

CRTPA
TRAFFIC AND OPERATIONS ANALYSIS
PENSACOLA STREET

January 2019

PREPARED FOR:



PREPARED BY:



Table of Contents

List of Figures	3
List of Tables	3
Pensacola Street	4
Background	4
Issues	6
Issue # 1 - Spot Congestion	6
Issue # 2 - Bottleneck	7
Issue # 3 - Lack of Bicycle/Pedestrian Facilities.....	8
Analysis	9
Analysis Procedures	9
Crash Rates.....	11
Congestion Analysis Scan Results.....	13
Recommendations.....	15
Bottleneck and Pedestrian/Bicycle Safety	15
Spot Congestion – “Quick Fix”	15
Spot Congestion - Comprehensive Alternative	17
Summary of Recommendations.....	18

List of Figures

Figure 1. Study Limits	5
Figure 2. Typical Congestion from TCC Campus	6
Figure 3. Bottleneck along Pensacola Street	7
Figure 4. Lack of Bicycle/Pedestrian Facilities Along Pensacola Street	8
Figure 5. 2016 Traffic Volumes	10
Figure 6. Highest Reported Crash Rate Along Pensacola Street	12
Figure 7. Generalized AM/PM Peak Hour Travel Speeds.....	13
Figure 8. Pensacola Street NPMRDS Corridor Scan	14
Figure 9. Private Drive Signage and Locations	16
Figure 10. Spot Congestion – Comprehensive Alternative	17

List of Tables

Table 1. List of Data Collection Sources	4
Table 2. Existing Intersection Operation Analysis.....	9
Table 3. Pensacola Street Crash Rate vs. State Average	11

Pensacola Street

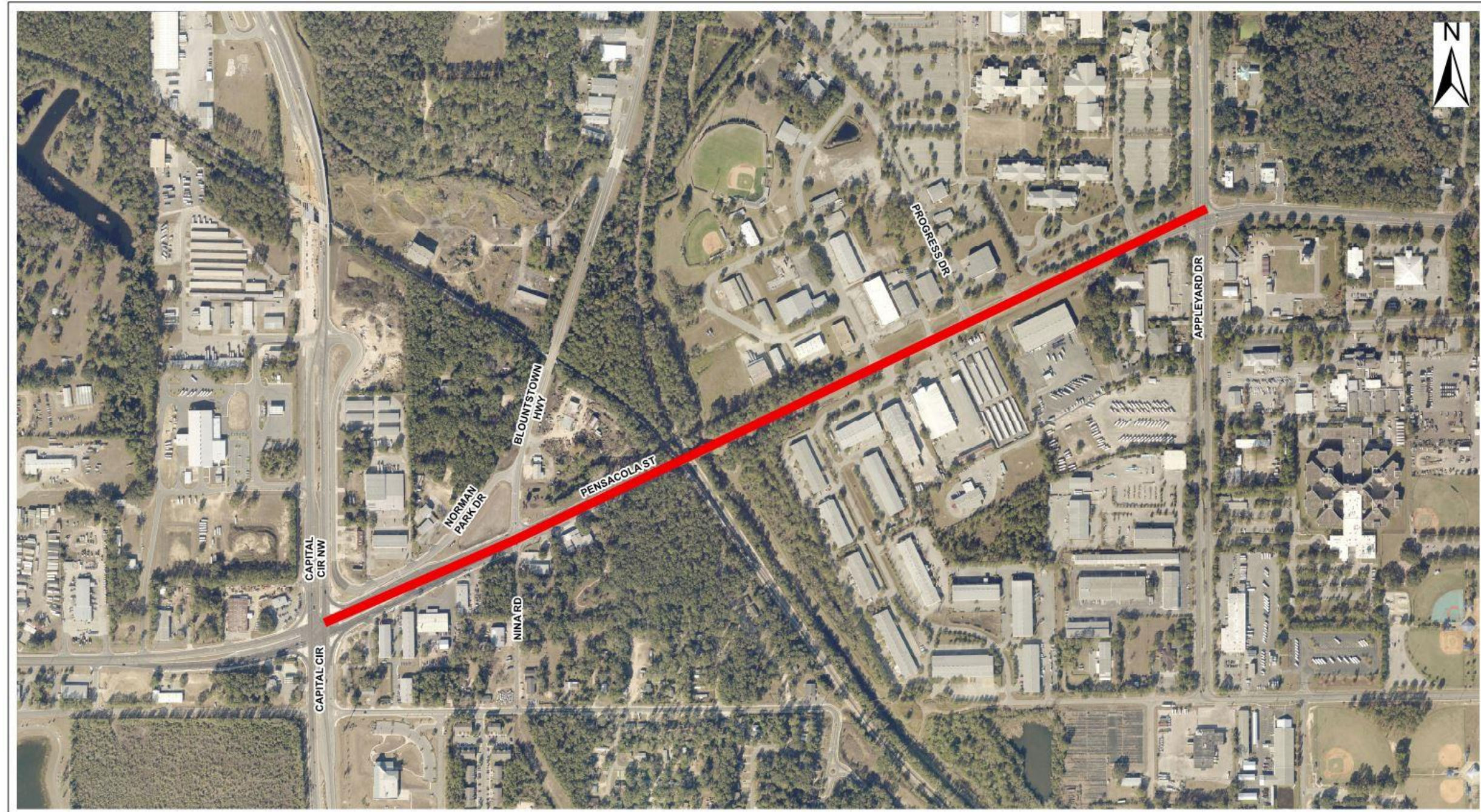
BACKGROUND

The Capital Region Transportation Planning Agency (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 identify potential 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
City of Tallahassee	Operational Analysis	2017
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

Issue # 1 - 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 in order to exit the campus.

Figure 2 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.

Figure 2. Typical Congestion from TCC Campus



Issue # 2 - 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 Highway as a six-lane section. As Pensacola Street continues east, it narrows to a two-lane section at the bridge over the railroad, shown in Figure 3, consequently creating a bottleneck. Pensacola Street continues as a two-lane roadway transitioning into a four-lane roadway at TCC's access point.

Increased traffic volumes, an effect from the recent widening of Pensacola, will not only further exacerbate the bottleneck situation but also the spot congestion identified near the TCC campus.

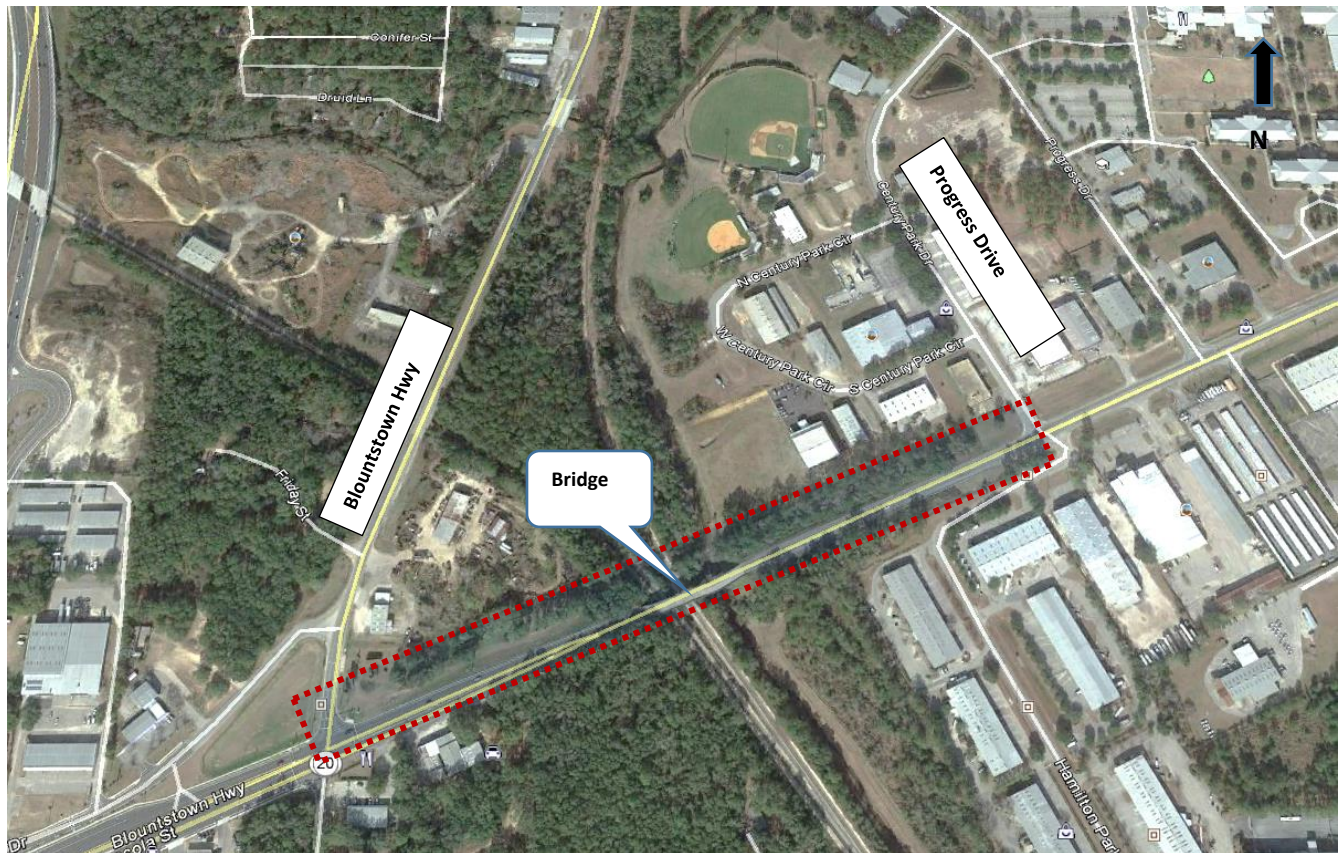
Figure 3. Bottleneck along Pensacola Street



Issue # 3 - Lack of Bicycle/Pedestrian Facilities

Currently, the two-lane section between Blountstown Highway and Progress Drive lacks bicycle and pedestrian facilities (see Figure 4). For this reason, bicyclists and pedestrians are given no choice but to travel along grassed areas to avoid interaction with motorists. However, grassed shoulders and/or ditches are not present throughout the corridor, particularly at the bridge. The lack of facilities and shoulder refuge in this area 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 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. To fully understand the operational capabilities of the roadway, the concept of level of service (LOS) has been applied to describe traffic performance. LOS can be measured at intersections, as well as on 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 peak hour operating conditions and LOS F conditions represent gridlock where demand exceeds the capacity of an intersection or roadway segment. FDOT sets level of service D as the minimum acceptable level of service for peak hour operation and plans for level of service C or better for all other times of the day.

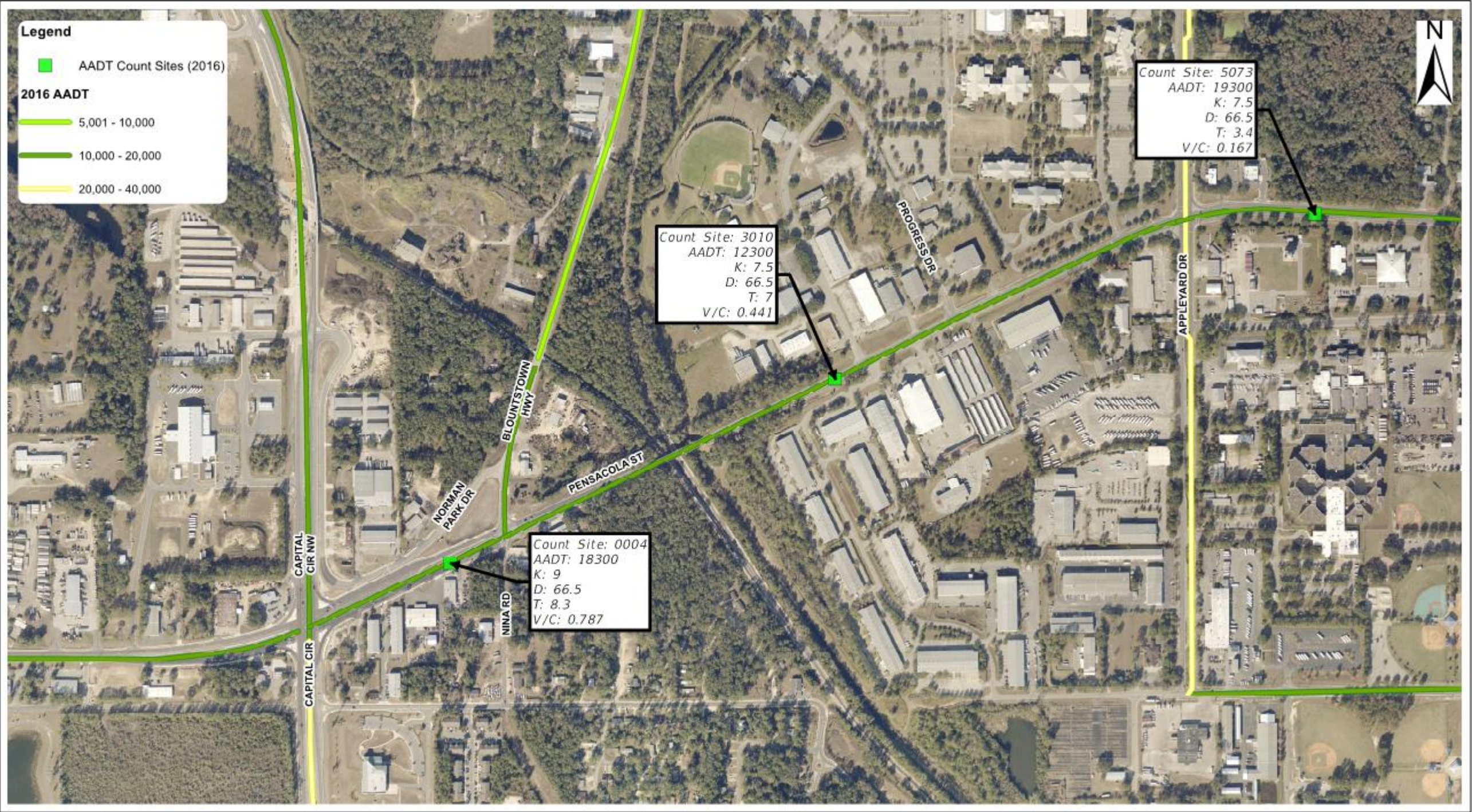
Historical traffic data and county traffic sites provided the source of existing traffic for the Pensacola Street study area. Figure 5 summarizes Annual Average Daily Traffic (AADT) from the Florida Department of Transportation traffic information. The highest traffic volumes within the study segment in 2016 are found between Blountstown Highway and Capital Circle SW, with an Average Annual Daily Traffic (AADT) of 18,300. The traffic information is displayed in Figure 5.

Operational analysis for Pensacola 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. 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.

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

Figure 5. 2016 Traffic Volumes



Crash Rates

Crash rates are calculated values used to compare the crash experience of similar locations and normalize the crash data over the period of time to account for any large data anomalies. The Florida Department of Transportation develops average crash rates for intersections and for roadway segments and provide insight into identifying any safety deficiencies.

The crash data for this assessment was obtained from the recently updated Congestion Management Plan. The data period is five years from 2012 to 2016. The data was analyzed to determine the types and locations of crashes that occurred along the corridor and at intersections within the study segment.

TCC's current access point (see Figure 6) reported the highest segmental crash rate of 1.96 per million vehicle miles of travel (MVMT). The access point is also adjacent to the intersection of Appleyard Drive and Pensacola Street, an area that experiences the highest intersection crash rate within the study area at 1.74 MVMT. The state average for similar facilities consisting of undivided, two to three lanes with two-way traffic is 0.2999. 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)	1.96	0.299*

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

The crash history along the Pensacola corridor was also assessed to identify deficiencies with respect to existing lighting infrastructure. The analysis of crash data 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.

Figure 6. Highest Reported Crash Rate Along Pensacola Street



Congestion Analysis Scan Results

The Federal Highway Administration maintains a database of travel information gathered from cellular and GPS units. This database, the National Performance Monitoring Research Data Set (NPMRDS) provides the information for use in network and corridor analyses. The data serves as one analysis tool and can provide insights into the operations of facilities, however, to comprehensively understand the operations of a facility, this data must be combined with other data sources, however it can provide some indication of existing issues.

According to the NPMRDS data, the westbound congestion analysis reports 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 and similar results are reported for eastbound traffic. Figure 8 is the NPMRDS scan of the segment and graphically displays the generalized travel speed along Pensacola Street from east of Appleyard Drive to Capital Circle SW.

Figure 7. Generalized AM/PM Peak Hour Travel Speeds

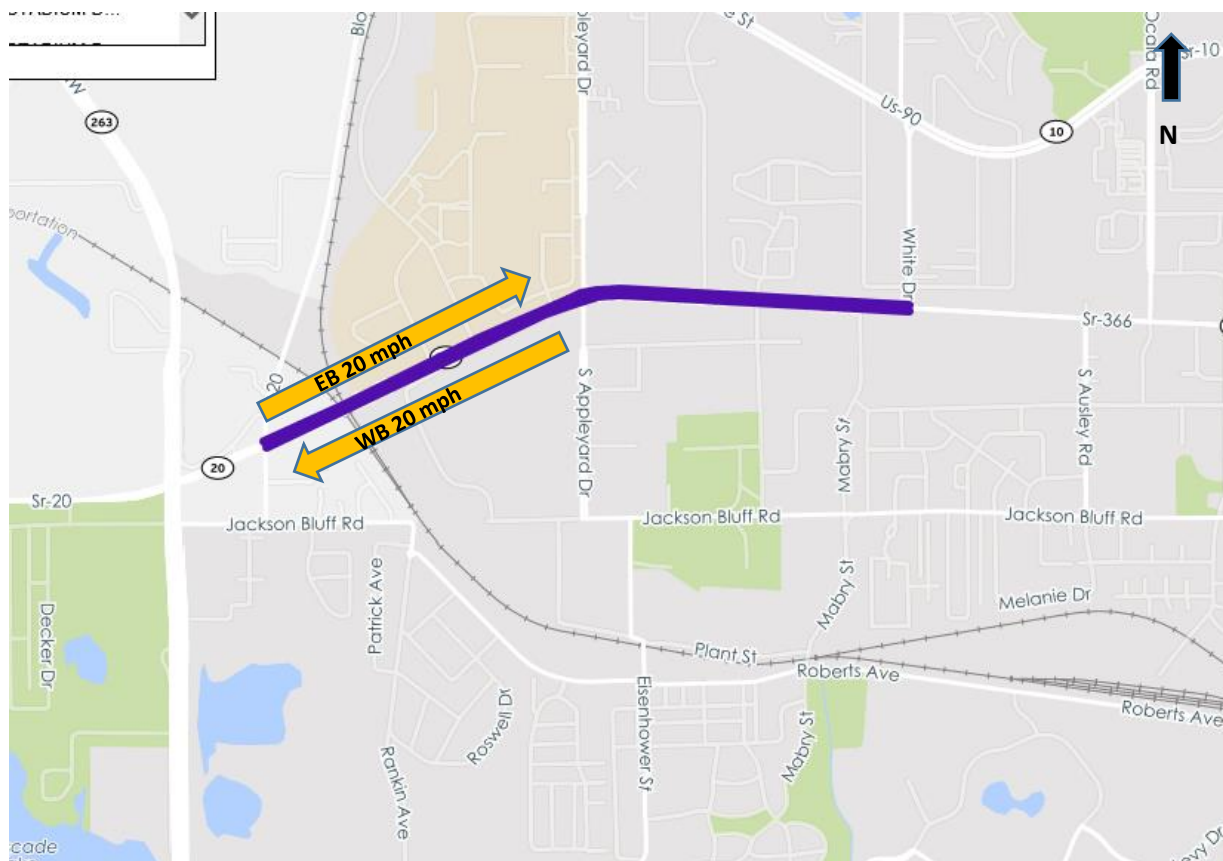
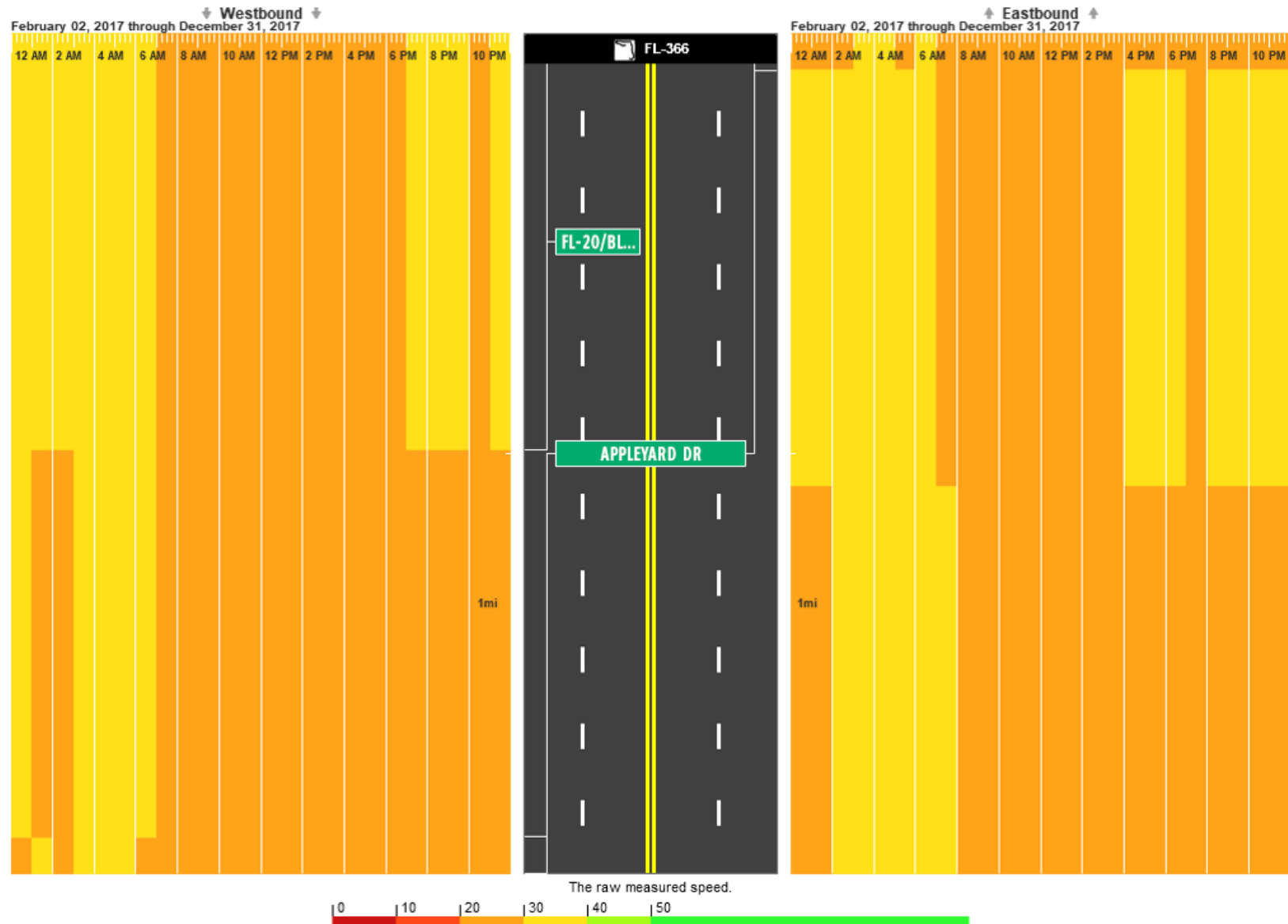


Figure 8. Pensacola Street NPMRDS Corridor Scan

Averaged by 1 hour for February 02, 2017 through December 31, 2017



RECOMMENDATIONS

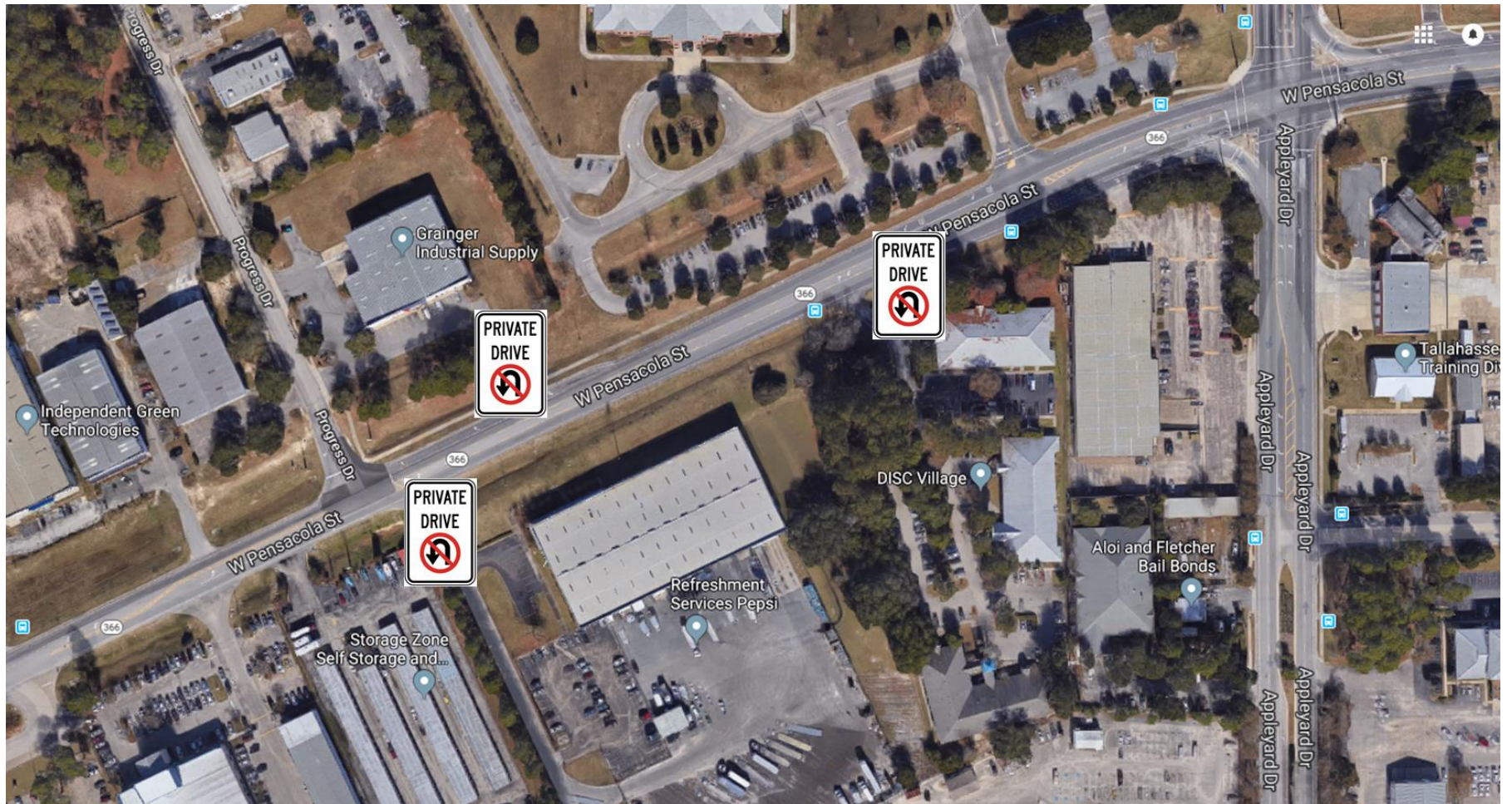
Bottleneck and Pedestrian/Bicycle Safety

In order to address the bottleneck existing at the bridge over the railroad, the bridge and the remaining two-lane section of Pensacola Street should be widened. This widening to four lanes should also incorporate bicycle and pedestrian facilities to address safety concerns for pedestrians and bicyclists on the current bridge. Coordination with CSX railroad will need to be undertaken to facilitate the widening.

Spot Congestion – “Quick Fix”

As a quick fix and low cost improvement to address one of the identified “work around” traffic movements resulting from the spot congestion at TCC, the addition of signage may deter a portion of motorists making the movement. With the consent of all parties, a “Private Drive, No U-Turn” sign is proposed to be placed at the entrances of Disc Village, Grainger, and Pepsico. Figure 9 displays the signage and locations.

Figure 9. Private Drive Signage and Locations



Spot Congestion - Comprehensive Alternative

A more comprehensive solution to the issues described regarding spot congestion involves reconfiguring the points of access to TCC from Pensacola. The first element of the proposed approach 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 earlier, 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. Spot Congestion – Comprehensive Alternative



Summary of Recommendations

In order to address the issues identified in the analysis, the following recommendations have been identified.

- Widen the existing two-lane section of Pensacola and the bridge spanning the CSX railroad
- Include pedestrian and bicycle facilities in the widening project
- Addition of signage at three locations along Pensacola Street to address illegal and/or dangerous traffic movements by drivers attempting to avoid spot congestion issues
- Reconfigure the ingress/egress access from Pensacola Street to the TCC parking lots