

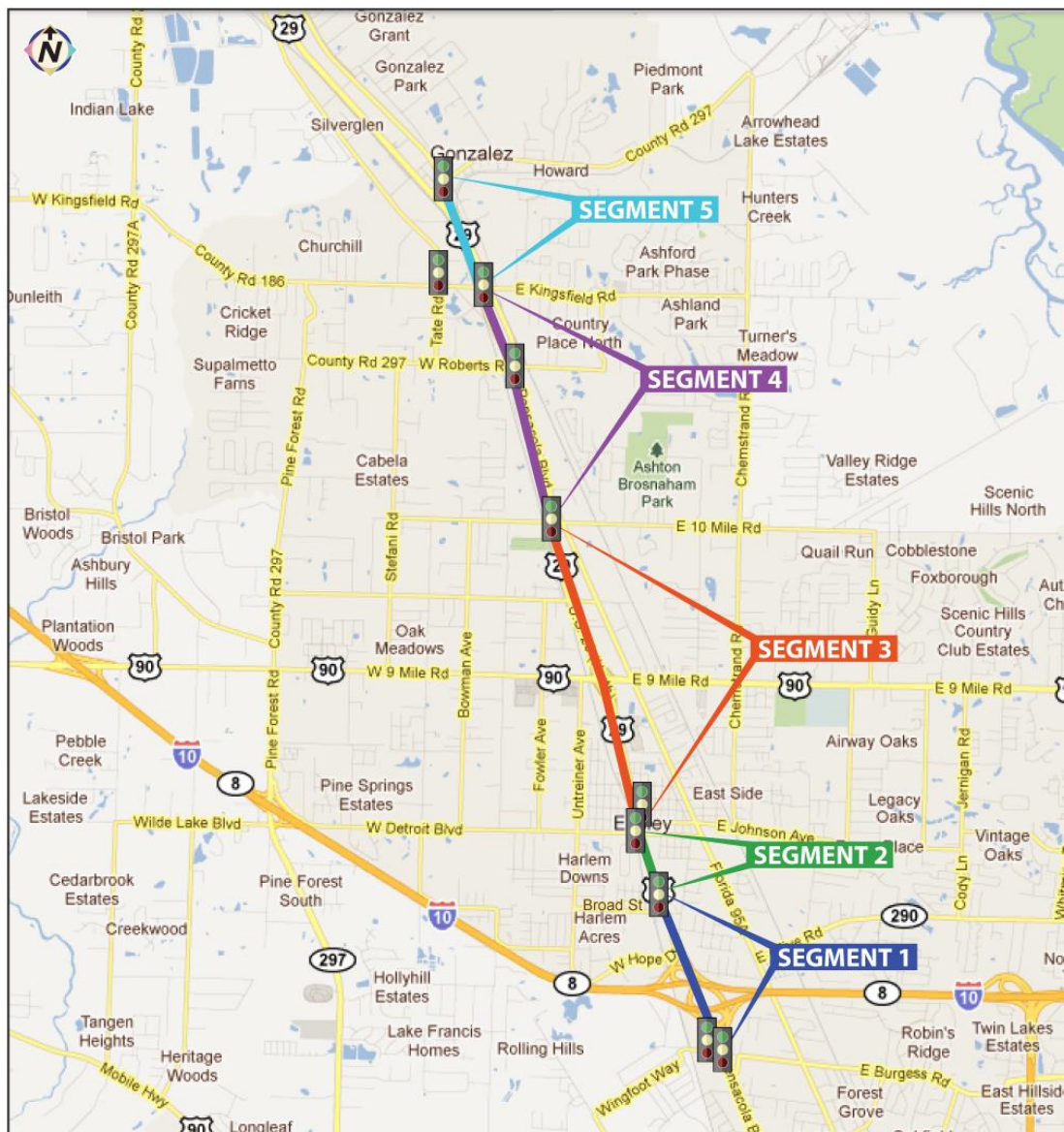
US 29 from W. Burgess Road to Old Chemstrand Road

PRELIMINARY FREIGHT CORRIDOR SCREENING US 29 (W. Burgess Road to CR 297 (Old Chemstrand Road))

INTRODUCTION

A preliminary freight corridor screening evaluation was conducted on US 29 (SR 95) from W. Burgess Road to Old Chemstrand Road, located within the boundaries of Escambia County, Florida, on October 3, 2011. This screening is part of a broader effort to screen a sample of the regional freight corridors as designated in the Regional Freight Network Plan: Highways of Commerce, adopted April 2010, for freight-related operational and physical issues. **Figure 1** shows the corridor location map and the segmentation used during the evaluation. The total distance of the corridor is 6 miles and includes 10 signalized intersections.

**FIGURE 1
PROJECT LOCATION MAP**



As shown in **Table 1** below the project was divided into six segments.

**TABLE 1
CORRIDOR SEGMENTATION**

Segment	From	To	Distance	Intersections	Signalized Intersections	Estimated Driveways
1	W. Burges Rd.	Broad St.	1.1	3 ¹	3	0
2	Broad St.	W. Detroit Blvd.	0.5	1	1	25
3	W. Detroit Blvd.	W. 10 Mile Rd.	2.1	10 ²	2 ³	51
4	W. 10 Mile Rd	W. Roberts Rd.	1.0	3	1	9
5	W. Roberts Rd.	E. Kingsfield Rd.	0.6	2	1	13
6	E. Kingsfield Rd.	Old Chemstrand Rd.	0.7	2	2 ⁴	8

¹ I-10 interchange ramps with no signals located between W. Burgess Road and Broad Street Signal at Diamond Dairy Road.

² US 29 bridges US 90 with grade separated diamond interchange.

³ W. Hood Drive at mall entrance and at fire station between W. Ensley Street and W. Hannah Street.

⁴ Tate School Road.

RELEVANT FREIGHT-RELATED ISSUES

The freight-related issues associated with this corridor are as follows:

- Major rutting on some lanes at all intersections.
- Corner radii at most intersection corners result in off-tracking damage due to right turning trucks.
- At W. 10 Mile Road, corner shoulder damage was noted at all quadrants, the sidewalk was crushed/severely cracked, and the utility pole was damaged at the southeast quadrant due to off-tracking.
- Off-tracking damage noted at the southeast and northwest quadrants of E. Kingsfield Road.
- Two pedestrian refuge islands and signal activated crosswalks at Old Chemstrand Road do not connect to sidewalks on either side of the road. The endpoints are soft shoulders with adjacent open drainage.
- There are extreme operational issues between the I-10 exit to northbound SR 29 and Broad Street.
- Although trucks are prohibited from using W. Roberts Road as noted by a “No Trucks” sign to the west of the intersection, there are no warning signs posted on the southbound right-turn lane or the northbound left-turn lane on US 29.
- Northbound traffic delays at W. Roberts Road could be eliminated with minor infrastructure modifications allowing for non-stop through movement.

- At E. Kingsfield Road, the US 29 southbound left turn traffic occasionally blocks the northbound through lanes after the protected signal changes due to the close proximity of the traffic signal at SR 95A (N. Palafox Street) and adjacent railroad crossing.
- The railroad crossing on E. Kingsfield Road, west of US 29, is too close to permit a single long trailer truck to stop at the gate without extending beyond the edge of pavement (EOP) of southbound US 29.

PHYSICAL CHARACTERISTICS

General Characteristics

W. Burgess Road to Broad Street

The typical section consists of a six-lane divided rural highway with left- and right-turn lanes at the northbound I-10 on-ramp, Diamond Dairy Road, and Broad Street. There is a multi-ramp interchange without signals at I-10. The northbound off-ramp consists of two lanes that merge with northbound US 29 prior to Broad Street with the outermost lane becoming a dedicated right only turn lane at Broad Street. The dedicated right-turn lane also provides access to a large truck stop facility located at the southeast quadrant of Broad Street via four driveways that add to the overall congestion in the area. The median is grass except for a paved section with guardrail through the I-10 interchange.

Broad Street to W. Detroit Boulevard

The typical section is a rural four-lane divided by a grass median with left- and right-turn lanes and open drainage. The approach to W. Detroit Boulevard includes a dedicated right-turn lane, as well as a diverging left-turn lane with a triangular grass median separating the left-turn lane from the northbound and southbound through lanes. The northbound and southbound right-turn lanes are separated from the through lanes on W. Detroit Boulevard by a painted island. There are a total of four median openings along the segment. W. Detroit Boulevard is a two-lane rural typical section with no auxiliary lanes.

W. Detroit Boulevard to W. 10 Mile Road

The typical section is a rural four-lane divided by a grass median with left- and right-turn lanes and open drainage. There are right- and left-turn lanes at W. Hood Drive and at the north entrance to a retail mall immediately north of W. Hood Drive. There are northbound and southbound U-turn lanes located between W. Devane Street and W. Ensley Street. US 29 is grade separated from US 90 via a diamond interchange. The northbound approach to W. 10 Mile Road includes left- and right-turn lanes. The southbound approach has a left-turn lane and a 10-foot paved shoulder that appears to be used as a right-turn lane. East of the intersection, W. 10 Mile Road is two lanes with a center-turn lane equally divided between eastbound and westbound left-turn lanes between US 29 and SR 95A (N. Palafox Street). West of US 29, W. 10 Mile Road is a two-lane rural road with a guarded railroad crossing 165 feet to the west of the intersection.

W. 10 Mile Road to W. Roberts Road

The typical section is a rural four-lane divided by a grass median with left- and right-turn lanes and open drainage. South of W. Roberts Road there is a slip lane that links to N. Palafox Road, which runs parallel to US 29. At Crowl Lane there are median openings on US 29 and between US 29 and N. Palafox Road.

W. Roberts Road is a “T” intersection with connecting road to the west of the main corridor. There is a northbound left-turn lane and a southbound dedicated U-turn lane and right-turn lane. Traffic signals are strain pole mounted.

W. Roberts Road to E. Kingsfield Road

The typical section is a rural four-lane divided highway by a grass median with left- and right-turn lanes at E. Kingsfield Road and open drainage. There is also a southbound dedicated U-turn lane located at the median opening at Pompano Street and a continuous dedicated right-turn lane from south of Pompano Street to E. Kingsfield Road that provides access to the commercial businesses in the area.

E. Kingsfield Road to Old Chemstrand Road (CR 297)

The typical section is a rural four-lane divided highway by a grass median with left- and right-turn lanes and open drainage. There is a northbound left-turn lane at southbound left- and right-turn lanes at Tate School Road (signalized intersection). Tate School Road provides access to N. Palafox Road via a short connector and access to J. M. Tate High School. There is a dedicated right-turn lane providing access to three commercial driveways on the east side of the corridor. Old Chemstrand Road is a “T” intersection with a northbound right-turn lane and a southbound left-turn lane. There are raised concrete pedestrian islands with pedestrian actuated controls on Old Chemstrand Road separating the right turns from the through lanes. However, there are no connecting sidewalks on either side of the intersection.

Pavement Condition

There is major and minor rutting at the northbound and southbound approaches to W. Burgess Road that continue through the intersection (see Photo 1 in Appendix 3). There is also major rutting in the southbound to westbound right-turn lane. To a lesser extent, similar rutting conditions were noted at Broad Street, W. 10 Mile Road, E. Kingsfield Road, and at Old Chemstrand Road.

The pavement between W. Roberts Road and E. Kingsfield Road is showing signs of minor cracking.

The stop bar on eastbound W. 10 Mile Road is worn and needs to be restriped. There are no stop bars on Old Chemstrand Road and the crosswalk boundary stripes are completely worn through at the northeast and southeast quadrants and on the westbound left-turn lane.

Infrastructure

W. Burgess Road to Broad Street

Traffic signals at W. Burgess Road are mounted on mast arms (see Photo 2 in Appendix 3). At Diamond Dairy Road, the signals are strain pole mounted. The curb at the southbound inside left-turn lane has been damaged by off-tracking at W. Burgess Road. There is similar off-tracking damage at the southeast quadrant (see Photo 3 in Appendix 3).

Broad Street to W. Detroit Boulevard

Traffic signals at Broad Street are strain pole mounted. The shoulders at the southeast and northeast quadrants of Broad Street are damaged due to off-tracking trucks.

W. Detroit Boulevard to W. 10 Mile Road

The traffic signals at W. Detroit Boulevard, at W. Hood Drive, and at the fire station location located north of W. Ensley Street are strain pole mounted. Both the southeast and northeast shoulders are damaged due to off-tracking vehicles. The EOP at the southeast quadrant of W. Hood Drive (entrance used by trucks to access the Wal Mart supercenter) is severely deteriorated and retains pooling water (see Photo 4 in Appendix 3). Medians throughout the segment are grass drainage swales with no curbing. A grade separation bridge structure over US 90 includes 8-foot outside shoulders.

W. 10 Mile Road to W. Roberts Road

Traffic signals at W. 10 Mile Road are strain pole mounted. The southeast quadrant at W. 10 Mile Road has concrete curbing around the corner and a sidewalk located east of the intersection. Both the curbing and the sidewalk are damaged due to off-tracking vehicles (see Photo 5 in Appendix 3). There is also a damaged traffic signal strain pole (see Photo 6 in Appendix 3). The northwest and southwest quadrants have paved shoulders with the EOP severely damaged. Medians are grass drainage swales with no curbing.

W. Roberts Road to E. Kingsfield Road

Traffic signals at W. Roberts Road are mounted from concrete strain poles that are set back more than 10 feet from the highway. Corners lack curbing or sidewalks and the EOP is damaged due to off-tracking (see Photo 7 in Appendix 3).

E. Kingsfield Road to Old Chemstrand Road (CR 297)

The traffic signals at E. Kingsfield Road and at Tate School Road are mounted on concrete strain poles. The signals at Old Chemstrand Road are mounted on mast arms. The paved corner shoulders at all four quadrants of E. Kingsfield Road are damaged (see Photos 8 and 9 in Appendix 3). Off-tracking at the northeast and southeast quadrants at Old Chemstrand Road has resulted in deep rutting of the soft shoulder and has damaged the concrete drain openings (see Photo 10 in Appendix 3). The railroad crossing located immediately east of N. Palafox Road causes occasional queues to back up to US 29.

Land Use

The corridor is dominated by intense commercial use from north of the I-10 interchange to the US 90 interchange and to a lesser extent to the north of this location to Old Chemstrand Road. Immediately to the east along adjacent N. Palafox Road, there are industrial uses from north of US 90 to beyond Old Chemstrand Road. There is a large truck stop at the southeast corner of Broad Street (see Photo 11 in Appendix 3).

Existing Right-of-Way

The existing right-of-way is approximately 200-feet-wide the entire length of the corridor. However, due to the existing rural typical section, any expansion of the roadway to increase capacity would require the addition of suburban or urban curb and gutter typical section. Based on the property lines found on the Escambia County Property Appraisers website, there appears to be considerable encroachment of commercial uses along the corridor, mainly parking lots and wide driveway extensions. For accuracy, the extent of these encroachments would have to be confirmed by survey.

OPERATIONAL CHARACTERISTICS

The short segment between the I-10 off-ramp to northbound US 29 and the signalized intersection at Broad Street is extremely congested throughout the day and especially during the evening peak period. The dual exit lanes between the off-ramp and the intersection are approximately 1,600 feet with the extreme right lane becoming a right-turn only lane beginning 600 feet prior to the intersection. Northbound traffic exiting in the right lane must complete a two-lane merge in order to continue north on US 29, which is difficult. As a result, vehicles that cannot successfully complete the merge make a right turn at Broad Street, make a U-turn and rejoin the northbound lane on the north side of the intersection. To complicate the merge further, there are three access points to a truck stop at the southeast quadrant of the intersection. These issues will be mitigated via a planned capacity improvement currently in the design stage (see Planned Improvements).

The congestion continues through the W. Detroit Boulevard intersection and all the way to the US 90 (W. 9 Mile Road) interchange. Adding to the congestion through this area, are numerous commercial driveways side and cross streets and a Wal-Mart Supercenter with associated commercial sites fronting along the corridor (see Planned Improvements).

There is an unnecessary short delay (20 seconds) to the northbound through traffic at W. Roberts Road resulting from the eastbound to northbound left-turn cycle. Because of the operational characteristics of trucks (especially loaded trucks) from a stop condition, unnecessary stops should be eliminated as much as possible. This intersection is followed by another signalized intersection 0.5 miles to the north. The probability is good that a truck that begins from a stop at W. Roberts Road would be required to stop again at E. Kingsfield Road, thus reducing efficiency. There are two options for this intersection. First, W. Roberts Road can be cut through to N. Palafox Street forming a continuous east west corridor and a fully signalized intersection. This option will result in a continued northbound stop condition on US 29 and the cycle will more than likely be lengthened increasing the delay. This option also presents other issues due to the short (40 feet) distance between US 29 and N. Palafox Street which would also require a signal. The second option would be to close the southbound U-turn lane, shift the median to the west to replace it, and create a new dedicated northbound acceleration/merge lane separated from the northbound through lanes by a narrow concrete median or delineators (see **Figure 2**). A concrete or delineated painted island within the median opening would channel the eastbound to northbound left turn traffic up the acceleration lane until a safe merger can be made. The signal for the northbound lanes would be removed allowing continuous travel through the intersection and provide a non-stop northbound flow for 1.6 miles between W. 10 Mile Road and E. Kingsfield Road.

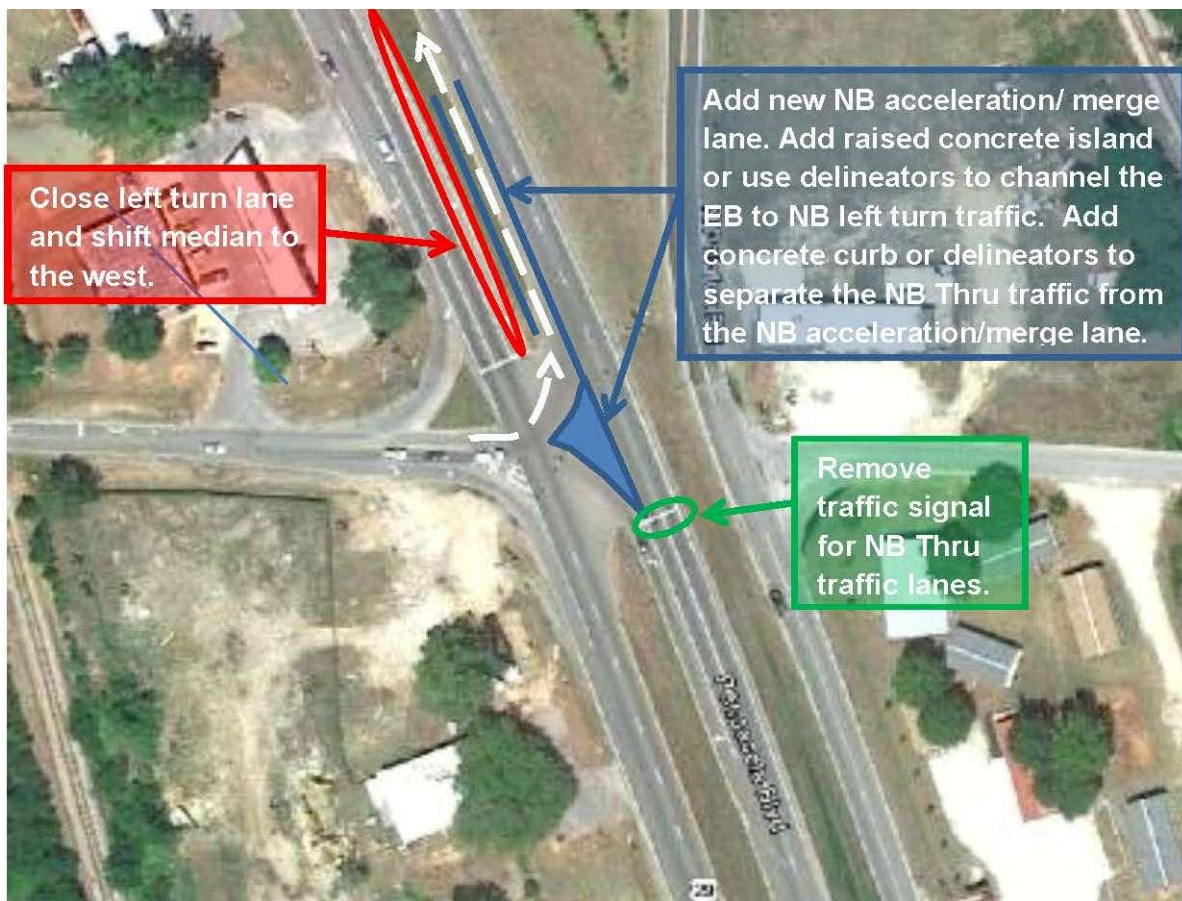
A similar through lane stop condition exists at Old Chemstrand Road in the southbound direction. Old Chemstrand Road forms a "T" intersection from the east and there is no road to connect to west of US 29. The same solution recommended for W. Roberts Road above would also work at this intersection. This would allow non-stop southbound flow from the entrance to the Cantonment Plant to E. Kingsfield Road, a distance of 3.1 miles.

Traffic

Figures 3 and 4 show the 2010 average annual daily traffic (AADT) and the average annual daily truck traffic (AADTT) along the corridor and the connecting streets. The source of the maps is the Florida Department of Transportation (FDOT) Traffic On-Line website. The total combined north and southbound traffic through the corridor ranges from 30,000 to 40,000 vehicles per day (vpd).

As can be seen on Figure 4, the average combined truck traffic on the corridor ranges between 1,900 and 3,100 trucks per day (tpd). The percentage of truck traffic on the corridor ranges from 7.6 percent at the southern end to 6.3 percent at the northern end.

**FIGURE 2
RECOMMENDED INTERSECTION MODIFICATION AT W. ROBERTS ROAD TO PERMIT
FREE-FLOW NORTHBOUND THROUGH TRAFFIC**



**FIGURE 3
US 29 AADT**



Source: FDOT Traffic Online, 2010.

**FIGURE 4
US 29 AADTT**



Source: FDOT Traffic Online, 2010.

NEARBY FREIGHT FACILITIES

Major truck generators identified along the corridor by the field team include:

- Kangaroo Truck Stop (located at the southeast corner of Broad Street)
- Central Industrial Park (located on N. Palafox Street)
- Gateway Business Park (located on N. Palafox Street)
- Barber's Food (located north of W. 10 Mile Road)
- Pensacola Ready Mix Cement Plant (located on N. Palafox Street)
- Commstructures, Inc. Cement product plant (located on E. Roberts Road)
- Solutia, Inc., chemical products plant (located on Old Chemstrand Road)

- DHS, Inc. plant (located north of the corridor segment in Cantonment, Florida)

PLANNED IMPROVEMENTS

There is currently an engineering design project underway (FPN 281603-1-52-01) from I-10 to US 90 (W. 9 Mile Road) to improve the conditions between I-10 and US 90. The capacity will be improved to four lanes in each direction between I-10 and Broad Street with the fourth northbound through lane beginning at the off-ramp with the extreme right lane becoming a right-only lane separated from the main corridor by a key hole bike lane. From Detroit Boulevard to US 90, the improvement will include three through lanes in each direction.

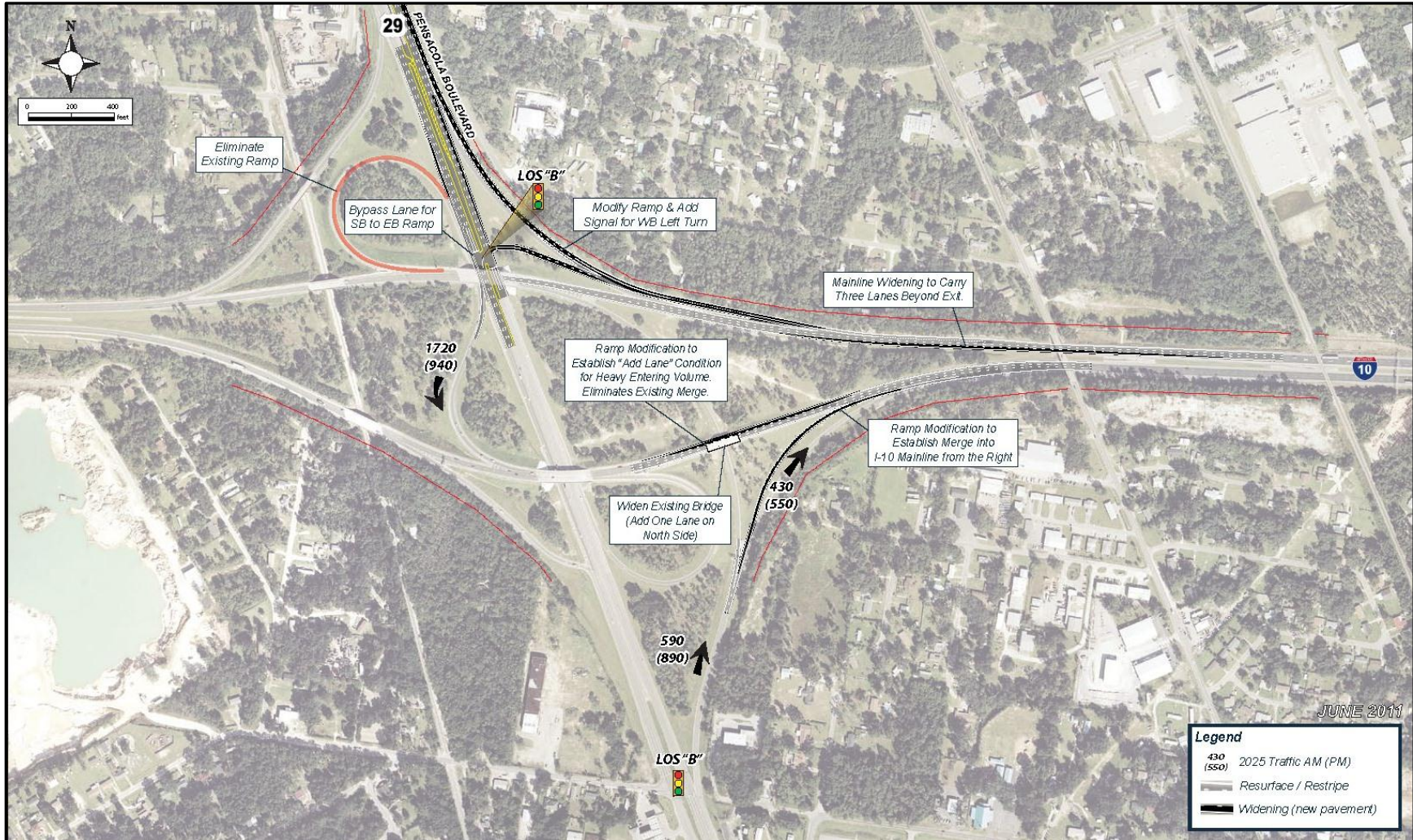
There is currently a PD&E study update underway (FPN 222476-1-32-02) for the I-10 at the US 29 interchange. The study update is recommending a complete redesign of the interchange to increase the I-10 capacity to three travel lanes in each direction and eliminate safety and congestion issues with the current ramp configuration. An additional recommendation of the study is to design and construct an interim improvement at the interchange that includes certain mainline widening on I-10 east of the interchange and certain improvements to the ramp layout to specifically enhance the operation of the westbound to northbound and the southbound to eastbound movements. See **Figure 5**. The interim improvement project is funded for design in the current 5-year work program.

OTHER FACTORS

Safety

At Old Chemstrand Road (see **Figure 6**) there are no sidewalks even though there are two pedestrian islands with signal activation features and crosswalks both across Old Chemstrand Road and US 29. The crosswalk across US 29 does not connect to land use that would justify this feature (see Photo 12 in Appendix 3). On Old Chemstrand Road, the crosswalks terminate at the EOP and lead to a deep drainage ditch. This intersection includes several fast-food restaurants and a Winn Dixie grocery store yet there are no interconnecting sidewalks in this traffic congested area. At a minimum, sidewalks should be added to both sides of Old Chemstrand between US 29 and SR 95A (N. Palafox Street), as well as along US 29 from Tate School Road to the US Post Office facility north of Tate School Road.

**FIGURE 5
INTERIM IMPROVEMENT – OPTION A**



Source: DRMP, 2011.

**FIGURE 6
AERIAL PHOTO OF INTERSECTION**



RECOMMENDATIONS

The following actions are recommended:

- Perform maintenance to remove and resurface rutted sections of the roadway at the approaches of all signalized intersections. (FA1)
- Off-tracking by trucks has resulted in damage to the pavement edges and soft shoulders at various intersections identified in the discussion above. Consider repairing and extending corner shoulder pavement to provide a solid road surface for right turning trucks and other vehicles. Priority should be given to the southeast corner of W. Hood Drive, which has been patched several times. As noted in Photo 1 in Appendix 3, water pooling is also an issue at this corner which leads to the Wal-Mart unloading docks. (FA2)
- While off-tracking was noted at all corners of W. 10 Mile Road, the southeast corner is especially bad with crushed curbing and sidewalks and a slightly damaged utility pole. If possible, adjust the corner radius and replace the damaged infrastructure including the possible relocation of the utility pole. (FA3)
- There are two raised concrete pedestrian islands at Old Chemstrand Road. The crosswalks do not connect to sidewalks at either corner or at the west side of US 29. At a minimum, sidewalks should be added to both sides of Old Chemstrand Road, between US 29 and SR 95A (N. Palafox Street), as well as along US 29 from Tate School Road to the Post Office facility north of Tate School Road. Unless there is justification for the crosswalk across US 29, it should be removed and the actuator disabled or removed. (FA4)

- There is a design project underway (FID 218603-1-52-01) to improve the traffic flow and capacity between I-10 and W. 9 Mile Road. It is recommended that the construction of this project be completed as soon as possible once the final design is completed. (FA5)
- Add “No Trucks” signs to the southbound right-turn lane and the northbound left-turn lane of W. Roberts Road to warn trucks in advance of the no trucks condition on W. Roberts Road. (FA6)
- Consider a small redesign of the W. Roberts Road intersection as described in the Operational Characteristics section that will permit a continuous non-stop flow for northbound traffic through this intersection. (FA7)
- Consider a small redesign of the Old Chemstrand Road intersection similar to the recommendation for W. Roberts Road. This will permit a continuous non-stop southbound flow for over 3 miles between signalized intersections. (FA8)
- Due to the proximity of SR 95A (N. Palafox Street) to US 29, traffic making the protected southbound to eastbound left turn occasionally backs through the intersection blocking the northbound through lanes and reducing available “green” condition. Consider adjusting the signalization at both US 29 and SR 95A to allow completion of the movement during the protected left-turn cycle. Add “Do Not Block Intersection” signs to the southbound left-turn lane and on the traffic signal cables to warn drivers.(FA9)
- The railroad crossing on the west side of US 29 is too close to the EOP of the southbound lanes to permit a single tractor-trailer combination vehicle to stop at the gates without extending beyond the EOP. Add warning signs and railroad crossing pavement markings to the southbound right-turn lane and the northbound left-turn lane. (FA10)

APPENDICES

- 1 Intersection Aerials
- 2 Screening Checklist
- 3 Photos

APPENDIX 1
INTERSECTION AERIALS

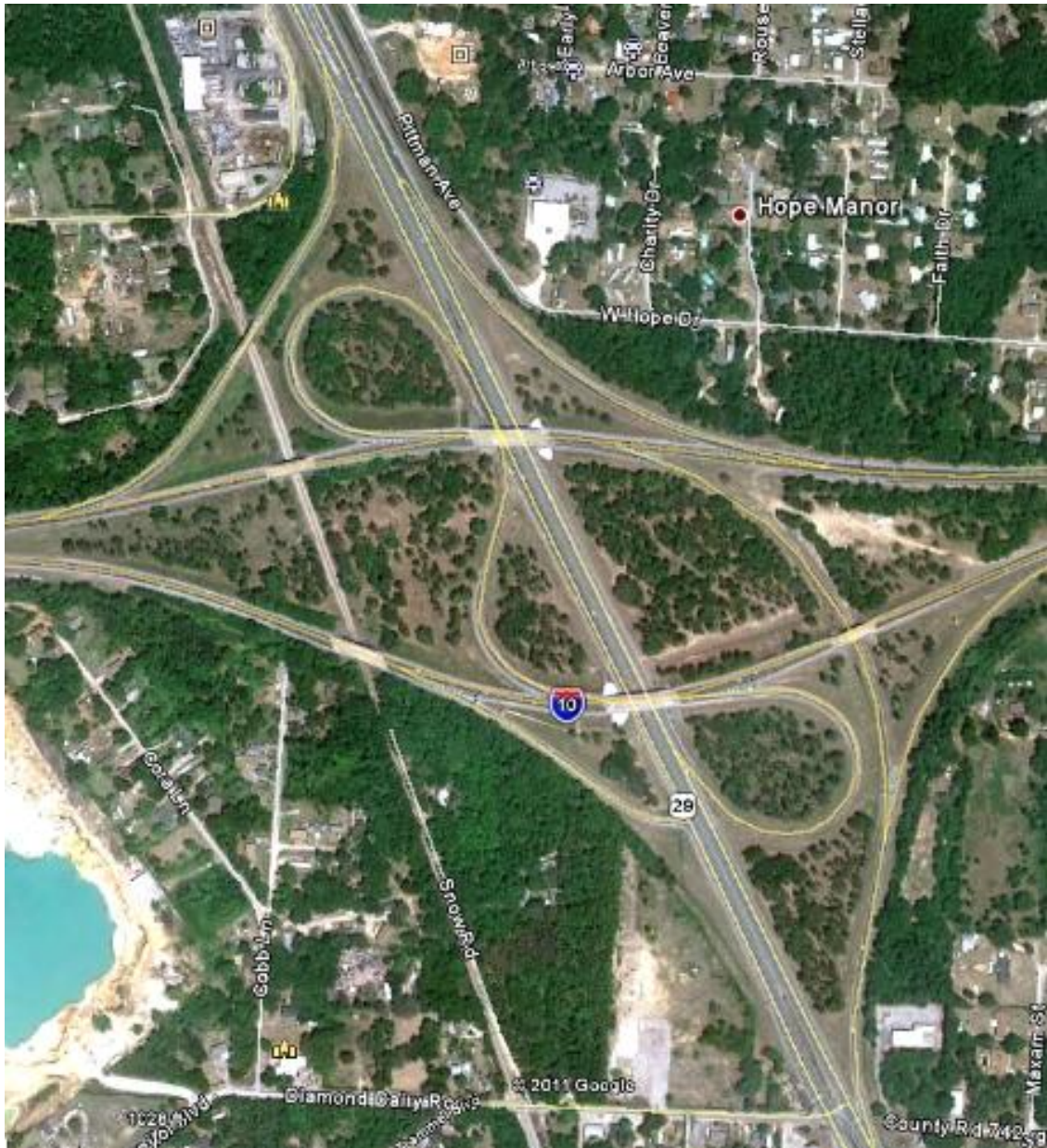
Aerial 1
W. Burgess Road



**Aerial 2
Diamond Dairy Road**



Aerial 3
I-10



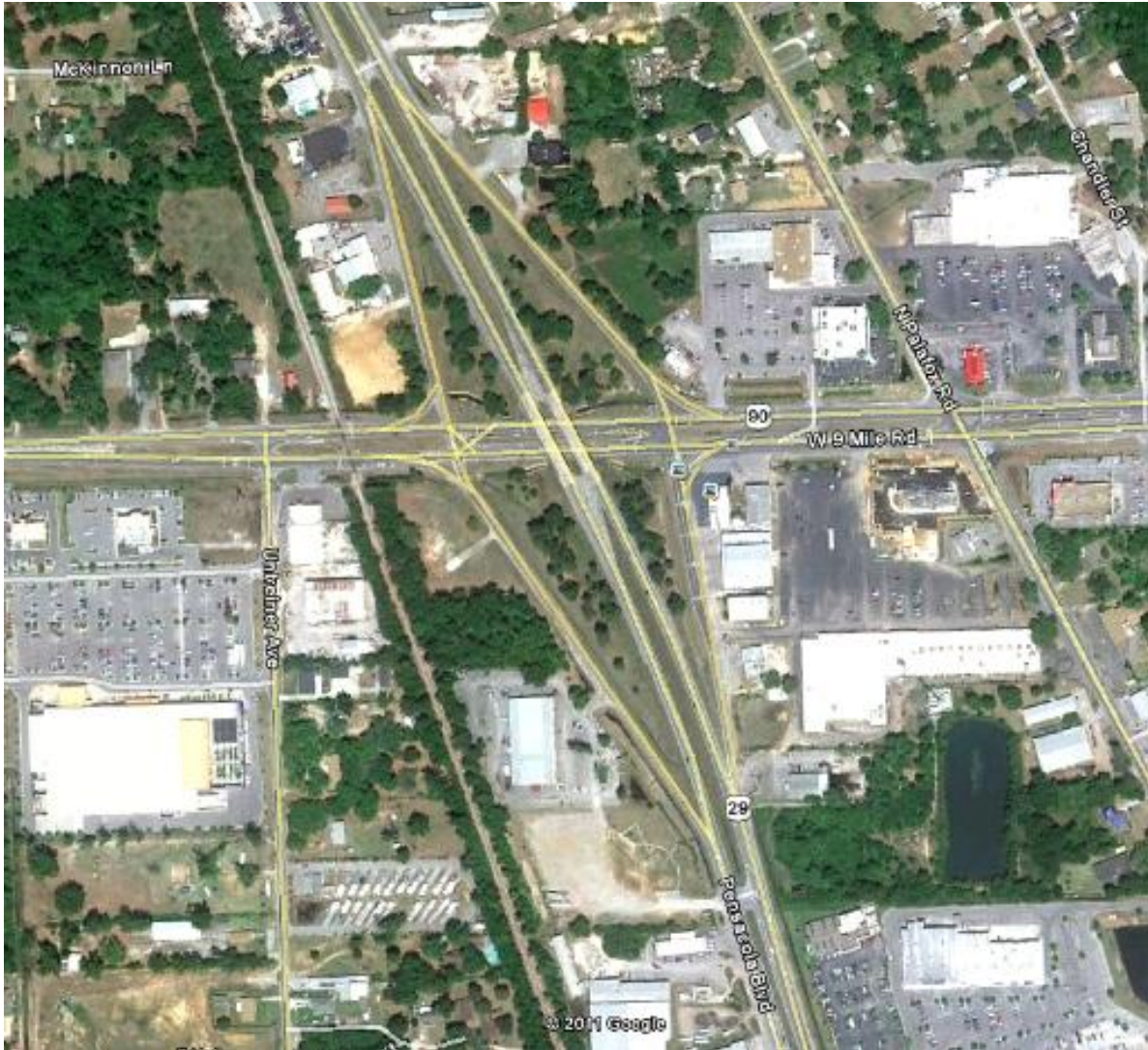
Aerial 4
W. Detroit Boulevard



**Aerial 5
W. Hood Drive**



Aerial 6
W. 9 Mile Road



**Aerial 7
E. 10 Mile Road**



**Aerial 8
E. Roberts Road**



**Aerial 9
E. Kingsfield Road**



**Aerial 10
Tate School Road**



Aerial 11
Old Chemstrand Road



APPENDIX 2
SCREENING CHECKLIST

APPENDIX 3

PHOTOS

Photo 1

Major and minor rutting at the northbound and southbound approaches to W. Burgess Road



Photo 2

Traffic signals at W. Burgess Road are mounted on mast arms



Photo 3

The curb at the southeast quadrant has been damaged by off-tracking at W. Burgess Road



Photo 4

The EOP at the southeast quadrant of W. Hood Drive is severely deteriorated and retains pooling water



Photo 5

The southeast quadrant at W. 10 Mile Road has curbing and sidewalk damage due to off-tracking vehicles



Photo 6

The southeast quadrant at W. 10 Mile Road has a damaged traffic signal strain pole



Photo 7

Corners at W. Roberts Road lack curbing. Sidewalks are damaged due to off-tracking.



Photo 8

The paved corner shoulders at all four quadrants of E. Kingsfield Road are damaged



Photo 9

The paved corner shoulders at all four quadrants of E. Kingsfield Road are damaged



Photo 10

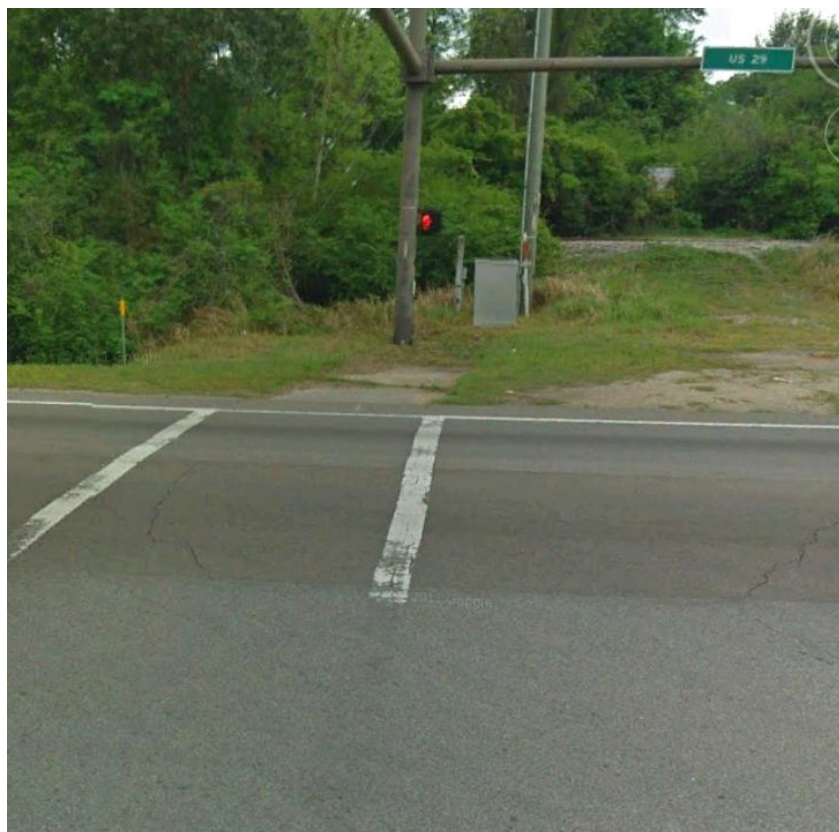
The northeast and southeast quadrants at Old Chemstrand Road has deep rutting of the soft shoulder and has damaged the concrete drain openings caused by off-tracking



Photo 11
Large truck stop at the southeast corner of Broad Street



Photo 12
The crosswalk across US 29 does not connect to land use that would justify signal activation features



N. Palafox Street (SR 95) from W. Leonard Street to Brent Lane

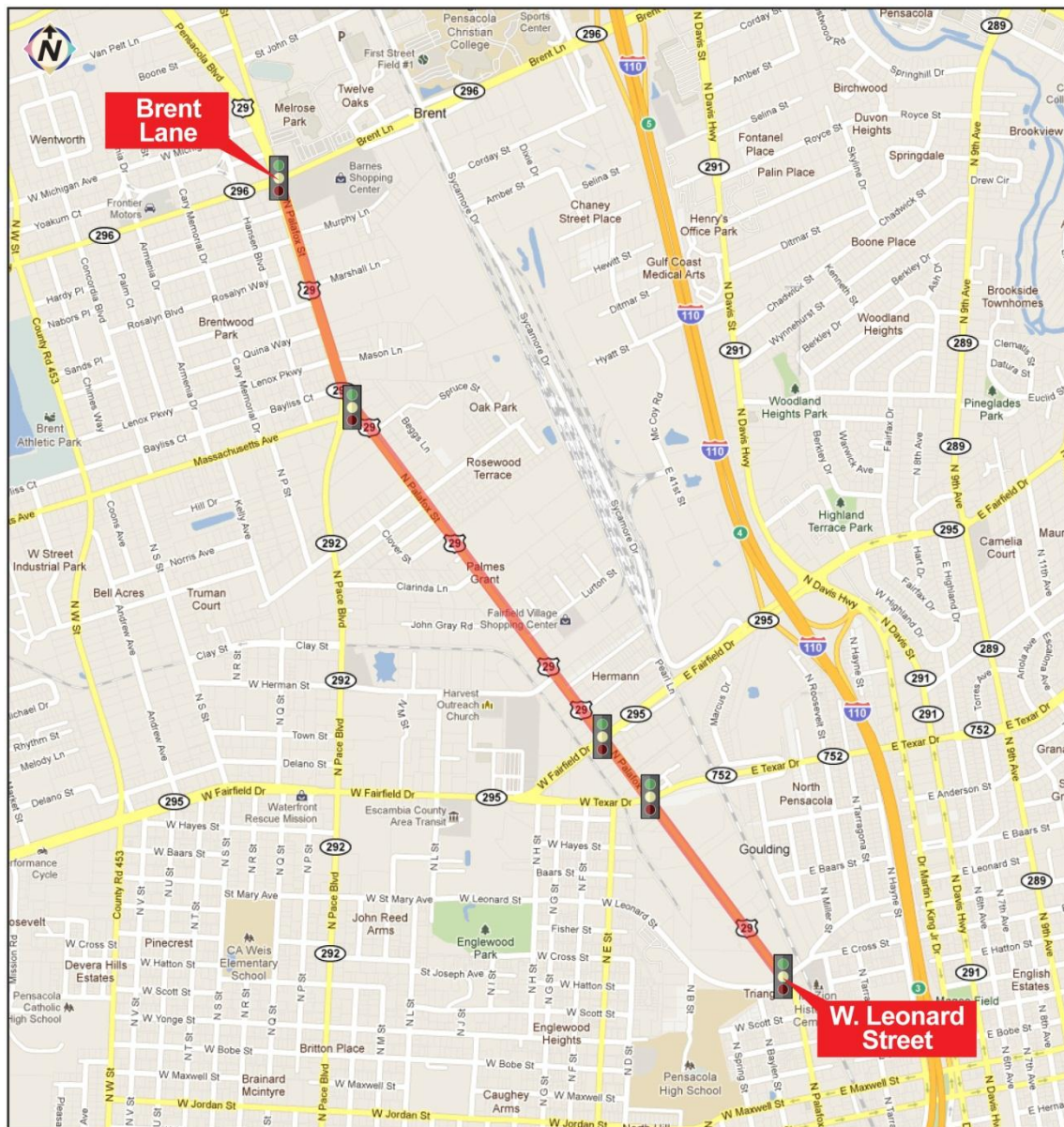
PRELIMINARY FREIGHT CORRIDOR SCREENING

N. Palafox Street (SR 95) from W. Leonard Street to Brent Lane

INTRODUCTION

A preliminary freight corridor screening evaluation was conducted on N. Palafox Street (SR 95) from W. Leonard Street to E. Brent Lane, located within the boundaries of the City of Pensacola in Escambia County, Florida, on October 3, 2011. This screening is part of a broader effort to screen a sample of the regional freight corridors as designated in the Regional Freight Network Plan: Highways of Commerce, adopted April 2010, for freight-related operational and physical issues. **Figure 1** shows the corridor location map and the segmentation used during the evaluation. The total distance of the corridor is 2.4 miles and includes five signalized intersections.

FIGURE 1
PROJECT LOCATION MAP



As shown in **Table 1** below, the project was divided into four segments.

**TABLE 1
PROJECT SEGMENTATION**

Segment	From	To	Distance (Miles)	Intersections	Signalized Intersections	Estimated Driveways
1	W. Leonard St.	W. Texar Dr.	0.6	2	2	14
2	W. Texar Dr.	W. Fairfield Dr.	0.2	1	1	6
3	W. Fairfield Dr.	Massachusetts Ave.	1.0	13	1	40
4	Massachusetts Ave.	E. Brent Ln.	0.6	9	1	24

RELEVANT FREIGHT-RELATED ISSUES

The freight-related issues associated with this corridor are as follows:

- Minor cracking at all approaches to W. Leonard Street.
- Minor rutting at W. Texar Drive and a developing pothole at the southeast corner along with curb damage from over-tracking vehicles.
- Major rutting at the southbound approach to E. Brent Lane with minor rutting on the northbound approach.
- Utility pole damage due to turning trucks at W. Texar Drive and W. Leonard Street.
- The concrete median bull nose on Beverly Parkway has been replaced due to damage caused by over-tracking vehicles.
- Right turn radii throughout the corridor contributes to over-tracking, which results in damage to the sidewalks and curbs.
- The northbound through lanes of N. Palafox Street contain a signalized stop condition that results in unnecessary delay to northbound trucks.
- Congestion is an issue throughout the corridor especially during the a.m. and p.m. peak periods.
- There are no telemetered traffic count locations along this corridor and the portable locations do not provide classification counts. All regionally-designated truck corridors should employ the use of classification counts to obtain an accurate assessment of the truck flows in the corridor.

PHYSICAL CHARACTERISTICS

General Characteristics

From W. Leonard Drive to Massachusetts Avenue is an urban five-lane typical section consisting of two through lanes in each direction with a fifth lane that is marked as a continuous two way left-turn lane for a distance of 1.8 miles. Approximately 300 feet prior to each signalized intersection, the left-turn lane is

striped as a directional dedicated left-turn lane. There are 5-foot paved shoulders in each direction striped as bike lanes and 5-foot sidewalks in each direction generally located immediately adjacent to the roadway curb. Minor side streets are offset and for T-intersections with N. Palafox Street. All side streets and driveways lead to industrial land uses located on both sides of the corridor. A large CSX rail yard is located east of the corridor with access provided by W. Fairfield Drive and Hickory Street. W. Fairfield Drive also provides access to I-110 approximately 0.5 miles to the east.

The intersection at Massachusetts Avenue is immediately south of the merging of N. Palafox Street with N. Pace Boulevard creating a complex intersection (see aerial in Appendix 1). From this intersection north to E. Brent Lane, the corridor changes to a six-lane divided suburban typical section with both landscaped and raised concrete medians. There are six median openings aligned with the minor side streets. There are no shoulders, bike lanes, or sidewalks in this segment.

The intersection at E. Brent Lane includes three through lanes, dual left-turn lanes, and a dedicated right-turn lane in the northbound direction and three through lanes and dual left-turn lanes in the southbound direction. E. Brent Lane includes two through lanes, a single left-turn lane, and a dedicated right-turn lane in each direction.

Signalized Intersections

As shown previously in Table 1 there are 25 intersections including five major signalized intersections along the corridor. The signalized intersections are listed below and aerial views are located in Appendix 1:

- W. Leonard Street
- W. Texar Drive
- W. Fairfield Drive
- Massachusetts Avenue/N. Pace Boulevard
- E. Brent Lane/Beverly Parkway

Pavement Condition

Overall, the pavement throughout the corridor is in average to good condition. There is minor cracking at W. Leonard Street (Segment 1) where the cross street meets N. Palafox Street in both direction. This problem could easily be maintained with crack filler to extend the life of the pavement and keep it from getting worse. There are also worn pavement markings on the northbound lanes.

There is minor rutting on the through lane approaches of N. Palafox Street at W. Texar Drive and on the approach on eastbound W. Texar Drive. The pavement at the southeast quadrant is damaged and contains a developing pothole (see Photo 1 in Appendix 3). Segments 2 and 3 have been improved and there is on-going construction. The pavement between W. Texar Drive and E. Brent Lane is in good condition.

Major rutting was noted on the southbound approaches to E. Brent Lane (see Photo 2 in Appendix 3) and minor rutting on the northbound approaches. Deep rutting is a problem for both trucks and other vehicles particularly during rainy conditions when water accumulated in the cracks. This can result in hydroplaning and increased stopping distance. The center of the intersection has been recently repaved and is in good condition.

Infrastructure

Traffic signals are mounted on strain poles at W. Leonard Street, W. Fairfield Drive, and Massachusetts Avenue. Mast arm mounted signals are located at W. Texar Drive and E. Brent Lane. Curb and gutter drainage is provided throughout the corridor.

There is a grass median between Massachusetts Avenue and E. Brent Lane that becomes a raised concrete median at the E. Brent Lane approach separating the dual northbound left-turn lanes from the southbound through lanes. There is also a narrow un-mountable concrete median separating the eastbound left-turn lanes from the westbound traffic on W. Fairfield Drive. A portion of this median was recently repaired with new concrete.

The strain pole located at the southeast corner at W. Leonard Street has been damaged by turning trucks (see Photo 3 in Appendix 3). There is also a damaged power pole at the northwest quadrant of N. Palafox Street immediately preceding the intersection with W. Texar Drive. This pole is located within the sidewalk, approximately 2 feet from the curb (see Photo 4 in Appendix 3). The location of the pole is also a detriment to wheelchairs, which do not have enough room to maneuver around the pole due to an adjacent parking lot. If possible, this pole should be relocated to the east side of the sidewalk. There is curb damage at both the northeast and southeast quadrants of W. Texar Drive.

Tire tracks were noted on the corner sidewalks at all quadrants of W. Fairfield Drive (see Photo 5 in Appendix 3). While the intersection was recently repaved, the infrastructure was not modified to accommodate trucks including the relocation of power poles adjacent to the roadway and intersection corners. Due to the high truck use not only on the main corridor, but also on all of the cross streets and side streets in this industrial area, future improvements should be designed to accommodate large truck turns that will minimize damage to the non-road infrastructure such as sidewalks, drainage curbs, and utility structures.

The intersection of N. Palafox Street, Massachusetts Avenue, and N. Pace Boulevard is the result of the merger of two major north-south corridors and a minor cross street (see Photos 6-10 in Appendix 3). The intersection includes both grass and concrete medians to channel traffic safely through the area (see aerial in Appendix 1).

At E. Brent Lane/Beverly Parkway, there are raised mountable concrete medians on all approaches except on E. Brent Lane. The median bull nose on Beverly Parkway and the stop bar should be pulled back similar to that on northbound and southbound N. Palafox Street. A similar angled stop bar should be placed on westbound E. Brent Lane (see aerial in Appendix 1). This will provide better geometry for trucks turning left from N. Palafox Street.

Land Use

The land uses within this corridor are as follows:

- From W. Leonard Street to Massachusetts Avenue, the entire corridor is bounded by light to heavy manufacturing and a CSX rail yard and municipal services facilities. North of Massachusetts Avenue, the corridor contains a mix of commercial and light manufacturing uses.
- The Pensacola Sanitation Department, Street and Traffic Division, and City Garage are located at the northwest quadrant of W. Leonard Street.
- The Palafox Industrial Park is located on the east side of the corridor with its main access point at Lurton Street.
- The New Hope Baptist church and the Bethel AME Church are both located at Pearl Street, north of W. Fairfield Drive on the east side of the corridor. The Brentwood Assembly of God and Calvary Bible Church are located at Virginia Way on the west side of the corridor. To the west of the corridor between Massachusetts Avenue and E. Brent Lane, are commercial uses with residential immediately behind.
- The Pensacola Christian Academy is located at the northeast quadrant of E. Brent Lane along with a CVS pharmacy and Walgreens pharmacy at the northwest and southwest quadrants, respectively, and a small strip center at the southeast quadrant. Brentwood Elementary Schools is located on the east side of the corridor a quarter mile north of Massachusetts Avenue.

Existing Right-of-Way

The roadway facility and sidewalks maximize the use of the existing right-of-way (ROW) and future expansion will not be possible without the purchase of additional land.

OPERATIONAL CHARACTERISTICS

Lane widths are accommodating to large trucks ranging between 11.5 and 12 feet throughout the corridor. However, corner radii at intersections along the corridor are not designed to accommodate large truck turning movements, especially during heavy congestion. Side streets leading into the industrial areas also lack sufficient turning radii for the large trucks that require access to this area. Physical issues that cause operational problems for trucks include the location of utility poles immediately next to the curbing and too close to corners. Damage was noted to many of the poles located on the corners due to trucks hitting them. Additionally, these infrastructure issues generally force trucks to make wide turns into multi-lane traffic, which is substantial along this corridor. This can impede the flow of traffic within the corridor and lead to additional congestion.

Trucks making wide right turns were noted from southbound N. Palafox Street to westbound W. Texar Drive. This is probably due to the slightly acute angle for this turning movement. Similar wide right turns were noted at N. Palafox Street and W. Fairfield Drive. In all cases, the receiving corridor contained two lanes, which mitigated these movements somewhat. However, damage was noted at all corners at W. Fairfield Drive indicating that there is still an issue and during congested conditions this additional lane may not be available to the trucks which accounts for the curb damage (see Photo 11 in Appendix 3).

Another physical issue that causes operational problems in the corridor is concrete bull noses that extend too close to the intersection. For example, the median at the eastbound approach of W. Fairfield Drive has been repaired, but the damage will reoccur as trucks continue to over-track across this median. A potential solution would be to pull the bull nose back a few feet and replace it with a painted median. This is especially important at intersections with double left turns, such as E. Brent Lane where both the median and the left-turn stop bars on the receiving street should be pulled back due to the possibility of two simultaneously turning trucks.

The intersections at N. Palafox Street with Massachusetts Avenue and N. Pace Boulevard would appear to present operational issues due to the number of vehicle conflict points. However, the field team noted that the signal progression has been adjusted to compensate for the physical arrangement. For example, the green condition at the northbound intersection of N. Pace Boulevard and N. Palafox Street is extended to allow vehicles beginning a left turn from Massachusetts Avenue to N. Palafox Street to complete the movement through two signals. However, there is still potential for delay on the northbound N. Palafox Street through movement due to a traffic signal that would be unnecessary with a few minor physical modifications of the geometry (described below) that would allow this to be a continuous non-stop movement.

The median separating the southbound and northbound lanes of N. Palafox Street at the northbound N. Pace Boulevard could be modified to allow for an additional northbound lane from N. Pace Boulevard (see **Figure 2**, Yellow). The two northbound lanes could be separated from the northbound N. Palafox Street lanes by delineators (see Figure 2, Red) for a distance to allow for safe merging of the northbound N. Pace Boulevard lanes into the inside northbound N. Palafox Street lanes where the typical section changes to three northbound lanes. This arrangement would permit the two northbound lanes on N. Palafox Street to operate in a non-stop condition (see Figure 2, Orange), reducing delay for trucks and other vehicles alike and allow for the shortening of the overall signal progression thus allowing more throughput on both the northbound and southbound directions of N. Pace Boulevard.

The southbound left-turn lane to Beggs Lane is too short and will only store a single truck. It would be better to remove this left-turn lane and add the additional length to the northbound left turn lane to Massachusetts Avenue. Beggs Lane would become right in/out only. Trucks wishing to make a left turn to access the industrial area to the east could use Hickory Street instead.

Traffic

Figures 3 and 4 show the overall (average annual daily traffic (AADT)) and the truck traffic (annual average daily truck traffic (AADTT)) along the corridor. The source of this information is the Florida Department of Transportation (FDOT) On-Line Traffic website for year 2010 data.

Between 11,500 and 25,000 vehicles per day (vpd) including 800 to 2,000 trucks per day (tpd) use N. Palafox Street making it one of the most congested north-south corridors in the County. The intersections of N. Palafox Street with W. Fairfield Drive and E. Brent Lane are the most congested as both of these cross corridors provide direct access to I-110 and carry more volume (25,000-35,000 vpd) including trucks (1,000 – 2,000 tpd)

FIGURE 2
N. PALAFOX STREET AT N. PACE BOULEVARD RECOMMENDED CHANGES



FIGURE 3
N. PALAFOX STREET AADT



Source: FDOT On-Line Traffic, 2010.

**FIGURE 4
N. PALAFOX STREET AADTT**



Source: FDOT On-Line Traffic, 2010.

NEARBY FREIGHT FACILITIES

The entire area between W. Leonard Street and Massachusetts Avenue is an industrial area that includes manufacturing sites as well as a major railroad yard. Major truck generators identified along the corridor by the field team include:

- CSX rail yard located east of the corridor between W. Fairfield Drive and E. Brent Lane.
- The City of Pensacola maintenance Garage and Sanitation departments located at the southwest quadrant of W. Leonard Street.
- Block USA located on the east side north of W. Leonard Street.
- Waste Management, Inc., recycling plant located north of W. Leonard Street.
- T & C Metals located north of W. Fairfield Drive, one block west of N. Palafox Street.

- Palafox Industrial Park located at Lurton Street.

PLANNED IMPROVEMENTS

There are no planned improvements for this corridor.

OTHER FACTORS

Safety

There are several churches, schools, and day care centers located along the corridor providing support to nearby low income neighborhoods. The portion of the corridor north of Massachusetts Avenue has no sidewalks or other pedestrian features to provide a safe walking or biking environment on a very busy trucking corridor. FDOT crash data for year 2009 indicated that there were between 11 and 25 vehicle crashes along the portion of the corridor between Massachusetts Avenue and E. Brent Lane.

RECOMMENDATIONS

The following improvements and maintenance fixes are recommended for this corridor:

- Perform preventive maintenance to seal the cracking at the approaches at W. Leonard Street. (FA11)
- If possible, relocate the position of the concrete traffic signal strain pole at the southeast corner of W. Texar Drive away from the center of the sidewalk and the corner to prevent damage from turning trucks. This pole also presents an operational issue for persons using wheelchairs. (FA12)
- On W. Texar Drive, east of N. Palafox Street restripe the two-way left-turn lane to delineate the left turn into the driveway from the left-turn lane to southbound N. Palafox Street. (FA13)
- At N. Palafox Street and Massachusetts Avenue/N. Pace Boulevard. Redesign the roadway and median north of the intersection with N. Pace Boulevard to include two northbound through lanes from N. Pace Boulevard that are separated from the two northbound N. Palafox Street lanes by delineators. This will allow for the northbound N. Palafox Street lanes to operate as continuous through lanes without a stop condition. (FA14)
- Consider removing the southbound left-turn lane at Beggs Lane and lengthening the northbound left-turn lane to Massachusetts Avenue. Add a southbound left-turn lane at Hickory Street to facilitate access to the industrial area east of the corridor. (FA15)
- At E. Brent Lane/Beverly Parkway. Pull back the concrete bull nose and replace with a striped median. Restripe the stop bars at an angle on westbound E. Brent Lane and eastbound Beverly Parkway similar to the striping of N. Palafox Street. This will allow left turning trucks more maneuvering room without interference from concrete medians and stopped vehicles too close to the intersection. (FA16)
- All future improvements to N. Palafox Street should include modifications to the turning radii and relocation of power poles and other infrastructure, where possible, to accommodate right turn truck movements. This includes all intersections in the industrial area south of Massachusetts Avenue. (FA17)

- Add sidewalks, cross walks, and other pedestrian safety features on both sides of N. Palafox Street between Massachusetts Avenue and E. Brent Lane. (FA18)
- Add permanently installed telemetered traffic count stations along the corridor and at major cross streets. Include vehicle classification as part of the data collection effort. (FA19)

APPENDICES

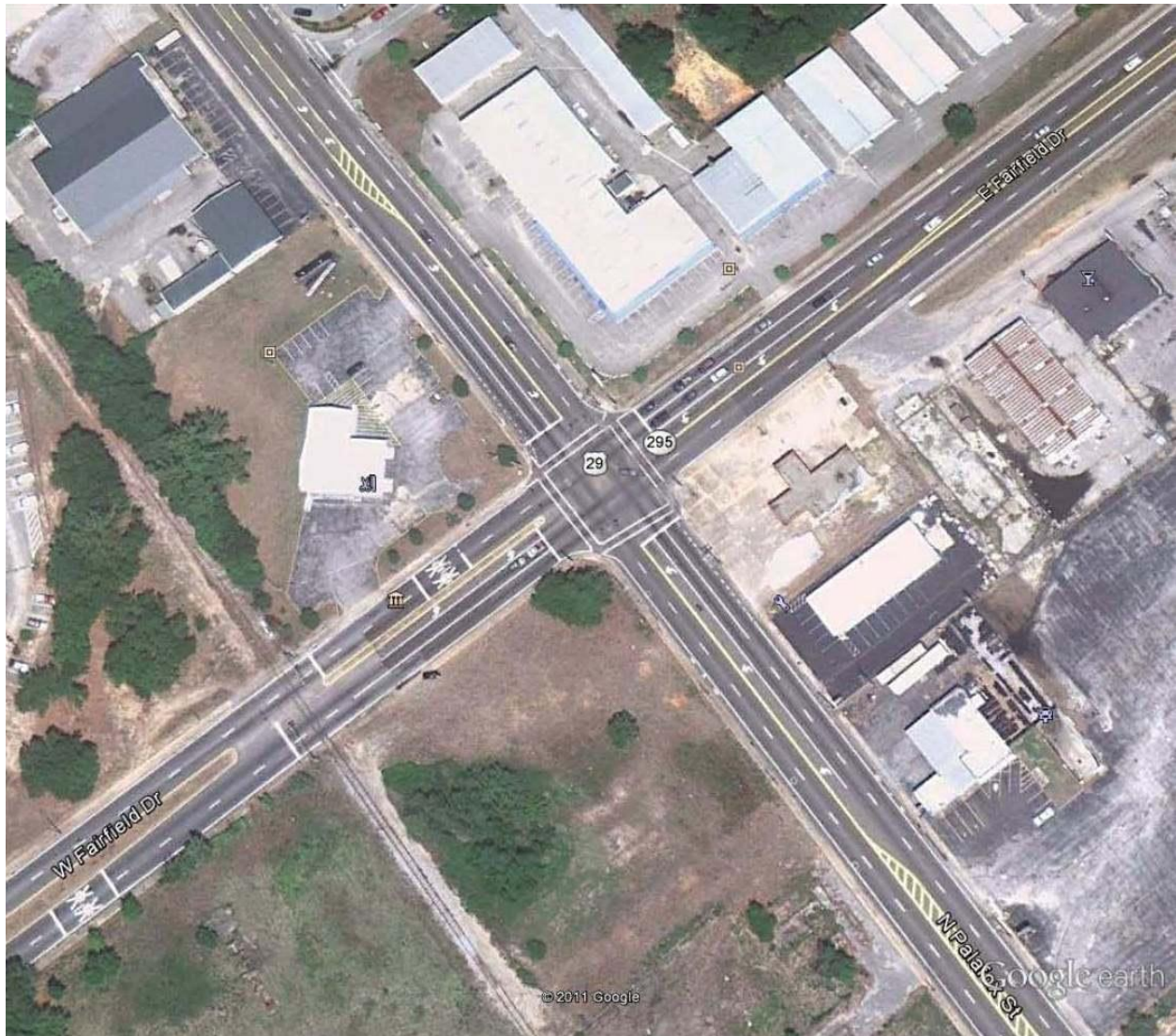
1. Intersection Aerials
2. Screening Checklist
3. Photos

APPENDIX 1
INTERSECTION AERIALS

Aerial 1
E. Brent Lane at N. Palafox Street



Aerial 2
W. Fairfield Drive at N. Palafox Street



Aerial 3
W. Leonard Street at N. Palafox Street



Aerial 4
Massachusetts Avenue at N. Palafox Street



Aerial 5
N. Pace Boulevard at N. Palafox Street



Aerial 6
W. Texar Drive at N. Palafox Street



APPENDIX 2
SCREENING CHECKLIST

APPENDIX 3

PHOTOS

Photo 1
Rough pavement and pothole southeast quadrant at W. Texar Drive



Photo 2
Rutting on southbound approaches to E. Brent Lane



Photo 3
Damaged pole at the southeast corner of W. Leonard Street



Photo 4
Poorly located utility pole is too close to the roadway. Location may also pose a safety issue for wheelchair-bound persons.



Photo 5
Tire tracks on recently modified pedestrian ramp on W. Fairfield Drive, similar conditions were noted at all quadrants



Photo 6
Truck northbound on N. Pace Boulevard at intersection of Massachusetts Avenue and N. Palafox Street



Photo 7
Eastbound left turn traffic on Massachusetts Avenue, crossing southbound N. Pace Boulevard and approaching turn at northbound N. Pace Boulevard



Photo 8
Southbound split of N. Palafox Street (center) to N. Pace Boulevard (left) northbound (N. Palafox Street at right)



Photo 9
Northbound N. Pace Boulevard



Photo 10
Truck on northbound N. Pace Boulevard merging with northbound N. Palafox Street



Photo 11
Damaged curb at W. Fairfield Drive due to over tracking



US 90 from Avalon Boulevard to SR 87 South

PRELIMINARY FREIGHT CORRIDOR SCREENING US 90 (SR 87 South to Avalon Boulevard)

INTRODUCTION

A preliminary freight corridor screening evaluation was conducted on US 90 from Avalon Boulevard (SR 281) to SR 87 South, located within the boundaries of Santa Rosa County, Florida, on October 18, 2011. This screening is part of a broader effort to screen a sample of the regional freight corridors as designated in the Regional Freight Network Plan: Highways of Commerce, adopted April 2010, for freight-related operational and physical issues. **Figure 1** shows the corridor location map and the segmentation used during the evaluation. The total distance of the corridor is 7 miles and includes 12 signalized intersections.

As shown in **Table 1**, the project was divided into four segments.

**TABLE 1
PROJECT SEGMENTATION**

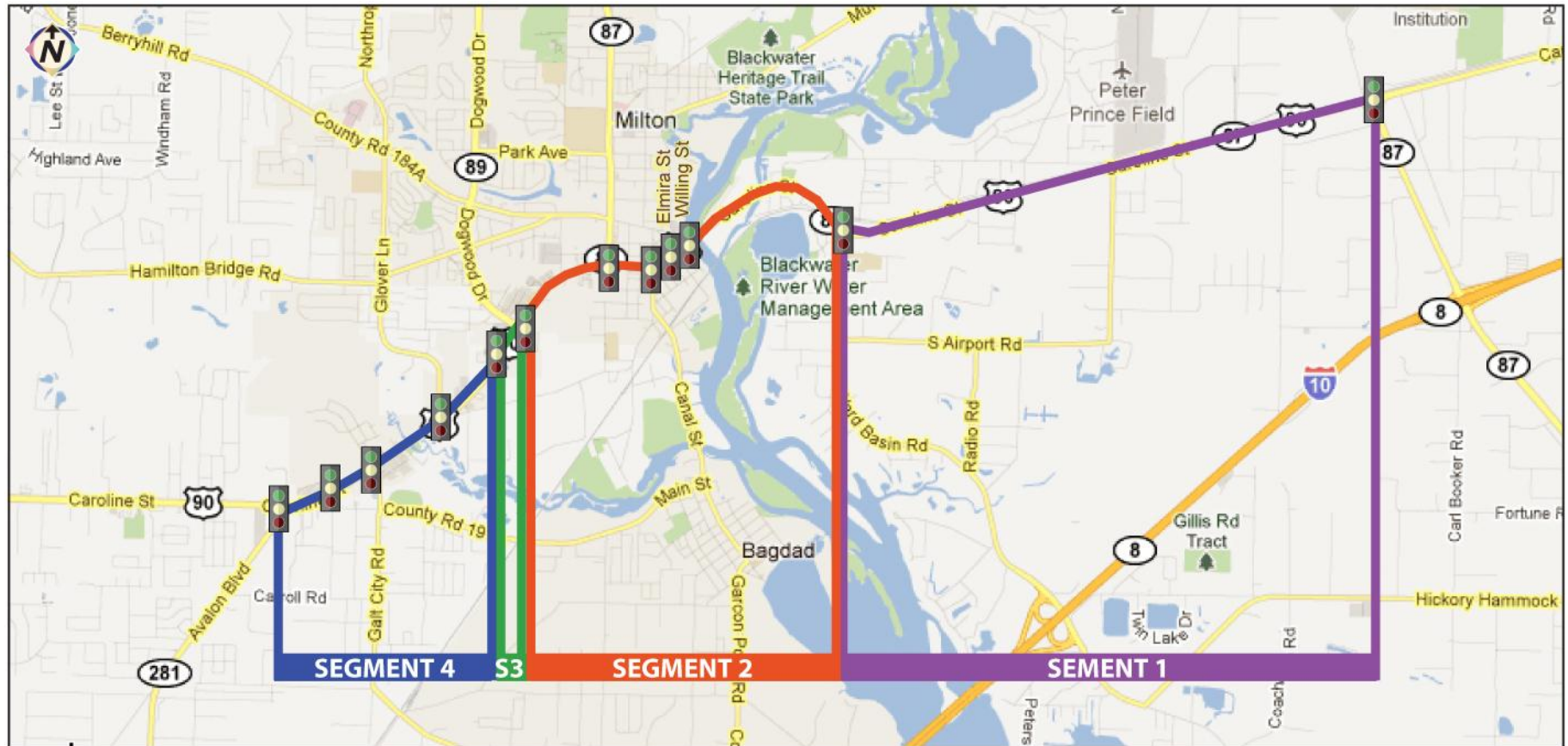
Segment	From	To	Distance	Intersections	Signalized Intersections	Estimated Driveways
1	SR 87 (south)	Ward Basin Rd.	3.1 mi.	8	1	38
2	Ward Basin Rd.	SR 87 (north) (Stewart St.)	1.6 mi.	12	4	11
3	SR 87 (north) (Stewart St.)	SR 89 (Dogwood Dr.)	0.6 mi.	2	1	37
4	SR 89 (Dogwood Dr.)	Avalon Blvd.	1.7 mi.	9	6	50

RELEVANT FREIGHT-RELATED ISSUES

The freight-related issues associated with this corridor are as follows:

- Congestion from west of SR 89 to Willing Street in Milton due to numerous signalized intersections, capacity reduction from four to two lanes, intense commercial use, and on-street parking in front of the courthouse results in truck delay. Currently, this corridor is the only route for northbound and southbound trucks on SR 87 from I-10 to the Alabama State Line.
- There are 11 intersections (seven signalized), 18 median openings, and 87 commercial driveways located between SR 87 (Stewart Street) and Avalon Boulevard, a distance of 2.3 miles. This results in a significant amount of uncontrolled crossing movements to commercial parcels that add to congestion, especially during the morning and evening peak periods.

**FIGURE 1
PROJECT LOCATION MAP**



PHYSICAL CHARACTERISTICS

General Characteristics

SR 87 (South) to Ward Basin Road

The intersection of SR 87 is a “T” intersection with a northbound to eastbound sweeping right-turn lane that intersects with US 90 500 feet east of the main intersection (see Aerial 1 in Appendix 1). There is an eastbound right-turn only lane that runs for 1,000 feet before sweeping right to join southbound SR 87 300 feet south of the intersection. There is also an 800-foot-long left-turn lane to E. Milton Road that serves a large emerging industrial area and prison complex. From SR 87 to Ward Basin Road, the mainline typical section is a rural two-lane highway with 4-foot paved shoulders and unsignalized left-turn lanes at Industrial Boulevard (see Aerial 2 in Appendix 1) and Airport Road. An 18-foot-wide brick paver multi-use trail, the Florida Historic State Road 1, (see Photo 1 in Appendix 3) runs parallel to, and between, the highway and the railroad right-of-way (ROW) (see Photo 2 in Appendix 3) from Red Brick Road to beyond SR 87.

Ward Basin Road to SR 87 (North) (Stewart Street)

At Ward Basin Road, a signalized intersection, there are two through lanes and a dedicated left-turn lane in the westbound direction and a single through lane with dedicated left- and right-turn lanes and a bike lane eastbound (see Aerial 3 in Appendix 1). There are sidewalks in both directions beginning 750 feet east of the intersection and continuing for about 2,000 feet to the west. There is a grade separated railroad crossing bridge (see Photo 3 in Appendix 3) located 700 feet west of the intersection that includes a barrier-separated sidewalk on the eastbound side. The typical section over the grade separation is four lanes undivided and narrows back to a two-lane typical with a left-turn lane to Bayou Drive and two lanes to Willing Street in Milton.

From Willing Street to SR 87 (Stewart Street), the typical becomes a two-lane urban typical with left-turn lanes at two signalized and two unsignalized intersections, curb and gutter drainage, and sidewalks on both sides. Between Willing Street and Elmira Street, there is angled on-street parking in the eastbound direction (see Aerial 4 in Appendix 1). Signalized intersections are located at Willing Street, Elmira Street, and Canal Street. A four-lane urban divided typical section with 25-foot landscaped medians begins just east of SR 87 (Stewart Street) at Bruner Street.

SR 87 (Stewart Street) to SR 89 (Dogwood Drive)

SR 87 (Stewart Street) forms a skewed “T” intersection with dual left-turn lanes in the eastbound and southbound approaches and dedicated westbound and southbound right-turn lanes (see Aerial 5 in Appendix 1). The right-turn lanes are separated from the through lanes by grassed islands with mountable concrete curbs and pedestrian sidewalks, crosswalks, and signals (see Photo 4 in Appendix 3). There are no sidewalks beyond the crosswalk across US 90 and the westbound right-turn lane connects to a 12-foot multi-use trail (see Aerial 5 in Appendix 1). There are no other sidewalks beyond the intersection. The typical section between SR 87 and SR 89 (Dogwood Drive) is four lanes divided with a 25-foot landscaped median, 4-foot paved shoulders, and no pedestrian facilities.

SR 89 (Dogwood Drive) forms a “T” intersection with US 90 (see Aerial 6 in Appendix 1). The intersection includes two through lanes in each direction on US 90, dual left-turn lanes in the eastbound to northbound direction, and a single left-turn lane in the westbound to southbound direction. There is a left-turn lane and combination left/through lane and a right-turn lane at the southbound approach of SR 89 separated by delineator posts. Opposite SR 89, is a driveway (see Photo 5 in Appendix 3) with a combination left through lane and a right-turn lane, as well as a right-turn lane from eastbound US 90. The entrance to the Santa Rosa County Government Center (County Center) is located at a signalized intersection 350 feet west of SR 89. There are two through lanes in each direction on SR 90, as well as two eastbound through lanes that serve as an extension of the dual left-turn lanes at SR 89 and single left-turn lanes in each direction on US 90. There is also an eastbound right-turn lane into the County Center.

SR 89 (Dogwood Drive) to SR 281 (Avalon Boulevard)

From SR 89 (Dogwood Drive) to SR 281 (Avalon Boulevard) the typical section continues as a rural four-lane divided facility with 25-foot grassed medians (no curbs) (see Photo 6 in Appendix 3), 4-foot paved shoulders, no sidewalks, and open drainage. There are signalized intersections at Glover Lane and at Parkmore Plaza Drive/Jamiee Leigh Drive and the entrance to the K-Mart shopping plaza.

Glover Lane (see Aerial 7 in Appendix 1) forms an acute intersection with westbound US 90 and leads back to a small mixed-use light industrial/commercial area and a large residential area. Glover Lane includes left- and right-turn lanes at the southbound approach with the right lanes separated from the other lanes by painted islands. The eastbound inside receiving lane includes a wide paved striped shoulder that serves as a short merge lane for trucks and keeps the off-tracking on a paved surface. Immediately east of the intersection, Old US 90 branches off to the east and connects to the westbound US 90 lanes via an unsignalized median opening (see Aerial 7 in Appendix 1). Approximately 450 feet to the west, there is a dedicated left-turn lane that provides access to Mayo Park, located on the south side of the corridor.

The signalized intersection at Parkmore Plaza Drive/Jamiee Leigh Drive includes two through lanes and dedicated left- and right-turn lanes in both directions on US 90. Northbound Parkmore Plaza Drive has a right-turn lane and a single through lane (see Aerial 8 in Appendix 1). Jamiee Leigh Drive is the entrance to a large residential area to the north.

The K-Mart plaza located on the north side of the corridor has two entrances, one of which is signalized with a dedicated eastbound left-turn lane and dedicated right-turn lane entering and exiting the plaza separated from the other lanes by painted islands. There are crosswalks across the entrance road, as well as across US 90 on the east side of the intersection. There are no enhanced pedestrian features. The second entrance is a right in/out only driveway with a dedicated right-turn lane leading to the entrance in the westbound direction.

SR 281 (Avalon Boulevard) forms an off-set intersection with the entrance to Pensacola State College on the north side of the corridor (see Aerial 9 in Appendix 1). US 90, at this intersection, includes two through lanes in each direction, as well as dual westbound left-turn lanes and a single eastbound left-turn lane. This off-set will be corrected as part of the reconstruction that includes a realignment of the lanes on the north side of the intersection (see Photo 7 in Appendix 3). SR 281 (Avalon Boulevard) includes

two right-turn lanes separated from a dual left/through lane by a 4-foot bicycle lane. Immediately south of US 90, Old Bagdad Highway branches to the east from a right in/out only intersection 125 feet south of the main highway. Additionally, there is a right in/out only connector from US 90 eastbound to Old Bagdad Highway located 450 feet east of the intersection. The offices of the Santa Rosa County Planning and Zoning Department, the Building Maintenance Department, and the Santa Rosa Bay Bridge Authority are located in this area.

Pavement Condition

The pavement is in generally good condition throughout the corridor with some minor rutting on the through lanes and the left-turn lanes at the approaches to the intersections on US 90. The pavement condition on Industrial Boulevard at the intersection of US 90 is in poor condition with patches at the corners and cracking in the intersection. Additionally, a brick paver multi-use trail that crosses Industrial Boulevard between US 90 and the parallel railroad crossing is in bad condition and in need of repair at both Industrial Boulevard and N. Airport Road. Industrial Boulevard leads into a developing regional industrial center that will become a major truck generator in the area (see Photo 8 in Appendix 3). There is minor rutting in the eastbound and westbound through lanes west of N. Airport Road. The downtown area was recently repaved from Willing Street to Bruner Street and is in excellent condition. The intersection at SR 281 (Avalon Boulevard) was under construction (see Photo 9 in Appendix 3) at the time of the field study, which will result in new pavement in this area.

Infrastructure

There are four bridges located along the corridor, three of which span narrow bodies of water and one which spans a railroad ROW. The bridge to the west of Mayo Park is a dual-span bridge with two lanes and a 4-foot paved shoulder on each span. The railroad grade separation is a four-lane single-span bridge and the remaining two bridges are two-lane single-span structures.

There are 12 signalized intersections, of which only four have mast arm mounted signals. **Table 2** shows which intersections have mast arm mounted signals and which intersections have strain pole mounted signals.

**TABLE 2
TRAFFIC SIGNAL INFRASTRUCTURE**

Mast Arm Mounted Signals	Strain Pole Mounted Signals
Canal Street	SR 87
SR 87 (Stewart Street)	Ward Basin Road
K-Mart Plaza Entrance	Willing Street
SR 281 (Avalon Boulevard)	Elmira Street
	SR 89 (Dogwood Drive)
	County Center Entrance
	Glover Lane
	Parkmore Plaza Drive

At the intersection of Ward Basin Road, the southeast and southwest corners show signs of off-tracking by trucks. The northbound to eastbound right turn is acute, causing trucks to off-track in order to make the right turn due to the single receiving lane (see Photo 10 in Appendix 3). At the southeast corner, damage may be caused by gasoline and delivery trucks turning into the gas station driveway immediately south of the corner (see Photo 11 in Appendix 3).

Sidewalks are located in Milton from Willing Street to Mary Street (see Photo 12 in Appendix 3) and for approximately 2,100 feet along the south side of US 90 from SR 87 (south) to the west. There are sidewalks on both sides from 800 feet east of Ward Basin Road to 2,100 feet west of Ward Basin Road. There are no other pedestrian facilities except at some of the signalized intersections. Landscaped medians with curb and gutters extend from Bruner Street to 1,200 feet west of SR 89 (Dogwood Drive).

The sidewalk on the north side of US 90, at the northwest corner of Canal Street, has been damaged and replaced. Additionally, the sidewalk at the southeast corner has also been damaged by turning trucks.

The southeast and southwest corners of Parkmore Plaza Drive are severely rutted on the soft shoulders (see Photo 13 in Appendix 3). Parkmore Plaza Drive becomes Galt Road to the south and eventually provides access to a large mining area and the County landfill located on Da Lisa Road. Truck counts are not available on this road, but it is suspected Parkmore Plaza Drive is heavily used by trucks.

There is a drainage issue resulting in ponding at the median opening across from Old US 90, 180 feet east of the Glover Lane intersection. The water does not appear to be flowing into the median drainage swale and should be corrected.

The intersection of SR 281 (Avalon Boulevard) and US 90 was under construction at the time of the field review.

Land Use

From SR 87 to N. Airport Road the north side of the corridor is industrial (see Photo 14 in Appendix 3) and includes a prison facility (see Aerial 10 in Appendix 1). The south side of the corridor is rural residential, which continues westward to Milton on both sides of the corridor. The remainder of the corridor is developed as intense commercial and is lined with various businesses and shopping plazas, as well as government facilities and a college campus. No change is expected from the current uses in the future.

Existing Right-of-Way

The existing ROW ranges from 50 feet in Milton between SR 87 (Stewart Street) and Willing Street to 150 feet from SR 87 (Stewart Street) to SR 281 (Avalon Boulevard). Between Willing Street and SR 87 (south) the ROW varies between 84 and 90 feet with small segments ranging from 120 to 227 feet. Aside from the narrow ROW in the eastern portion of Milton, there is sufficient room to increase capacity on the facility within the existing limits as needed.

OPERATIONAL CHARACTERISTICS

The entire corridor within Milton is extremely congested between Willing Street and Avalon Boulevard. There are eight intersections, including four signalized intersections, between Willing Street and SR 87 (Stewart Street), a distance of 0.5 miles. Adding to the congestion in this area is on-street parking located between Willing Street and Elmira Street (see Aerial 4 in Appendix 1).

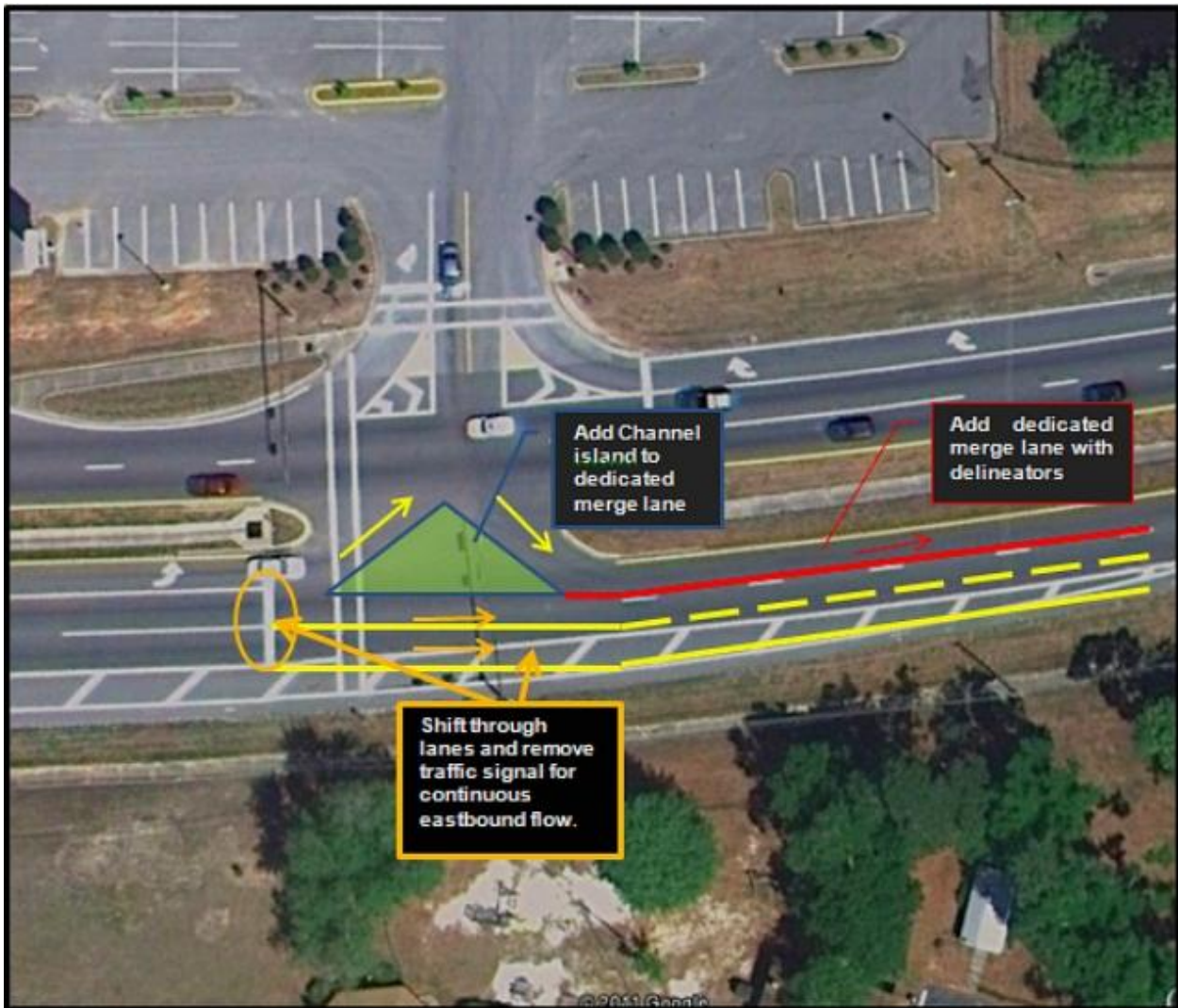
Canal Street, south of US 90, provides connectivity to I-10 at an interchange at Garcon Point Road. Approximately 480 trucks per day (tpd) use this facility to access SR 87 and SR 89 north of US 90. The general truck movement at Canal Street and US 90 is to/from the west. The northbound to westbound left turn is problematic for large trucks due to the skewed and narrow single receiving lane and the location of the stop bar for the eastbound left-turn lane. This results in off-tracking and damage to the sidewalk on the north side of US 90, which was recently replaced. Likewise, the eastbound to southbound right-turn corner has been damaged as well.

The number of vehicles and trucks on the corridor increases significantly between SR 87 (Stewart Street) and Avalon Boulevard (see traffic below). Although this section of the corridor is four lanes with a median and dedicated turn lanes at the major intersections, there are 11 side streets and 87 commercial driveways, as well as 19 median openings along this segment that contribute to the overall congestion and result in inefficient truck operations and delay.

The intersection of SR 89 (Dogwood Drive) is congested during the morning and evening peak periods. SR 89 provides access to the Whiting Naval Air Station (NAS Whiting), located north of Milton, to significant large areas of residential communities and is the main highway north to Alabama and is also a designated hurricane route. Adding to the congestion, is a traffic signal located at the entrance to the County Center 350 feet west of SR 89 (see Aerial 6 in Appendix 1). This signalized intersection acts to divide the length of the dual left-turn lanes at SR 89 into two segments. The eastbound to northbound left-turn signal cycle is 31 seconds followed by a 4-second yellow condition, which is not long enough to clear the queue. There is a "Do Not Block Intersection" sign located on the concrete median at the east side of the intersection leading to the County Center. This sign should be relocated to the median on the eastbound approach to this intersection, as well as hung from the signal cables above the intersection. An enhanced solution would be to add pavement markings on the dual turn lanes within the intersection. In addition, an intersection modification study should be performed at SR 89 to see if changes can be made to improve the level of service at this intersection. The signal at the County Center is vehicle activated, which reduces the number of times the signal turns red for US 90.

The signalized "T" intersection located at the entrance to the K-Mart Plaza should be modified to permit uninterrupted through traffic in the eastbound direction (see **Figure 2**). This can be accomplished by adding an island within the median opening to channel the left-turn traffic from the plaza to a new dedicated acceleration/merge lane on US 90 separated from the through lanes by a raised curb median or delineators. This would eliminate one signalized stop condition for eastbound traffic between Avalon Boulevard and Parkmore Plaza Drive, a distance of 0.5 miles.

**FIGURE 2
INTERSECTION MODIFICATIONS
KMART PLAZA**



Traffic

As shown in **Table 3** and **Figures 3 and 4** the 2010 average annual daily traffic (AADT) ranges from 13,000 to 19,700 vehicles per day (vpd) on US 90 between SR 87 and SR 87 (Stewart Street). The average annual truck traffic (AADTT) in the same area ranges from 865 to 910 tpd. West of SR 87 (Stewart Street), the total traffic increases to between 26,000 and 38,000 vpd, while the truck traffic increase to 914 to 1,292 tpd.

**TABLE 3
TOTAL VEHICLES AND TOTAL TRUCKS**

Segment	From	To	AADT	AADTT	Percent Trucks
1	SR 87 (south)	Ward Basin Rd.	13,000 – 14,000	865 - 910	6.7 – 6.5
2	Ward Basin Rd.	SR 87 (north) (Stewart St.)	19,700	914	4.6
3	SR 87 (north) (Stewart St.)	SR 89 (Dogwood Dr.)	26,000	1,121	4.3
4	SR 89 (Dogwood Dr.)	Avalon Blvd.	38,000	1,292	3.4

**FIGURE 3
US 90 AADT**



Source: Florida Department of Transportation (FDOT) Traffic On-Line (2010).

**FIGURE 4
US 90 AADTT**



Source: FDOT Traffic On-Line (2010).

NEARBY FREIGHT FACILITIES

The Airport Industrial Park is primary freight generator along US 90 (see Photo 14 in Appendix 3). It is located between SR 87 and Ward Basin Road. The area is characterized as emerging with lots of room for future expansion and the addition of new facilities within its boundaries.

NAS Whiting is a training base located north of Milton on SR 87/SR 89. Most trucks trips generated by this facility are inbound supply vehicles that serve the various facilities on the Base and bring aviation fuel for the assigned aircraft and gas and diesel fuel for other vehicles.

There is a large industrial area to the south located off Parkmore Plaza Drive/Galt Road/Da Lisa Road and along Avalon Boulevard that includes light manufacturing, aggregate mining, cement manufacturing, and the County landfill.

PLANNED IMPROVEMENTS

There is currently an intersection improvement under construction at SR 281 (Avalon Boulevard) and US 90 (see Photo 15 in Appendix 3).

RECOMMENDATIONS

The recommendations for these intersections are:

- Conduct an intersection study that includes SR 89 and the signalized entrance to the County Center. (FA20)
- Consider closing some median openings and creating directional openings with left-turn lanes at key locations in order to reduce the number of vehicles crossing the through lanes. (FA21)

- Add a “Do Not Block Intersection“ sign to the approach side median of eastbound US 90 or from the signal cables to warn drivers using the extended left-turn lanes not to stop in the intersection. (FA22)
- Consider adding “No Trucks” signs at the following side streets (FA23):
 - Willing Street
 - Elmira Street
 - Santa Rosa Street
 - Martin Luther King Jr. Drive
 - Mary Street
 - Bruner Street
- Prohibit through trucks on Old US 90. This is a residential street and should not be used by trucks as a by-pass. (FA24)
- Evaluate the potential modification of the signalized intersection at the K-Mart Plaza entrance (see Figure 2) to channel left-turn traffic exiting the plaza to a dedicated merge lane on US 90. This will allow the eastbound through traffic to proceed through the intersection without stopping for a signal and improve the traffic flow in this area. (FA25)

APPENDICES

1. Intersection Aerials
2. Screening Checklist
3. Photos

APPENDIX 1
INTERSECTION AERIALS

Aerial 1
SR 87 (south) at US 90



Aerial 2
Industrial Boulevard at SR 90



Aerial 3
Ward Basin Road at US 90



Aerial 4
Elmira Street and Willing Street at US 90



Aerial 5
SR 87 (Stewart Street) at US 90



Aerial 6
SR 89 (Dogwood Drive) at US 90



Aerial 7
Glover Lane at US 90 and Old US 90



Aerial 8
Parkmore Plaza Drive at US 90



Aerial 9
SR 281 (Avalon Boulevard) and Old Bagdad Road at US 90



**Aerial 10
Airport Industrial Area**



APPENDIX 2
SCREENING CHECKLIST

APPENDIX 3

PHOTOS

Photo 1
Airport Road at US 90 showing brick paver trail and railroad crossing



Photo 2
Train crossing Industrial Boulevard, south view



Photo 3
Approach to grade-separated railroad bridge west of Ward Basin Road



Photo 4
US 90 at SR 87 (Stewart Street) channelized right turn with grass island



Photo 5

View south from SR 89 toward signalized driveway to CVS pharmacy. Driveway also provides alternate access to the County Center.



Photo 6

SR 90 looking west from SR 89 showing typical section and grass median



Photo 7
New construction at Avalon Boulevard



Photo 8
Truck leaving the Industrial Park at the Airport Road/US 90/SR 87 intersection



Photo 9
US 90 looking east from Avalon Boulevard



Photo 10
US 90 looking downtown from east of Stewart Street (east view) showing sidewalks and antique looking fixtures



Photo 11
Northbound to eastbound right turn at Ward Basin Road showing tire marks from truck off-tracking



Photo 12
Truck making right turn from eastbound US 90/SR 87 at Ward Basin Road. Gas Station is located on the left.



Photo 13

Aerial view of Parkmore Plaza Drive showing damaged soft shoulders. Parkmore Plaza Drive becomes Galt Road and leads to a large mining and landfill area to the south.



Photo 14

Marquee to the Santa Rosa Industrial Park

