figure 13. Nani Drive to Burns Drive

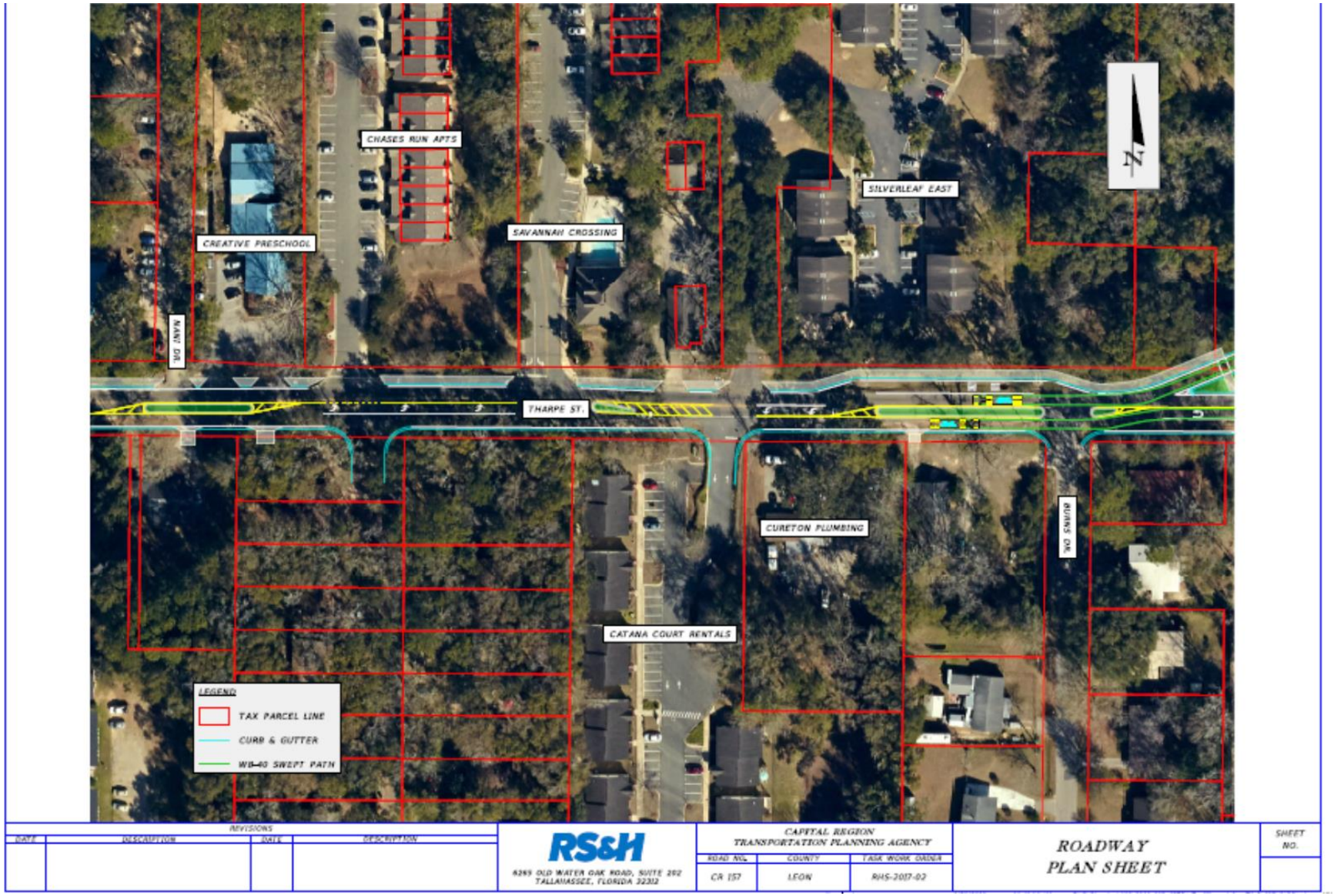


Figure 14. Gloria Drive to Trimble Road

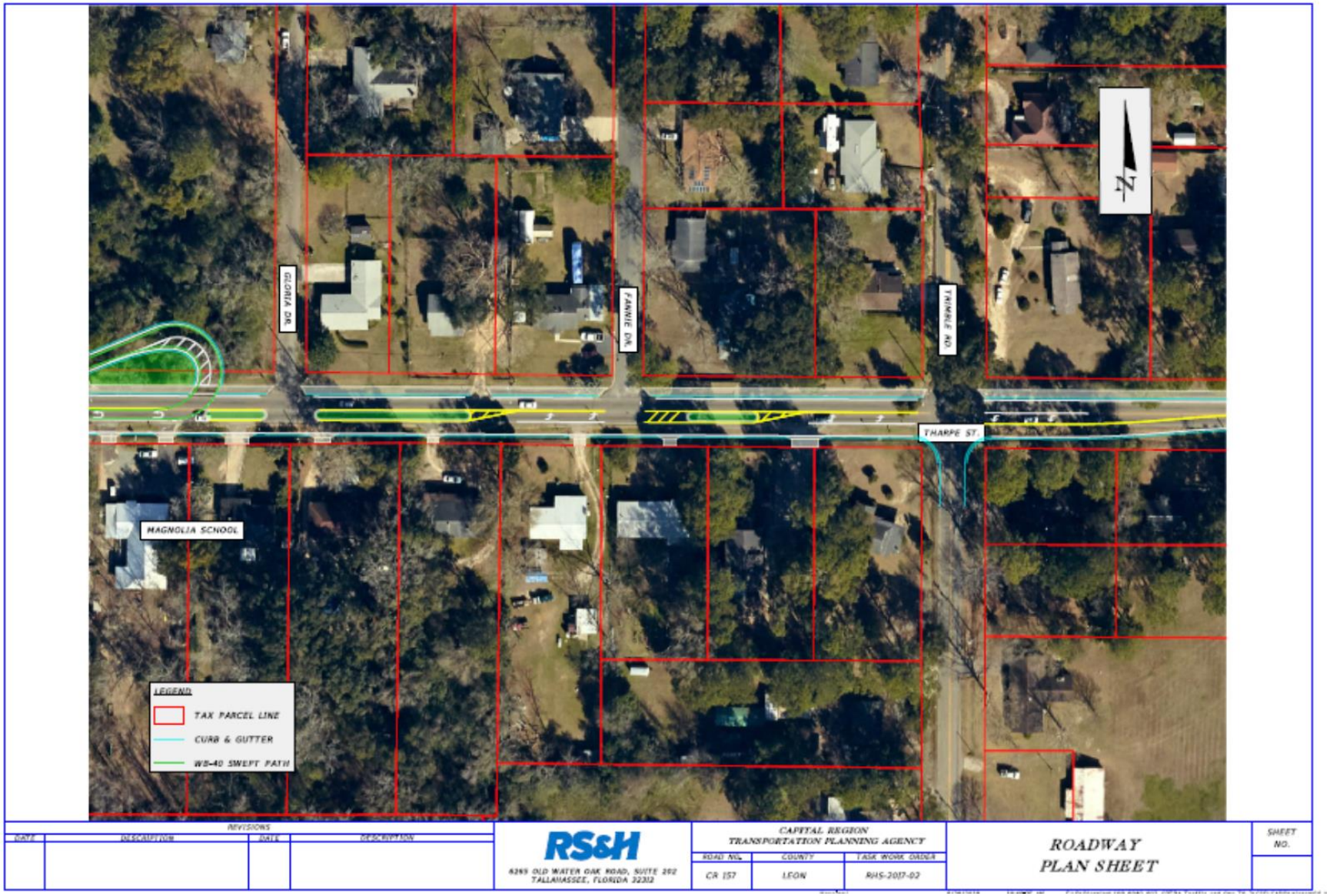


Figure 15. Pedestrian Bridge

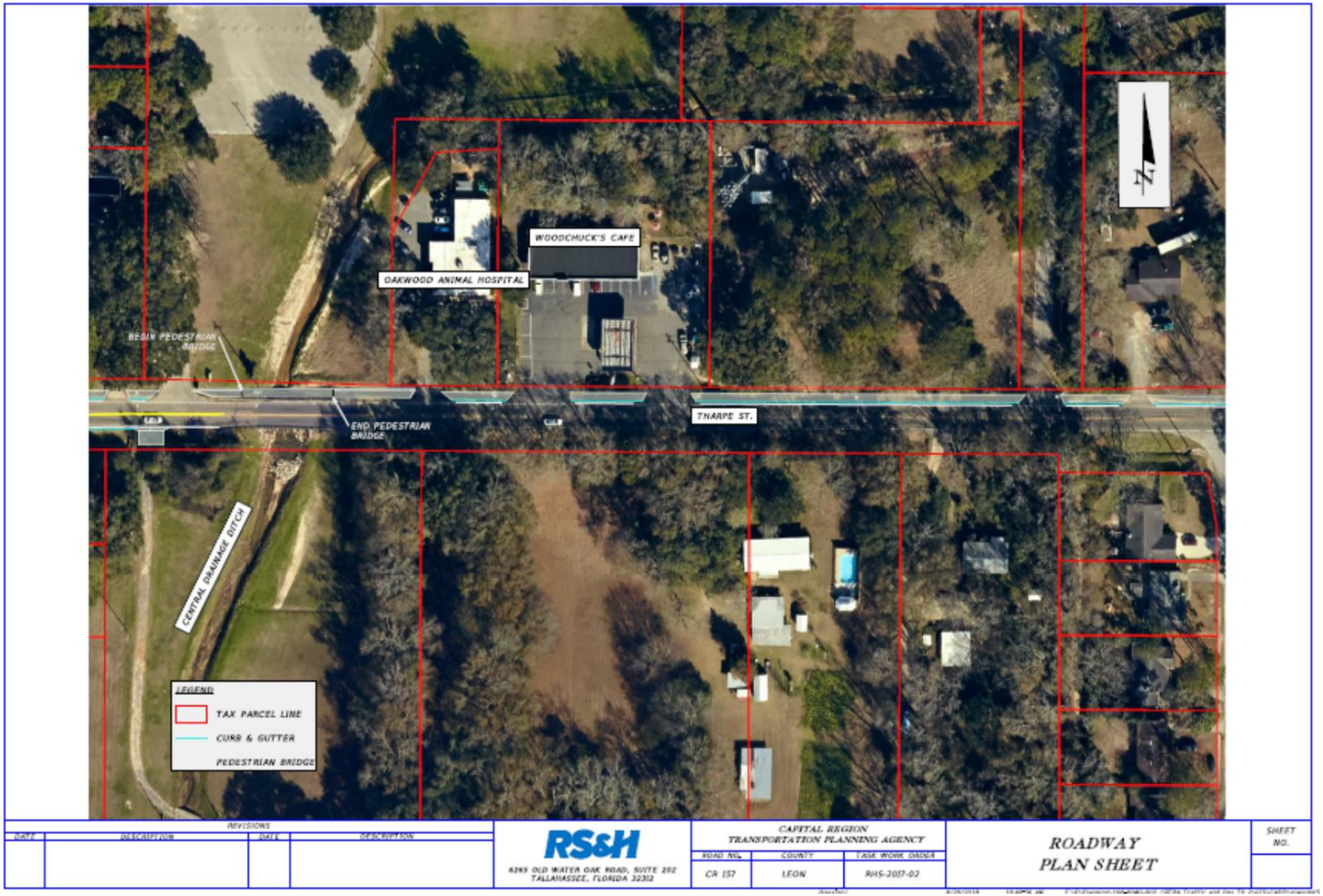
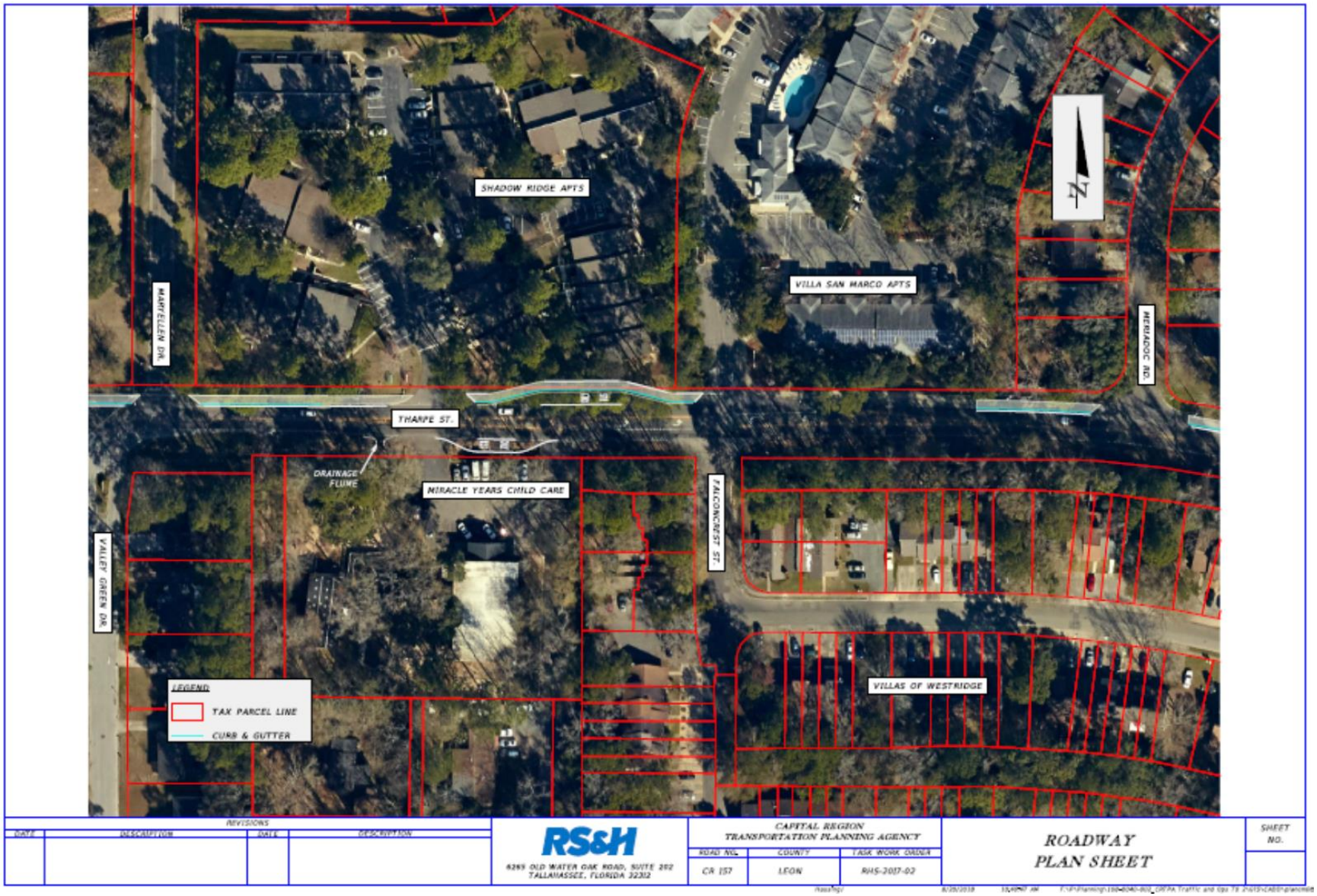


Figure 16. Valley Green Drive to Meriadoc Drive



Sheridan Section Recommendations

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

Figures 17 and 18 display the Ivan Drive and Devra Drive areas.

Figure 17. Ivan Drive

Figure 18. Devra Drive

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 5 and Table 6.

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 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 Meriadoc 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