PRELIMINARY ENGINEERING REPORT

Florida Department of Transportation
District One

US 92
From County Line Road to Wabash Avenue
Polk County, Florida

ETDM No.: 3192
Financial Project ID: 433558-1-22-01
Federal Aid Project No.: TBD

This preliminary engineering report contains detailed engineering information that fulfills the purpose and need for project US 92 from County Line Road to Wabash Avenue in Polk County.

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. §327 and a Memorandum of Understanding (MOU) dated December 14, 2016 and executed by the Federal Highway Administration and FDOT.

1/31/18
Date

ERIK J. FLEMING
LICENSE
No. 56685
STATE OF
Erik J. Fleming, P.E.
PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER CERTIFICATE

I hereby certify that I am a registered professional engineer in the State of Florida practicing with **AIM Engineering & Surveying, Inc.**, and that I have supervised the preparation of, and approved the analysis, findings, opinions, conclusions, and technical advice reported in:

REPORT:	Preliminary Engineering Report
PROJECT:	US 92 PD&E Study
LOCATION:	Polk County, Florida
FINANCIAL PROJECT ID.:	433558-1-22-01
CLIENT:	Florida Department of Transportation – District One District Environmental Management Office

The following duly authorized engineering business performed the engineering work represented by this report:

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Florida Certificate of Authorization: 3114

This preliminary engineering report contains detailed engineering information that fulfills the purpose and need for the US 92 PD&E Study from County Line Road to Wabash Avenue in Polk County, Florida.

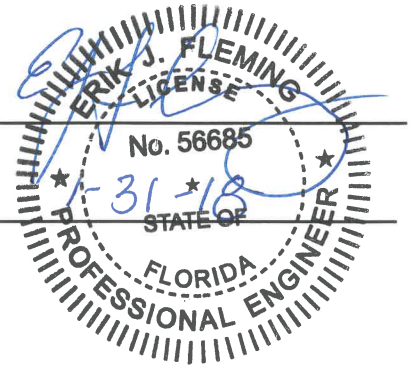
I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering as applied through design standards and criteria set forth by the federal, state, and local regulatory agencies as well as professional judgment and experience.

Name: Erik J. Fleming, P.E.

Signature: _____

P.E. Number: 56685

Date: 7-31-18



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SECTION 1.0 SUMMARY OF PROJECT

This preliminary engineering report contains detailed engineering information that fulfills the purpose and need for project US 92 from County Line Road to Wabash Avenue in Polk County.

1.1 Project Description

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) study to evaluate the proposed widening of US 92 from County Line Road to Wabash Avenue in Polk County. The purpose of the PD&E study is to evaluate engineering and environmental data and document information that will aid Polk County, FDOT, and the Office of Environmental Management (OEM) in determining the type, preliminary design and location of the proposed improvements. The study was conducted in order to meet the requirements of the National Environmental Policy Act (NEPA) and other related federal and state laws, rules and regulations. This preliminary engineering report contains detailed engineering information that fulfills the purpose and need for project US 92 from County Line Road to Wabash Avenue in Polk County. The project limits are shown in **Figure 1-1** and the total project length is approximately 4.1 miles.

Figure 1-1 Project Location Map

US 92 is classified as an Urban Other Principal Arterial that extends from County Line Road to Wabash Avenue in Polk County, and the majority of the existing right-of-way (ROW) width is 100 feet. US 92 is a two-lane undivided facility with 12-foot travel lanes (one in each direction) and 12-foot shoulders (5-feet paved). Stormwater runoff is collected in roadside swales. With the exception of the west leg of the Wabash Avenue intersection and along the Family Dollar property, there are no existing pedestrian facilities on US 92 within the project limits. The posted speed limit for the portion of US 92 between County Line Road and Airport Road/Galloway Road is 55 miles per hour (mph), while the posted speed limit for the portion between Airport Road/Galloway Road and Wabash Avenue is 45 mph.

There are four bridges and seven culverts within the project limits. Two of the bridges are concrete flat slab bridges. Bridge No. 160117 is located over Hamilton Branch while Bridge No. 160026 is located over Winston Creek. Both of these structures are considered to be functionally obsolete due to their substandard shoulder width and non-crash tested barriers. The other two bridges (No. 160241 and No. 160242) are single span concrete AASHTO beam bridges that carry the Polk Parkway (SR 570) over US 92 just to the west of Clark Road. Both of these bridges are in good condition. The seven culverts range in size from 24-inch diameter pipes to an 8-foot by 3-foot concrete box.

1.2 Purpose and Need

The purpose of this project is to increase the capacity of US 92 from County Line Road to Wabash Avenue in order to achieve an acceptable Level of Service (LOS) on the facility in the future condition. While the roadway currently operates at an acceptable LOS, conditions will deteriorate below standards if no improvement occurs by 2035 as the roadway will have insufficient capacity to accommodate the projected travel demand. The need for the project is based on the following primary and secondary criteria:

Primary Criteria

Capacity/Transportation Demand: Improve Level of Service

The project is anticipated to improve traffic operations along US 92 by increasing operational capacity to address future travel demand and congestion projected as a result of both population and employment growth and increased regional travel within the project corridor and Polk County.

Based on Zdata derived from the Polk County Transportation Model for Traffic Analysis Zones encompassing the project corridor:

- Population is projected to grow from 10,967 in 2007 to 23,019 in 2035 (3.9% annual growth).
- Employment is projected to grow from 6,771 in 2007 to 16,260 in 2035 (5.0% annual growth rate).

This growth may be attributed to the number of active and proposed Developments of Regional Impact and Planned Unit Developments present in western Polk County and eastern Hillsborough County.

Likewise, according to the 2010 U.S. Census Bureau data and projections developed for Polk County as part of the Polk Transportation Planning Organization's (TPO) 2035 Mobility Vision Plan [the Polk TPO's Long Range Transportation Plan (LRTP)]:

- Population is projected to grow from 602,095 in 2010 to 1,032,274 in 2035 (2.9% annual growth rate).
- Employment is projected to grow from 243,351 in 2010 to 472,710 in 2035 (3.8% annual growth rate).

The existing and future traffic conditions for the US 92 project corridor are as follows:

- Existing Conditions-
  US 92 Roadway Segment/ 2012 AADT (1)/ 2012 Truck AADT (1)/ 2012 LOS (2)
  - County Line Road to SR 570 [2 Lanes Undivided]/ 9,100/ 1,329 (14.6%)/ C
  - SR 570 to Airport Road [2 Lanes Undivided]/ 9,600/ 1,152 (12.0%)/ C
  - Airport Road to Wabash Avenue [2 Lanes Undivided]/ 15,000/ 1,620 (10.8%)/ C

- Future Conditions (No-Build)-
  US 92 Roadway Segment/ 2035 AADT (3)/ 2035 Truck AADT (4)/ 2035 LOS (2)
  - County Line Road to SR 570 [2 Lanes Undivided]/ 34,400/ 5,022 (14.6%)/ F
  - SR 570 to Airport Road [2 Lanes Undivided]/ 26,700/ 3,204 (12.0%)/ F
  - Airport Road to Wabash Avenue [2 Lanes Undivided]/ 37,100/ 4,007 (10.8%)/ F

- Future Conditions (Build)-
  US 92 Roadway Segment/ 2035 AADT (3)/ 2035 Truck AADT (4)/ 2035 LOS (2)
  - County Line Road to SR 570 [4 Lanes Divided]/ 34,400/ 5,022 (14.6%)/ C
  - SR 570 to Airport Road [4 Lanes Divided]/ 26,700/ 3,204 (12.0%)/ C
  - Airport Road to Wabash Avenue [4 Lanes Divided]/ 37,100/ 4,007 (10.8%)/ C

Sources:

(1) 2012 AADT volumes and 2012 Truck AADT volumes (calculated from 2012 Truck Percentages) derived from 2012 FDOT Florida Transportation Information.

(2) LOS derived from the FDOT 2012 Quality/Level of Service Handbook: Generalized Annual Average Daily Volumes – Table 1 Sate Signalized Arterials – Class I.

(3) 2035 AADT volumes derived from the 2035 Cost Feasible Network of the Polk County Transportation Model.

(4) 2035 Truck AADT volumes are based on the assumption that future truck traffic percentages are consistent with the 2012 existing percentages.

Without the proposed widening, the volume-to-capacity ratio for the project segment will exceed 1.25. It is important to note that a roadway is deemed deficient if the volume-to-capacity ratio

exceeds 0.9 as it has surpassed its designated service volume and LOS standard. As such, conditions along the roadway will continue to deteriorate resulting in LOS F by year 2035; in turn, this will contribute to high levels of congestion and delays. The proposed improvement is anticipated to meet the mobility needs of the area by alleviating future congestion on the corridor and maintaining important east-west access between Hillsborough County and Polk County.

SECONDARY CRITERIA

AREA WIDE NETWORK/SYSTEM LINKAGE: Improve Traffic Mobility and Transportation Network Access

Classified as an Urban Other Principal Arterial, the US 92 corridor provides access between the downtown Lakeland area and industrial developments/freight activity centers concentrated in western Polk County (such as the West Lakeland Industrial Area) and eastern Hillsborough County. Given the presence of the City of Lakeland Enterprise Zone immediately east of the project, the area surrounding the corridor is composed primarily of industrial and commercial activities (including the Publix Industrial/Regional Distribution Center, Rooms To Go, Advance Auto Parts, and Ruthven Commerce Center). In addition, three Planned Unit Developments and two Developments of Regional Impact (Flagler/Lakeland Central Park and Publix Corporate Headquarters) are located to the west and south of the project. The Lakeland Linder Airport is also located to the south. Further, a CSX rail line runs parallel to the US 92 corridor.

As this roadway connects to other regional transportation network facilities (such as County Line Road, SR 570, Airport Road, and eventually I-4), it is critical in facilitating the east-west movement of local and regional traffic (including truck traffic as a designated truck route of Polk County and regional freight mobility corridor of Central Florida); it also provides parallel east-west service to I-4 in northern Polk County. Overall, the widening is anticipated to:

- Enhance east-west access and regional mobility between Downtown Lakeland and areas targeted for development, particularly accommodating traffic of the West Lakeland Industrial Area;
- Improve the viability of US 92 as a parallel east-west alternative to I-4 by reducing travel delay;
- Complement other area transportation improvements (including the extension of Wabash Avenue and intersection enhancements at County Line Road and Wabash Avenue); and
- Enhance freight mobility and access as US 92 links to other recognized freight facilities.

SAFETY: Enhance Safety Conditions

The actual five-year average crash rate (i.e., crashes per million vehicle miles traveled) for this project corridor, along with the statewide five-year average crash rate for similar facilities (Suburban 2-3 Lanes 2-Way Divided Paved), was obtained from the Florida Department of Transportation Safety Office. During the five-year period from 2008 to 2012, the actual crash rate was equal to 3.047 while the statewide crash rate was equal to 1.711. This data reveals that the average crash rate for the US 92 project corridor exceeds the statewide average crash rate for similar facilities by 78.1%. By expanding vehicular capacity, a reduction in crash rates is anticipated due to dispersion of traffic.

US 92 is additionally part of the emergency evacuation route network designated by the Florida Division of Emergency Management, as well as the network established by Polk County. As this roadway connects to other major arterials designated on the state evacuation route network (including SR 570, Airport Road, and I-4), as well as existing and future areas of development, the widening of US 92 to four lanes will be critical in:

- Facilitating east-west traffic movement and the number of residents that can be evacuated during an emergency event in northern Polk County and eastern Hillsborough County;
- Improving access for emergency responders; and
- Enhancing access to facilities of the state evacuation route network.

MODAL INTERRELATIONSHIPS: Enhance Mobility Options and Multi-Modal Access

Notable pedestrian and bicycle traffic was observed in the field as facilities accommodating pedestrians, bicyclists, and transit users exist in the area; a transit dependent population is also present. While paved shoulders occur on both sides of US 92, no sidewalks are present. Citrus Connection Route 45 currently operates along US 92 connecting industrial and commercial activities in western Polk County to Downtown Lakeland. It should be noted that US 92 is a designated transit-oriented corridor as commuter rail is planned to operate along the parallel CSX rail line; in addition, a park-n-ride lot is proposed at I-4 and County Line Road. The widening of US 92 is anticipated to enhance pedestrian/bicycle/transit access and circulation as it will account for and incorporate sidewalks, bicycle lanes, and future transit improvements.

1.3 Commitments

The Department is committed to the following measures to minimize impacts to the human and natural environment:

1. Wood stork: With approval by the U.S. Fish and Wildlife Service, the FDOT will commit to mitigate for wetland impacts within a wood stork Core Foraging Area of one or more of the five wood stork colonies within an 18.6-mile radius of the project site. This mitigation should also prevent a net loss of essential habitat function for the state-listed wading bird species using the project area.
2. Eastern indigo snake: USFWS's most current version of the *Standard Protection Measures for Eastern Indigo Snake* will be adhered to during construction of the project.
3. Gopher tortoise and commensal species: A gopher tortoise survey within the construction limits will be performed prior to construction per current FWC guidelines. FDOT will secure any relocation permits needed for this species during the project development and construction phases of the project and relocate gopher tortoises prior to construction. Species commensal with gopher tortoise burrows, such as the Florida pine snake and short-tailed snake, will be handled in accordance with FWC guidelines.
4. The FDOT is committed to further consideration of noise barrier systems during the project final design phase(s) at the nine locations listed below contingent upon the following:
    1. Detailed noise analyses during the final design process support the need, feasibility and reasonableness of providing abatement;
    2. Cost analysis indicates that the cost of the noise barrier(s) will not exceed the cost reasonable criterion;

3. Community input supporting types, heights, and locations of the noise barrier(s) is provided to the District Office; and
4. Safety and engineering aspects as related to the roadway user and the adjacent property owner have been reviewed and any conflicts or issues resolved.

Noise Barrier Systems located on the north side of US 92:

- Oakwood Mobile Home Park (between Stations 106+00 and 109+00, five impacted sites benefited)
- Single Family Homes and Holiday Park (between Stations 136+00 and 147+00, 22 impacted sites benefited)
- Meadowbrook (between Stations 148+00 and 161+00, 26 impacted sites benefited)
- Pine Grove Mobile Home Park and Woodall's Mobile Home Village (between Stations 215+50 and 228+00, 16 impacted sites benefited)

Noise Barrier Systems located on the south side of US 92:

- Evergreen Motel and Mobile Home Park (between Stations 51+00 and 56+00, 15 impacted sites benefited)
- Chapman's, Melody Acres and Parkway Mobile Home Parks (between Stations 84+50 and 102+00, 31 impacted sites benefited)
- Amick Properties and Single Family Homes (between Stations 103+00 and 107+00, eight impacted sites benefited)
- Friendship Village (between Stations 149+00 and 154+00, nine impacted sites benefited)
- Single Family Home and Shangri-La Mobile Home Park (between Stations 181+50 and 188+00, 26 impacted sites benefited).

5. A land use review will be conducted during the Design phase to identify noise sensitive sites that may have received a building permit subsequent to the noise study but prior to the date of public knowledge (i.e., the date that the environmental document has been approved by OEM). If the review identifies noise sensitive sites that have been permitted prior to the date of public knowledge, then those sensitive sites will be evaluated for traffic noise and abatement considerations.

1.4 Description of Preferred Alternative

Based on engineering and environmental factors, and comments received from the public, FDOT recommends the Optimized Northern Alternative to meet the documented purpose and need for this project. The Optimized Northern Alternative consists of a northern typical section for US 92 that includes four 11-foot travel lanes, curb and gutter, and a 30-foot grass median as illustrated in **Figure 1-2**. Six-foot sidewalks and seven-foot buffered bicycle lanes will accommodate pedestrian and bicycle traffic along the corridor. The design speed for this urban typical section

is 50 mph. A total of 122 feet of right-of-way is needed to accommodate the proposed improvements. The Optimized Northern Alternative will result in the relocation of two business and five residences.

The proposed typical section involves constructing four new travel lanes, without saving the existing pavement. With two exceptions, the Optimized Northern Alternative widens to the north side of the existing roadway. The widening shifts to the existing alignment under the Polk Parkway bridges to minimize impacts to the existing structures. At the east end of the project from Twin Lakes Circle East to Wabash Avenue, the alignment shifts to the south to minimize impacts to residential communities and their internal circulation roadways.

Stormwater management and floodplain compensation sites have been identified along the project limits. The stormwater runoff from US 92 will be collected in a closed drainage system which will flow to offsite wet ponds. The right-of-way needs were estimated using a volumetric analysis, which accounts for water quality treatment and water quantity attenuation. The six stormwater ponds will require a total of 19.10 acres of additional right-of-way. Floodplain compensation sites were sized using the 100-year elevations from the Draft SWFWMD Itchepackesassa Watershed model. Compensation for floodplain impacts was provided in floodplain compensation ponds to show no adverse floodplain stage increases. The three floodplain compensation ponds will require a total of 10.47 acres of additional right-of-way.

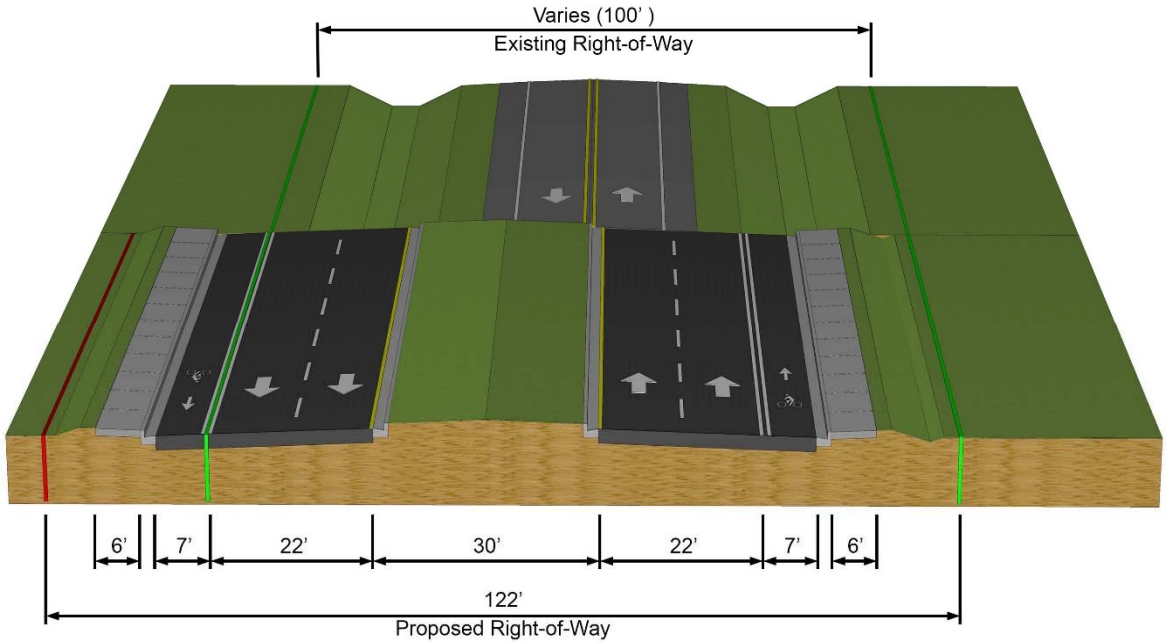

Figure 1-2 Preferred Typical Section

The evaluation matrix is based on environmental effects, ROW needs, project costs, and engineering factors. The evaluation matrix is shown in **Table 1-1**. It quantifies considerations such as potential business and residential relocations, impacts to environmental resources, and the acres of ROW needed for roadway improvements and stormwater facilities. The potential for the proposed widening to impact archaeological/historic sites, noise sensitive sites, and threatened and endangered species were qualified in the matrix.

The bottom half of the matrix details cost estimates for wetland mitigation, ROW acquisition, construction, design, and construction engineering and inspection. The estimates were based on 2016 unit costs. The cost for construction engineering and inspection was estimated as 15% of the total construction cost. Construction costs were estimated using the FDOT's Long Range Estimate (LRE) and this is provided in **Appendix E**.

Table 1-1 Evaluation Matrix

Evaluation Criteria	No-Build Alternative	Preferred Alternative
Business Impacts		
Number of business relocations	0	2
Residential Impacts		
Number of residential relocations	0	5
Environmental Effects		
Archaeological/Historic sites (potential)	None	Medium
Public parks, recreation areas, or wildlife refuges	None	None
Noise (potential)	None	Medium
Wetlands (acres)	0	6.5
Floodplains (acre feet)	0	13.4
Threatened and endangered species (potential)	None	Low
Contamination sites (high / medium)	None	4 / 13
Right-of-Way Needs		
Right-of-way to be acquired for roadway improvements (acres)	0	13.5
Right-of-way to be acquired for stormwater facilities (acres)	0	19.1
Right-of-way to be acquired for floodplain compensation (acres)	0	10.5
Estimated Total Project Costs (2016 Cost)		
Design	$0	$4,450,000
Mitigation Cost[1]	$0	$761,000
Right-of-way cost for roadway	$0	$12,161,000
Right-of-way cost for stormwater and floodplain sites	$0	$4,327,000
Total right-of-way cost[2]	$0	$16,488,000
Total construction cost[3]	$0	$52,752,000
Construction Engineering & Inspection[4]	$0	$7,913,000
Preliminary Estimate of Total Project Cost (2016 Cost)	$0	$82,364,000

1 Mitigation Cost was based on mitigation bank credit cost and an estimate of wetland function and value loss associated with wetland impacts.

2 Right-of-way cost estimates were prepared by FDOT in July 2016.

3 Construction costs were prepared by FDOT in December 2016.

4 Construction engineering & inspection costs were estimated at 15% of the total construction cost.

SECTION 2.0 EXISTING CONDITIONS

The existing conditions described in the following sections of this report were derived from a review of multiple data sources as well as additional data that was collected during several field reviews conducted in the early stages of this PD&E study. The existing data sources included the as-built plans, FDOT Straight Line Diagrams of Road Inventory (SLDs), FDOT Bridge Inspection Reports, and FDOT drainage maps.

2.1 Typical Section

US 92 is a two-lane undivided facility with 12-foot travel lanes (one in each direction) and 12-foot shoulders (5 feet paved). The US 92 typical section is shown in **Figure 2-1**. Stormwater runoff is collected in roadside swales. The posted speed limit for the portion of US 92 between County Line Road and Airport Road/Galloway Road is 55 miles per hour (mph), while the posted speed limit for the portion between Airport Road/Galloway Road and Wabash Avenue is 45 mph.

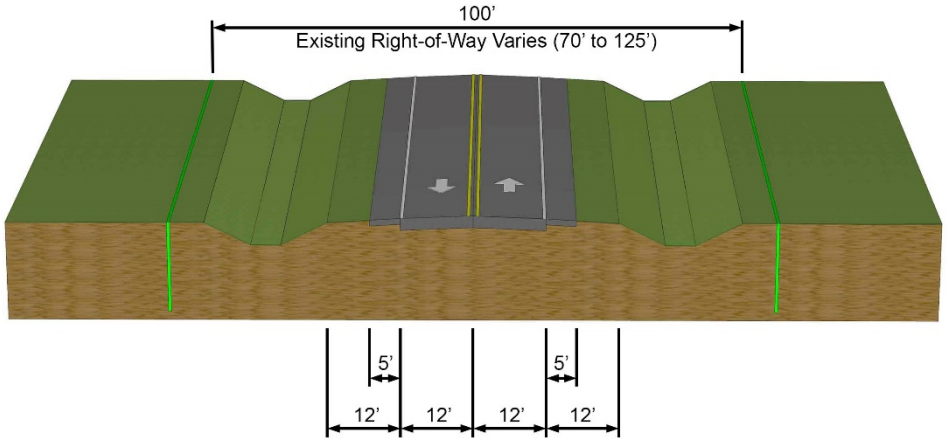

Figure 2-1 US 92 Existing Typical Section

2.2 Existing Roadway Right-of-Way

The existing right-of-way information was obtained from FDOT right-of-way maps and property appraiser maps from Polk County. **Table 2-1** summarizes the existing right-of-way for the project limits with stationing and offsets based on the baseline on the plan sheets. A review of **Table 2-1** indicates that a majority of the existing right-of-way is 100 feet wide.

Table 2-1 Existing Right-of-Way

Baseline Station	Offset from Centerline of Survey (ft)		Total (ft)
	Left	Right	
5+00	50	20	70
9+55	50	20	70
11+73	67	20	87
14+01	50	25	75
17+61	50	50	100
45+81	50	50	100
45+81	56	50	106
51+62	56	50	106
51+62	50	50	100
63+68	50	50	100
66+08	61	64	125
68+58	61	64	125

Baseline Station	Offset from Centerline of Survey (ft)		Total (ft)
	Left	Right	
68+58	50	50	100
174+43	50	50	100
174+43	50	63	113
182+51	50	63	113
182+51	62	63	125
188+37	62	63	125
188+37	50	50	100
225+08	50	50	100
225+08	50	55	105
227+55	50	62	112
229+51	33	44	77
231+47	33	38	71

2.3 Roadway Classification

According to the Straight Line Diagram of Road Inventory, US 92 is functionally classified as an Urban Other Principal Arterial within the project limits. This study corridor is an emergency evacuation route and is also designated as a Regional Freight Mobility Corridor in the 2012 Tampa Bay Regional Strategic Freight Plan. US 92 is not included in the FDOT's Strategic Intermodal System (SIS).

2.4 Existing Land Use

A majority of the study corridor is located within the City of Lakeland city limits. Existing land uses adjacent to US 92 include a mixture of residential, commercial, and light industrial/warehousing land uses. The residential land uses consist primarily of mobile home communities. The mobile home communities located on the south side of US 92 include the Evergreen MHP, Hibiscus Gardens, Chapman's MHP, Melody Acres, Friendship Village, and Shangri-La MHP. The mobile home communities located on the north side of US 92 include Green Village (formally Opportunity Villa), Holiday Park, Meadowbrook, Lakeland Palms MHP, Imperial Manor, Pine Grove MHP, and Woodall's MHP.

The predominant commercial and light industrial/warehousing land uses include the Lakeland Regional Industrial Park, Advance Auto Parts distribution facility, Ruthven Commerce Center, Publix Supermarket Regional distribution center, and the Maxpak packaging facility. The Publix Supermarket distribution center includes a deli and produce facility, dairy facility, bakery facility and a warehouse and distribution facility. A majority of these land uses are located on the north side of US 92; however, the Publix bakery and Maxpak packaging facility are located on the south side of US 92. Other commercial/service land uses located within the study corridor include the Publix Employees Federal Credit Union, Silver Moon Drive-In, Pallet Depot, a Family Dollar store, three

small motels, as well as several gas stations/convenience stores and automotive sales/service businesses.

There are also two religious facilities located within the study corridor. The Lugar de Restauracion Church of God of Prophecy (formally New Beginnings Church) is located on the north side of US 92 to the east of Clark Road and the Shree Swaminarayan Temple is located on the north side of US 92 to the west of Murray Drive.

2.5 Horizontal and Vertical Alignments

There are four horizontal curves within the project limits. The degree of horizontal curvature is 1° 00' for all four curves. The horizontal alignment for this project is shown in **Table 2-2**.

Table 2-2 Horizontal Alignment

Baseline PI Station	Bearing		Degree of Curvature	Radius (ft)	Length (ft)
	Back	Ahead			
0+00.00	N/A	N 79° 02' E	N/A	N/A	N/A
14+77.97	N 79° 02' E	N 73° 01' E	1° 00'	5,729.58	601.39
60+27.46	N 73° 01' E	N 79° 00' E	1° 00'	5,729.58	597.50
125+06.43	N 79° 00' E	N 73° 41' E	1° 00'	5,729.58	531.67
192+38.18	N 73° 41' E	N 79° 57' E	1° 00'	5,729.58	627.22
228+71.75	N 79° 57' E	N 79° 56' E	N/A	N/A	N/A

The elevations along US 92 start at 147 feet around County Line Road and decrease to elevation 127 feet west of Airport Road/Galloway Road. US 92 rises to elevation 136 feet west of Gay Road, then decreases to elevation 132 feet around Publix Gate 8/10 and slowly rises to elevation 137 feet at Murray Drive and then rises to 157 feet at Wabash Avenue. The existing elevations for US 92 are shown in **Figure 2-2**.

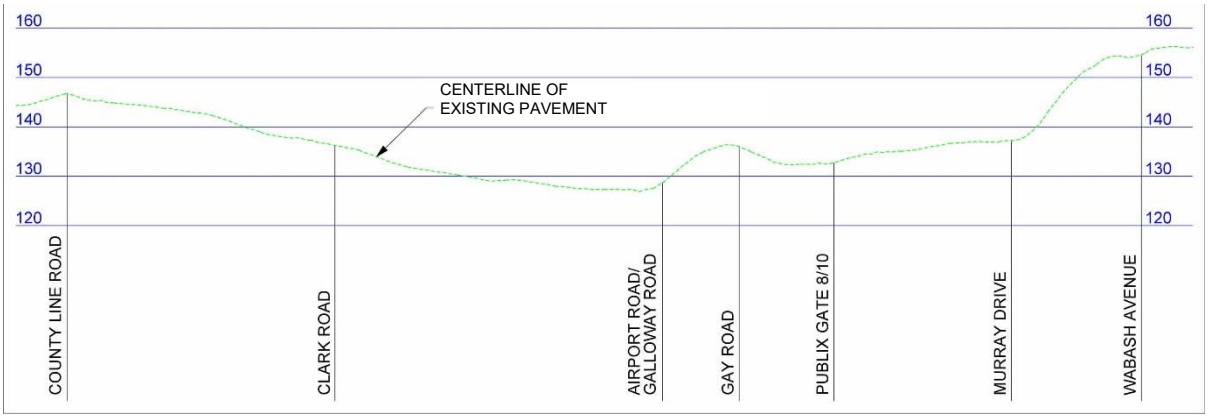

Figure 2-2 US 92 Existing Elevations

2.6 Pedestrian Facilities

With the exception of the west leg of the Wabash Avenue intersection and along the Family Dollar property, there are no existing pedestrian facilities on US 92 within the project limits. There is an existing five-foot sidewalk along the north side of US 92 at Wabash Avenue that extends to the west for approximately 140 feet. Similarly, there is an existing six-foot sidewalk on the south side of US 92 that extends to the west for approximately 500 feet. There is an existing five-foot sidewalk along the north side of US 92 on the Family Dollar property which is located west of Meadowbrook Avenue.

2.7 Bicycle Facilities

The existing five-foot paved shoulder along US 92 serves as an undesignated bicycle lane.

2.8 Pedestrian and Bicycle Crossing Data

Pedestrians and bicyclists crossing either US 92 or the US 92 cross streets were recorded while the eight-hour vehicular turning movement counts were conducted at the 19 intersections shown in **Figure 2-6** The data collected identified the number of pedestrian and bicycle crossings at each leg of these intersections for the entire eight hours. **Figure 2-3** and **Figure 2-4** show the location of the crossings. A review of this data indicates the following:

- In general, there are more pedestrians and bicyclists crossing the US 92 cross streets than the US 92 mainline (i.e., the predominant pedestrian and bicycle movements at these intersections are east/west movements – not north/south movements).
- The highest east-west pedestrian and bicycle crossing volumes occurred between McCue Road and Kraft Road and between Murray Drive and Wabash Avenue.
- The highest volumes of pedestrians and bicyclists crossing the US 92 mainline occurred on the east legs of the Wabash Avenue intersection and the Kraft Road/Lee Avenue intersection (36 and 21 crossings, respectively).

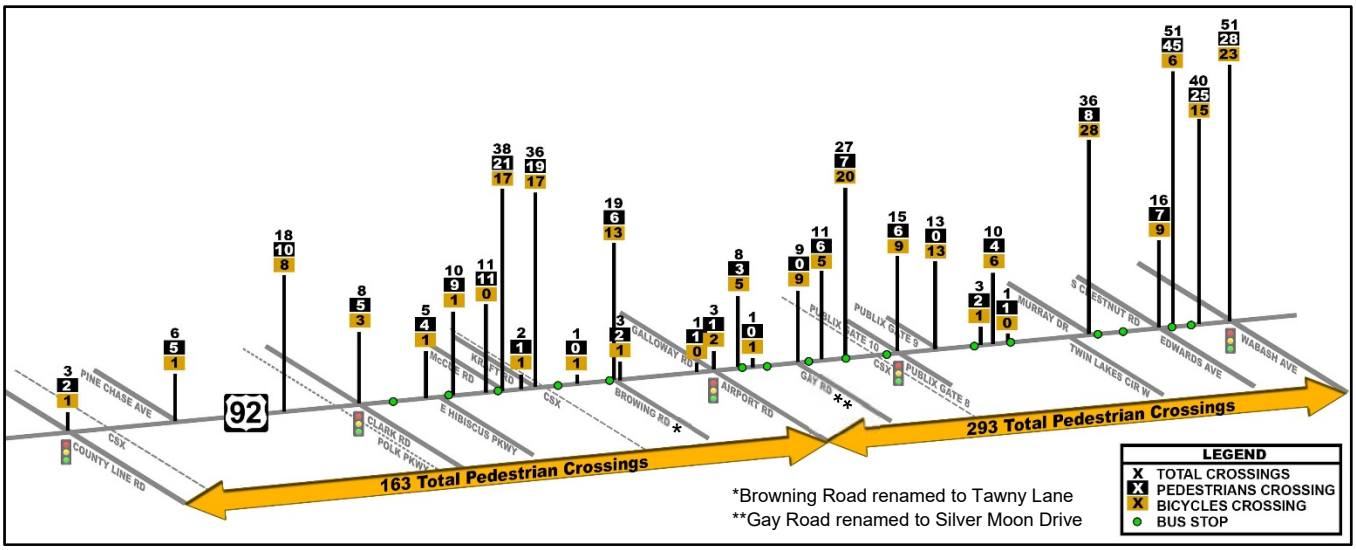

Figure 2-3 Total Pedestrian and Bicycle Crossings

Additional eight-hour vehicular turning movement counts were conducted for 92 driveways within the study corridor to support the development of a preliminary access management plan. Any pedestrians and/or bicyclists that were observed crossing the US 92 mainline during the eight hours that the access management turning movement counts were conducted were also recorded. A review of this data indicated that there were three areas experiencing more than 10 pedestrian/bicycle crossings in an eight-hour period. These areas included the following:

- East of Chestnut Road/Edwards Avenue (51 crossings);
- Between Hibiscus Parkway and Kraft Road (28 crossings);
- East of Gay Road (renamed to Silver Moon Drive) (11 crossings)

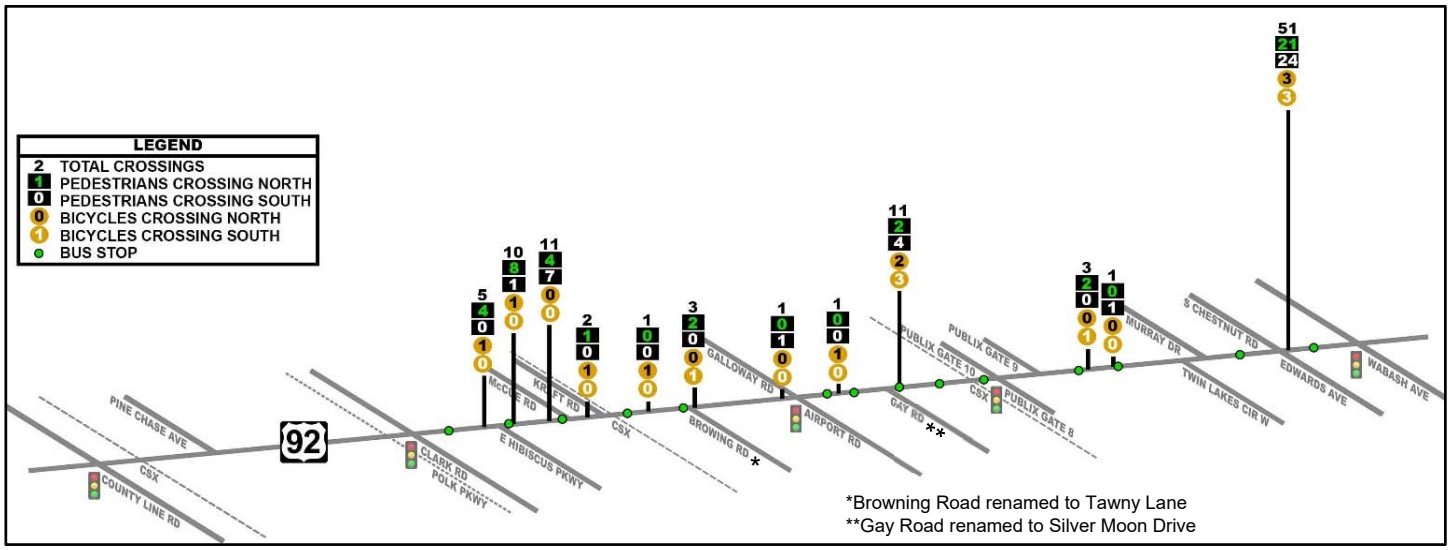

Figure 2-4 Pedestrian and Bicycle Crossings (US 92 Only)

All three of these locations have one or more residential communities located on one side of US 92 and one or more pedestrian/bicycle trip attractors on the other side of US 92. East of Chestnut Road/Edwards Avenue, there is a Citgo gas station/convenience store on the south side of US 92 and two mobile home communities (Pine Grove MHP and Woodall's MHP) on the north side. In the area between Hibiscus Gardens and Nassau Avenue, there are two bus stops and a Sunoco gas station/convenience store on the north side of US 92 and three residential communities (Chapman's MHP, Melody Acres and Pine Tree Apartments) on the south side. Lastly, east of Gay Road, there is another Citgo gas station/convenience store and a Family Dollar store on the north side of US 92 and a residential community (Friendship Village) on the south side.

2.9 Transit Facilities

Citrus Connection currently provides transit (bus) service throughout a majority of the study corridor. Route 45 (the George Jenkins/Swindell Route) operates from 6:15 AM to 6:15 PM on weekdays with one-hour headways. The service from 7:15 AM to 4:15 PM on Saturdays with one-hour headways was removed effective July 6, 2015. This route originates/terminates at the Downtown Lakeland Terminal on S. Florida Avenue approximately 2.5 miles to the east of the US 92/Wabash Avenue intersection. Buses travel in the westbound direction along the portion of US 92 from Wabash Avenue to Clark Road. Citrus Connection Route 45 is illustrated in **Figure 2-5**.

Figure 2-5 Citrus Connection Route 45

There are currently 16 bus stops located within the study corridor and all of these are located on the north side of US 92. There are no bus shelters or bus pads located at any of these stops and only nine of these stops have benches.

2.10 Lighting

There is overhead lighting on the north side of US 92 from Publix Gate 10 to Wabash Avenue. There is also lighting at two intersections with US 92 at County Line Road and Clark Road. There are two light poles at the County Line Road intersection with one in the northeast quadrant and one in the northwest quadrant. There are four light poles at the Clark Road intersection with one in each quadrant.

2.11 Intersection Layout

There are 19 north/south roadways that intersect with US 92 within the project limits. The majority of the intersections are stop sign controlled which includes the nine locations that are three legged intersections. **Figure 2-6** illustrates the lane geometry and intersection control for all 19 intersections.

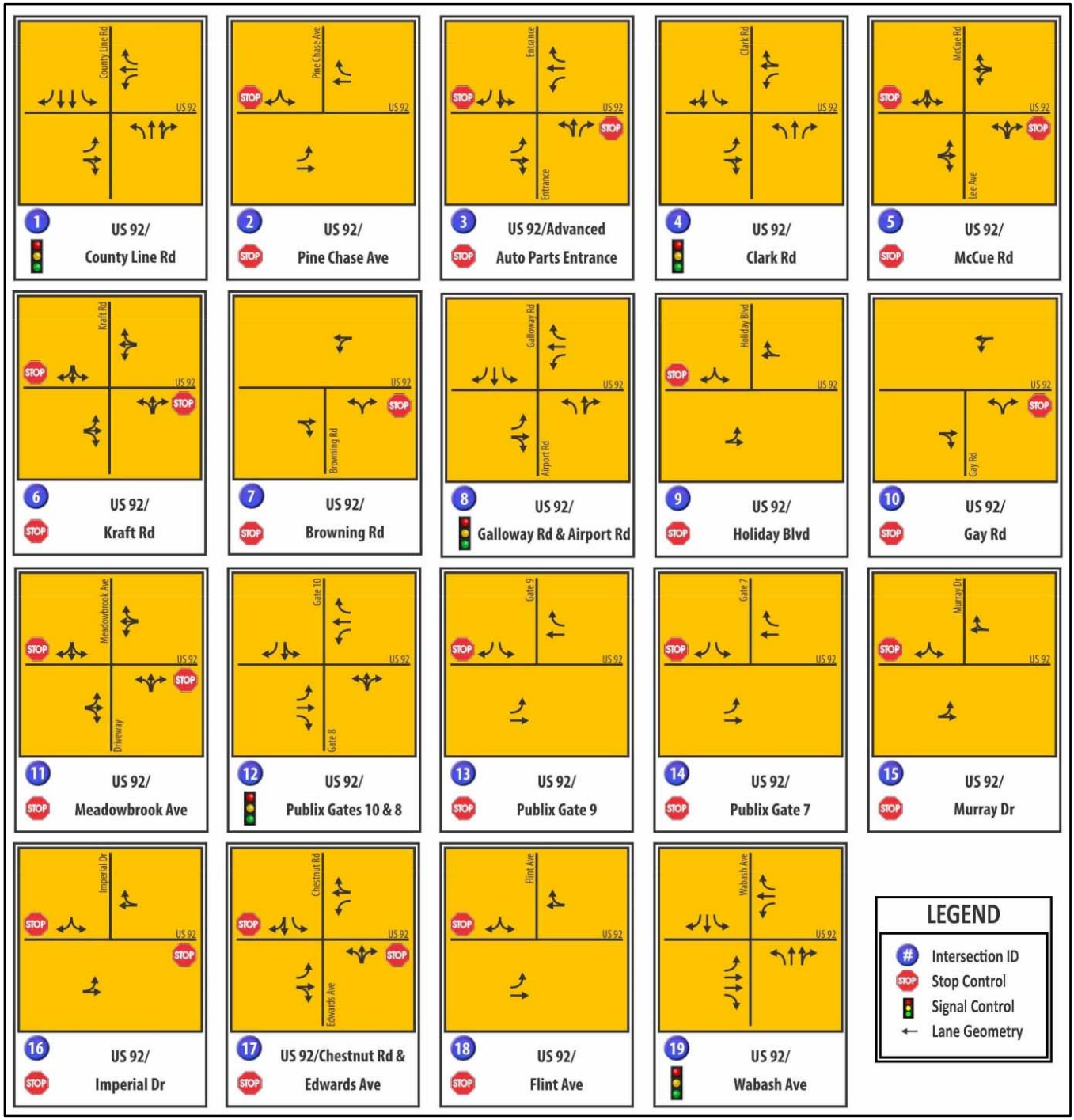

Figure 2-6 Existing Intersection Lane Geometry

2.12 Signalized Intersections

There are five signalized intersections located within the study corridor and these intersections are listed in **Table 2-3**. The County Line Road signalized intersection with US 92 is interconnected with the CSX Transportation mainline crossing of County Line Road which is just south of US 92.

Table 2-3 Signalized Intersections

Cross Street	Station	Number of Poles	Pole Locations	Type
County Line Road	10+42	4	All Quadrants	Span Wire
Clark Road	64+86	4	All Quadrants	Mast Arms
Airport Road/Galloway Road	131+43	2	Northwest and Southeast	Span Wire
Publix Gates 8/10	166+23	4	All Quadrants	Span Wire
Wabash Avenue	228+71	4	All Quadrants	Mast Arms

The existing traffic signal configuration at County Line Road and Publix Gates 8/10 consists of concrete strain poles and span wires in all four quadrants. There are eight signal heads on each span wire. The existing signal configuration at Airport Road/Galloway Road consists of 24 signal heads on a span wire between two concrete strain poles located in the northwest and southeast quadrants. There are six signal heads per mast arm at the Clark Road intersection and eight signal heads per mast arm at the Wabash Avenue intersection.

2.13 Posted Speeds

The posted speed limit for the portion of the study corridor from County Line Road to Airport Road/Galloway Road is 55 mph. The posted speed limit for the portion from Airport Road/Galloway Road to Wabash Avenue is 45 mph. **Table 2-4** shows the results of spot speed studies performed by FDOT in March 2010, February 2012, and April 2012 within the project limits.

Table 2-4 FDOT Speed Study Summary

Study Date	Time	Mile Post	Location	Sample Size	Speed			
					Posted	85th %	50th %	Average
3/25/10	9:00	0.473	Between County Line Rd & Polk Parkway	249	55	53	49	49.4
2/28/12	24 Hr	0.268	East of County Line Rd	10,092	55	52	46	45.9
3/25/10	10:15	1.618	Between SR 570 & SR 572	225	55	51	48	48.1
2/28/12	24 Hr	2.140	West of SR 570	10,659	45	50	45	44.2
3/25/10	11:45	2.662	Between SR 572 & Publix Entrance	219	45	49	45	45.8
3/25/10	12:45	3.550	Between Publix Entrance & Wabash Ave	229	45	50	47	47.1
4/30/12	24 Hr	3.722	West of Chestnut Rd	15,251	45	49	44	43.2

2.14 Railroad Crossings

The US 92 project is located north of the CSX Transportation A-Line. The CSX A-Line is parallel to US 92 and offsets are listed in **Table 2-5**. There are three spur lines from the CSX A-Line that cross US 92 within the project limits. The location of the three spur lines crossing US 92 and the County Line Road crossing are listed in **Table 2-6**. All four locations are single track crossings. This table also contains information regarding the number of train crossings per day, train crossing speeds and number of school bus crossings. Although the number of train crossings at two of the three spur locations are less than or equal to two trains per day, the spur line located to the east of Kraft Road currently has 13 train crossings per day.

Table 2-5 CSX A-Line Location

Cross Street	Station	Distance from CSX A-Line to US 92 (feet)
County Line Rd	10+42	75
Clark Rd	64+86	540
Airport Rd/Galloway Rd	166+23	620
Wabash Rd	228+71	915

Table 2-6 Railroad Crossings

Location	Station	Crossing Number	Railroad Milepost	Estimated Number of Daily Train Movements				Max. Train Speed	School Bus Crossings per Day
				Day Time	Night Time	Switching	Transit		
East of County Line Rd	17+69	643801U	856.99	<1	0	0	-	25	12
East of Kraft Rd	98+49	624301V	855.20	5	6	2	-	10	20
West of Publix Gate 8/10	162+82	908373L	854.03	0	0	2	-	10	22
County Line Rd South of US 92	-	624304R	857.03	4	3	7	-	79	10

The types of railroad safety devices at these locations are shown in **Table 2-7**. It should also be noted that only the spur line crossing US 92 to the east of County Line Road (US DOT Crossing No. 643801U) has crossing gates. Two crossing locations are within 350 feet of a signalized intersection but only the main rail line crossing County Line Road is connected with the signal which is approximately 75 feet from the US 92 intersection.

Table 2-7 Railroad Safety Devices

Location	Crossing Number	US 92 Traffic Signal		Detection	Gate Arms	Flashing Lights	
		Within 350 feet	Connected			Cantilevered	Mast Mounted
East of County Line Rd	643801U	No	N/A	Direct Current	2	0	2
East of Kraft Rd	624301V	No	N/A	Constant Warning Time	0	0	2
West of Publix Gate 8/10	908373L	Yes	No	Constant Warning Time	0	0	2
County Line Rd South of US 92	624304R	Yes	Yes	Constant Warning Time	2	8	4

2.15 Structural and Operational Conditions of the Pavement

According to the Pavement Condition Survey for Polk County dated June 1, 2015, the US 92 pavement has average cracking ratings ranging from 6.0 to 10.0 and average ride ratings ranging from 6.2 to 7.7. Three of the five segments shown in **Table 2-8** have an average cracking rating of 6.0 which indicates the pavement is deficient.

Table 2-8 Pavement Conditions

Segments	County Line Rd to Churchill Ave	Churchill Ave to East of Publix Gate 8/10	East of Publix Gate 8/10 to West of Twin Lake Cir	West of Twin Lake Cir to West of Wabash Ave	West of Wabash Ave to N Veterans Ave
Milepost Segment Limits	0.000 to 2.426	2.426 to 3.088	3.088 to 3.408	3.408 to 4.023	4.023 to 5.150
Cracking Rating	10.0	6.0*	7.0	6.0*	6.0*
Ride Rating	7.6	6.6	7.7	7.0	6.2

*Indicates the pavement is deficient

2.16 Drainage System Inventory

2.16.1 *Floodplains/Floodways*

The project site is located on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Polk County. A majority of the project lies outside of the FEMA 100-year floodplain designation or Flood Zones within Zone X. There are 100-year floodplain boundaries located throughout the corridor and adjacent to US 92, on both sides of the road. These areas are designated as Zone AE floodplains (floodplain boundaries in which 100-year flood elevations have been established) and Zone A (floodplain boundaries in which the 100-year floodplain base elevation has not been determined). The project crosses Itchepackesassa Creek which is designated as FEMA floodplain Zone AE and a FEMA designated floodway. The FEMA

floodway is located where Hamilton Branch (Bridge Number 160117) crosses US 92. The floodway elevation is 127 feet (NGVD 29) on the north side of US 92 and 128 feet (NGVD 29) on the south side. The project also impacts areas designated as Zone A.

The Southwest Florida Water Management District (SWFWMD) developed a draft model for the Itchepackesassa Creek watershed in order to revise the 100-year floodplain elevations in Polk County and to update the FEMA FIRM. The model was in draft status and will not be finalized due to lack of funds. However, the model is the best available information and will be used to determine the floodplain elevations within the project area for this PD&E study. The model was used to simulate the hydrologic response of the watershed and route stormwater through the natural and man-made features of the basin for the 100-year/24-hour storm event. **Table 2-9** lists the 100-year/24-hour elevations from the SWFWMD model.

Table 2-9 Floodplain Elevations

Begin Station	End Station	Side	100 Year/24 Hour Elevation (NAVD 88)
93+00	98+00	RT	126.1
95+00	98+00	LT	125.3
108+00	131+00	LT	125.9
113+00	131+00	RT	126.3
156+00	166+00	RT	130.1
157+00	166+50	LT	129.1
182+50	188+00	LT	133.3

2.16.2 *Existing Drainage Conditions*

The project is located within the jurisdiction of the SWFWMD and traverses four Water Body ID's (WBID) within the Hillsborough River Watershed. The four basins are listed in **Table 2-10**. For the two impaired waterbodies there can be no increase in nutrient loadings for nitrogen and phosphorous between the pre and post conditions.

Table 2-10 Waterbodies

WBID	Basin	Watershed	Comments
1495B	Itchepackesassa Creek	Hillsborough River	Dissolved Oxygen (phosphorous) Nutrients (chlorophyll Fecal Coliform)
1531	Wiggins Prairie Drain	Hillsborough River	Not impaired
1543A	Lake Hunter Outlet	Hillsborough River	Dissolved Oxygen (phosphorous)
1551	Winston Drain	Hillsborough River	Not impaired

US 92 has been further subdivided into nine local subbasins for stormwater management. The roadway drains through roadside ditches to the seven existing cross drains and two flat slab

bridges within the project limits identified in **Table 2-11**. There are no Outstanding Florida Waters within the project limits.

Table 2-11 Existing Cross Drains

Number	Milepost	Description
CD-1	0.846	8'x3' Concrete box culvert
CD-2	0.954	42" Pipe
-	1.620	Bridge Number 160117 (Hamilton Branch)
CD-3	1.881	5'x2.5' Concrete box culvert
CD-4	2.257	30" & 36" Pipes
CD-5	2.833	30" Pipe
-	2.873	Bridge Number 160026 (Winston Creek)
CD-6	3.155	36" Pipe
CD-7	3.570	24" Pipe

2.17 Existing Traffic Conditions

This section provides a brief summary of the existing traffic conditions information contained in the *Design Traffic Technical Memorandum (August 2016),* prepared under separate cover. A more thorough discussion of the existing daily and peak hour traffic volumes, as well as the existing peak hour traffic operations analyses that were conducted for this study is provided in the memorandum.

2.17.1 *Existing Year Traffic Volumes*

A traffic count program was conducted during the months of February, March and April in 2014. Twenty-four (24)-hour bi-directional volume counts and 72-hour vehicle classification counts were conducted between February 25, 2014 and March 6, 2014. In addition, peak period intersection turning movement counts were conducted at 19 intersections between April 1, 2014 and April 23, 2014. Heavy vehicles (i.e., trucks and buses), bicyclists, and pedestrians were also counted in addition to passenger vehicles. This traffic count data was used to develop the existing year (2014) Annual Average Daily Traffic (AADT) volumes and peak hour traffic volumes.

As depicted in **Figure 2-7**, the 2014 AADT volumes on the US 92 mainline range from 10,300 vehicles per day (vpd) to 16,300 vpd. **Figure 2-8** illustrate the existing AM and PM peak hour volumes for the 19 intersections that were included in the *US 92 Project Traffic Report*.

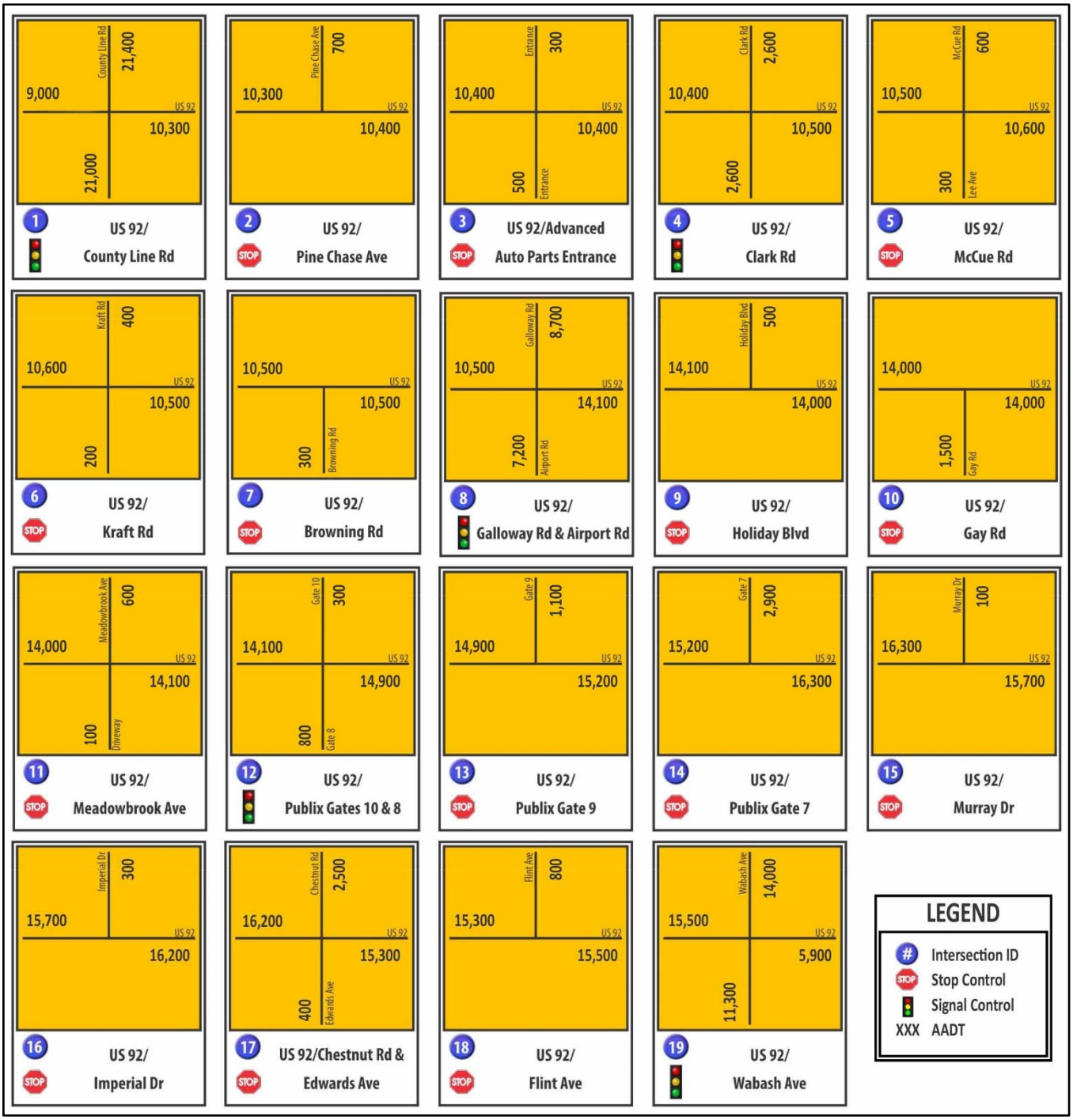

Figure 2-7 Existing Year (2014) AADT

Figure 2-8 Existing Year (2014) Peak Hour Volumes

2.17.2 *Existing Year Levels of Service*

Table 2-12 summarizes the results of the peak hour traffic operations analyses conducted for the five signalized intersections. All five of these intersections are currently operating at LOS D or better overall during both the AM and PM peak hours. The results of the peak hour traffic operations analyses conducted for the 14 stop controlled intersections are summarized in **Table 2-13**. A signalized arterial analysis was also conducted for US 92 and the results are summarized in **Table 2-14** and **Table 2-15**. The US 92 corridor is currently operating at LOS B overall in both the eastbound and westbound travel directions during both the AM and PM peak hours.

Table 2-12 Existing Year (2014) Signalized Intersection Delay and LOS

US 92 Cross Streets	Eastbound		Westbound		Northbound		Southbound		Overall Intersection	
	Delay (sec/ veh)	LOS	Delay (sec/ veh)	LOS	Delay (sec/ veh)	LOS	Delay (sec/ veh)	LOS	Delay (sec/ veh)	LOS
AM										
County Line Rd	42.8	D	31.2	C	30.2	C	32.6	C	32.9	C
Clark Rd	16.1	B	16.6	B	10.5	B	10.4	B	14.6	B
Airport Rd/Galloway Rd	13.4	B	13.8	B	12.9	B	13.6	B	13.5	B
Publix Gate 8/10	3.8	A	3.8	A	41.9	D	40.7	D	6.3	A
Wabash Ave	22.7	C	30.2	C	28.9	C	29.4	C	27.7	C
PM										
County Line Rd	51.7	D	35.1	D	40.3	D	27.7	C	37.3	D
Clark Rd	17.3	B	17.4	B	10.9	B	10.5	B	15.5	B
Airport Rd/Galloway Rd	17.5	B	16.9	B	17.1	B	17.0	B	17.1	B
Publix Gate 8/10	4.1	A	4.5	A	41.3	D	41.0	D	7.1	A
Wabash Ave	22.9	C	31.4	C	30.4	C	34.8	C	29.8	C

Table 2-13 Existing Year (2014) Unsignalized Intersection Delay and LOS

US 92 Cross Streets	Eastbound Left		Westbound Left		Northbound		Southbound		Overall Intersection	
	Delay (sec/ veh)	LOS	Delay (sec/ veh)	LOS	Delay (sec/ veh)	LOS	Delay (sec/ veh)	LOS	Delay (sec/ veh)	LOS
AM										
Pine Chase Ave	8.1	A	-	-	-	-	12.9	B	0.4	A
Advance Auto Parts Entrance	8.1	A	8.0	A	14.9	B	15.1	C	0.9	A
McCue Rd	8.0	A	8.0	A	14.3	B	15.1	C	0.8	A
Kraft Rd	8.1	A	8.1	A	14.8	B	14.8	B	0.9	A
Browning Rd	-	-	8.0	A	12.6	B	-	-	0.3	A
Holiday Blvd	8.5	A	-	-	-	-	15.9	C	0.2	A
Gay Rd	-	-	8.5	A	18.3	C	-	-	1.3	A
Meadowbrook Ave	8.4	A	8.4	A	19.5	C	17.6	C	0.8	A
Publix Gate 9	8.6	A	-	-	-	-	18.0	C	0.8	A
Publix Gate 7	10.0	A	-	-	-	-	24.3	C	0.9	A
Murray Dr	8.6	A	-	-	-	-	16.7	C	0.2	A
Imperial Dr	8.6	A	-	-	-	-	16.7	C	0.2	A
Chestnut Dr	8.5	A	8.4	A	19.9	C	17.2	C	2.3	A
Flint Ave	8.5	A	-	-	-	-	17.5	C	0.3	A
PM										
Pine Chase Ave	8.4	A	-	-	-	-	15.5	C	0.7	A
Advance Auto Parts Entrance	8.4	A	8.1	A	14.4	B	15.7	C	1.1	A
McCue Rd	8.2	A	8.2	A	16.2	C	16.1	C	0.9	A
Kraft Rd	8.2	A	8.3	A	16.6	C	15.3	C	1.2	A
Browning Rd	-	-	8.3	A	12.2	B	-	-	0.7	A
Holiday Blvd	8.8	A	-	-	-	-	17.7	C	0.2	A
Gay Rd	-	-	8.6	A	15.9	C	-	-	1.2	A
Meadowbrook Ave	8.9	A	8.5	A	24.0	C	26.8	D	1.2	A
Publix Gate 9	8.7	A	-	-	-	-	17.8	C	1.0	A
Publix Gate 7	9.8	A	-	-	-	-	26.3	D	0.6	A
Murray Dr	8.7	A	-	-	-	-	18.4	C	0.2	A
Imperial Dr	8.8	A	-	-	-	-	18.4	C	0.2	A
Chestnut Dr	8.9	A	8.5	A	30.7	D	19.3	C	2.8	A
Flint Ave	8.7	A	-	-	-	-	19.1	C	0.3	A

Table 2-14 Existing Year (2014) Arterial Speed and LOS – AM Hour

Segment	Speed Limit (mph)	Distance (ft)	Base FFS (mph)	Running Time (s)	Through Delay (s/veh)	Travel Speed (mph)	v/c	% of Base FFS	Arterial LOS
US 92 Eastbound									
County Line Road to Clark Road	55	5425	51.12	74.11	15.74	41.17	0.46	80.53	B
Clark Road to Airport Road	55	6675	51.12	90.74	11.76	44.40	0.45	86.85	A
Airport Road to Publix Gate 8/10	45	3475	46.42	53.60	3.71	41.34	0.34	89.06	A
Publix Gate 8/10 to Wabash Avenue	45	6175	46.42	92.04	21.97	36.93	0.30	79.56	B
Overall Facility	-	21750	48.92	-	-	40.78	-	83.35	B
US 92 Westbound									
Wabash Avenue to Publix Gate 8/10	45	6175	46.42	93.15	3.67	43.49	0.33	93.68	A
Publix Gate 8/10 to Airport Road	45	3475	46.42	53.57	11.41	36.46	0.40	78.55	B
Airport Road to Clark Road	55	6675	51.12	90.76	16.40	42.47	0.54	83.08	B
Clark Road to County Line Road	55	5425	51.12	74.49	30.85	35.11	0.40	68.68	B
Overall Facility	-	21750	48.92	-	-	39.62	-	80.98	B

Table 2-15 Existing Year (2014) Arterial Speed and LOS – PM Hour

Segment	Speed Limit (mph)	Distance (ft)	Base FFS (mph)	Running Time (s)	Through Delay (s/veh)	Travel Speed (mph)	v/c	% of Base FFS	Arterial LOS
US 92 Eastbound									
County Line Road to Clark Road	55	5425	51.12	74.28	19.28	39.53	0.54	77.33	B
Clark Road to Airport Road	55	6675	51.12	90.82	20.03	41.06	0.37	80.32	B
Airport Road to Publix Gate 10	45	3475	46.42	53.44	6.44	39.57	0.34	85.25	A
Publix Gate 10 to Wabash Avenue	45	6175	46.42	91.95	25.67	35.80	0.16	77.11	B
Overall Facility	-	21750	48.92	-	-	38.83	-	79.37	B
US 92 Westbound									
Wabash Avenue to Publix Gate 10	45	6175	46.42	93.40	6.52	42.14	0.43	90.77	A
Publix Gate 10 to Airport Road	45	3475	46.42	53.82	20.49	31.88	0.37	68.68	B
Airport Road to Clark Road	55	6675	51.12	90.92	19.92	41.06	0.59	80.32	B
Clark Road to County Line Road	55	5425	51.12	74.61	35.17	33.69	0.44	65.91	C
Overall Facility	-	21750	48.92	-	-	37.56	-	76.77	B

2.18 Crash Data and Safety Analysis

Crash data for the years 2010 through 2014 were obtained from the FDOT's State Safety Office for the PD&E study limits – County Line Road (Milepost 0.000) to Wabash Avenue (Milepost 4.131). **Table 2-16** summarizes the number of crashes, fatalities and injuries that occurred within the study corridor. This table indicates that 293 crashes, resulting in 256 injuries and 5 fatalities, occurred within the project limits during this five-year period. Of the 293 crashes, 136 resulted in property damage only.

Table 2-16 US 92 Crash Totals (2010-2014)

Year	Total No. of Crashes	No. of Fatality Crashes	No. of Injury Crashes	No. of Property Damage Crashes	Total No. of Fatalities	Total No. of Injuries
2010	45	1	22	22	1	29
2011	57	1	32	24	1	57
2012	54	0	32	22	0	50
2013	60	1	25	34	1	38
2014	77	2	41	34	2	82
5-Year Total	**293**	**5**	**152**	**136**	**5**	**256**

Table 2-17 summarizes the lighting, weather and road surface conditions that were present when the crashes occurred. A majority of the crashes occurred during daylight hours with clear skies and dry roadway surfaces. Approximately 12.3% of the crashes occurred during rainy or foggy weather and approximately 16.0% occurred on wet or slippery road surfaces. It should also be noted that approximately 14.7% of the crashes occurred when it was dark at locations that did not have any lighting.

Table 2-17 Crash Conditions

Lighting Condition	No. of Crashes	% of Total Crashes
Daylight	164	55.97%
Dark (Street Light)	72	24.57%
Dark (No Street Light)	43	14.68%
Dusk/Dawn	14	4.78%
Total	**293**	**100.00%**
Weather Condition	**No. of Crashes**	**% of Total Crashes**
Clear	214	73.04%
Cloudy	43	14.68%
Rain	32	10.92%
Fog	4	1.36%
Total	**293**	**100.00%**
Road Surface Condition	**No. of Crashes**	**% of Total Crashes**
Dry	246	83.96%
Wet	47	16.04%
Slippery	0	0.00%
Total	**293**	**100.00%**

Figure 2-9 illustrates the spatial distribution of crashes within the US 92 study corridor. This figure includes all of the cross streets that had at least one reported crash, as well as the three CSX Transportation rail crossings. The largest number of crashes occurred at the County Line Road intersection (82), followed by the Wabash Avenue intersection (37), the Clark Road intersection (25) and the Airport Road/Galloway Road intersection (24). All four of these intersections are signalized intersections. Four crashes occurred at the signalized entrance to Publix (i.e., Gates 8 and 10). With respect to the unsignalized cross streets, the largest number of crashes occurred at Edwards Avenue/Chestnut Road (9), Gay Road (8), Mo Trail Circle E. (5) and Mo Trail Circle W. (4). It should also be noted that there were an additional 61 crashes (approximately 20.8% of the total crashes) that did not occur at any of the US 92 cross streets or rail crossings.

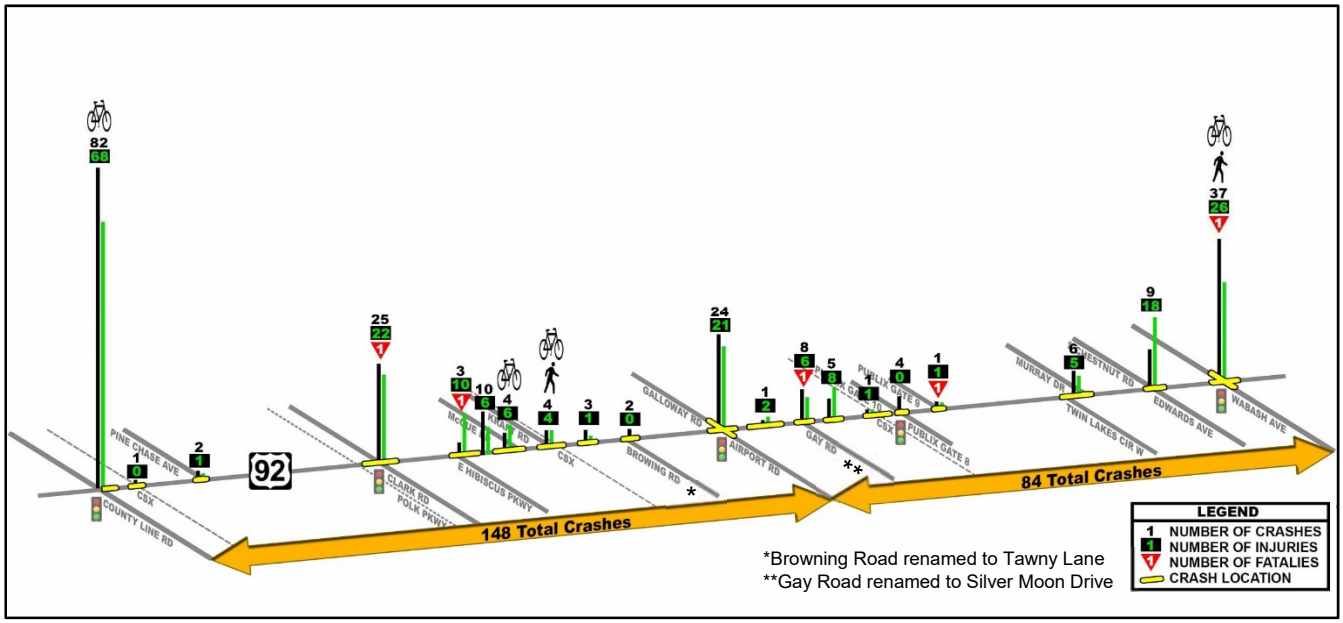

Figure 2-9 Crash Locations

As indicated in **Figure 2-9,** the five fatal crashes occurred at the following locations:

- Clark Road
- W. Hibiscus Parkway
- Gay Road
- Publix Gate No. 9
- Wabash Avenue

Table 2-18 summarizes the conditions associated with the fatality crashes. The table indicates that two of the five fatalities involved illegal drugs.

Table 2-19 summarizes the types of crashes that occurred between 2010 and 2014. The two most prevalent types of crashes were rear-end crashes (approximately 39.6%) and left-turn crashes (approximately 16.0%). Together, these two crash types accounted for approximately

Table 2-18 Fatality Summary (2010-2014)

Milepost	Side Street	Year	Crash Type	Contributing Cause Vehicle 1	Contributing Cause Vehicle 2	Lighting	Weather	Road Surface	Alcohol / Drugs Involved
1.035	Clark Road	2014	Angle	Other	Other	Daylight	Clear	Dry	Drugs
1.291	W. Hibiscus Parkway	2014	Opposite Direction Sideswipe	Failure to Stay in Proper Lane	No Improper Driving	Daylight	Clear	Dry	Drugs
2.586	Gay Road	2013	Left-Turn	Failure to Yield Right-of-Way	No Improper Driving	Daylight	Clear	Dry	No
3.294	Publix Gate No. 9	2011	Left-Turn	Failure to Yield Right-of-Way	No Improper Driving	Dark (Lighted)	Clear	Dry	No
4.131	Wabash Avenue	2010	Angle	Ran Red Light	Unknown	Dark (Lighted)	Clear	Dry	No

55.6% of the total crashes that were reported within the study corridor. A review of **Table 2-19** also indicates there were 23 angle crashes, 18 right-turn crashes, 14 sideswipe crashes and six head-on crashes.

There were four crashes involving pedestrians and six crashes involving bicyclists. The pedestrian crashes occurred at W. Hibiscus Parkway, Mo Trail Circle E., Kraft Road and Wabash Avenue. All four of the pedestrian crashes occurred when it was dark and one involved a driver under the influence of drugs. The bicycle crashes occurred at the following locations:

- County Line Road
- 0.067 miles east of County Line Road
- 0.107 miles east of the eastern entrance to West Woods
- McCue Road
- Kraft Road
- Wabash Avenue

Only one of these six crashes occurred at night under non-lighted conditions and none of these involved drugs or alcohol.

Table 2-20 summarizes the actual crash rates (expressed in terms of crashes per million vehicle-miles of travel) for the five-year period from 2010 through 2014. This table also provides the average crash rates for two-lane (two-way) undivided and divided suburban arterials. The 2010 crash rate information was provided separately from the 2011-2014 crash rate information by the State Safety Office. A review of this table indicates that there are eight segments of US 92 that have actual crash rates that are significantly higher than the statewide average crash rates

Table 2-19 US 92 Crash Types (2009-2013)

Crash Type	No. of Crashes	% of Total Crashes
Rear-End Crash	116	39.59%
Left-Turn Crash	47	16.04%
Angle Crash	23	7.85%
Right-Turn Crash	18	6.14%
Sideswipe Crash (Same Direction)	11	3.75%
Head-On Crash	6	2.05%
Vehicle Hit Pedalcycle	6	2.05%
Vehicle Hit Moveable Object On Road	5	1.71%
Vehicle Hit Pedestrian	4	1.37%
Vehicle Hit Parked Vehicle	4	1.37%
Vehicle Ran Into Ditch/Culvert	4	1.37%
Vehicle Hit Other Fixed Object	4	1.37%
Sideswipe Crash (Opposite Direction)	3	1.02%
Vehicle Hit Train	3	1.02%
Vehicle Hit Traffic Gate	3	1.02%
Vehicle Backed Into Another Vehicle	2	0.68%
U-Turn Crash	2	0.68%
Vehicle Hit Sign/Sign Post	2	0.68%
Vehicle Hit Utility/Light Pole	2	0.68%
Vehicle Hit Fence	2	0.68%
Vehicle Hit Curb	2	0.68%
Vehicle Hit Other Post/Pole	1	0.34%
Vehicle Hit Animal	1	0.34%
Vehicle Hit Crash Attenuator	1	0.34%
Vehicle Ran Off Road Into Water	1	0.34%
Vehicle Overturned	1	0.34%
Vehicle Jackknifed	1	0.34%
Vehicle Lost Cargo	1	0.34%
Other/Unknown/Not Coded	17	5.80%
Total	**293**	**100.00%**

However, five of these segments are short in length (i.e., ≤ 0.26 miles) and three of these include a signalized intersection which skews the actual segment crash rates. A sixth segment located between Milepost 0.250 and Milepost 1.173 is approximately 0.92 miles in length but also includes the signalized intersection at Clark Road.

Table 2-20 Actual and Average Crash Rates [1] (2009-2012)

Milepost No.		Length (in miles)	Classification	Total No. of Crashes	Crash Rate (crashes/million vehicle-miles)			
From	To				2010 Actual	2010 Average	2011-2014 Actual	2011-2014 Average
0.000	0.118	0.118	Suburban 2-3 Lane Divided (Paved)	83	29.023	1.567	42.567	1.907
0.118	0.250	0.132	Suburban 2-3 Lane Undivided	4	0.000	0.650	2.144	0.784
0.250	1.173	0.923	Suburban 2-3 Lane Divided (Paved)	56	3.672	1.567	3.366	1.907
1.173	1.272	0.099	Suburban 2-3 Lane Undivided	5	0.000	0.650	3.536	0.784
1.272	1.463	0.191	Suburban 2-3 Lane Divided (Paved)	4	0.000	1.567	1.466	1.907
1.463	2.167	0.704	Suburban 2-3 Lane Undivided	25	1.927	0.650	1.989	0.784
2.167	2.423	0.256	Suburban 2-3 Lane Divided (Paved)	27	2.448	1.567	5.064	1.907
2.423	2.892	0.469	Suburban 2-3 Lane Undivided	23	0.367	0.650	2.092	0.784
2.892	3.397	0.505	Suburban 2-3 Lane Divided (Paved)	12	0.341	1.567	0.971	1.907
3.397	3.793	0.396	Suburban 2-3 Lane Undivided	7	0.435	0.650	0.676	0.784
3.793	4.042	0.249	Suburban 2-3 Lane Divided (Paved)	10	0.692	1.567	1.752	1.907
4.042	4.131	0.089	Urban 4-5 Lane Divided (Paved)	39	17.425	2.337	12.273	3.874

[1] Actual and Statewide average crash rates provided by FDOT, State Safety Office.

The remaining two segments do not contain any signalized intersections. The segment located between Milepost 1.463 and Milepost 2.167 includes the portion of US 92 from west of Mo Trail Circle W. to east of Browning Road. This section of US 92 includes eleven cross streets, 17 driveways and two mobile home communities (Chapman's Mobile Home Park and Melody Acres). The segment located between Milepost 2.423 and Milepost 2.892 includes the portion of US 92 from just west of Churchill Avenue to just east of the CSX railroad crossing (Crossing No. 908373L). This portion of US 92 includes five cross streets, 12 driveways, three mobile home communities (Holiday Park, Friendship Village and Meadowbrook) and the Silver Moon Drive-In.

2.19 Utilities

The utility companies listed in **Table 2-21** were contacted by e-mail on October 13, 2014, to identify the locations and types of utilities within the project limits. Plan sheets were mailed to the companies with a request to identify the location(s) of existing facilities and planned facilities. The existing utilities include overhead electric, overhead cable, buried communication lines (coaxial and fiber optic), gas, water, and sewer. **Table 2-21** also provides a summary of the responses received from providers.

The City of Lakeland has indicated, through early discussions, that they have two utility easements adjacent to the roadway, within the project limits. The first easement is a 15-foot easement on the north side of US 92 that extends from Pine Chase Avenue to 700 feet east of Pine Chase Avenue. The second easement encompasses a lift station on the south side of US 92 near the Publix Bakery that services the Publix complex.

Table 2-21 Utility Companies

Utility Company	Buried/ Overhead	Description	Utilities on the north side of existing US 92	Utilities on the south side of existing US 92
Bright House Networks	Overhead	Cable TV on north side of US 92 from east of Pine Chase Ave to west of West Woods property. CableTV on south side of US 92 from west of West Woods property to west of Polk Parkway, then east of Polk Parkway to east of Friendship Blvd, then west of Publix Gate 8/10 to east of Wabash Ave. TV crosses US 92 at west of Advance Auto Parts driveway, east of Clark Rd, east side of Peachee Construction driveway, west side of Ruthven Commerce Center property, east of McCue Rd, west of Nassau Ave, east of Kraft Rd, west and east of Amick Lp, west of Browning Rd, west and east of Galloway Rd, west and east of Gay Rd, east side of Publix property, east of Innovatier Embedding Technologies driveway, west of Imperial Dr, and west of N Chestnut Rd.	East of Pine Chase Ave to west of West Woods property.	West of West Woods to west of Polk Parkway. East of Polk Parkway to east of Friendship Blvd. West of Publix Gate 8/10 to east of Wabash Ave.
	Buried	Fiber on north side of US 92 from west of Pine Chase Ave to the east side of Pine Chase Ave. Fiber on south side of US 92 from west of Polk Parkway to east of Clark Rd, and then east of Glades Ave to east of railroad spur (US DOT Crossing Number 624301V) near Kraft Rd. Fiber on the north side of US 92 from east of Galloway Rd to west of Gay Rd. Fiber on the south side of US 92 from east of Gay Rd to west of Friendship Blvd, and then east of Friendship Blvd to west of Publix Gate 8/10. Fiber on the north side of US 92 from west of Murray Dr to west of N Chestnut Rd. Fiber crosses US 92 at east side of West Woods property, west of Gentry Cir, east of Publix Employees Federal Credit Union, and west of Murray Dr.	West of Pine Chase Ave to the east side of Pine Chase Ave. East of Galloway Rd to west of Gay Rd. West of Murray Dr to west of N Chestnut Rd.	West of Polk Parkway to east of Clark Road. east of Glades Ave to east of railroad spur near Kraft Rd. East of Gay Rd to west of Friendship Blvd. East of Friendship Blvd to west of Publix Gate 8/10.

Table 2-21 Utility Companies (Continued)

Utility Company		Buried/ Overhead	Description	Utilities on the north side of existing US 92	Utilities on the south side of existing US 92
Central Florida Gas		N/A	No lines from County Line Rd to Wabash Ave.	n/a	n/a
City of Lakeland	Electric	Overhead	Along the north side of US 92 from County Line Rd to east of Pine Chase Ave, then crosses to south side of US 92 and continues to west side of Polk Parkway. Overhead crosses US 92 at many points. East side of Polk Parkway continues along the south side to Wabash Ave.	County Line Rd to east of Pine Chase Ave	East of Pine Chase Ave to Wabash Ave
		Buried	South side of US 92 traveling underneath the Polk Parkway.	Under Polk Parkway	Under Polk Parkway
	Fiber Optics/Telecom	Overhead	Joint use on Lakeland Electric poles. Lines traveling 2,700 feet from County Line Rd on the north side of US 92 then crosses to the south side and continues to Wabash Ave.	County Line Rd to West Polk Parkway	West of Polk Parkway to Wabash Ave
		Buried	South side of US 92 traveling underneath the Polk Parkway.	Under Polk Parkway	Under Polk Parkway
	Gas	N/A	Not involved with this project.	n/a	n/a
	Traffic	Buried	Traffic control cabinets at intersections of Airport Rd/Galloway Rd, Public Gate 8/10, and Wabash Ave.	Intersection of Airport Rd/Galloway Rd	Intersection of Airport Rd/Galloway Rd
	Wastewater	Buried	Sewer crossing US 92 at County Line Rd, Pine Chase Ave, and Clark Rd. PVC sewer along north side from Pine Chase Ave west of Polk Parkway. PVC sewer on north side from east of Galloway Rd to Publix Gate 9. CIP, HDPE and PVC sewer lines on south side from Publix Gate 9 to Edwards Ave.	Pine Chase Ave to west of Polk Parkway and east of Airport Rd/Galloway Rd to Publix Gate 9	Publix Gate 9 to Edwards Ave/S Chestnut Rd
	Water	Buried	12" water main on north side from County Line Rd to railroad tracks. Nothing from railroad tracks to Pine Chase Ave. 12" water main on south side from Pine Chase Ave to east of Pine Chase Ave. 12" water main along south side and crosses US 92 on the east side of Advance Auto Parts driveway. 16" water main on north side which switches to south side as it approaches Polk Parkway. 16" water main continues on north side to west side of Polk Parkway then switches to the south then crosses under Polk Parkway, and then switches north at Clark Rd. Transitions to a 12" water main and travels along the north side, then at Kraft Rd transitions to an 8" water main and continues to west of Churchill Ave. 8" water main on south side from west of Churchill Ave to east side of Publix property. 8" water main on north side from east side of Publix property to west of Imperial Dr. Then, 8" water main on south side to Edwards Ave, followed by 6" water main to Wabash Ave. Cased crossings under US 92 at east side of County Line Rd, east of Pine Chase Ave, east of Advance Auto Parts, west and east of Polk Parkway, west of Amick Lp, west of Brown Rd, west of Churchill Ave, east of Gay Rd, east of Publix Gate 8/10, east side of Publix property, east of Twin Lakes Cr E, west of Imperial Dr, and east of Edwards Ave.	County Line Rd to railroad tracks. East of Pine Chase Ave to Polk Parkway.	Pine Chase Ave to east of Pine Chase Ave. Polk Parkway
City of Plant City		Buried	16" HDPE water main along the west side of County Line Rd in a 30" casing.	Minor	Minor
Florida Turnpike Enterprise		N/A	No response.	-	-
Kinder Morgan/Central Florida Pipeline		Buried	Pipeline located 16' south of the eastbound travel lane from County Line Rd to approximately 800' east.	County Line Rd to approximately 800' east.	County Line Rd to approximately 800' east.

Table 2-21 Utility Companies (Continued)

Utility Company	Buried/ Overhead	Description	Utilities on the north side of existing US 92	Utilities on the south side of existing US 92
Level 3 Communications	Buried	Cables cross US 92 in two places from railroad corridor to Level 3 Communication structure or 4625 New Tampa Hwy.	Minor	Minor
Teco Peoples Gas	Buried	6" gas main on north side of US 92 from County Line Rd to Kraft Rd, then switches to south side of US 92, the 4" gas main continues to Edwards Ave. 4" gas main on the west side of Wabash Ave. Gas lines cross US 92 at east of railroad spur (US DOT Crossing Number 643801U), west of Polk Parkway (MCIS building), west of Hibiscus Pkwy (Tiger Villa Motel), west of Kraft Rd, west and east of Publix Gate 8/10, east of Publix Gate 9, east of Publix Employees Federal Credit Union, west of Twin Lakes Cir W (Innovatier Embedding Technologies), east of Murray Dr (Prestlers Motel), and west side of Wabash Ave.	County Line Rd to Kraft Rd.	Kraft Rd to Edwards Ave/S Chestnut Rd.
Verizon	Buried	4" conduit crosses US 92 on the north side east of Publix Gate 8/10 and travels to east of Publix Gate 9. 2-2" HDPE fiber optic cable from east of Friendship Blvd to west of Publix Gate 8/10.	East of Publix Gate 8/10 to east of Publix Gate 9 and east of Friendship Blvd to west of Publix Gate 8/10.	None
	Overhead	Lines from Airport Rd on the south side of US 92 to east of Friendship Blvd. Lines from west of Publix Gate 8/10 on the south side of US 92 to west of Publix Gate 7.	None	Airport Rd to east of Friendship Blvd. West of Publix Gate 8/10 to west of Publix Gate 7.

2.20 Soils and Geotechnical Data

The Soil Survey of Polk County classifies the majority of soils within the project area as Pomona fine sand (#7), Urban Land (#16), Smyrna/ Myakka fine sand (#17), Pomona-Urban land complex (#51), and Myakka-Immokalee-Urban land complex (#53). Pomona fine sand (#7) is described as a poorly drained soil with a seasonal high water table (SHWT) depth of zero to 1 foot below the existing ground and Hydrologic Soil Group (HSG) Type A/D. Urban land (#16) consists of areas that are more than 85 percent covered by existing development and does not have any reported soil characteristics. Smyrna and Myakka fine sands (#17) are described as poorly drained soils with a SHWT depth of zero to 1 foot below the existing ground and HSG Type A/D. Pomona-Urban land complex (#51) consists of areas of poorly drained Pomona soil and Urban land (both previously described) with Pomona soil making up 50 to 75 percent of the project area. Myakka and Immokalee fine sands (#53) are described as poorly drained soils with a SHWT depth of zero to 1 foot below the existing ground and HSG Type A/D. The make-up of the project area is as follows: the Myakka soil is 25 to 50 percent, the Immokalee soil is 20 to 35 percent, and the Urban land is 20 to 45 percent.

2.21 Access Management

US 92 is a two-lane undivided arterial. Although this roadway currently does not have a median (either restrictive or non-restrictive) the portion from County Line Road to Airport Road/Galloway Road is currently designated as Access Class 3, while the portion from Airport Road/Galloway

Road to Wabash Avenue is currently designated as Access Class 5. **Table 2-22** provides a listing of the minimum spacing for connections (i.e., driveways), median openings and traffic signals for arterial facilities (Access Classes 2 through 7). The minimum spacing for full median openings and traffic signals for the portion of US 92 between County Line Road and Airport Road/Galloway Road is 2,640 feet, while the minimum directional median opening spacing is 1,320 feet. The minimum spacing for full median openings and traffic signals for the portion of US 92 between Airport Road/Galloway Road and Wabash Avenue is 1,320 feet, while the minimum directional median opening spacing is 660 feet.

Table 2-22 Access Management Classification Spacing Standards

Access Class	Median Types	Connection Spacing (ft)	Median Opening Spacing (ft)		Signal Spacing (ft)
			Directional	Full	
2	Restrictive with Service Roads	1,320*/660**	1,320	2,640	2,640
3	Restrictive	660*/440**	1,320	2,640	2,640
4	Non-Restrictive	660*/440**			2,640
5	Restrictive	440*/245**	660	2,640*/1,320**	2,640*/1,320**
6	Non-Restrictive	440*/245**			1,320
7	Both Median Types	125	330	660	1,320

* For design speeds greater than 45 mph

** For design speeds less than or equal to 45 mph

Table 2-23 summarizes the number of cross street and driveway connections on both the north and south sides of US 92. A review of this table indicates that the portion of US 92 from County Line Road to Airport Road/Galloway Road has more cross streets and driveways than the portion from Airport Road/Galloway Road to Wabash Avenue.

Table 2-23 Existing Cross Street and Driveway Connections

Segment	Roadway Location	No. of Cross Street Connections	No. of Driveway Connections
From County Line Road to Airport Road/Galloway Road	North Side	5	30
	South Side	18	23
	Both Sides	23	53
From Airport Road/Galloway Road to Wabash Avenue	North Side	8	21
	South Side	8	28
	Both Sides	16	49

2.22 Structures

There are four bridges located within the project limits. Two of these are concrete flat slab bridges. Bridge No. 160117 is located over Hamilton Branch while Bridge No. 160026 is located over Winston Creek. Both of these structures are considered to be functionally obsolete due to their substandard shoulder width and non-crash tested barriers. The other two bridges (No. 160241 and No. 160242) are single span concrete AASHTO beam bridges that carry the Polk Parkway over US 92 just to the west of Clark Road. Both of these bridges are in good condition and do not need to be replaced at this time. **Table 2-24** and **Table 2-25** list the structures geometrics and conditions.

Table 2-24 Structures Geometrics

Bridge Number	Description	Station	Type of Structure	Number of Spans	Skew (degrees)	Length of Span (feet)	Total Length (feet)	Minimum Vertical Clearance (feet)
160241	SR 570 Polk Parkway Eastbound over US 92	62+79	AASHTO Beam	1	12	118.1	159.1	25.17
160242	SR 570 Polk Parkway Westbound over US 92	62+79	AASHTO Beam	1	12	118.0	160.1	25.17
160117	US 92 over Hamilton Branch	96+17	Flat Slab	1	0	32.5	32.5	N/A
160026	US 92 over Winston Creek	162+08	Flat Slab	2	0	23.0	46.2	N/A

Table 2-25 Structures Condition

Bridge Number	Description	Year Built	Year Widening	Operating Rating (Tons)	Inventory Rating (Tons)	Sufficiency Rating	Health Index	NBI Rating[1]
160241	SR 570 Polk Parkway Eastbound over US 92	1998	N/A	55.5	48.2	99.1	98.36	N/A
160242	SR 570 Polk Parkway Westbound over US 92	1998	N/A	51.9	47.5	99.1	98.63	N/A
160117	US 92 over Hamilton Branch	1925	1945	48.2	28.9	73.0	70.12	FO
160026	US 92 over Winston Creek	1926	1945	80.0	48.0	75.4	75.52	FO

1. National Bridge Inventory (NBI) Rating lists the two US 92 bridges as Functionally Obsolete (FO).

2.23 Contamination

Level I contamination evaluations were conducted for the study and a *Contamination Screening Evaluation Report* (CSER) (April 2016) was prepared.

Based on a document and site review, 13 sites along the corridor have a Medium Ranking and 4 sites have a High Ranking for potential contamination issues due to previous contamination concerns located within, directly adjacent or near the existing right-of-way. **Table 2-26** identifies the Medium and High Ranking sites.

Table 2-26 Medium and High Ranking Contamination Sites

Site	Name	Facility Address	Risk Ranking
1	SPILLS	US 92 (New Tampa Highway) and County Line Road, Polk County	Medium
3	CSX Railroad, Crossing #1	Near 7713 New Tampa Highway, Lakeland	High
7	Former Gas Station #1 (Roney Family Property, LLC)	6105 New Tampa Highway, Polk County	Medium
8	R&L Auto Repair	6050 New Tampa Highway, Polk County	Medium
10	Sunoco (M&J Jaber Petroleum LLC)	5565 New Tampa Highway, Polk County	High
12	CSX Railroad, Crossing #2	Near 5470 New Tampa Highway, Polk County	High
15	Jack's Mobile Homes Inc.	4710 New Tampa Highway, Polk County	Medium
16	Giant Food #128/Circle K #7491	4301 New Tampa Highway, Lakeland	Medium
17	Saishivani Inc./KK Food Mart	4275 New Tampa Highway, Lakeland	Medium
19	Roma Food Store (Former/Sampuruna Inc./Farm Store #555)	3975 New Tampa Highway, Lakeland	Medium
23	CSX Railroad, Crossing #3	Near 3520 New Tampa Highway, Lakeland	High
30	Former Gas Station #2 (Wayne E. Wygant)	2286 New Tampa Highway, Lakeland	Medium
31	Former Texaco-Lineberger/Pine Grove Mobile Home Park	2255 New Tampa Highway, Lakeland	Medium
32	Citgo Food Mart (Former Plus Mart #22, Former Quick Mart)	2248 New Tampa Highway, Lakeland	Medium
33	Former Gas Station #3	2142 New Tampa Highway, Lakeland	Medium
35	Former Gas Station #4	2105 New Tampa Highway, Lakeland	Medium
37	CVS Pharmacy/Former Bank of America Site	101 N. Wabash Ave./2041 George Jenkins Blvd., Lakeland	Medium

SECTION 3.0 PROJECT DESIGN STANDARDS

The design criteria for the proposed improvements to US 92 adhere to FDOT Plans Preparation Manual (PPM), 2015 and the American Association of State Highway and Transportation Official's (AASHTO's) A Policy of Geometric Design of Highways and Streets, 2004. **Table 3-1** lists the specific design criteria that were used to develop the typical sections, as well as the horizontal and vertical alignment for the proposed improvements. The design year for the proposed improvements is 2040.

Table 3-1 Design Criteria

Design Element				High Speed Urban Arterial	Values Used that Require a Variation	Documentation / FDOT Plans Preparation Manual 2016
Typical Section	Design Speed (mph)			50	-	Table 1.9.1
	Lane Widths (ft)			12	11	Table 2.1.1
	Bicycle Lane Widths (ft)			7	-	Table 2.1.2
	Minimum Median Width (ft)			40	30	Table 2.2.1
	Shoulder Width	Outside	Full (ft)	6.5	-	Section 2.16.5
			Paved (ft)	6.5	-	Section 2.16.5
		Inside	Full (ft)	4	0	Section 2.16.5
			Paved (ft)	4	0	Section 2.16.5
	Border Width (ft)			29	22	Section 2.16.7
	Recoverable Terrain (ft)			24	22	Table 2.11.11
Horizontal	Min. Stopping Sight Distance (ft)			425	-	Table 2.7.1
	Max. Deflection without Curve			1°00'00"	-	Table 2.8.1a
	Length of Curve	Desirable (ft)		750	-	Table 2.8.2a
		Minimum (ft)		400	-	Table 2.8.2a
	Max. Superelevation (%)			5	-	Table 2.9.2
	Max. Curvature (e=NC) (ft)			8,337	-	Table 2.9.2
	Max. Curvature (e max = 0.05) (ft)			2,245	-	Table 2.9.2
Vertical	Min. Vertical Clearance for Roadway over Roadway (ft)			16.5	-	Table 2.10.1
	Max. Grade (Flat Terrain) (%)			6	-	Table 2.6.1
	Max. Change in Grade without Vertical Curve (%)			0.60	-	Table 2.6.2
	Base Course Clearance Above Water Elevation (ft)			1	-	Table 2.6.3
	Crest Curve	K Value		136	-	Table 2.8.5
		Min. Length (ft)		300	-	Table 2.8.5
	Sag Curve	K Value		96	-	Table 2.8.6
		Min. Length (ft)		200	-	Table 2.8.6

SECTION 4.0 ALTERNATIVES ANALYSIS

The objective of the alternatives analysis process is to identify technical and environmentally sound alternatives that meet the needs of the project, are cost-effective, and are acceptable to the community. This section describes the alternatives considered and the results of the alternatives evaluation.

4.1 No-Build Alternative

The No-Build Alternative assumes that US 92 will remain as a two-lane undivided roadway through the design year 2040, with only routine maintenance being performed during this period. The traffic analysis conducted for the No-Build Alternative indicates that US 92 will operate at LOS E and F by 2040 without the proposed widening. This is below the acceptable LOS D standard for a two-lane facility in an urban area.

The following are the advantages and limitations associated with the No-Build Alternative:

Advantages of the No-Build Alternative:

- No additional right-of-way needed;
- No design, right-of-way, or construction costs;
- No delays to motorists or inconveniences to property owners during construction; and
- No construction impacts to the adjacent natural, physical, and social environment.

Limitations of the No-Build Alternative:

- No pedestrian and bicycle facilities added;
- Increased potential for crashes due to congested lanes and intersections;
- Increased traffic congestion and user costs associated with increased delays and reduced LOS at the intersections;
- Increased emergency vehicle response times; and
- Increased vehicle emission pollutants due to higher levels of traffic congestion.

The No-Build Alternative will remain a viable alternative throughout this PD&E study.

4.2 Transportation Systems Management and Operations

Transportation Systems Management and Operations (TSM&O) alternatives involve improvements designed to maximize the utilization and efficiency of the existing facility through improved system and demand management. The various TSM&O options generally include traffic signal and intersection improvements, access management improvements and transit improvements. The additional capacity required to meet the projected traffic volumes along US 92 cannot be provided solely through the implementation of TSM&O improvements. However, the TSM&O strategy of access management is included as part of the build alternatives.

4.3 Multi-Modal Alternatives

Citrus Connection currently provides transit (bus) service throughout a majority of the study corridor. Route 45 (the George Jenkins/Swindell Route) originates/terminates at the Downtown Lakeland Terminal on S. Florida Avenue approximately 2.5 miles to the east of the US 92/Wabash Avenue intersection. Buses travel in the westbound direction along the portion of US 92 from Wabash Avenue to Clark Road. There are currently 16 bus stops located within the study corridor and all of these are located on the north side of US 92.

4.4 Corridor Analysis

The objective of the corridor analysis process is to identify viable corridors in which technically and environmentally sound alignment alternatives can be developed. Constructing a new roadway in a corridor outside of the existing US 92 corridor would result in significant environmental impacts, relocations, and an overall cost that would be prohibitive. Based on the analysis of the study area, the existing US 92 corridor is the only viable corridor for the proposed improvements.

4.5 Alternative Evaluations

4.5.1 *Segments*

The project was divided into two evaluation segments based on the existing posted speed limit and access management classifications of the existing roadway. **Table 4-1** defines the limits of the two segments.

Table 4-1 Evaluation Segments

Segment	Begin Segment	End Segment	Segment Length (mi)	Existing Posted Speed	Existing 85th % Speed[1]	Existing Access Classification
1	County Line Rd	Airport Rd/Galloway Rd	2.29	55	52	3
2	Airport Rd/Galloway Rd	Wabash Ave	1.84	45	50	5

1. FDOT speed study performed in February 2012.

4.5.2 *Roundabout Evaluation*

Roundabouts were evaluated at all 19 roadways that intersect US 92 within the project limits. The results of the Step 1 Form are shown in **Table 4-2**. Based on question number two of the screening criteria, there are 14 intersections that have more than 90% of the total intersection AADT along US 92 than the intersecting roadway. There are 13 intersections that could result in a residential or business relocation(s) and 2 intersections could result in impacts to a historical property if a roundabout was constructed. Based on the Step 1 Roundabout Screening analysis none of the 19 intersections along US 92 were selected to advance to Step 2 evaluations. The approved Step 1 Roundabout Screening forms are included in **Appendix D**.

Table 4-2 Step 1 Roundabout Screening Results

Intersection	Screening Criteria						Advance to Step 2
	1	2	3	4	5	6	
County Line Rd	No	No	No	No	Yes	No	No
Pine Chase Ave	No	Yes	No	No	No	No	No
Advanced Auto Parts	No	Yes	No	No	No	Yes	No
Clark Rd	Yes	No	No	No	No	No	No
McCue Rd	No	Yes	No	No	No	Yes	No
Kraft Rd	No	Yes	No	No	Yes	Yes	No
Tawny Ln	No	Yes	No	No	No	Yes	No
Airport Rd/Galloway Rd	No	No	No	No	No	Yes	No
Holiday Blvd	No	Yes	No	No	No	Yes	No
Silver Moon Dr	No	Yes	No	No	No	Yes	No
Meadowbrook Ave	No	Yes	No	No	No	Yes	No
Publix Gates 8/10	No	Yes	No	No	No	Yes	No
Publix Gate 9	No	Yes	No	No	No	Yes	No
Publix Gate 7	No	Yes	No	No	No	Yes	No
Murray Dr	No	Yes	No	No	No	No	No
Imperial Dr	No	Yes	No	No	No	Yes	No
Edwards Ave/Chestnut Rd	No	No	No	No	No	Yes	No
Flint Ave	No	Yes	No	No	No	Yes	No
Wabash Ave	No	No	No	No	No	Yes	No

4.5.3 *Typical Section Evaluation*

A *Typical Section Evaluation Memorandum* was prepared under separate cover to evaluate various typical sections ranging from an urban typical section requiring 110 feet of ROW with a design speed of 45 mph to a suburban typical section requiring 152 feet of ROW with a design speed of 55 mph. Based on the existing corridor travel speeds a desirable design speed of 50 mph was selected for this project. The suburban typical section with a design speed of 50 mph requires 140 feet of ROW. A northern widening utilizing the suburban typical section would result in 23 relocations while a southern widening would result in 40 relocations. Widening US 92 with an urban typical section would result in 4 relocations with a northern widening and 21 relocations with a southern widening. The urban typical section has a desirable design speed of 45 mph, which is 5 mph lower than the selected design speed. Since the number of business and residential relocations increases significantly with a suburban typical section an urban typical section with a design speed of 50 mph was selected. This typical section requires several design variations. It should be noted that the typical section evaluation was completed before the updates were made to the Plans Preparation Manual. These updates included buffered bike lanes and lane width modifications.

4.5.4 *Viable Typical Section*

Urban Typical Section (50 mph Design Speed)

The proposed typical section includes four 11-foot travel lanes, curb and gutter, and a 30-foot grass median. Six-foot sidewalks and seven-foot buffered bicycle lanes will accommodate pedestrian and bicycle traffic along the corridor. A total of 122 feet of right-of-way is needed to accommodate the proposed improvements. The proposed typical section involves constructing four new travel lanes, without saving the existing pavement. The design speed for this urban typical section is 50 mph. The approved *Typical Section Package* (July 2015) is provided in **Appendix B**. **Table 4-3** lists the six variations included in the approved typical section.

Table 4-3 List of Variations

Variation	Value Required	Value Utilized in Typical Section
Lane Width	12 ft	11 ft
Shoulder Width	6.5 ft	No shoulder
Lateral Offset	24 ft	22 ft (North Side)
Border Width	29 ft	22 ft
Type F Outside Curb	No Type F Curb for design speed of 50 mph	Type F curb and gutter
Median Width	40 ft	30 ft

The northern typical section holds the existing southern right-of-way line and widens to the north which requires approximately 22 feet of proposed right-of-way along the north side of US 92 as illustrated in **Figure 4-1**. The southern typical section holds the existing northern right-of-way line and widens to the south which requires approximately 22 feet of proposed right-of-way along the south side of US 92 as illustrated in **Figure 4-2**.

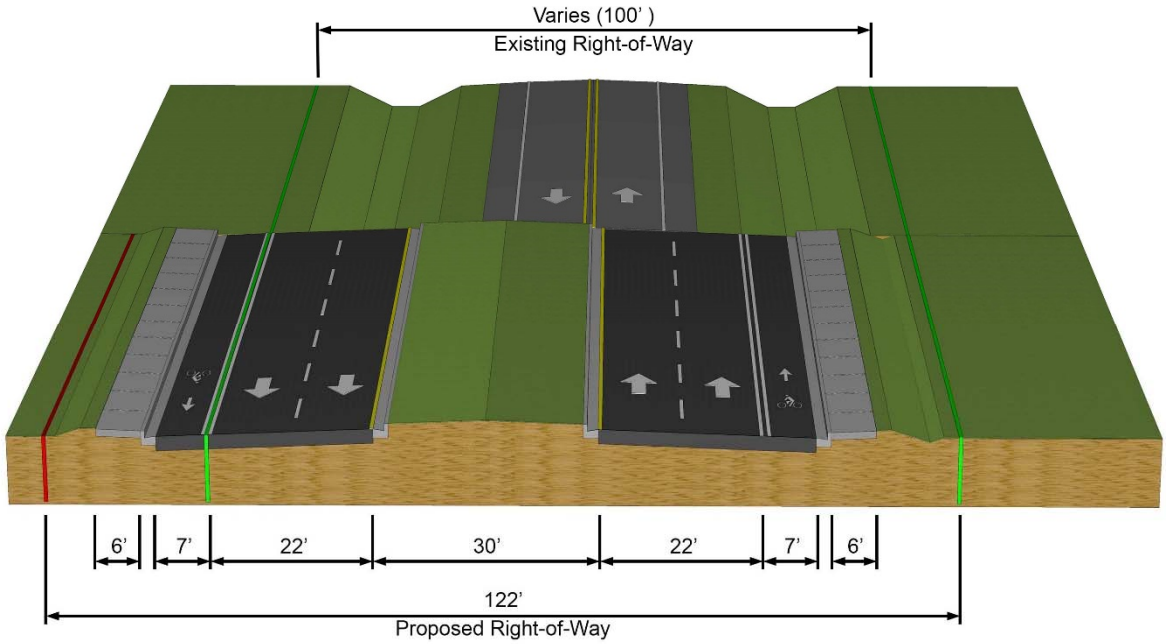

Figure 4-1 Northern Typical Section

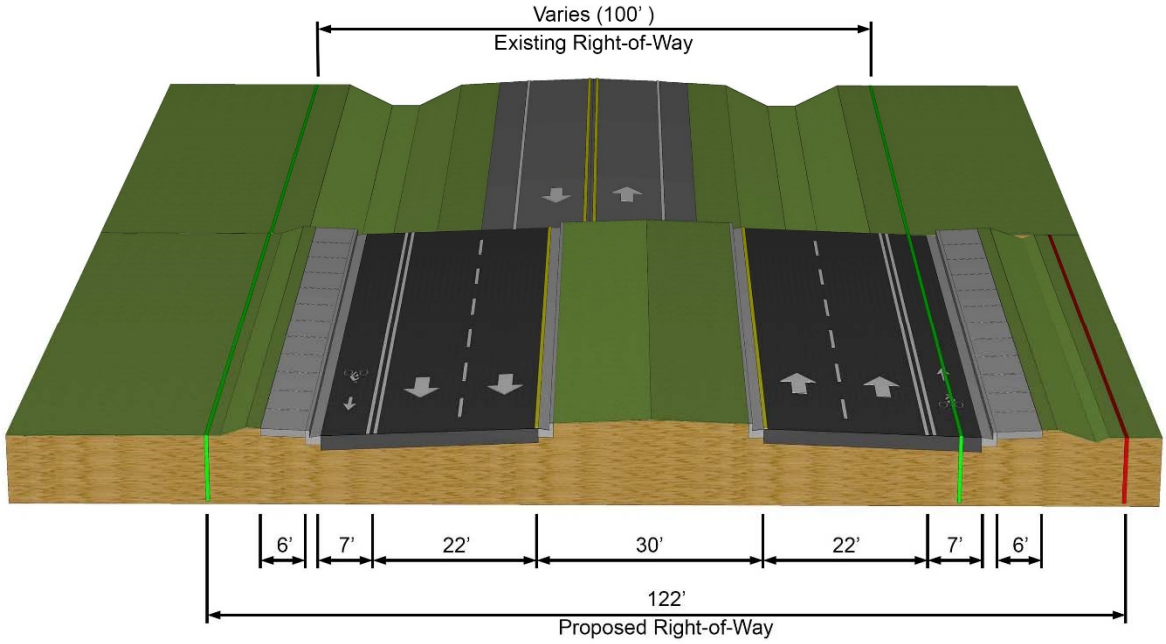

Figure 4-2 Southern Typical Section

4.5.5 *Viable Alternatives*

4.5.5.1 Northern Alternative

The northern alignment alternative involves constructing four new travel lanes, without saving the existing pavement. The majority of the northern alignment alternative shifts north of the existing

roadway and requires approximately 22 feet of proposed right-of-way along the north side of the roadway within the project limits. This alignment alternative shifts to widening along the existing alignment under the Polk Parkway bridges to minimize impacts.

4.5.5.2 Southern Alternative

The southern alignment alternative involves constructing four new travel lanes, without saving the existing pavement. The majority of the southern alignment alternative shifts south of the existing roadway and requires approximately 22 feet of proposed right-of-way along the south side of the roadway within the project limits. This alignment alternative shifts to widening along the existing alignment under the Polk Parkway bridges to minimize impacts.

The southern alignment alternative shifts to the north in three locations. The first northern shift is at the beginning of the project at County Line Road to connect with the improvements proposed by the FDOT District Seven US 92 PD&E Study widening project in Hillsborough County. The second and third northern shifts are located around the Silver Moon Drive-in and the Publix Corporate Headquarters to minimize impacts to these sites which are considered eligible for inclusion in the National Register of Historic Sites.

4.5.5.3 Evaluation Matrix

Each build alternative was evaluated based on environmental effects, ROW needs, project costs and engineering factors. The matrix shown in **Table 4-4** was displayed at the Alternatives Public Meeting on April 28, 2016 to share the results of the alternatives evaluation process. It quantifies considerations such as potential business and residential relocations, impacts to environmental resources, and the acres of ROW needed for roadway improvements and stormwater facilities. The potential for the proposed widening to impact archaeological/historic sites, noise sensitive sites, and threatened and endangered species were qualified in the matrix.

The bottom half of the matrix details cost estimates for wetland mitigation, ROW acquisition, construction, design, and construction engineering and inspection. The estimates were based on 2015 unit costs. The cost for construction engineering and inspection is estimated as 15% of the total construction cost.

Table 4-4 Alternatives Public Meeting Evaluation Matrix

Evaluation Criteria	No-Build Alternative	Northern Alternative	Southern Alternative
Business Impacts			
Number of business relocations	0	2	3
Residential Impacts			
Number of residential relocations	0	6	21
Environmental Effects			
Archaeological/Historic sites (potential)	None	Medium	Medium
Public parks, recreation areas, or wildlife refuges	None	None	None
Noise (potential)	None	Medium	Medium
Wetlands (acres)	0	1.3	0.5
Floodplains (acre feet)	0	4.3	9.8
Threatened and endangered species (potential)	None	Low	Low
Contamination sites (high / medium)	None	4 / 13	4 / 13
Right-of-Way Needs			
Right-of-way to be acquired for roadway improvements (acres)	0	12.6	12.1
Right-of-way to be acquired for stormwater facilities (acres)	0	19.1	19.1
Right-of-way to be acquired for floodplain compensation (acres)	0	10.5	10.5
Estimated Total Project Costs (2015 Cost)			
Design	$0	$4,450,000	$4,450,000
Mitigation Cost[1]	$0	$138,000	$54,000
Right-of-way cost for roadway	$0	$12,466,000	$14,488,000
Right-of-way cost for stormwater and floodplain sites	$0	$4,327,000	$4,327,000
Total Right-of-Way Cost	$0	$16,793,000	$18,815,000
Total Construction Cost	$0	$52,068,000	$52,021,000
Construction Engineering & Inspection[2]	$0	$7,810,000	$7,803,000
Preliminary Estimate of Total Project Cost (2015 Cost)	$0	$81,259,000	$83,143,000

1. Mitigation Cost was based on mitigation bank credit cost and an estimated functional loss for wetland impacts.
2. Construction Engineering & Inspection cost was estimated at 15% of the Total Construction Cost.

Reviewing the evaluation matrix, the Northern Alternative has fewer business and residential relocations, less than half the floodplain impacts, and costs approximately $2 million less than the Southern Alternative. The majority of the remaining criteria are equivalent except there are fewer wetland impacts with the Southern Alternative.

Based on the comparison of the two build alternatives and input received at the Alternatives Public Meeting, the Northern Alternative was optimized in two locations. The Northern Alternative was optimized at the west end of the project by transitioning into a suburban typical section selected by FDOT District 7 for US 92 in Hillsborough County. At the east end of the project, the alignment was shifted south to minimize impacts to the internal circulation road associated with three mobile home parks (i.e., Imperial Manor, Pine Grove, and Woodall's). Based on these modifications, the optimized Northern Alternative, hereinafter referred to as the Optimized Northern Alternative, was selected as the Preferred Alternative.

SECTION 5.0 PUBLIC INVOLVEMENT

5.1 Public Involvement Program

A comprehensive *Public Involvement Program* (PIP) (March 2014) was prepared and initiated at the start of the study. This PIP was implemented in compliance with the FDOT PD&E Manual*;* Section 339.155, F.S.; Executive Orders 11990, Protection of Wetlands and 11988, Floodplain Management*;* Council on Environmental Quality (CEQ) Regulations for implementing the procedural provisions of the National Environmental Policy Act; and 23 CFR 771.

5.2 ETDM Screening

The project was screened through the Efficient Transportation Decision Making (ETDM) process and no major issues or disputes were noted by the regulatory agencies. The project was screened through the ETDM Environmental Screening Tool (EST) (ETDM Project Number 3192) and the *Programming Screen Summary Report*, prepared under separate cover, was published on September 1, 2014 and re-published on May 31, 2017 with the approved Class of Action. Of the 21 issues examined, Contamination received a Degree of Effect (DOE) of "Substantial" and a DOE of "Moderate" was received for ten categories (Social; Relocation Potential; Aesthetic Effects; Section 4(f) Potential; Historic and Archaeological Sites; Wetlands; Water Quality and Quantity; Wildlife and Habitat; Noise; and Infrastructure). The public and officials (elected and appointed) have been kept informed about the project through the use of meetings, newsletters, and a project website.

5.3 Advance Notification

The Advance Notification package was mailed to the Florida State Clearinghouse and local and federal agencies on May 9, 2014, in accordance with Governor's Executive Order 95-359 – Florida State Clearing House and President's Executive Order 12372 – Intergovernmental Review of Federal Programs. The comments received through the Advance Notification process were limited to respective agency permitting requirements and identified minimizing impacts to residences along the project with proposed widening improvements. There were no adverse comments regarding the proposed roadway improvements and all comments have been addressed.

5.4 Newsletters

Newsletters were prepared to inform the public of upcoming opportunities for comment and review of project materials. An original property owners mailing list was developed from information in the Polk County Property Appraiser's website. This list was updated as requests were received by citizens to be added to the list, either through the project website, or though meeting with citizens and business owners within the study area.

The first newsletter was issued on May 4, 2014 to inform the public of the start of the project and included a discussion of the study process and schedule. The newsletter also encouraged the

need for public input and provided information on points of contact within the Department regarding citizen comments and concerns. The second newsletter was mailed on April 8, 2016 and provided an overview of the study progress to date and notified the public of the Alternatives Public Meeting. The third newsletter was mailed on March 17, 2017. It presented the Preferred Alternative for the proposed roadway widening and served as notification of the Public Hearing.

A final project newsletter will be sent to the property owners and interested citizens to announce the final approval (i.e., Location and Design Concept Acceptance) of the environmental document.

5.5 Agency Coordination

Numerous agencies were identified that would have an interest in the US 92 PD&E Study. The agency mailing list included representatives from the ETAT such as federal and state government, and state permitting agencies.

A meeting was held on December 18, 2014 with the City of Lakeland and Publix. The meeting provided an overview of the project, including project limits, and project schedule.

A meeting was held on March 31, 2016 with the City of Lakeland. The meeting provided an overview of the alignment alternatives evaluated that would be displayed to the public at the Alternatives Public Meeting.

A presentation was made to the Polk County Technical Advisory Committee on July 28, 2016. The presentation provided an overview of the project, including project limits, the need for the project, alignment alternatives evaluated, and a summary of the Alternatives Public Meeting.

A presentation was made to the Polk County Transportation Planning Organization on August 11, 2016. The presentation provided an overview of the project, including project limits, the need for the project, alignment alternatives evaluated, and a summary of the Alternatives Public Meeting.

A meeting was held on October 30, 2016 with the Holiday Park Mobile Home Park. The meeting was an informal question and answer format with approximately 56 residents attending. A comment form was handed out to all residents and an exhibit illustrating the proposed improvements in their area was displayed at the meeting. This exhibit was uploaded to the project website. The residents had several questions about the project and one comment form was received at the meeting.

A presentation was made to the Polk County Technical Advisory Committee on May 25, 2017. The presentation provided an overview of the project, including project limits, the need for the project, the Preferred Alternative selected, and a summary of the Public Hearing.

A meeting was held on April 26, 2017 with Publix to discuss their comments with the Preferred Alternative. Their comments included the location of stormwater pond number 5 (south of Publix Gate 9), an additional full median opening, and two additional traffic signals.

A meeting was held on May 22, 2017 with Harrell's to discuss their access management comments with the Preferred Alternative. Their comments included changing a dual directional median opening to a full median opening at their new main entrance.

A meeting was held on May 23, 2017 with The Ruthvens to discuss their comments with the proposed right-of-way impacts of the Preferred Alternative. The Preferred Alternative will impact a row of existing parking in front of all three buildings.

5.6 Alternatives Public Meeting

An Alternatives Public Meeting was held on April 28, 2016 from 5:00 PM to 7:00 PM at the Lakeland Center in Lakeland. The purpose of the workshop was to provide interested persons information on the roadway widening alignment alternatives developed to date for US 92 and to allow the public the opportunity to comment. No formal presentation was made, but a project video was shown continuously. The video included an overview of the PD&E study process, a description of the alternatives being considered, the estimated project costs and discussion regarding the overall project schedule. The materials on display and handed out at the workshop were uploaded to the project website for public viewing.

The meeting was attended by 35 citizens and one elected official. All attendees were given the opportunity to provide written comments at the meeting or within the 10-day comment period. Two written comments were received at the meeting and three comments were received during the 10-day comment period following the meeting. The comments included questions about business access and U-turns and concerns about potential business impacts to the Silver Moon Drive-In.

5.7 Public Hearing

A Public Hearing was held on April 13, 2017, at the Lakeland Center in Lakeland. The purpose of the hearing was to provide interested persons information on the Preferred Alternative selected by FDOT, and to allow the public the opportunity to comment. The meeting began with an open house from 5:00 PM to 6:00 PM, followed by opening remarks and an audiovisual presentation at 6:00 PM The audiovisual presentation discussed the project in detail. These details included the PD&E study process, a discussion regarding the overall project, the Preferred Alternative selected by FDOT, the estimated project costs, and relocation resources available for displaced residents.

The Public Hearing was attended by 58 citizens, there were no elected officials in attendance. A 15-minute intermission began at 6:22 PM and the public testimony period began at 6:37 PM During the public testimony period, five citizens gave oral statements. Seven comments were received at the hearing and seven during the 10-day comment period following the hearing, ending April 24, 2017. Of those fourteen comments, four comments were in favor of the roadway widening, one comment was in favor of adding sidewalks to the existing two-lane road, five comments expressed concern about access to businesses with the addition of a median, three comments expressed concerns about noise barriers, one comment was in favor of a separate turn lane for Silver Moon Drive-In, one comment had a question about a potential pond location, one comment expressed concern about proposed right-of-way impacting business parking, two comments had questions about project funding, and one comment was in favor of future street lighting. The Public Hearing ended at 6:50 PM Hearing materials were posted to the project website on April 13, 2017.

After considering their comments in more detail and reviewing the Preferred Alternative, written responses were mailed/emailed to all following the Public Hearing. The complete comments and responses are included in the *Public Hearing Transcript Certification* (May 2017) package with the public hearing transcript.

SECTION 6.0 DESIGN DETAILS OF PREFERRED ALTERNATIVE

Based on the evaluation of the alternatives described in **Section 4.0** the Optimized Alternative is recommended by FDOT as the Preferred Alternative. The Preferred Alternative is illustrated on the concepts plans contained in **Appendix A**.

6.1 Typical Section

The preferred typical section consists of four 11-foot travel lanes, curb and gutter, and a 30-foot grass median. Six-foot sidewalks and seven-foot buffered bicycle lanes will accommodate pedestrian and bicycle traffic along the corridor. This typical section requires approximately 22 feet of proposed right-of-way as illustrated in **Figure 6-1.** The signed typical section is provided in **Appendix B** in the *Typical Section Package* (July 2015)**.** The design speed for this project is 50 mph.

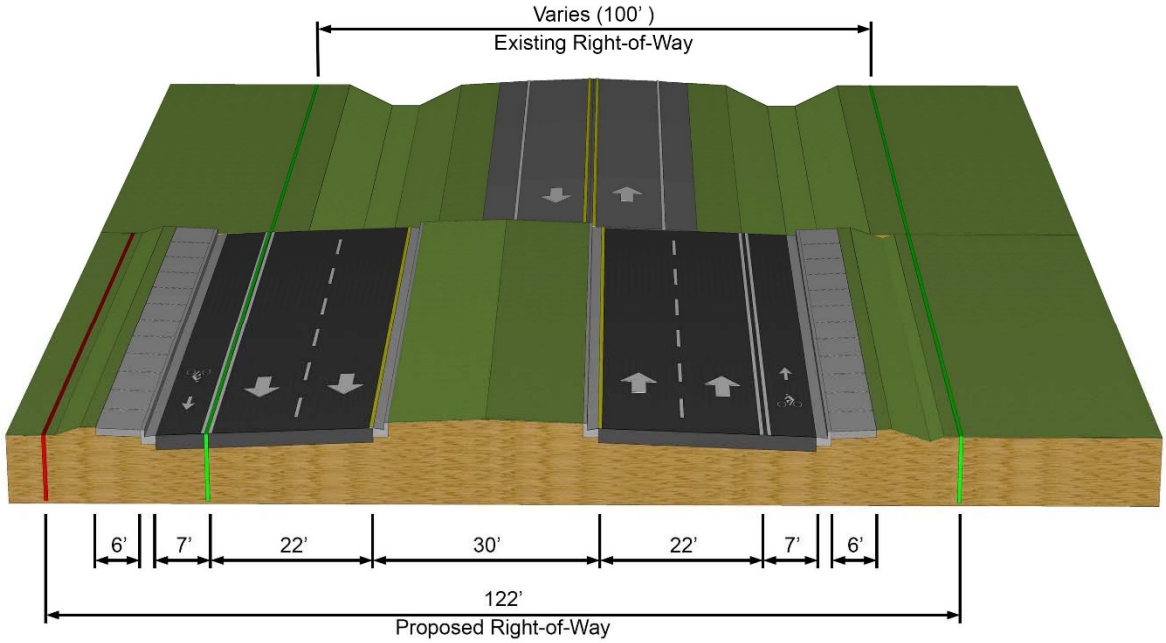

Figure 6-1 Preferred Typical Section

The proposed widening of US 92 holds the existing southern right-of-way line and widens to the north which requires approximately 22 feet of proposed right-of-way along the north side of US 92. The northern widening pertains to the majority of the project limits except for two locations. The alignment shifts to widening along the existing alignment under the Polk Parkway bridges to minimize impacts and shifts to the south at the east end of the project (from Twin Lakes Circle East to Wabash Avenue) to minimize impacts to residential communities and their internal circulation roadways.

6.2 Design Year Traffic Volumes

The traffic analysis findings conducted during the PD&E Study are documented in the *Design Traffic Technical Memorandum* (August 2016) prepared under separate cover.

Design year (2040) AADT volumes were developed for this study using the Polk County Transportation Planning Organization's 2035 travel demand model. The roadway network included in this travel demand model represented the financially feasible roadway network as defined in the TPO's adopted 2035 Financially Feasible Long Range Transportation Plan. This was the most current version of the TPO's long range transportation planning model available at the time the traffic projections were developed for this study. The 2035 AADT volumes that were estimated using this travel demand model were escalated to the design year 2040 using an average growth rate of 1.7% per year. This growth rate was selected based on a review of the projected Polk County population growth for the period from 2012 to 2040 obtained from the Bureau of Economic and Business Research. The design year (2040) AADT volumes for the Build Alternative are graphically illustrated in **Figure 6-2**.

Design year (2040) peak hour peak direction volumes were estimated for the study corridor by multiplying the 2040 AADT volumes by a K-factor equal to 9.0% and a D-factor equal to 56.0%. The K-factor represents the percentage of the daily volume that occurs during the peak hour and the D-factor represents the percentage of the two-way peak hour traffic volume that travels in the peak direction. The design year (2040) peak hour off-peak direction volumes were estimated by subtracting the peak direction volumes from the two-way peak hour volumes. Design year (2040) peak hour volumes were estimated for each of the 19 study intersections by multiplying the peak hour directional volumes by the existing peak hour turning movement percentages. The design year (2040) peak hour intersection volume development process was facilitated through the use of the FDOT's TURNS5 software. Manual adjustments were also made to ensure that departure volumes and approach volumes at adjacent intersections were equal and to account for the proposed median opening locations. The design year (2040) peak hour intersection volumes that were derived for the Build Alternative are graphically illustrated in **Figure 6-3**.

6.2.1 *Design Year Level of Service and Intersection Geometrics*

Figure 6-4 illustrates the recommended intersection lane geometry for the Build Alternative. A signalized arterial analysis was conducted using the 2010 HCS software to determine the design year (2040) level of service along US 92. **Table 6-1** summarizes the results of the AM and PM peak hour signalized arterial analysis. The overall study corridor is projected to operate at LOS C or better in both the eastbound and westbound travel directions during both peak hours.

Table 6-1 Design Year (2040) Arterial Level of Service – Build Alternative

Segment	AM Peak Hour LOS		PM Peak Hour LOS	
	Eastbound	Westbound	Eastbound	Westbound
County Line Rd to Clark Rd	F	C	B	C
Clark Rd to Airport Rd	C	B	F	B
Airport Rd to Publix Gate 8/10	B	C	B	F
Publix Gate 8/10 to Wabash Ave	C	B	C	B
Overall Facility	C	B	C	C

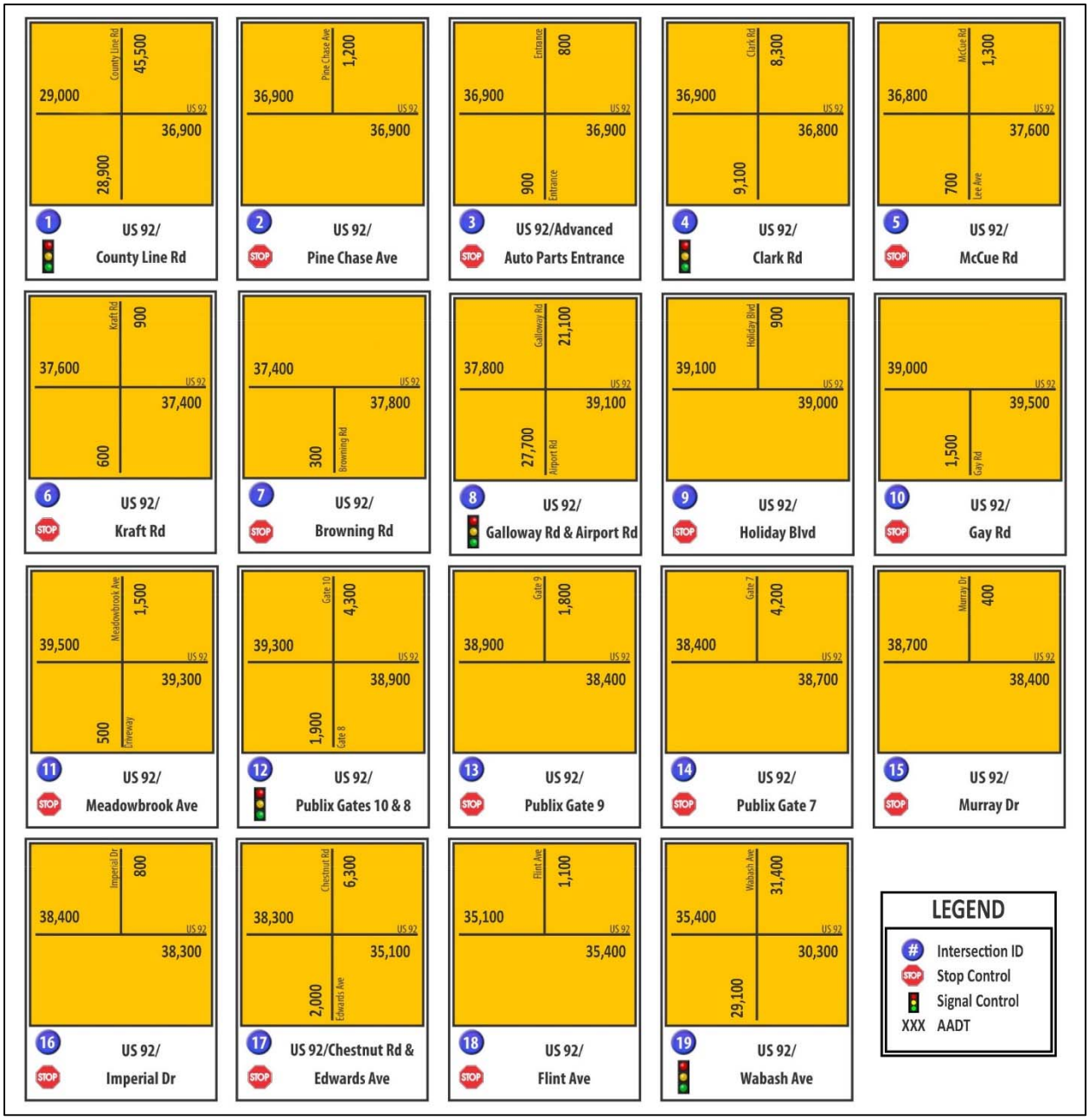

Figure 6-2 Design Year (2040) AADT Volumes – Build Alternative

Figure 6-3 Design Year (2040) Peak Hour – Build Alternative

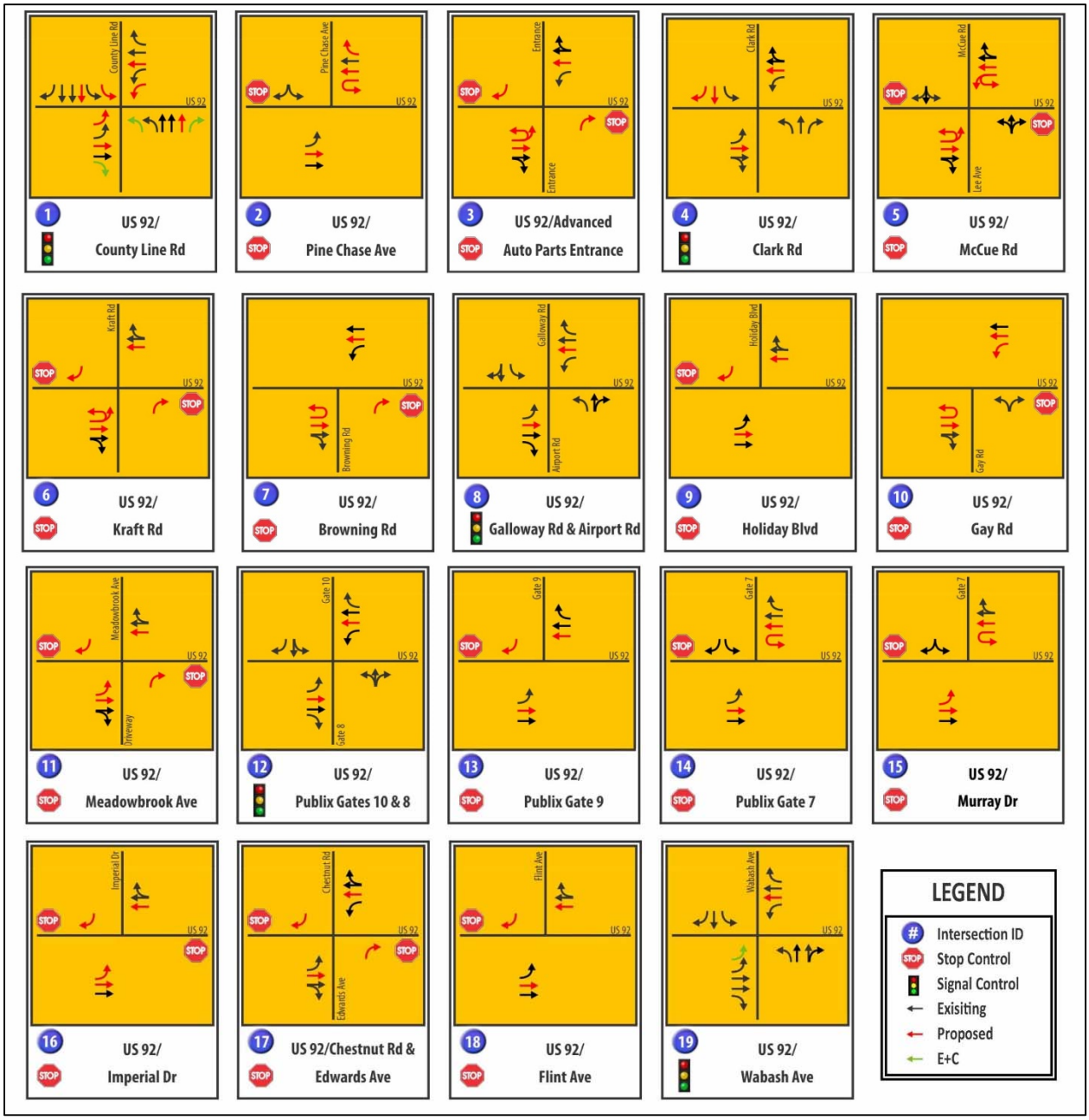

Figure 6-4 Design Year (2040) Lane Geometry – Build Alternative

6.3 Variations and Exceptions

The design criteria used for this project is provided in **Table 3-1**. The Preferred Alternative requires six design variations for lane width, inside shoulder width, lateral offset, border width, Type F outside curb, and median width. The signed design variations are explained below and are provided in **Appendix C**. No design exceptions are anticipated.

These design variations have been requested in anticipation that the posted speed after construction will be 50 mph to match the FDOT Spot Speed Study for the project limits. Several

typical sections were evaluated for this project including wider suburban typical sections that resulted in no design variations. These wider suburban typical sections resulted in more impacts to the community with a range of 23 to 40 total potential relocations. By reducing the suburban typical section width, which requires six design variations, the total number of potential relocations was reduced to seven for the Preferred Alternative. This results in the relocation of five residences and two businesses.

6.4 Right-of-Way Needs and Relocations

The majority of the existing right-of-way width along US 92 is 100 feet. The Preferred Alternative will require an additional 22 feet of right-of-way mainly on the north side of US 92 except for two locations. The alignment shifts to widening along the existing alignment under the Polk Parkway bridges to minimize impacts and shifts to the south at the east end of the project (from Twin Lakes Circle East to Wabash Avenue) to minimize impacts to residential communities and their internal circulation roadways. The additional right-of-way required for the widening of US 92 will result in the relocation of five residences and two businesses. Additional right-of-way will be required for offsite stormwater management facilities and floodplain compensation sites. The additional right-of-way for drainage requirements will not result in any residential or business relocations. The proposed right-of-way requirements for the US 92 roadway improvements, including the locations of the residential and business relocations, are shown on the Preferred Alternative concept plans included in **Appendix A**.

6.5 Bridge Analysis

There are four bridges located within the project limits. Two of these are concrete flat slab bridges. Bridge No. 160117 is located over Hamilton Branch while Bridge No. 160026 is located over Winston Creek. Both of these structures are considered to be functionally obsolete due to their substandard shoulder width and non-crash tested barriers. Both of these bridges were originally constructed over 90 years ago. The other two bridges (No. 160241 and No. 160242) are single span concrete AASHTO beam bridges that carry the Polk Parkway over US 92 just to the west of Clark Road. Both of these bridges are in good condition and do not need to be replaced at this time. **Table 6-2** lists the structures conditions.

Table 6-2 Structures Condition

Bridge Number	Description	Year Built	Year Widening	Operating Rating (Tons)	Inventory Rating (Tons)	Sufficiency Rating	Health Index	NBI Rating[1]
160241	SR 570 Polk Parkway Eastbound over US 92	1998	N/A	55.5	48.2	99.1	98.36	N/A
160242	SR 570 Polk Parkway Westbound over US 92	1998	N/A	51.9	47.5	99.1	98.63	N/A
160117	US 92 over Hamilton Branch	1925	1945	48.2	28.9	73.0	70.12	FO
160026	US 92 over Winston Creek	1926	1945	80.0	48.0	75.4	75.52	FO

1. National Bridge Inventory (NBI) Rating lists the two US 92 bridges as Functionally Obsolete (FO).

Based on inspection reports, engineering judgment, costs, and consideration of the Preferred Alternative, replacing both the Hamilton Branch and Winston Creek bridges is recommended. The approved bridge typical section for both bridges is included in **Appendix B**.

6.6 Access Management

US 92 is a two-lane undivided arterial. Although this roadway currently does not have a median (either restrictive or non-restrictive) the portion from County Line Road to Airport Road/Galloway Road is currently designated as Access Class 3, while the portion from Airport Road/Galloway Road to Wabash Avenue is currently designated as Access Class 5.

The access management plan was established using Access Class 5 for the entire study corridor with restrictive median openings to regulate access. The first step was to evaluate side streets, business and residential driveways for the location of median openings. The access management plan for US 92 has 10 full median openings and 16 directional median openings. The access management plan is illustrated on the Preferred Alternative included in **Appendix A**.

Based on Public Hearing comments and responses the following access management items will be further evaluated during the design phase of the project:

- Potential bulb-out locations for design vehicle (WB-62FL) U-turns.
- The potential relocation of the first dual directional median opening east of Clark Road from Green Village to the west entrance of Tiger Villa Motel.
- The potential modification of the access to and from Harrell's via US 92. Additional turning movement counts will be collected during the design phase to assist with the evaluation of the proposed access management plan.
- The potential modification of the eastbound directional median opening at Publix Gate 9 to a dual directional median opening.

The proposed typical section for US 92 does not allow for design vehicle (WB-62FL) U-turn movements without additional pavement. This additional pavement could be located at a cross street that has curb-returns large enough to allow for U-turns or at a bulb-out. The provision of bulb-outs would require additional right-of-way and, depending on the location, could result in potential relocations. Circulation of larger vehicles in the area between County Line Road and Galloway Road can be accomplished by using either US 92 or the Frontage Road on the south side of I-4. US 92 and the Frontage Road can be accessed by Clark Road, McCue Road, and Kraft Road in this area. South of US 92, CR 542 or Old Tampa Highway/Allen K Breed Highway can be accessed by County Line Road, Clark Road, and Airport Road. The southern alternative for circulation in this area will require crossing the CSX Railroad twice. Circulation of larger vehicles in the area between Galloway Road and Wabash Avenue requires a little more travel due to the offset of the parallel roadways with US 92. The use of bulb-outs along US 92 would minimize the length of trips for larger vehicles compared to utilizing other existing roadways within the area. The number and location of potential bulb-outs could be minimized to reduce the right-of-way impacts.

The first dual directional median opening east of Clark Road allows eastbound left-turns into Green Village and westbound left-turns for U-turns only. A potential change to evaluate during

the design phase would be to move this median opening to the west and allow eastbound left-turns into the west driveway for the Tiger Villa Motel and westbound left turns into the "For Lease" parcel.

The turning movement counts utilized for the development of the access management plan were collected in the beginning of the PD&E study. Later in the study, Harrell's expanded their operations and relocated their main entrance from Kraft Road to US 92. Additional turning movement counts from McCue Road to Tawny Lane collected during the design phase could be utilized by the design team to identify any potential changes in this area.

The existing eastbound directional median opening at Publix Gate 9 is a single opening. Based on Publix's future plans to develop the land south of Publix Gate 9, a dual directional median opening should be evaluated at this location during the design phase.

6.7 Utility Impacts

The list of utility agencies/owners known to operate utilities within the project corridor include:

- Bright House Networks
- City of Lakeland – Electric, Fiber Optics/Telecom, Traffic, Wastewater, and Water
- City of Plant City
- Florida Turnpike Enterprise
- Kinder Morgan/Central Florida Pipeline
- Level 3 Communications
- TECO-Peoples Gas
- Verizon

Widening US 92 will require relocations of existing utilities. Cost estimates will be determined in the final design phase. FDOT's coordination with potentially affected utility owners will continue as necessary throughout the future project design and construction phases. Project design will seek to avoid and minimize impacts to existing utilities to the extent feasible within the roadway right-of-way.

6.8 Railroad Crossings

The US 92 project is located north of the CSX Transportation A-Line. The CSX A-Line is parallel to US 92 and offsets are listed in **Table 6-3**. There are three spur lines from the CSX A-Line that cross US 92 within the project limits. The location of the three spur lines crossing US 92 and the County Line Road crossings are listed in **Table 6-4**. All four locations are single track crossings. This table also contains information regarding the number of train crossings per day, train crossing speeds and number of school bus crossings. Although the number of train crossings at two of the three spur locations are less than or equal to two trains per day, the spur line located to the east of Kraft Road currently has 13 train crossings per day.

Table 6-3 CSX A-Line Location

Cross Street	Station	Distance from CSX A-Line to US 92 (feet)
County Line Rd	10+42	75
Clark Rd	64+86	540
Airport Rd/Galloway Rd	166+23	620
Wabash Rd	228+71	915

Table 6-4 Railroad Crossings

Location	Station	Crossing Number	Railroad Milepost	Estimated Number of Daily Train Movements				Max. Train Speed	School Bus Crossing per Day
				Day Time	Night Time	Switching	Transit		
East of County Line Rd	17+69	643801U	856.99	<1	0	0	-	25	12
East of Kraft Rd	98+49	624301V	855.20	5	6	2	-	10	20
West of Publix Gate 8/10	162+82	908373L	854.03	0	0	2	-	10	22
County Line Rd South of US 92	-	624304R	857.03	4	3	7	-	79	10

6.9 Temporary Traffic Control Plan

The proposed construction of the US 92 improvements can be accomplished in four phases. The first phase would consist of constructing the proposed stormwater facilities, floodplain compensation sites, and the north end of both the Hamilton Branch and Winston Creek Bridges under the proposed westbound lanes. The proposed eastbound lanes at the east end of the project from Murray Drive to Wabash Avenue can also be constructed during the first phase. The second phase would involve constructing the westbound lanes along the north side of the existing US 92 roadway. Once the two westbound lanes are constructed, the existing two lanes of US 92 traffic can be relocated to the newly constructed lanes. The third phase would consist of constructing the eastbound lanes and completing the construction of both the Hamilton Branch and Winston Creek Bridges. The fourth phase would involve completing the median construction, the final roadway friction course, and the final pavement markings.

The four phases of construction may be altered based on the construction schedule of the CSX railroad crossings. The construction and upgrades to the three CSX Railroad crossings located east of County Line Road, east of Kraft Road, and West of Publix Gate 8/10 will need to be coordinated with CSX. Based on the construction schedule, additional temporary pavement may be needed.

6.10 Bicycle and Pedestrian Accommodations

The proposed typical section provides a six-foot sidewalk and seven-foot buffered bicycle lane on both sides of the roadway. The sidewalk and bicycle facilities in the project will be designed and constructed to comply with the Americans with Disabilities Act (ADA) of 1990, as amended. The sidewalks will meet ADA requirements for access, width, and grade.

6.11 Preliminary Drainage Analysis

A *Location Hydraulic Report* (LHR) (October 2016) and a *Pond Siting Report* (PSR) (October 2016) were completed under separate cover. These studies were prepared as part of the PD&E study.

6.11.1 *Location Hydraulics*

The purpose of the *LHR* is to address base floodplain encroachments resulting from the roadway improvements evaluated in the PD&E Study. The intent is to avoid or minimize highway encroachments with the 100-year floodplains and to avoid supporting land use development incompatible with floodplain values. The Preferred Alternative will result in 13.39 acre-feet of potential floodplain impacts that will be compensated in three floodplain compensation ponds. **Table 6-5** lists the sizes of all three floodplain compensation ponds and the total area.

Table 6-5 Floodplain Compensation Ponds

Floodplain Compensation Pond	Area (Acres)
FPC1	0.70
FPC2	6.95
FPC3	2.82
Total	10.47

During the final design phase of the project, appropriate steps will be taken to minimize the floodplain impacts. This project may affect the 100-year floodplain in three different ways:

1. Transverse impacts resulting from cross drain extensions and bridge replacements.
2. Longitudinal impacts resulting from the road widening in areas of 100-year floodplain.
3. Impacts due to stormwater management facilities located adjacent to wetland and storage areas.

The proposed cross drains and floodplain compensation areas will perform hydraulically in a manner equal to or greater than the existing condition, and surface water elevations are not expected to increase upstream or downstream of the project limits. The proposed modifications to the US 92 roadway will result in an insignificant change in their capacity to carry floodwater. This change will cause minimal increases in flood heights and flood limits. These minimal increases will not result in any significant adverse impacts on the natural and beneficial floodplain values or any significant change in flood risks or damage. There will be no significant change in potential interruption or termination of emergency service or emergency evacuation routes. Therefore, it has been determined that this encroachment will have no significant impact on floodplains.

6.11.2 *Stormwater Management*

The purpose of the *PSR* is to discuss the stormwater management plan for the project. The report identifies alternative pond locations, discusses right-of-way requirements, and documents possible environmental impacts associated with the alternative pond sites. In addition, the report identifies one alternative pond site for each sub-basin. There are six sub-basins delineated along the project.

Stormwater runoff from US 92 will be collected and conveyed to stormwater management facilities by curb and gutter. These stormwater management facilities will provide water quality (treatment) and water quantity (attenuation). The method of stormwater treatment for this project includes wet detention due to the high Seasonal High Water Table.

The pond sizes were estimated using SWFWMD and FDOT water quality treatment and attenuation requirements. Floodplain compensation sites were sized using the 100-year elevations from the Draft SWFWMD Itchepackesassa Watershed model. Compensation for floodplain impacts was provided in floodplain compensation sites to show no adverse floodplain stage increases. **Table 6-6** lists the six stormwater management facilities.

The proposed stormwater facilities design will include, at a minimum, the quantity requirements for water quality impacts as required by the SWFWMD and will be designed to meet state water quality and quantity requirements, and best management practices will be utilized during construction. In accordance with Part 2, Chapter 20 (recently renumbered to Chapter 10) of the FDOT's PD&E Manual, a *Water Quality Impact Evaluation* (WQIE) (dated January 2017) was prepared under separate cover for the project. Therefore, the Preferred Alternative is expected to have no significant impact on water quality and quantity.

Table 6-6 Stormwater Management Facilities

Basin	SMF Alternative	SMF Area (Acres)
1	SMF1	2.35
2	SMF2	3.38
3	SMF3	4.00
4	SMF4	2.53
5	SMF5	2.88
6	SMF6	3.96
	Total	19.10

6.12 Horizontal and Vertical Geometry

The horizontal alignment for the Preferred Alternative contains eight horizontal curves within the project limits. The horizontal curves range in radius from 3,850 to 8,337 feet with one curve requiring a superelevation rate of 3.1%. The minimum radius curve is located west of Clark Road along the westbound lanes to transition from an 18-foot median under the Polk Parkway bridges to a 30-foot median. Plan sheets illustrating the Preferred Alternative are included in **Appendix A**.

The elevations along US 92 start at 147 feet around County Line Road and drop to elevation 127 feet west of Airport Road/Galloway Road. US 92 rises to west of Gay Road to elevation 136 feet then drops to elevation 132 feet around Publix Gate 8/10 and slowly rises to elevation 137 feet at Murray Drive and rises to 157 feet at Wabash Avenue. The Preferred Alternative follows the existing profile of US 92 while maintaining a minimum grade of 0.3% to allow for proper drainage in the curb and gutter.

6.13 Roundabouts

A roundabout feasibility evaluation was performed for all 19 roadways that intersect US 92. There are 14 intersections that have more than 90% of the total intersection AADT along US 92. The implementation of a roundabout could result in one or more residential or business relocation at 13 intersections and could also impact historic properties at 2 intersections. Based on the Step 1 Roundabout Screening analysis, none of the 19 intersections along US 92 were selected to advance to Step 2 evaluations. The signed Step 1 Roundabout Screening forms are included in **Appendix D**.

6.14 Cost Estimates

The project costs estimated for the Preferred Alternative are summarized in **Table 6-7**. Construction costs were estimated using the FDOT's Long Range Estimate (LRE) program and this is provided in **Appendix E**. The cost for construction engineering and inspection was estimated at 15% of the total construction cost.

Table 6-7 Project Cost Estimate

Project Phases	Optimized Alternative
Design	$4,450,000
Mitigation Cost[1]	$761,000
Right-of-way cost for roadway	$12,161,000
Right-of-way cost for stormwater and floodplain sites	$4,327,000
Total right-of-way cost[2]	$16,488,000
Total construction cost[3]	$52,752,000
Construction Engineering & Inspection[4]	$7,913,000
Preliminary Estimate of Total Project Cost	$82,364,000

1 Mitigation Cost was based on mitigation bank credit cost and an estimate of wetland function and value loss associated with wetland impacts.

2 Right-of-way cost estimates were prepared by FDOT in July 2016.

3 Construction costs were prepared by FDOT in December 2016.

4 Construction engineering & inspection is estimated at 15% of the total construction cost.

6.15 Environmental Impacts

6.15.1 *Cultural Impacts*

6.15.1.1 Historical and Archaeological

A Cultural Resource Assessment Survey (CRAS) was conducted in accordance with requirements set forth in the National Historic Preservation Act of 1966, as amended, and Chapter 267, Florida Statutes (FS). The investigations were carried out in conformity with Part 2, Chapter 12 (recently renumbered to Chapter 8) (Archaeological and Historical Resources) of the FDOT PD&E Manual and the standards contained in the Florida Division of Historical Resources' (FDHR) Cultural Resources Management Standards and Operations Manual (FDHR 2003; FDOT 1999). In addition, the survey met the specifications set forth in Chapter 1A-46, Florida Administrative Code (FAC).

The CRAS included background research and a field survey, including a review of the Florida Master Site File (FMSF) and the National Register of Historic Places (NRHP). The assessment indicated that eight archaeological sites have been recorded within one mile of the project, but none are contained within the Area of Potential Effect (APE). The site location predictive model for the region indicated a variable potential for archaeological sites within the study corridor and pond alternatives. As a result of this survey, no archaeological sites were discovered.

6.15.1.2 Historical

The assessment indicated that eight historic resources (50 years of age or older) were previously recorded within the APE. The Polk County Line Obelisk (8HI5328) is eligible for the NRHP at the local level under Criterion A in the areas of Transportation and Local History. The Silver Moon Drive-In Resource Group (8PO7950), with these five contributing resources (8PO6530, 8PO7951-7954), is considered eligible for the NRHP at the state level under Criterion A in the areas of Entertainment/Recreation, Social History, and for its contributions to Florida's development of highway culture, and under Criterion C in the area of Architecture.

Aside from the newly recorded Silver Moon Drive-In Resource Group and contributing structures, historical field survey resulted in the identification of 107 newly recorded historic resources (50 year of age or older). One of these resources, the Publix Corporate Headquarters (8PO7894), is considered eligible for the NRHP at the state level under Criterion A in the areas of Commerce and Florida history, under Criterion B for its association with George W. Jenkins, and under Criterion C in the area of Architecture. All of the other buildings, resource groups, and linear resources represent commonly occurring types of architecture and/or engineering for the locale, and none is associated with significant historical events or persons.

In summary, there are eight significant cultural resources within the US 92 project APE; the Polk County Line Obelisk (8HI5328), the Silver Moon Drive-In Resource Group (8PO7950) and its five contributing resources (8PO6530, 8PO7951-7954), and the Publix Corporate Headquarters (8PO7894). The CRAS report (September 2014), prepared under separate cover, was submitted to the Federal Highway Administration (FHWA) on October 22, 2014, for review and transmittal to the State Historic Preservation Officer (SHPO). FHWA found the CRAS complete and sufficient on November 3, 2014. FHWA transmitted the CRAS report to the SHPO, who found the CRAS

report complete and sufficient on December 5, 2014. The concurrence letter signed by FHWA and SHPO is included in **Appendix F**.

Consistent with Part 2, Chapter 12 (recently renumbered to Chapter 8) of the FDOT's PD&E Manual, a *Section 106 Consultation Case Study Report* (March 2017) was prepared for this project, under separate cover. The objective of the report is to evaluate the potential effects (primary and secondary) of the proposed undertaking to the three eligible historic properties located within the project APE. In consultation with the SHPO, the FDOT Office of Environmental Management (OEM) has applied the Criteria of Adverse Effect found in 36 CFR Part 800.5 to the three eligible historic resources considered eligible for listing in the NRHP located within the APE. Findings suggest *no adverse effect* to the Silver Moon Drive-In Resource Group; and *no effect* for the Polk County Line Obelisk and the Publix Corporate Headquarters.

The *Section 106 Consultation Case Study Report* was submitted to SHPO on March 17, 2017 and the OEM on March 23, 2017 for review. SHPO found the report complete and sufficient on April 21, 2017 and the FDOT OEM accepted the report on April 27, 2017. The concurrence letter signed by SHPO and FDOT OEM acceptance are included in **Appendix F**. The Preferred Alternative is expected to have no significant impact on historic sites/districts.

6.15.2 *Natural Resources*

6.15.2.1 Wetlands

In accordance with *Executive Order 11990, Protection of Wetlands, dated May 23, 1977, US Department of Transportation Order 56601.A*, Preservation of the Nation's Wetlands, dated August 24, 1978, and FDOT's PD&E Manual, Part 2, Chapter 18 (recently renumbered to Chapter 9), Wetlands and Surface Waters, a *Natural Resources Evaluation* (NRE) (March 2017) report was prepared under separate cover for this project. The purpose of this evaluation was to assure the protection, preservation, and enhancement of wetlands to the fullest extent practicable.

Wetland resources within the project study area were initially identified through the review of several mapping resources. Subsequent to the review of all available reference materials, field reconnaissance efforts were conducted during which each wetland was classified and characterized. Field reviews identified a total of 15 wetlands, 4 surface waters, and 7 other surface water habitats within the project study area. These community types include wetland scrub, freshwater marshes, stream and lake swamps, wetland forested mixed, creeks, reservoirs, and drainage features (e.g., ditches). There are no wetlands or surface waters designated as Outstanding Florida Waters (OFW) within the project study area. These wetlands are located adjacent to and/or within the existing roadway right-of-way and were previously disturbed by urban development, roadway construction, maintenance activities, and the invasion of nuisance and exotic species. Generally, a majority of the impacted wetlands have average to above average Uniform Mitigation Assessment Method (UMAM) scores, which reflects the varying nature of disturbance within these natural systems.

The Preferred Alternative, including stormwater management and floodplain compensation sites, may impact approximately 6.45 acres of wetlands, 0.19 acres of surface waters, and 0.03 acres of other surface waters. The stormwater management and floodplain compensation site design is anticipated to result in an additional potential impact to wetlands totaling 5.29 acres and surface

waters totaling 0.14 acres. The Preferred Alternative will result in an estimated UMAM functional loss (FL) of 3.79 units for wetland impacts and 0.11 units for surface water impacts. UMAM analysis was not completed for stormwater management facilities and floodplain compensation sites, this analysis will be completed during design.

The proposed project was evaluated for potential wetland impacts in accordance with Executive Order 11990, Protection of Wetlands. Based upon the above considerations, it is determined that there is no practicable alternative to the proposed construction in wetlands and the proposed action includes all practicable measures to minimize impacts to wetlands which may result from such use.

The project study area is located within the service areas of the Hillsborough River Mitigation Bank (HRMB) and the North Tampa Mitigation Bank (NTMB). Both banks are within the Hillsborough River drainage basin and service portions of Hillsborough, Pasco, and Polk Counties. The HRMB is located in the central portion of Pasco County and the NTMB is located in Hillsborough County. The status of available mitigation banks and credits will be re-assessed as this project moves forward into design and permitting. All UMAM scores, UMAM calculations, preliminary wetland lines and determinations discussed are subject to revisions and approval by regulatory agencies during the permitting process. The exact type of mitigation used to offset wetland impacts from the proposed US 92 roadway improvements will be coordinated with the USACE and the SWFWMD during the permitting phase(s) of this project.

The NRE was submitted to the USACE on March 13, 2017. The transmittal letter and April 14, 2017 email correspondence with USACE are located in **Appendix F**.

Wetland impacts that result from the construction of this project will be mitigated pursuant to 373.4137 F.S. to satisfy all mitigation requirements of Part IV, Chapter 373 and 33 U.S.C. 1344.

Therefore, the Preferred Alternative will have no significant impact on wetlands.

6.15.2.2 Protected Species and Habitat

A NRE (March 2017) report was prepared under separate cover cover as part of consultation required under Section 7 of the Endangered Species Act of 1973, as amended, and per the requirements of Part 2, Chapter 27 (recently renumbered to Chapter 16) of the FDOT PD&E Manual. The evaluation included literature review, database searches, and field assessments of the project area to identify the potential occurrence of protected species and/or presence of federal-designated critical habitat. The purpose of this evaluation was to document current environmental conditions along the corridor and potential impacts to wildlife, habitat, or listed species; evaluate the project area's current potential to support species listed as endangered, threatened or of special concern; identify current permitting and regulatory agency coordination requirements for the project; and request comments from regulatory agencies with jurisdiction over the study.

A total of 15 federal or state listed protected species were identified as having the potential to occur within the project study area. Project environmental scientists conducted field reviews of the project study area during July 2014. The evaluation included coordination with the U.S. Fish and Wildlife Service (USFWS), the Florida Fish and Wildlife Conservation Commission (FFWCC),

and the Florida Natural Areas Inventory (FNAI). Based on evaluation of collected data and field reviews, the federal- and state-listed species discussed below were observed as having the potential to occur within or adjacent to the project area. An effect determination was then made for each of these federal- and state-listed species based on an analysis of the potential impacts of the proposed project on each species.

FDOT has determined that the project *"may affect, but is not likely to adversely affect"* the following federally listed species: American alligator, Eastern indigo snake, wood stork and bald eagle. In addition, the project *"may affect, but is not likely to adversely affect"* the following state listed species: Florida pine snake, gopher tortoise, short-Tailed Snake, Florida burrowing owl, Florida sandhill crane, southeastern American kestrel, little blue heron, roseate spoonbill, tricolored heron, and Sherman's fox squirrel. The project will have "no effect" on the state listed least tern.

The NRE was submitted to the USFWS and FFWCC on March 13, 2017. The concurrence letters from USFWS, dated March 16, 2017, and FFWCC, dated March 20, 2107, are located in **Appendix F**.

6.15.3 *Physical Resources*

6.15.3.1 Noise

A *Noise Study Report* (NSR) (December 2016) was prepared under separate cover for this project. following FDOT procedures that comply with Title 23 Code of Federal Regulations (CFR), Part 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*. The evaluation uses methodologies established by FDOT and documented in the PD&E Manual, Part 2, Chapter 17 (recently renumbered to Chapter 18). The prediction of traffic noise levels with and without the roadway improvements was performed using the Federal Highway Administration's FHWA's Traffic Noise Model (TNM-Version 2.5).

The proposed widening of US 92 from two to four lanes is predicted to result in traffic noise levels ranging from 59.5 dB(A) to 76.4 dB(A). For the Preferred Alternative, noise levels were predicted at 507 noise sensitive sites located adjacent to US 92. Of the 507 noise sensitive sites evaluated, 229 residences are predicted to experience future noise levels that approach or exceed 66 dB(A), the Noise Abatement Category (NAC) for Activity Category B representing residences. Similarly, 53 non-residential noise sensitive sites are predicted to experience future noise levels that approach or exceed 66 dB(A), the NAC for Activity Category C and 51 dB(A), the NAC for Activity Category D. None of the evaluated sites will experience a substantial increase [15 dB(A) or more] of traffic noise as a result of the proposed widening.

Noise abatement measures, including noise barriers were evaluated for the 282 noise sensitive sites. A total of 22 noise barriers were evaluated. Noise barrier systems consisting of several barriers of the same height were the most common configuration modeled in this analysis due to numerous driveway access points that would cause breaks in a continuous barrier. Depending on the physical location and proximity of the impacted noise sensitive sites to the breaks in the barrier, the effectiveness of the barrier reduction provided with each barrier system varied between locations. Noise barriers could potentially provide at least the minimum required noise reduction for a cost below the reasonable limit of $42,000 per benefited receptor in nine areas.

The potentially cost reasonable and feasible noise barriers are predicted to benefit 158 impacted noise sensitive sites at nine different locations along US 92.

FDOT is committed to further consideration of noise barrier systems during the project final design phase(s) at the nine locations listed below contingent upon the following:

1. Detailed noise analyses during the final design process supports the need for, and the feasibility and reasonableness of, providing abatement;
2. Cost analysis indicates that the cost of the noise barrier(s) will not exceed the cost reasonable criterion;
3. Community input supporting types, heights, and locations of the noise barrier(s) is provided to the District Office; and
4. Safety and engineering aspects, as related to the roadway user and the adjacent property owner, have been reviewed and any conflicts or issues resolved.

Noise Barrier Systems located on the north side of US 92:

- Oakwood Mobile Home Park (between Stations 106+00 and 109+00, five impacted sites benefited)
- Single Family Homes and Holiday Park (between Stations 136+00 and 147+00, 22 impacted sites benefited)
- Meadowbrook (between Stations 148+00 and 161+00, 26 impacted sites benefited)
- Pine Grove Mobile Home Park and Woodall's Mobile Home Village (between Stations 215+50 and 228+00, 16 impacted sites benefited)

Noise Barrier Systems located on the south side of US 92:

- Evergreen Motel and Mobile Home Park (between Stations 51+00 and 56+00, 15 impacted sites benefited)
- Chapman's, Melody Acres and Parkway Mobile Home Parks (between Stations 84+50 and 102+00, 31 impacted sites benefited)
- Amick Properties and Single Family Homes (between Stations 103+00 and 107+00, eight impacted sites benefited)
- Friendship Village (between Stations 149+00 and 154+00, nine impacted sites benefited)
- Single Family Home and Shangri-La Mobile Home Park (between Stations 181+50 and 188+00, 26 impacted sites benefited).

Noise abatement measures were evaluated for all noise sensitive sites identified as impacted by the Preferred Alternative. It was determined that traffic system management techniques, alignment modifications and property acquisition, and noise barriers are not reasonable abatement measures. Land use controls were identified as a feasible and cost reasonable solution to mitigate for future traffic noise levels that can be used by local officials in future land use planning. The *Noise Study Report* for this project is available in the project file.

A land use review will be performed during the future project Design phase to identify all noise sensitive sites that may have received a building subsequent to the noise study but prior to the

project's Date of Public Knowledge. The date that the Type 2 Categorical Exclusion is approved will be the Date of Public Knowledge. If the review identifies noise sensitive sites that have been permitted prior to the date of public knowledge, then those sensitive sites will be evaluated for traffic noise and abatement considerations. There was no ongoing construction observed during various field reviews performed to establish existing land use; however, this is subject to change at any time.

During the construction phase of the proposed project, short-term noise may be generated by construction equipment and activities. The construction noise will be temporary at any location and will be controlled by adherence to provisions documented in the most recent edition of the FDOT *Standard Specifications for Road and Bridge Construction*.

Based on the traffic noise analysis, the consideration of noise barriers to mitigate traffic noise impacts, and the consideration of construction noise impacts, the Preferred Alternative is expected to have no significant impact on potential noise sensitive sites.

6.15.3.2 Contamination

A Level I contamination evaluation was conducted for the study and a *Contamination Screening Evaluation Report* (CSER) (April 2016) was prepared under separate cover pursuant to FHWA's Technical Advisory T 6640.8A and the FDOT PD&E Manual, Part 2 Chapter 22 (recently renumbered to Chapter 20). A Level I assessment was conducted to identify and evaluate sites containing hazardous materials, petroleum products, or other sources of potential environmental contamination along the US 92 project corridor.

Based on a document and site review, four (4) sites ranked "High", thirteen (13) sites ranked "Medium", twenty (20) sites ranked "Low". For the sites ranked "Low", no further action is required at this time. These sites/facilities have the potential to impact the proposed project, but based on select variables these have been determined to have low risk to the project at this time. Variables that may change the risk ranking include a facility's non-compliance to environmental regulations, new discharges to the soil or groundwater, and modifications to current permits. Should any of these variables change, assessment of these facilities shall be conducted.

For those locations with a risk ranking of "Medium" or "High", including any proposed stormwater treatment ponds and/or floodplain compensation sites outside the FDOT right-of-way, Level II screening will be conducted during the design phase if it is determined during the project's design that its construction activities could be in their vicinity. Currently, the Preferred Alternative will require right-of-way from all sites except for two (2) "Medium"-ranked sites: Site Number 8 (R&L Auto Repair at 6050 New Tampa Highway) and Site Number 15 (Jacks Mobile Homes at 4710 New Tampa Highway).

If dewatering will be necessary during construction, a SFWMD Water Use Permit will be required. The Contractor will be responsible for obtaining and ensuring compliance with any necessary dewatering permit(s). Any dewatering operations in the vicinity of potentially contaminated areas shall be limited to low-flow, short-term operations. A dewatering plan may be necessary to avoid potential contamination plume exacerbation.

Additionally, Section 120, Excavation and Embankment – Subarticle 120.1.2, Unidentified Areas of Contamination of the FDOT *Standard Specifications for Road and Bridge Construction* will be provided in the project construction documents. This specification requires that in the event that any hazardous material or suspected contamination is encountered during construction, or if any spills caused by construction-related activities should occur, the Contractor shall be instructed to stop work immediately and notify the District One Environmental Management Office, as well as the appropriate regulatory agencies for assistance.

The potential 4 "High" and 13 "Medium" ranking sites identified and any newly-identified sites will be evaluated further during the project design phase(s), including Level II testing as necessary. Future project design plans will contain marked contamination polygons and general notes as applicable. FDOT will oversee any remediation activities necessary.

Based on 1) the future completion of Level II field screening for the "High" and "Medium" risk-ranked sites identified, 2) the completion of contamination remediation activities as determined necessary (following future testing activities), and 3) the inclusion of the appropriate contamination demarcation in the construction plans, the Preferred Alternative is expected to have no significant impact on contamination.

6.15.3.3 Construction

Construction activities for the proposed project may cause minor short-term air quality, noise, water quality, traffic congestion, and visual impacts for residents and travelers within the immediate vicinity of the project.

The air quality effect will be temporary and will primarily be in the form of emissions from diesel-powered construction equipment and dust from embankment and haul road areas. Air pollution associated with the creation of airborne particles will be effectively controlled through the use of watering or the application of other controlled materials in accordance with FDOT's *Standard Specifications for Road and Bridge Construction.*

Noise and vibration effects will be from heavy equipment movement and construction activities. This will be minimized by adherence to noise control measures found in the most current edition of the FDOT's *Standard Specifications for Road and Bridge Construction*. Specific noise level problems that may arise during construction of the project will be addressed by the Construction Engineer in cooperation with the appropriate Environmental Specialist.

Water quality impacts resulting from erosion and sedimentation will be controlled in accordance with the most current edition of the FDOT's *Standard Specifications for Road and Bridge Construction*, "Prevention, Control, and Abatement of Erosion and Water Pollution," and through the use of best management practices (BMP).

Short-term construction related wetland impacts will be minimized by adherence to FDOT's *Standard Specifications for Road and Bridge Construction*. These specifications include measures known as BMPs, which include the use of siltation barriers, dewatering structures, and containment devices that will be implemented for controlling turbid water discharges outside of construction limits.

Maintenance of traffic and sequence of construction will be planned and scheduled so as to minimize traffic delays throughout the project. Signage will be used as appropriate to provide pertinent information to the traveling public. The local news media will be notified in advance of road closings and other construction related activities that would excessively inconvenience the community so that motorists, residents, and business persons can make other accommodations. All provisions of FDOT's *Standard Specifications for Road and Bridge Construction* will be followed. A sign providing the name, address, and telephone of an FDOT contact person will be displayed on-site to assist the public in obtaining immediate answers to questions and logging complaints about project activity.

Access to local properties, businesses and residences will be maintained to the extent practical through controlled construction scheduling and the implementation of the project's specific Traffic Control Plan(s) and implementation of the FDOT's *Standard Specifications for Road and Bridge Construction*.

For residents living along the project, some of the construction materials stored for the project may be displeasing visually; however, this will be a temporary condition and should pose no substantial problem.

SECTION 7.0 LIST OF TECHNICAL REPORTS

The purpose of the PD&E study is to evaluate engineering and environmental data and document information that will aid Polk County and the Florida Department of Transportation Office of Environmental Management (OEM) in determining the type, preliminary design and location of the proposed improvements. The study was conducted in order to meet the requirements of the National Environmental Policy Act (NEPA) and other related federal and state laws, rules, and regulations. The technical reports completed during this study are listed below.

Table 7-1 Technical Reports

Technical Reports	Dated
Comments and Coordination Report	January 2018
Public Hearing Transcript	May 2017
Advance Notification Package	May 2014
Public Involvement Program	March 2014
Engineering	
Design Traffic Technical Memorandum	August 2016
Location Hydraulic Report	October 2016
Pond Siting Report	October 2016
Environmental	
Type 2 Categorical Exclusion	November 2017
Conceptual Stage Relocation Plan	May 2017
Contamination Screening Evaluation Report	April 2016
Cultural Resource Assessment Survey	September 2014
Natural Resources Evaluation	March 2017
Noise Study Report	December 2016
Section 106 Consultation Case Study Report	February 2017
Water Quality Impact Evaluation	January 2017

APPENDIX A

Preferred Alternative Concept Plans

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Title Change

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Archaeological Consultants, Inc.
HDR Engineering, Inc.
I.F. Rooks and Associates, Inc.
Inwood Consulting Engineers, Inc.
Kisinger Campo & Associates, Corp.
Tierra, Inc.

110 BASELINE & STATIONS
EXISTING R.O.W.
EXISTING L.A. R.O.W.
PROPERTY LINE
AERIALS FLOWN 3/28/2014

PROPOSED R.O.W.
PROPOSED PAVEMENT
PROPOSED SIDEWALK
TRAFFIC SIGNAL
MODELED NOISE BARRIER
NOISE RECEPTOR

B BUSINESS RELOCATION
R RESIDENTIAL RELOCATION
SURFACE WATERS
WETLANDS
10 POTENTIAL MEDIUM & HIGH CONTAMINATION

FDOT

US 92 PD&E STUDY

FROM COUNTY LINE RD TO WABASH AVE

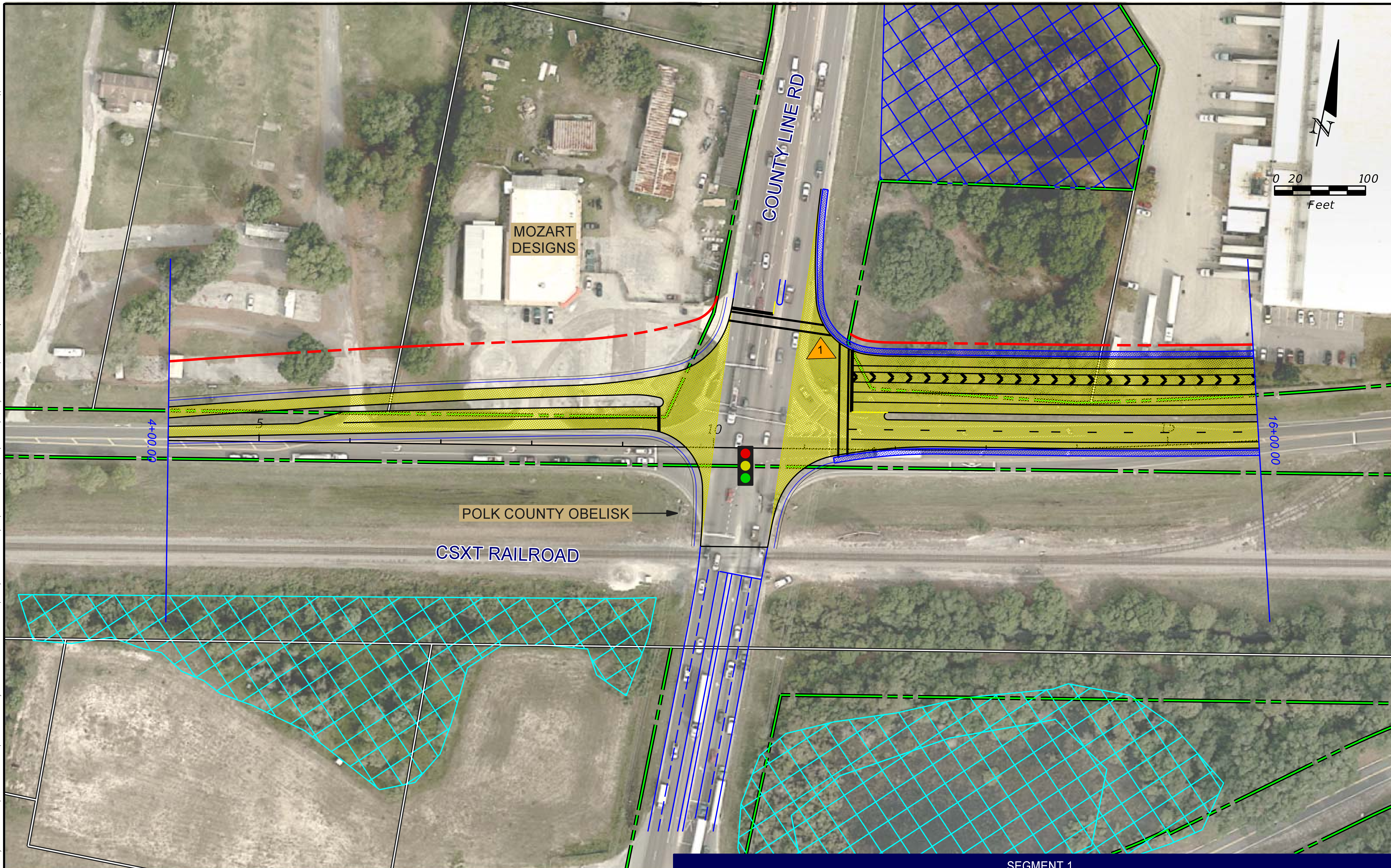
FINANCIAL PROJECT ID: 433558-1-22-01

COUNTY : POLK

92

PREFERRED ALTERNATIVE

SHEET:
1



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Kisinger Campo & Associates, Corp.
Tierra, Inc.

110
BASELINE & STATIONS
EXISTING R.O.W.
EXISTING L.A. R.O.W.
PROPERTY LINE
AERIALS FLOWN 3/28/2014

PROPOSED R.O.W.
PROPOSED PAVEMENT
PROPOSED SIDEWALK
TRAFFIC SIGNAL
MODELED NOISE BARRIER
NOISE RECEPTOR

B BUSINESS RELOCATION
R RESIDENTIAL RELOCATION
SURFACE WATERS
WETLANDS
10 POTENTIAL MEDIUM & HIGH CONTAMINATION

FDOT

US 92 PD&E STUDY
FROM COUNTY LINE RD TO WABASH AVE

FINANCIAL PROJECT ID: 433558-1-22-01
COUNTY : POLK

92

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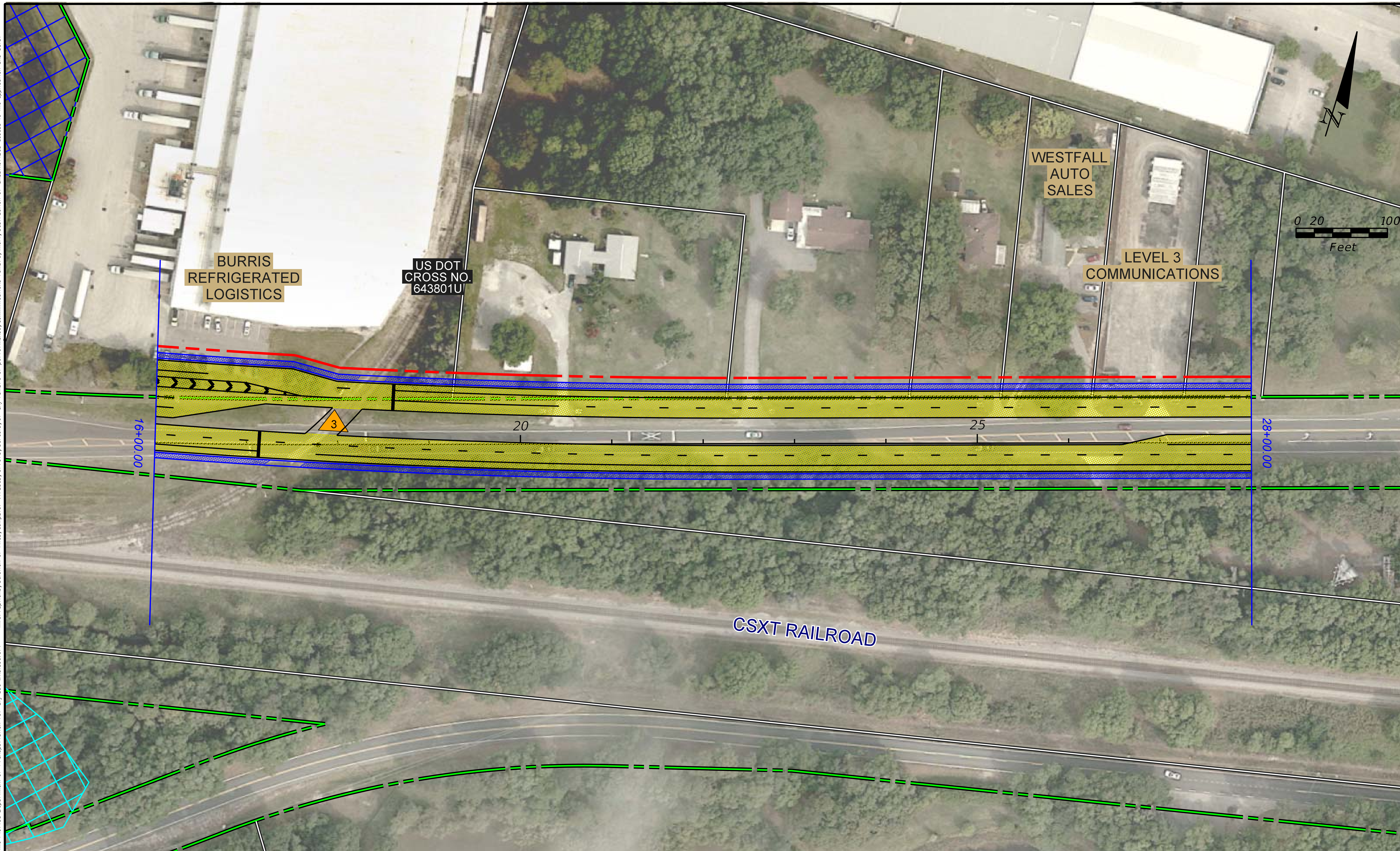

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FAX: (813) 664-1899 WWW.AIMENGR.COM

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HDR Engineering, Inc.
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Kisinger Campo & Associates, Corp.
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110
BASELINE & STATIONS
EXISTING R.O.W.
EXISTING L.A. R.O.W.
PROPERTY LINE
AERIALS FLOWN 3/28/2014

PROPOSED R.O.W.
PROPOSED PAVEMENT
PROPOSED SIDEWALK
TRAFFIC SIGNAL
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FROM COUNTY LINE RD TO WABASH AVE
FINANCIAL PROJECT ID: 433558-1-22-01
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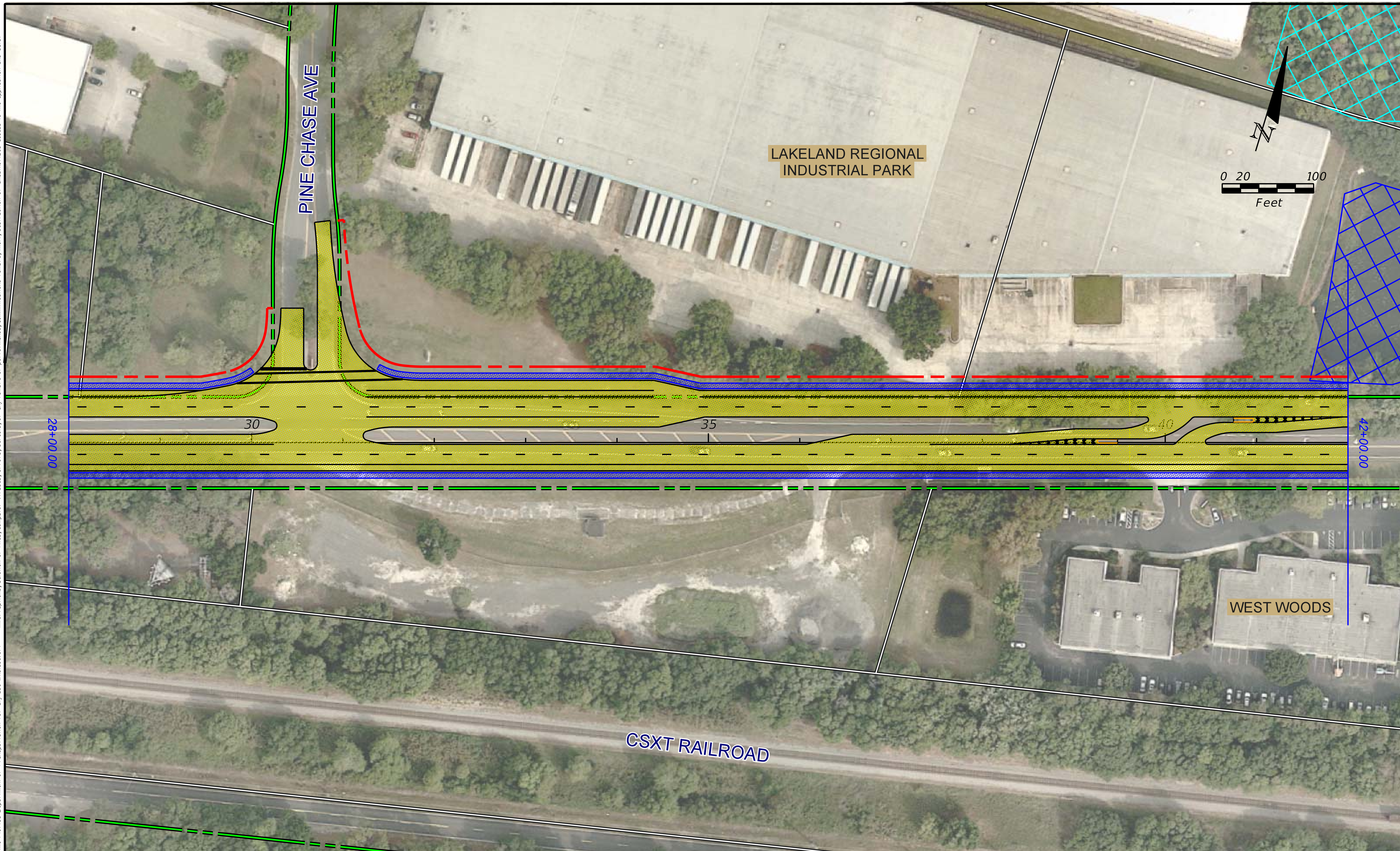

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FROM COUNTY LINE RD TO WABASH AVE

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COUNTY : POLK

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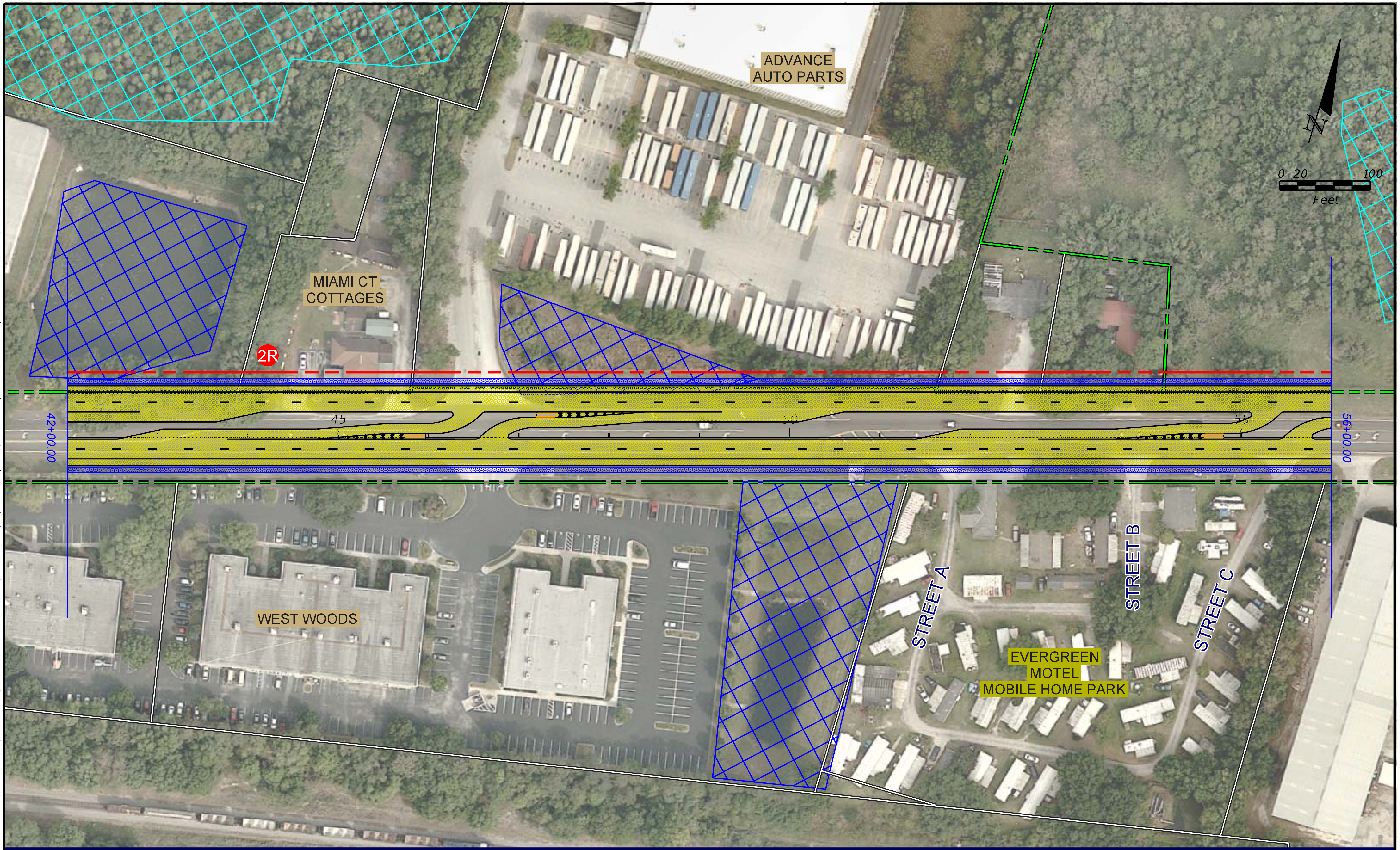

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FROM COUNTY LINE RD TO WABASH AVE

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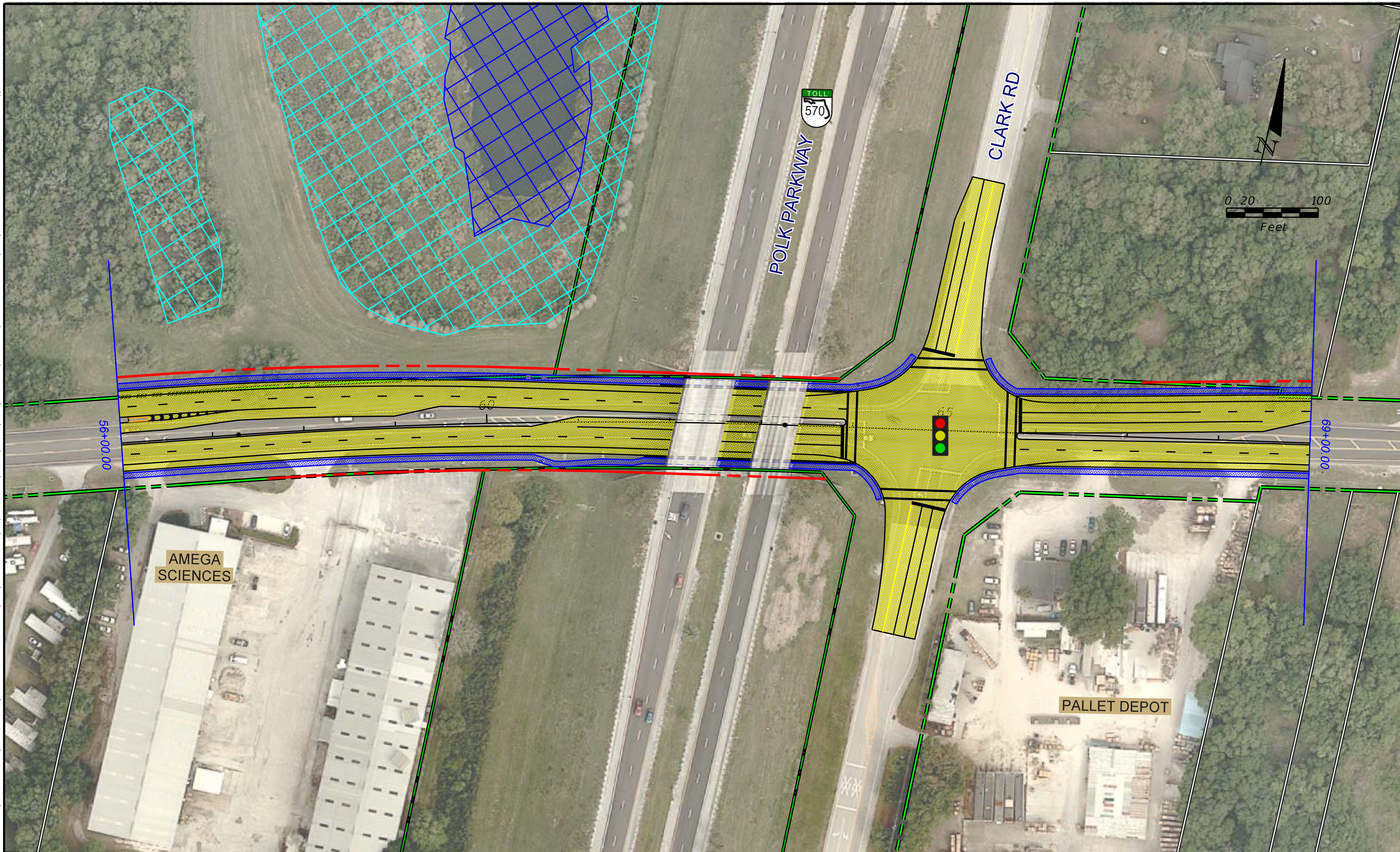

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FROM COUNTY LINE RD TO WABASH AVE

FINANCIAL PROJECT ID: 433558-1-22-01

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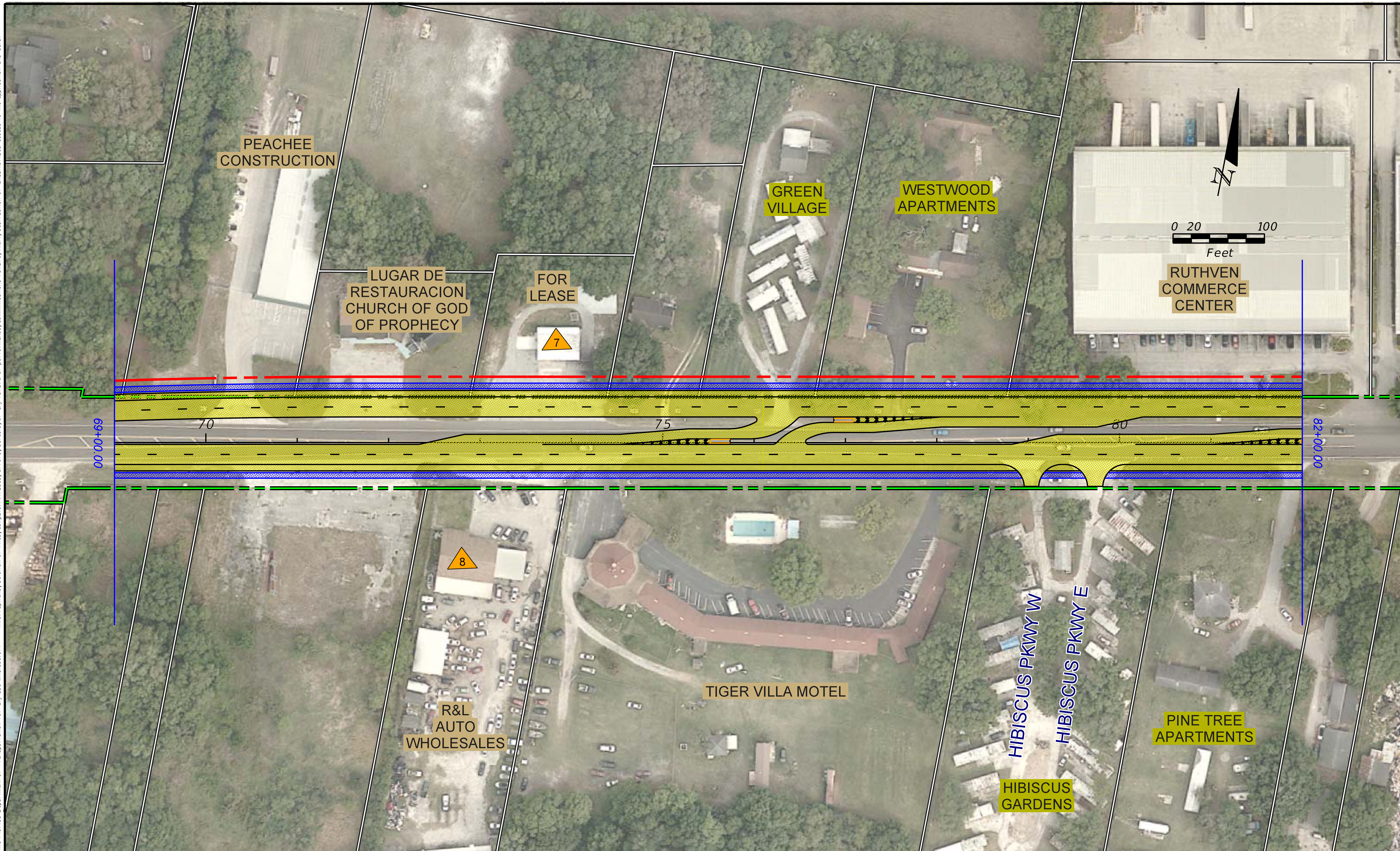

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EXISTING L.A. R.O.W.
PROPERTY LINE
AERIALS FLOWN 3/28/2014

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PROPOSED SIDEWALK
TRAFFIC SIGNAL
MODELED NOISE BARRIER
NOISE RECEPTOR

B BUSINESS RELOCATION
R RESIDENTIAL RELOCATION
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10 POTENTIAL MEDIUM & HIGH CONTAMINATION

FDOT

US 92 PD&E STUDY
FROM COUNTY LINE RD TO WABASH AVE
FINANCIAL PROJECT ID: 433558-1-22-01 COUNTY : POLK

92

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US 92 PD&E STUDY

FROM COUNTY LINE RD TO WABASH AVE

FINANCIAL PROJECT ID: 433558-1-22-01 COUNTY : POLK

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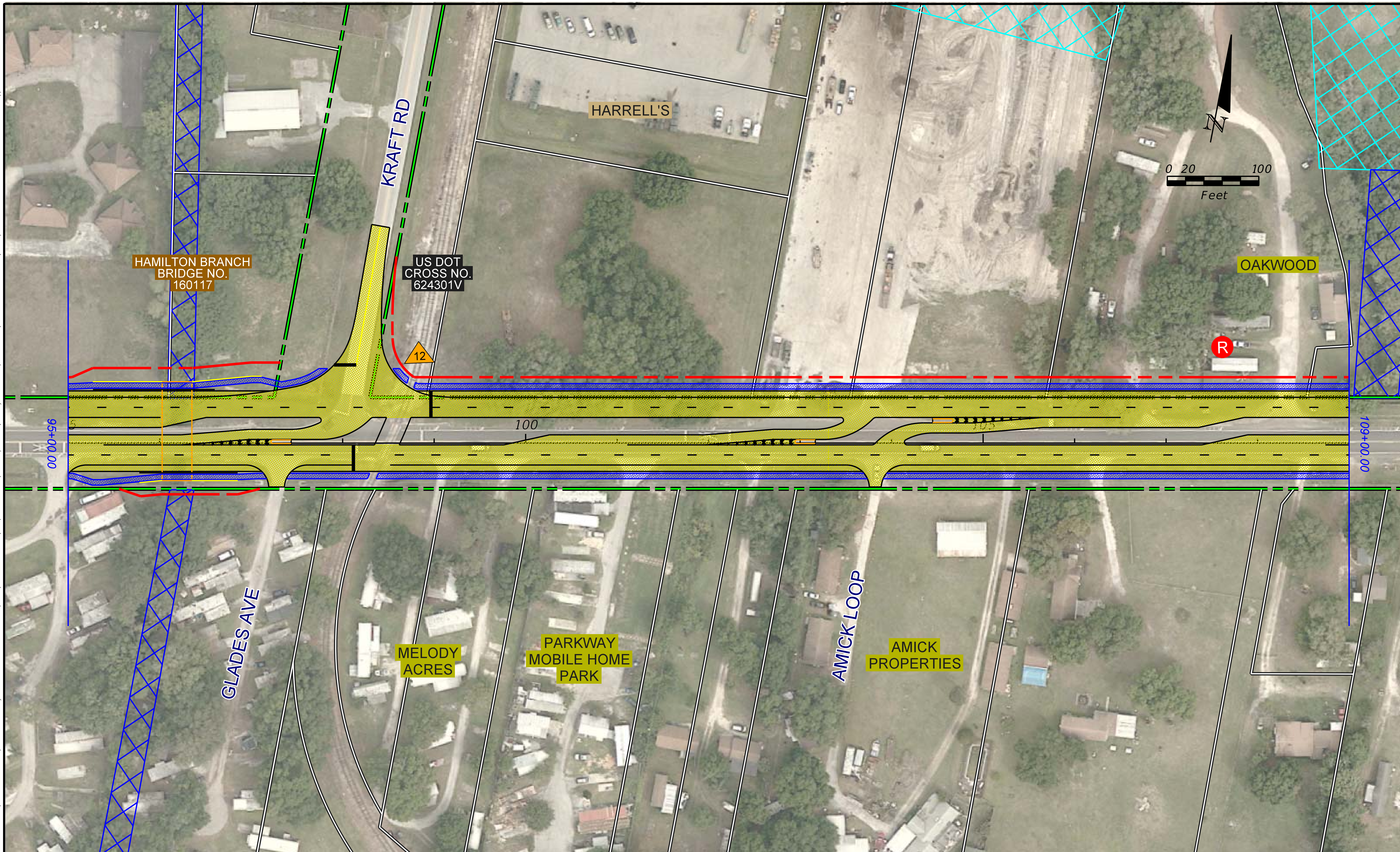

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110 BASELINE & STATIONS
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PROPERTY LINE
AERIALS FLOWN 3/28/2014

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PROPOSED SIDEWALK
TRAFFIC SIGNAL
MODELED NOISE BARRIER
NOISE RECEPTOR

B BUSINESS RELOCATION
R RESIDENTIAL RELOCATION
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WETLANDS
10 POTENTIAL MEDIUM & HIGH CONTAMINATION

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US 92 PD&E STUDY
FROM COUNTY LINE RD TO WABASH AVE

FINANCIAL PROJECT ID: 433558-1-22-01
COUNTY : POLK

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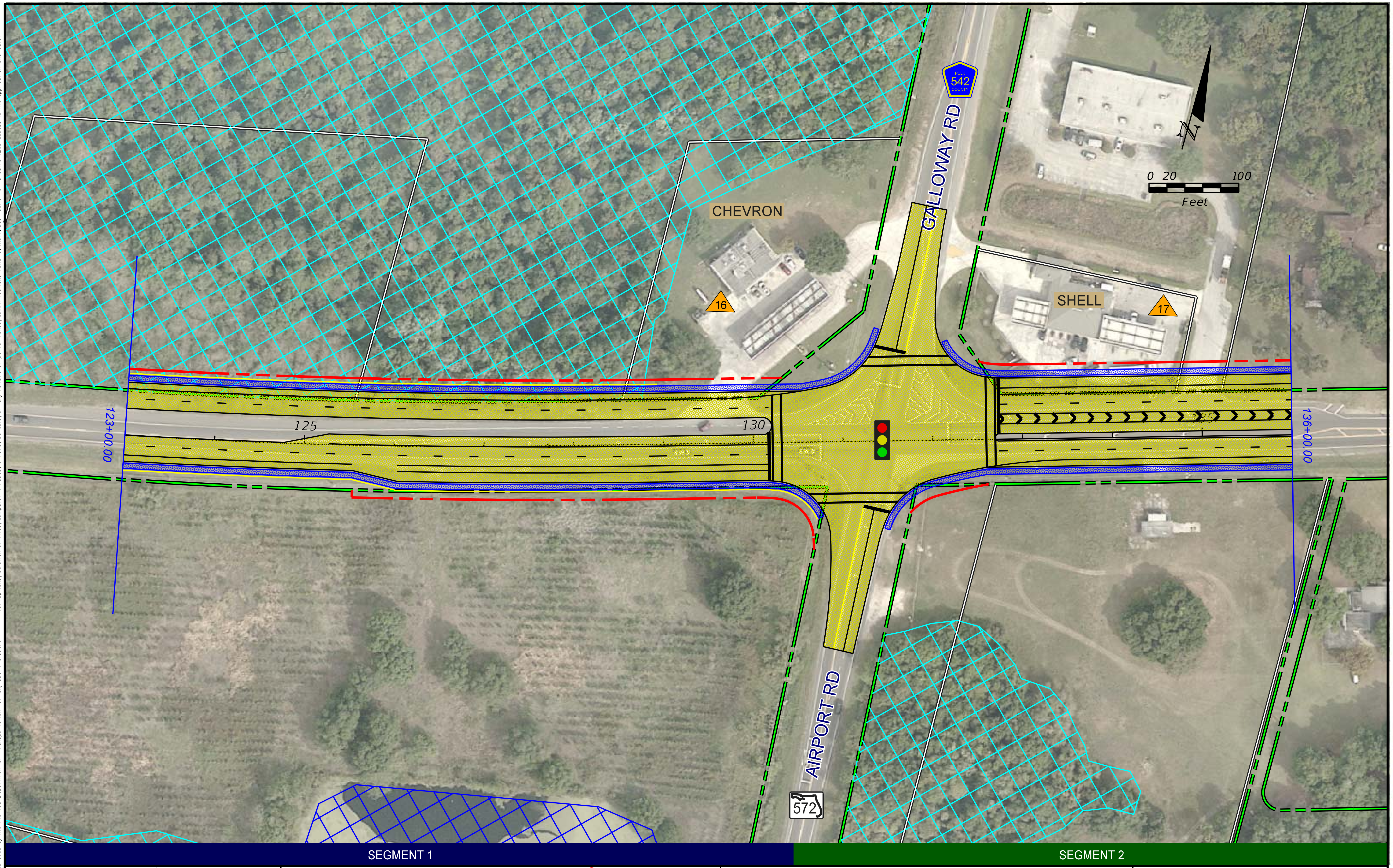

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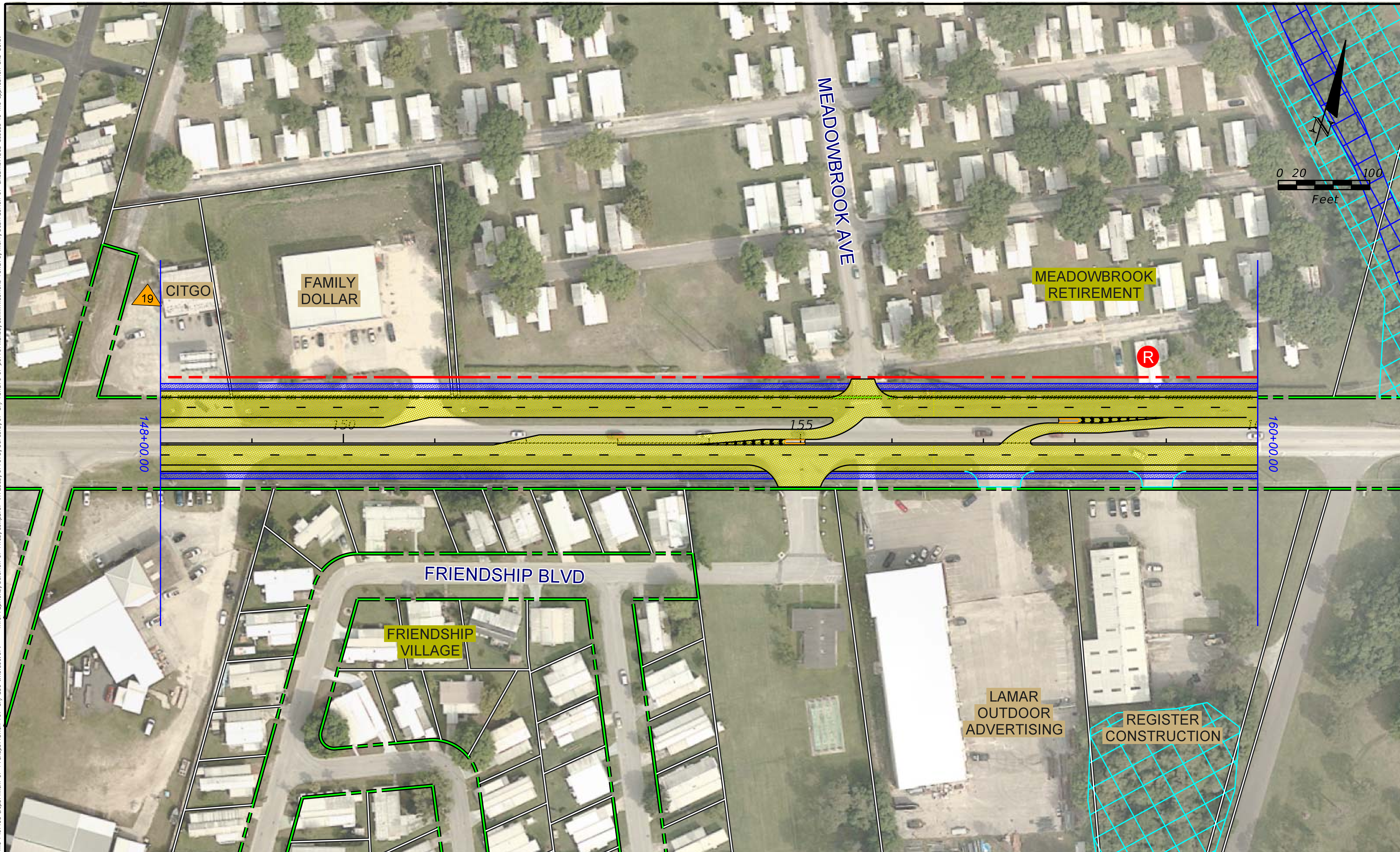

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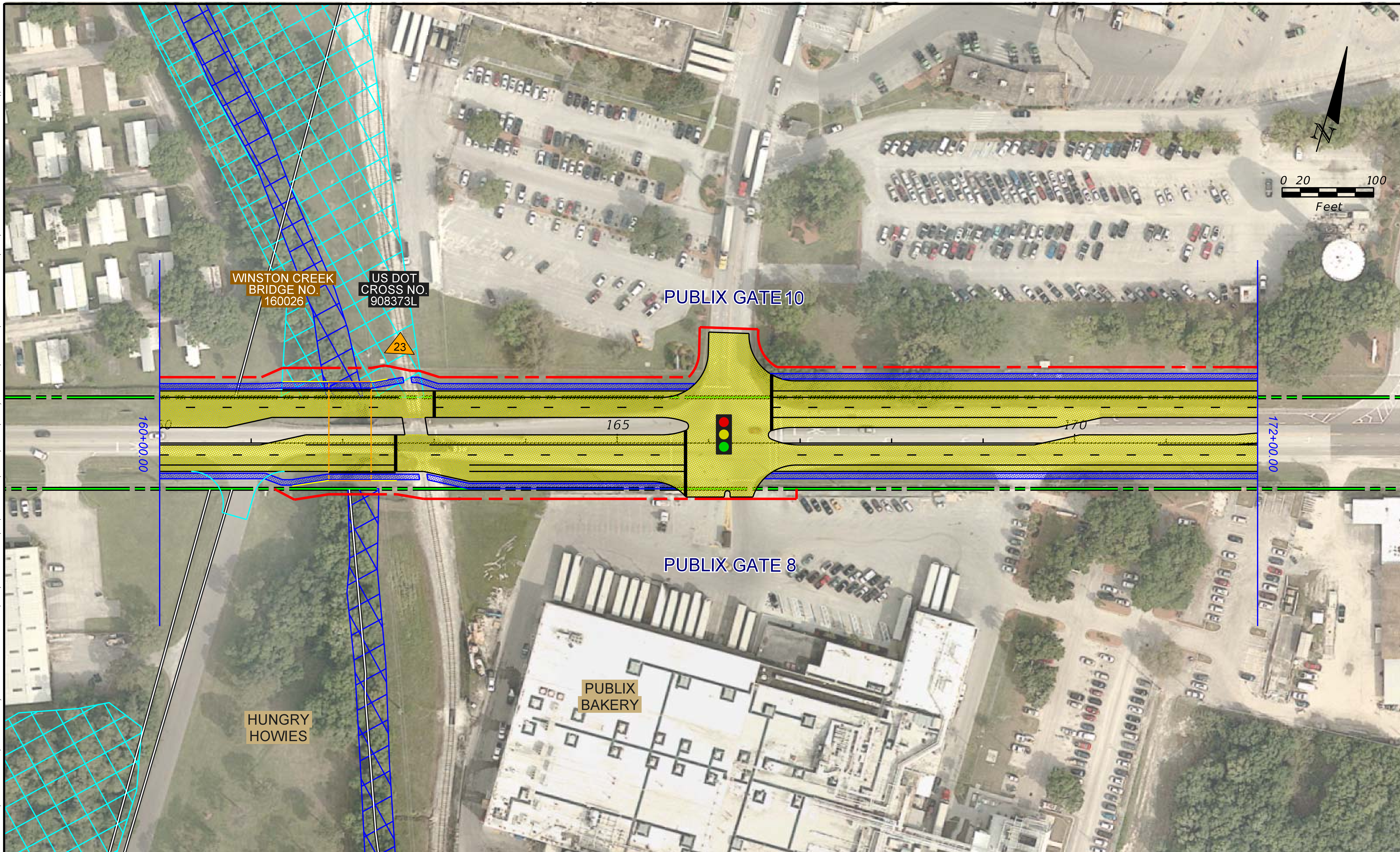

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92

PREFERRED ALTERNATIVE

SHEET: 14

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~~3/16/2017~~
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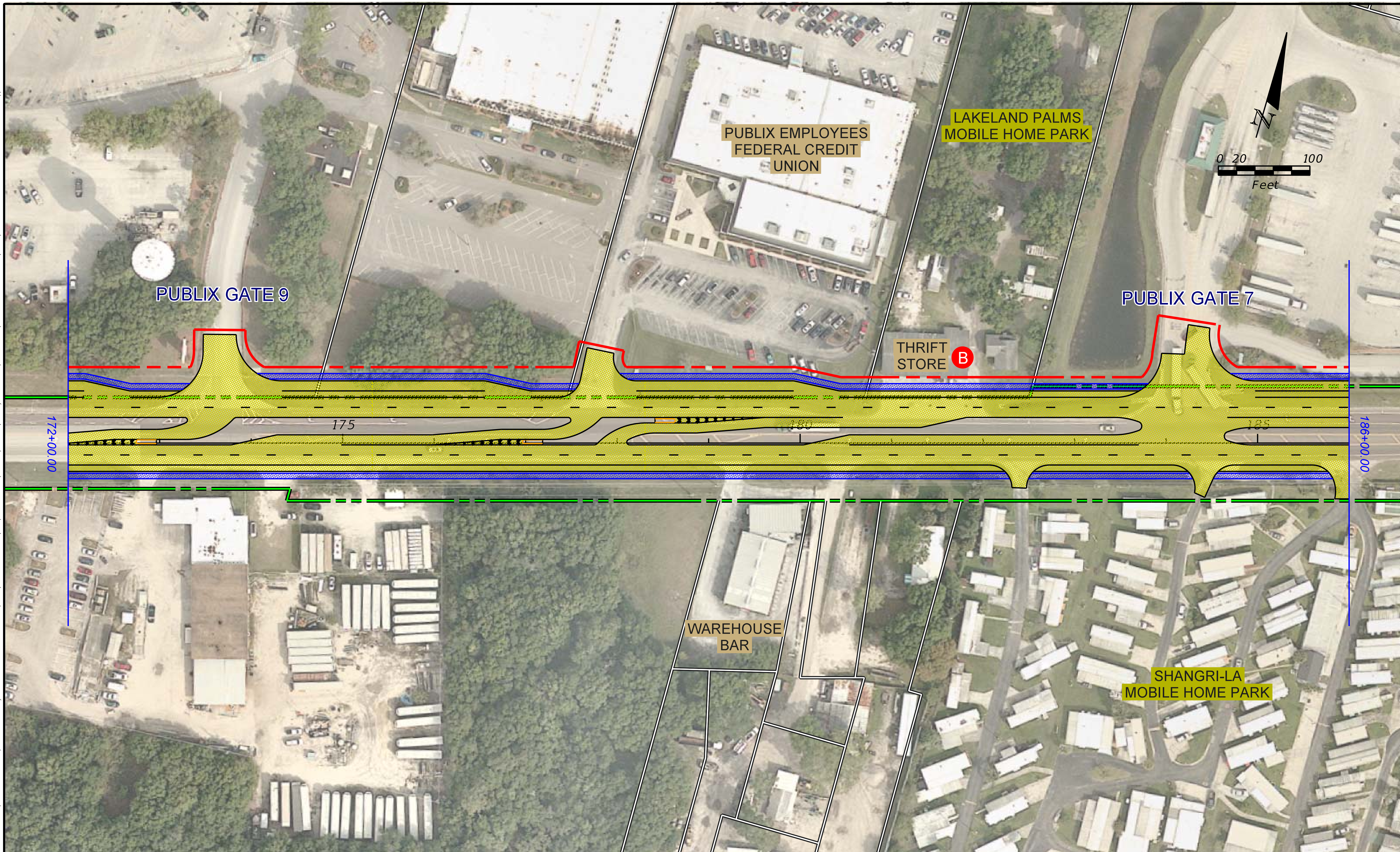

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~~3/16/2017~~
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AIM ENGINEERING & SURVEYING, INC.
3802 CORPOREX PARK DRIVE, SUITE 225
TAMPA, FLORIDA 33619
TEL: (813) 627-4144
FAX: (813) 664-1899 WWW.AIMENGR.COM

In Association with:
Adams Traffic, Inc.
Archaeological Consultants, Inc.
HDR Engineering, Inc.
I.F. Rooks and Associates, Inc.
Inwood Consulting Engineers, Inc.
Kisinger Campo & Associates, Corp.
Tierra, Inc.

110 BASELINE & STATIONS
EXISTING R.O.W.
EXISTING L.A. R.O.W.
PROPERTY LINE
AERIALS FLOWN 3/28/2014

PROPOSED R.O.W.
PROPOSED PAVEMENT
PROPOSED SIDEWALK
TRAFFIC SIGNAL
MODELED NOISE BARRIER
NOISE RECEPTOR

B BUSINESS RELOCATION
R RESIDENTIAL RELOCATION
SURFACE WATERS
WETLANDS
10 POTENTIAL MEDIUM & HIGH CONTAMINATION

FDOT

US 92 PD&E STUDY

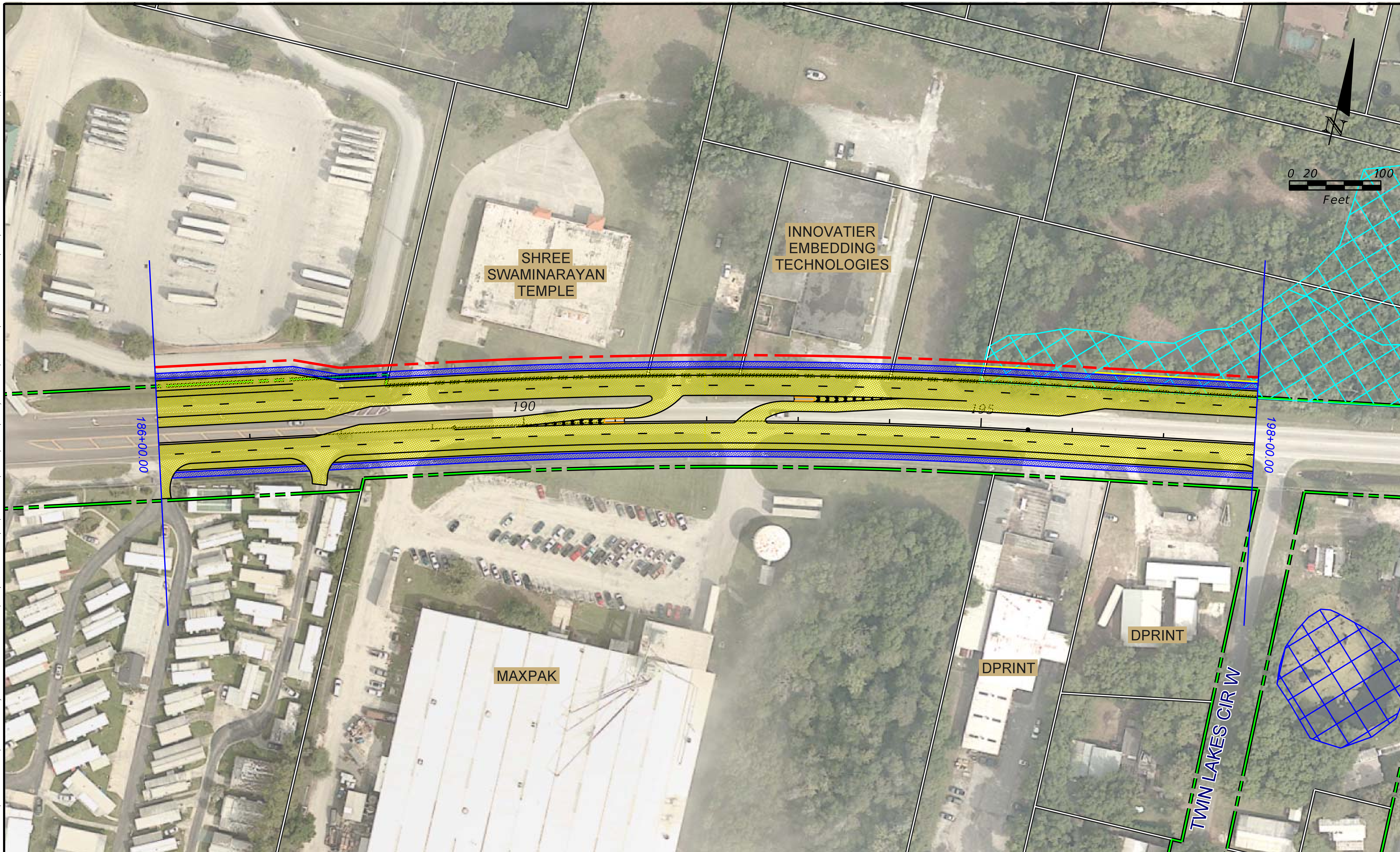
FROM COUNTY LINE RD TO WABASH AVE

FINANCIAL PROJECT ID: 433558-1-22-01 COUNTY : POLK

92

PREFERRED ALTERNATIVE

SHEET: 15



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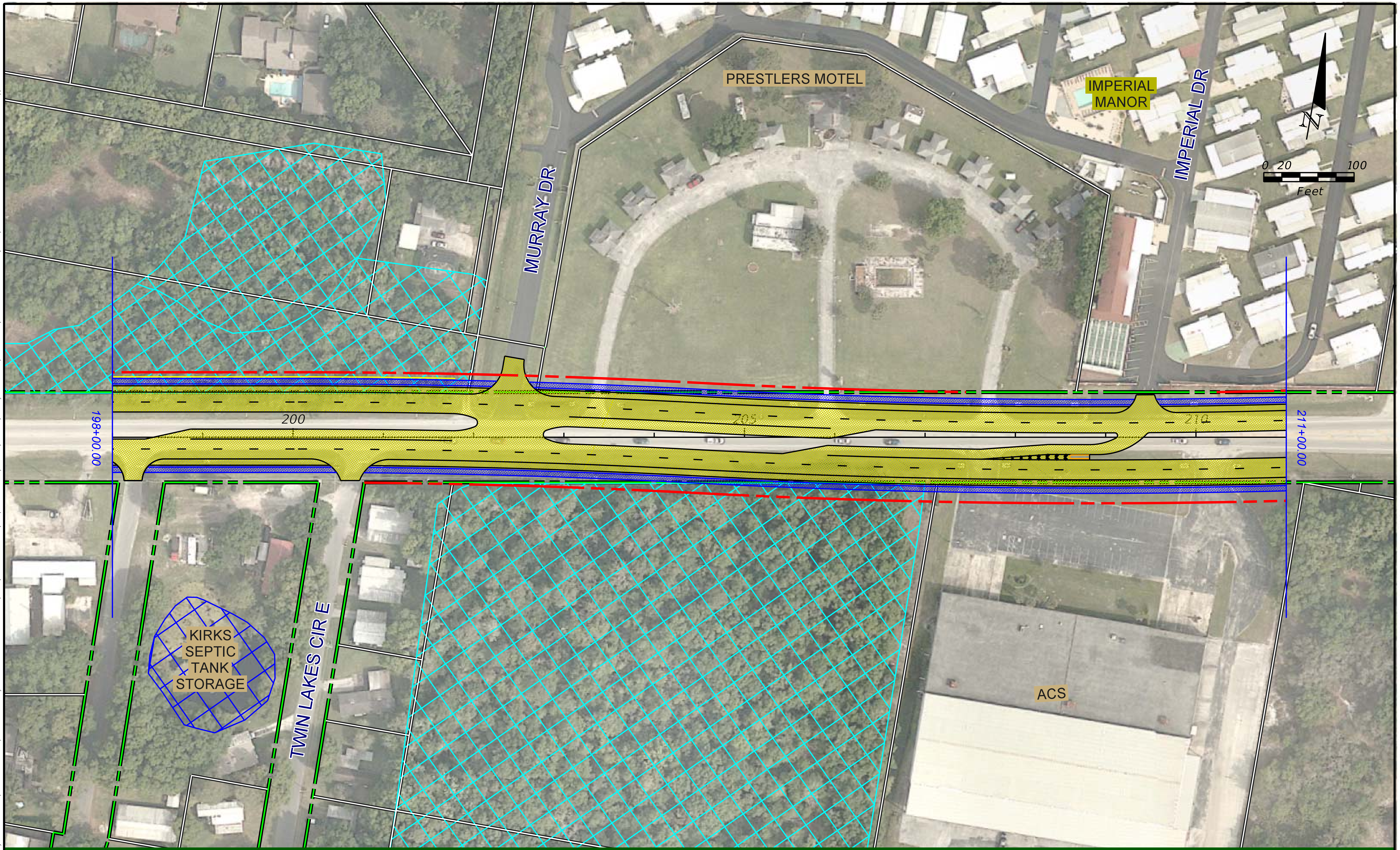
US 92 PD&E STUDY
FROM COUNTY LINE RD TO WABASH AVE
FINANCIAL PROJECT ID: 433558-1-22-01 COUNTY : POLK

92

PREFERRED ALTERNATIVE

SHEET: 16



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US 92 PD&E STUDY

FROM COUNTY LINE RD TO WABASH AVE

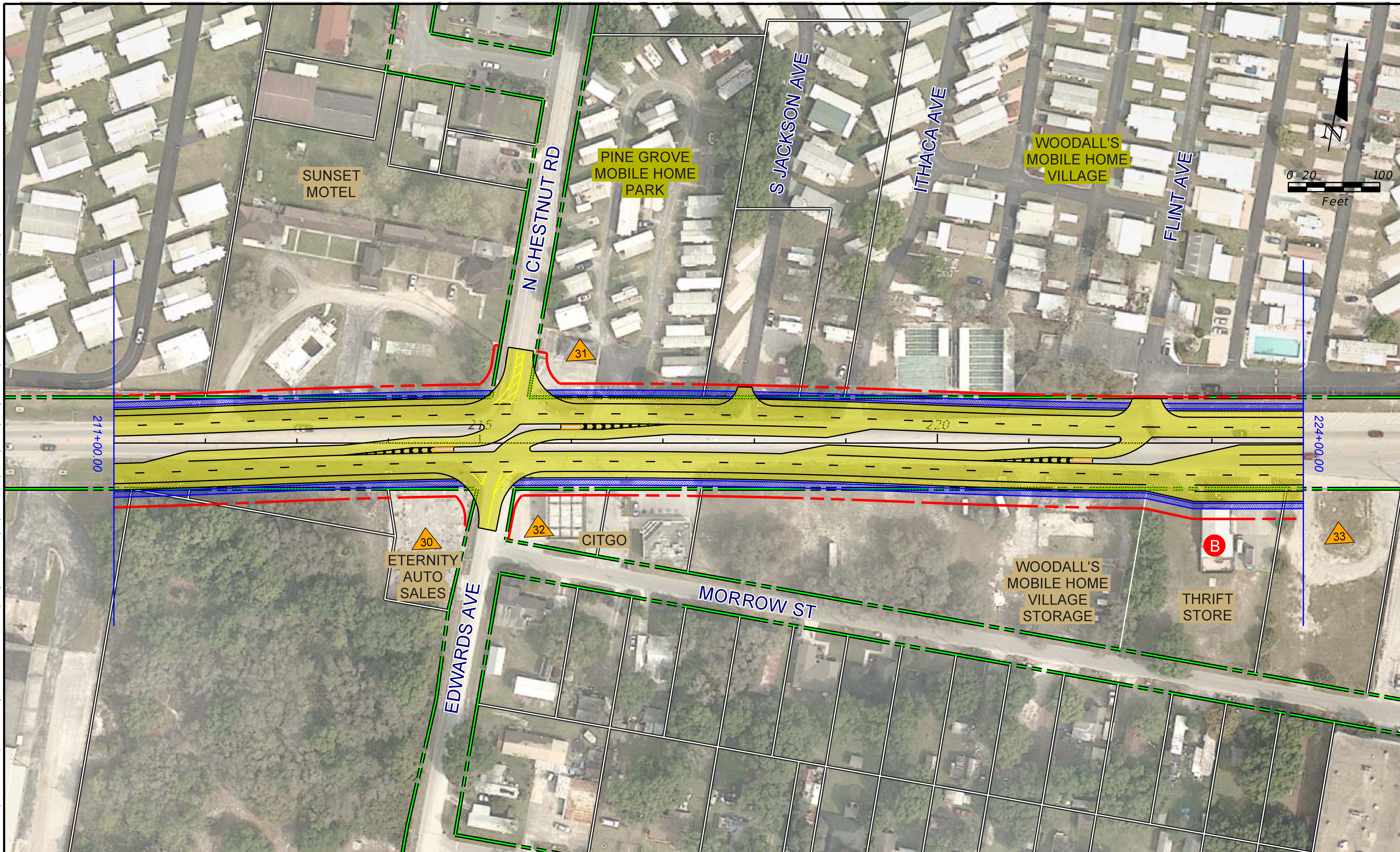
FINANCIAL PROJECT ID: 433558-1-22-01

COUNTY : POLK

92

PREFERRED ALTERNATIVE

SHEET: 17



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US 92 PD&E STUDY

FROM COUNTY LINE RD TO WABASH AVE

FINANCIAL PROJECT ID: 433558-1-22-01 COUNTY : POLK

92

PREFERRED ALTERNATIVE

SHEET: 18

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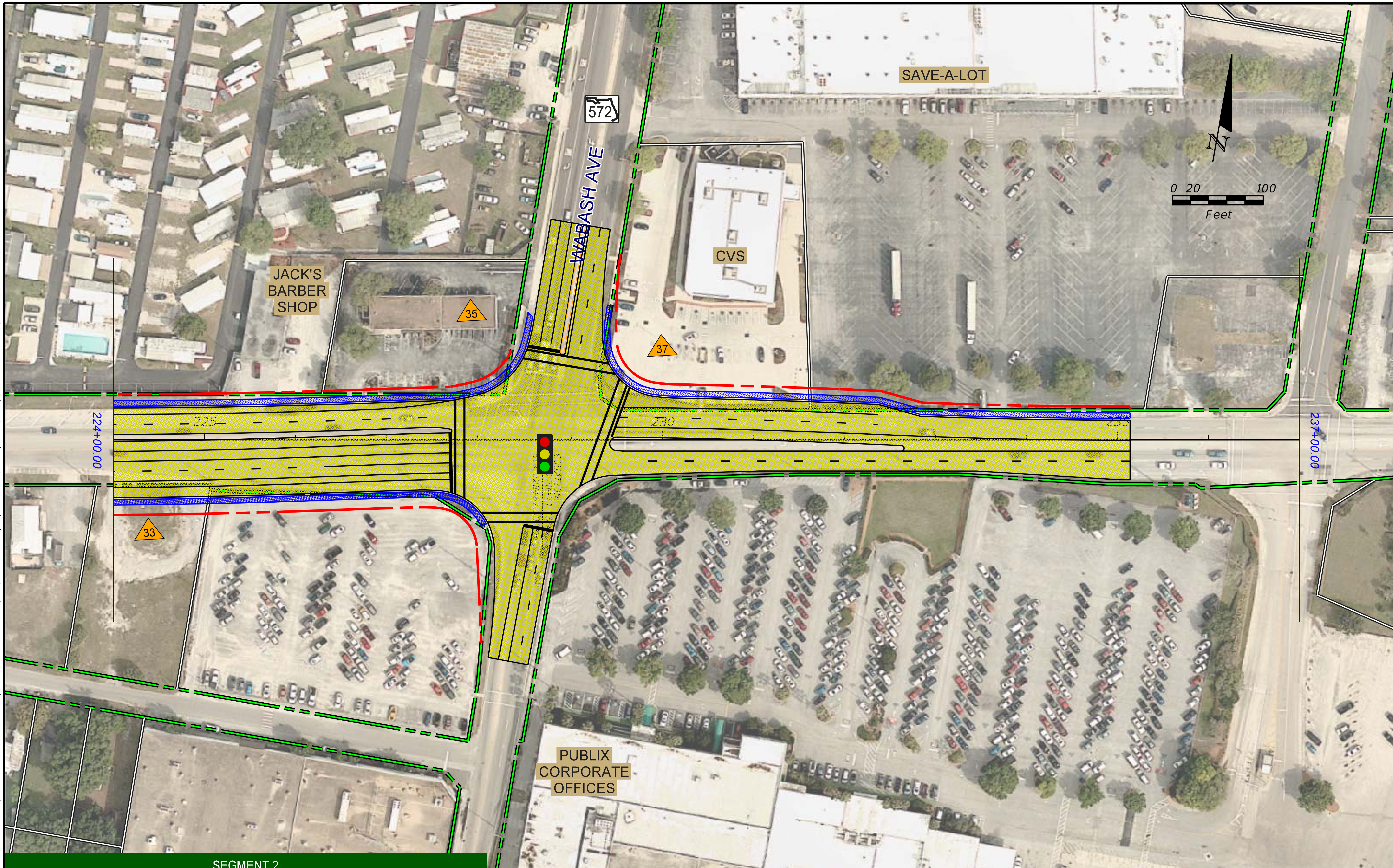

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US 92 PD&E STUDY
FROM COUNTY LINE RD TO WABASH AVE
FINANCIAL PROJECT ID: 433558-1-22-01 COUNTY : POLK

92

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US 92 PD&E STUDY

FROM COUNTY LINE RD TO WABASH AVE

FINANCIAL PROJECT ID: 433558-1-22-01 COUNTY : POLK

92

PREFERRED ALTERNATIVE

SHEET:
20

APPENDIX B

Signed Typical Section Package

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

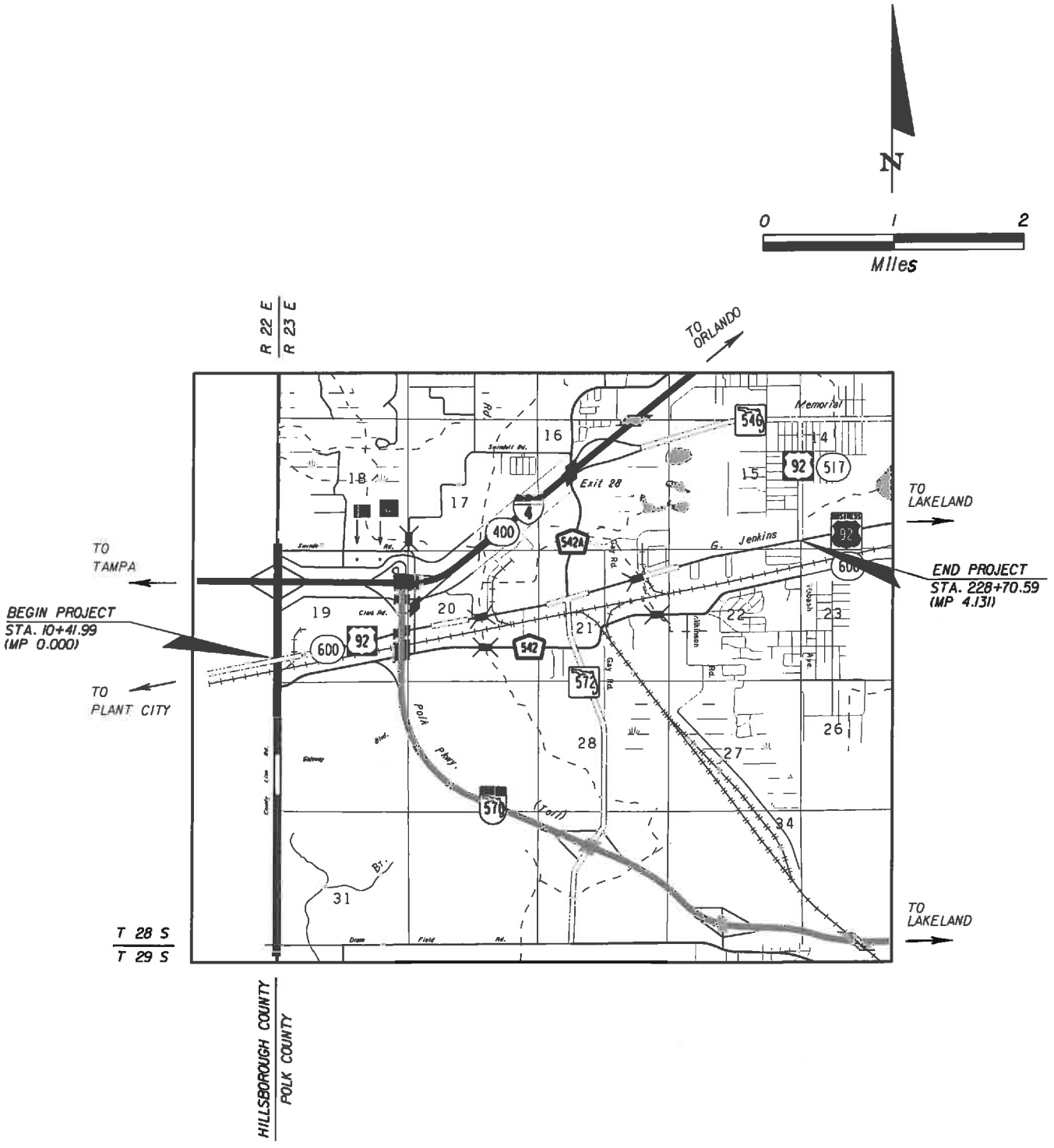
TYPICAL SECTION PACKAGE

FINANCIAL PROJECT ID 433558-1-22-01

POLK COUNTY (16010)

US 92 (SR 600)

FROM COUNTY LINE ROAD TO WABASH AVENUE



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PROJECT IDENTIFICATION

FINANCIAL PROJECT ID: 433558-1-22-01 COUNTY (SECTION): POLK (16010)

PROJECT DESCRIPTION: US 92 FROM COUNTY LINE ROAD TO WABASH AVENUE

PROJECT CONTROLS

FUNCTIONAL CLASSIFICATION

( ) RURAL
(X) URBAN

( ) FREEWAY/EXPWY. ( ) MAJOR COLL.
(X) PRINCIPAL ART. ( ) MINOR COLL.
( ) MINOR ART. ( ) LOCAL

HIGHWAY SYSTEM

Yes	No	
(X)	( )	NATIONAL HIGHWAY SYSTEM
( )	(X)	STRATEGIC INTERMODAL SYSTEM
(X)	( )	STATE HIGHWAY SYSTEM
( )	(X)	OFF STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
( ) 3 - RESTRICTIVE w/660 ft. Connection Spacing
( ) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
(X) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

CRITERIA

(X) NEW CONSTRUCTION / RECONSTRUCTION
( ) RRR INTERSTATE / FREEWAY
( ) RRR NON-INTERSTATE / FREEWAY
( ) TDLC / NEW CONSTRUCTION / RECONSTRUCTION
( ) TDLC / RRR
( ) MANUAL OF UNIFORM MINIMUM STANDARDS (FLORIDA GREENBOOK) (OFF-STATE HIGHWAY SYSTEM ONLY)

TRAFFIC

	YEAR	AADT
CURRENT	2014	16,300
OPENING	2020	21,500
DESIGN	2040	39,500

STA. 10+42 to STA. 131+43
PROPOSED DESIGN SPEED: 50
EXISTING POSTED SPEED: 55

STA. 131+43 to STA. 228+71
PROPOSED DESIGN SPEED: 50
EXISTING POSTED SPEED: 45

DISTRIBUTION

K	9.0%
D	56.0%
T 24	11.0%

DESIGN SPEED APPROVALS

D. A. Nasing — 7-22-15
DISTRICT DESIGN ENGINEER — DATE

07/22/15
DISTRICT TRAFFIC OPERATIONS ENGINEER — DATE

LIST ANY POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION ELEMENTS:

LANE WIDTH VARIATION
SHOULDER WIDTH VARIATION
LATERAL OFFSET VARIATION
BORDER WIDTH VARIATION
TYPE F OUTSIDE CURB VARIATION
MEDIAN WIDTH VARIATION

LIST MAJOR STRUCTURES LOCATION/DESCRIPTION - REQUIRING INDEPENDENT STRUCTURE DESIGN:

160241 - POLK PARKWAY (SR 570) EASTBOUND OVER US 92 (TO REMAIN)
160242 - POLK PARKWAY (SR 570) WESTBOUND OVER US 92 (TO REMAIN)
160117 - US 92 OVER HAMILTON BRANCH
160026 - US 92 OVER WINSTON CREEK

LIST MAJOR UTILITIES WITHIN PROJECT CORRIDOR:

BRIGHT HOUSE NETWORKS
CITY OF LAKELAND - ELECTRIC
CITY OF LAKELAND - FIBER/TELECOM
CITY OF LAKELAND - TRAFFIC
CITY OF LAKELAND - WATER
CITY OF LAKELAND - WASTEWATER
CITY OF PLANT CITY - WATER
FLORIDA'S TURNPIKE ENTERPRISE
KINDER MORGAN/CENTRAL FLORIDA PIPELINE
LEVEL 3 COMMUNICATIONS
TECO PEOPLES GAS
VERIZON

LIST OTHER INFORMATION PERTINENT TO DESIGN OF PROJECT:

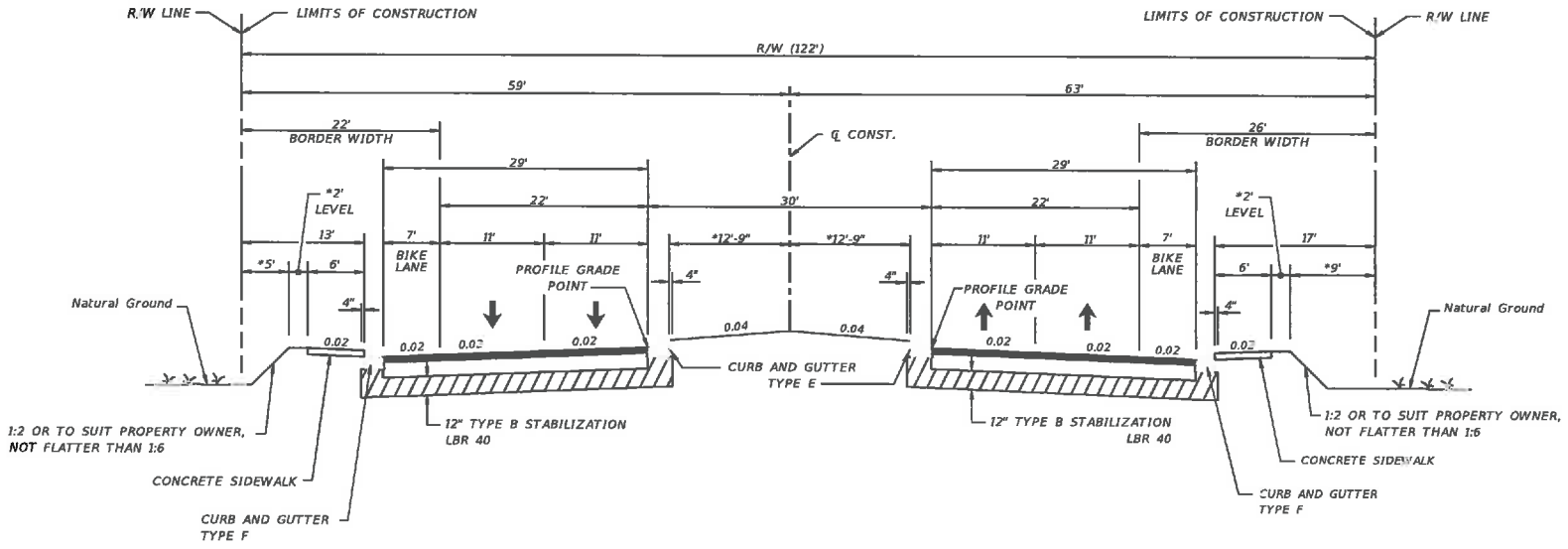
PROJECT IDENTIFICATION

FINANCIAL PROJECT ID 433558-1-22-01 FEDERAL AID PROJECT NO. N/A COUNTY NAME POLK

SECTION NO. 16010 ROAD DESIGNATION US 92 (SR 600) LIMITS/MILEPOST MP 0.000 TO MP 4.131

PROJECT DESCRIPTION US 92 FROM COUNTY LINE ROAD TO WABASH AVENUE

PROPOSED ROADWAY TYPICAL SECTION



STA. 10+42 TO STA. 228+71

*PERFORMANCE TURF

APPROVED BY:	FDOT CONCURRENCE	FDOT CONCURRENCE
William Hartmann 7/22/15	07/22/15	B.A. Masing 7-22-15
WILLIAM HARTMANN, P.E. Date District Project Development Engineer	L.K. NANDAM, P.E. Date District Traffic Operations Engineer	B.A. MASING, P.E. Date FDOT District Design Engineer

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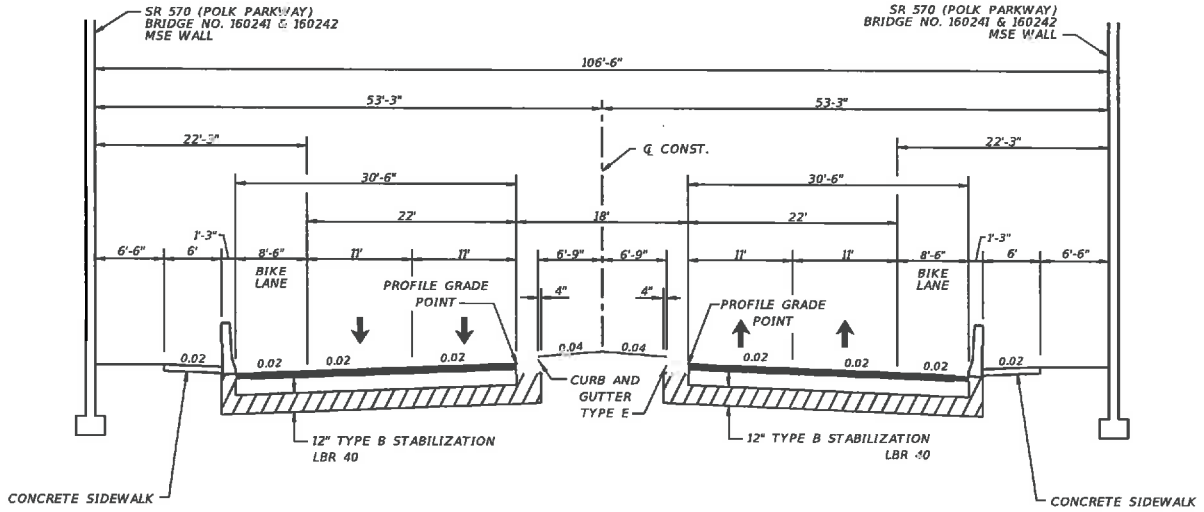
PROJECT DESCRIPTION US 92 FROM COUNTY LINE ROAD TO WABASH AVENUE

PROPOSED ROADWAY TYPICAL SECTION



UNDER SR 570 (POLK PARKWAY)

APPROVED BY:	FDOT CONCURRENCE	FDOT CONCURRENCE
William A. Hartmann 7/22/15	07/22/15	B.A. Masing 7-22-15
WILLIAM HARTMANN, P.E. Date	L.K. NANDAM, P.E. Date	B.A. MASING, P.E. Date
District Project Development Engineer	District Traffic Operations Engineer	FDOT District Design Engineer

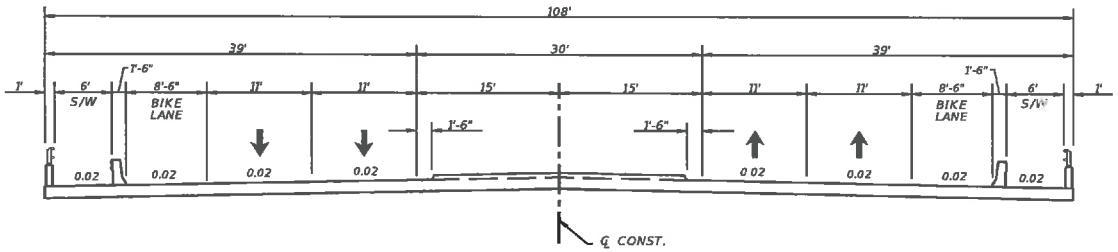
PROJECT IDENTIFICATION

FINANCIAL PROJECT ID 433558-1-22-01 FEDERAL AID PROJECT NO. N/A COUNTY NAME POLK

SECTION NO. 16010 ROAD DESIGNATION US 92 (SR 600) LIMITS/MILEPOST MP 0.000 TO MP 4.131

PROJECT DESCRIPTION US 92 FROM COUNTY LINE ROAD TO WABASH AVENUE

PROPOSED STRUCTURE TYPICAL SECTION



BRIDGE OVER HAMILTON BRANCH AND WINSTON CREEK

APPROVED BY:	FDOT CONCURRENCE	FDOT CONCURRENCE
William Hartmann 7/22/15	07/22/15	7-22-15 B.A. Masing 7-22-15
WILLIAM HARTMANN, P.E. Date District Project Development Engineer	L.K. NANDAM, P.E. Date District Traffic Operations Engineer	B.A. MASING, P.E. Date FDOT District Design Engineer

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APPENDIX C

Signed Variation Packages

Submittal/Approval Letter

To: B.A. Masing, P.E.
District ~~or Turnpike~~ Design Engineer

Date: November 23, 2016

Financial Project ID: 433558-1-22-01 New Const. ☑ RRR ☐
Federal Aid Number: TBD
Project Name: US 92 from County Line Road to Wabash Avenue
State Road Number: 600 Co./Sec./Sub. 16010 (Polk County)
Begin Project MP: 0.000 End Project MP: 4.131
Full Federal Oversight: Yes ☐ No ☑
Request for: Design Exception ☐ Design Variation ☑
Community Aesthetic Feature: Conceptual ☐ Final ☐
Re-submittal: Yes ☐ No ☑ Original Ref# ____ - ___ - ____

Requested for the following element(s):

☐ Design Speed	☐ Lane Width	☐ Shoulder Width	☐ Cross Slope
☐ Design Loading Structural Capacity	☐ Vertical Clearance	☐ Maximum Grade	☐ Stopping Sight Distance
☐ Superelevation	☐ Horizontal Curve Radius	☑ Other Border Width	

This design variation for border width is being requested as part of the US 92 PD&E Study from County Line Road to Wabash Avenue in Polk County. The variation is being requested in anticipation that the posted speed after construction will be 50 mph to match the FDOT Spot Speed Study for the project limits. The proposed US 92 typical section is a modified suburban typical section with a design speed of 50 mph that requires a design variation for border width. The proposed criterion for border width is 22 feet in lieu of the 29-foot standard criterion.

Recommended by:

_____ Date 11/23/16
Responsible Professional Engineer or Landscape Architect (Landscape-Only Projects)

Approvals:

B.A. Masing Date 3-7-17
District ~~or Turnpike~~ Design Engineer

N/A Date _____
District Structures Design Engineer

N/A Date _____
State Roadway Design Engineer

N/A Date _____
State Structures Design Engineer

N/A Date _____
Chief Engineer

N/A Date _____
FHWA Division Administrator

Project Description

US 92 (SR 600) is classified as an Urban Other Principal Arterial that extends from County Line Road to Wabash Avenue in Polk County and the majority of the existing right-of-way width is 100 feet. US 92 is currently a two-lane undivided facility with 12-foot travel lanes (one in each direction) and 12-foot shoulders (5-feet paved). Stormwater runoff is collected in roadside swales. With the exception of the west leg of the Wabash Avenue intersection and along the Family Dollar property, there are no existing pedestrian facilities on US 92 within the project limits. The posted speed limit for the portion of US 92 between County Line Road and Airport Road/Galloway Road is 55 miles per hour (mph), while the posted speed limit for the portion between Airport Road/Galloway Road and Wabash Avenue is 45 mph.

The purpose of this project is to increase the capacity of US 92 from County Line Road to Wabash Avenue in order to achieve an acceptable Level of Service (LOS) on the facility in the future condition. While the road currently operates at an acceptable LOS, conditions will deteriorate below standards if no improvement occurs by 2040 as the roadway will have insufficient capacity to accommodate the projected travel demand.

The existing two-lane undivided facility will be expanded to a four-lane divided typical section. The proposed widening involves constructing four new travel lanes without saving the existing pavement. The proposed typical section for the widening of US 92 includes four 11-foot travel lanes, curb and gutter, and a 30-foot grass median. Six-foot sidewalks and seven-foot buffered bicycle lanes will accommodate pedestrian and bicycle traffic along the corridor. A total of 122 feet of right-of-way is needed to accommodate the proposed improvements. The proposed design speed for this modified suburban typical section is 50 mph.

Minimum Standards

The Florida Department of Transportation Plans Preparation Manual (PPM) Volume 1 (January 2017) was utilized to populate Table 1. The two typical sections compared in the table below are the Urban Typical Section with a design speed of 45 mph and the Suburban Typical Section with a design speed of 50 mph.

Table 1 Criteria Comparison Table

Design Element	Urban Typical Section	FDOT PPM Vol 1 2017	Suburban Typical Section	FDOT PPM Vol 1 2017
Design Speed	45 mph	Table 1.9.1	50 mph	Table 1.9.1/Section 2.16.1
Border Width	12 ft	Table 2.5.2	29 ft	Section 2.16.7

Proposed Criteria

The proposed criterion for border width the suburban typical section and the proposed US 92 modified suburban typical section is listed in the Table 2.

Table 2 Proposed Criteria Table

Design Element	Suburban Typical Section	FDOT PPM Vol 1 2017	US 92 Typical Section	Comments
Design Speed	50 mph	Table 1.9.1/Section 2.16.1	50 mph	Provide 50 mph to match the FDOT Spot Speed Study
Border Width	29 ft	Section 2.16.7	22 ft[1]	Proposed Variation

1. The border width on the north side is 22 feet and the south side is 26 feet.

Justification

Crash Data

Crash data for the years 2009 through 2013 were obtained from the FDOT's State Safety Office for the PD&E study limits – County Line Road (Milepost 0.000) to Wabash Avenue (Milepost 4.131). Table 3 summarizes the number of crashes, fatalities and injuries that occurred within the study corridor. This table indicates that 266 crashes, resulting in 219 injuries and 2 fatalities, occurred within the project limits during this five-year period. Of the 266 crashes, 125 resulted in property damage only.

Table 3 US 92 Crash Totals (2009-2013)

Year	Total No. of Crashes	No. of Fatality Crashes	No. of Injury Crashes	No. of Property Damage Crashes	Total No. of Fatalities	Total No. of Injuries
2009	54	0	29	25	0	47
2010	45	1	22	22	1	29
2011	55	1	31	23	1	56
2012	52	0	31	21	0	48
2013	60	0	26	34	0	39
5-Year Total	266	2	139	125	2	219

Table 4 summarizes the types of crashes that occurred between 2009 and 2013. The two most prevalent types of crashes were rear-end crashes (approximately 43.2%) and angle crashes (approximately 22.9%). Together, these two crash types accounted for approximately two-thirds of the total crashes that were reported within the study corridor. A review of Table 4 also indicates that there were 15 crashes involving vehicles hitting other vehicles on the roadway shoulder, nine head-on crashes and eight left-turn crashes. The proposed four-lane divided typical section will reduce these types of accidents and improve roadway safety.

Table 4 US 92 Crash Types (2009-2013)

Crash Type	No. of Crashes	% of Total Crashes
Rear-End Crash	115	43.23%
Angle Crash	61	22.93%
Vehicle Hit Another Vehicle On Shoulder	15	5.64%
Head-On Crash	9	3.38%
Left-Turn Crash	8	3.01%
Vehicle Hit Other Fixed Object	5	1.88%
Right-Turn Crash	5	1.88%
Vehicle Ran into Ditch/Culvert	4	1.50%
Vehicle Hit Bicyclist	4	1.50%
Vehicle Hit Traffic Gate	3	1.13%
Vehicle Hit Pedestrian	2	<1.0%
Sideswipe Crash	2	<1.0%
Vehicle Hit Moveable Object On Road	2	<1.0%
Vehicle Overturned	2	<1.0%
Vehicle Hit Parked Car	2	<1.0%
Vehicle Hit Train	1	<1.0%
Vehicle Ran Off Road Into Water	1	<1.0%
Vehicle Hit Fence	1	<1.0%
Tractor-Trailer Jackknifed	1	<1.0%
Tractor-Trailer Separated	1	<1.0%
Vehicle Backed Into Another Vehicle	1	<1.0%
Vehicle Hit Animal	1	<1.0%
Other/Unknown/Not Coded	20	7.52%
Total	266	100.00%

Future Land Use

Existing land uses adjacent to US 92 include a mixture of residential, commercial, and light industrial/warehousing land uses. The residential land uses consist primarily of mobile home communities and several of these are located close to the existing ROW line for US 92. The first step in the evaluation of typical sections for this project was to develop several typical sections ranging from an urban typical section requiring 110 feet of ROW with a design speed of 45 mph to a suburban typical section requiring 140 feet of ROW with a design speed of 50 mph.

The project was divided into two evaluation segments based on the existing posted speed limit and access management classifications of the existing roadway. Table 5 defines the limits of the two segments.

Table 5 ***Evaluation Segments***

Segment	Begin Segment	End Segment	Segment Length (mi)	Existing Posted Speed	Existing 85th % Speed[1]	Existing Access Classification
1	County Line Rd	Airport Rd/Galloway Rd	2.29	55	52	3
2	Airport Rd/Galloway Rd	Wabash Ave	1.84	45	50	5

1. FDOT speed study performed in February 2012.

Spot Speed Study

Table 6 shows the results of spot speed studies performed by FDOT in March 2010 and February 2012 within the project limits.

Table 6 ***FDOT Speed Study Summary***

Study Date	Time	Mile Post	Location	Sample Size	Speed			
					Posted	85th %	50th %	Average
3/25/10	9:00	0.473	Between County Line Rd & Polk Parkway	249	55	53	49	49.4
2/28/12	24 Hr	0.268	East of County Line Rd	10,092	55	52	46	45.9
3/25/10	10:15	1.618	Between SR 570 & SR 572	225	55	51	48	48.1
2/28/12	24 Hr	2.140	West of SR 570	10,659	45	50	45	44.2
3/25/10	11:45	2.662	Between SR 572 & Publix Entrance	219	45	49	45	45.8
3/25/10	12:45	3.550	Between Publix Entrance & Wabash Ave	229	45	50	47	47.1
4/30/12	24 Hr	3.722	West of Chestnut Rd	15,251	45	49	44	43.2

Proposed Typical Section

It was determined that the urban typical sections with a 22-foot median was not preferred due to the inability for a passenger vehicle to make U-turns and the added safety of a wider median. The urban typical section with a 30-foot median was considered reasonable but a design speed of 45 mph is not consistent with the previous speed study performed that identified existing 85th percentile speeds of 52 mph for Segment 1 and 50 mph for Segment 2. The proposed US 92 typical section is a modified suburban typical section utilizing a design speed of 50 mph illustrated in Appendix B.

Right-of-Way Costs

The right-of-way cost for the proposed US 92 modified suburban typical section is $12,466,000 which includes five residential and two business relocations. The right-of-way cost estimate is included in Appendix C. The additional right-of-way area for a typical section utilizing a 29-foot border width instead of 22 feet on the north side and 26 feet on the south side is 203,786 square feet. Based on an average square foot cost of $2.38 the additional right-of-way would cost $505,390. The design variation for border width is being request in order to avoid the additional right-of-way cost.

Construction Costs

The construction cost for the proposed US 92 modified suburban typical section is $52,068,000 and the Long Range Estimate is included in Appendix D. Construction of the suburban typical section with a 29-foot border width would require approximately another $506,160 for the project as shown in Table 7. This would include widening the typical section another 10 feet. The design variation for border width is being requested in order to also avoid the additional project construction costs.

Table 7 Additional Cost for Suburban Typical Section

Description	Quantity	Unit	Unit Price	Amount
Clearing & Grubbing	5.18	AC	$15,000.00	$77,700.00
Embankment	16,727.82	CY	$14.73	$246,400.79
Performance Turf	25,091.73	SY	$3.03	$76,027.94
			Subtotal	$400,128.73
			Mobilization (15%)	$60,019.31
			Subtotal	$460,148.04
			Mobilization (10%)	$46,014.80
			Total	$506,162.84

Recommendation

This design variation request for border width for the US 92 typical section is to allow a minimum border width of 22 feet. This design variation would allow a modified suburban typical section to be utilized with a design speed of 50 mph to match the FDOT Spot Speed Study for the project limits. By constructing a four-lane divided typical section, the number of accidents will be reduced and improve the corridor safety. The addition of buffered bike lanes and sidewalks on both sides of the typical section will improve pedestrian movements and increase safety over the existing condition.

Recommended by:_____

Responsible Professional Engineer
Erik J. Fleming, P.E. No. 56685
AIM Engineering & Surveying, Inc.
3802 Corporex Park Drive, Suite 225
Tampa, Florida 33619
Certificate of Authorization 3114

Date: 11-23-16

Submittal/Approval Letter

To: B.A. Masing, P.E.
District ~~or Turnpike~~ Design Engineer

Date: November 23, 2016

Financial Project ID: 433558-1-22-01 New Const. ☑ RRR ☐
Federal Aid Number: TBD
Project Name: US 92 from County Line Road to Wabash Avenue
State Road Number: 600 Co./Sec./Sub. 16010 (Polk County)
Begin Project MP: 0.000 End Project MP: 4.131
Full Federal Oversight: Yes ☐ No ☑
Request for: Design Exception ☐ Design Variation ☑
Community Aesthetic Feature: Conceptual ☐ Final ☐
Re-submittal: Yes ☐ No ☑ Original Ref# ____ - ____ - ____

Requested for the following element(s):

☐ Design Speed	☑ Lane Width	☐ Shoulder Width	☐ Cross Slope
☐ Design Loading Structural Capacity	☐ Vertical Clearance	☐ Maximum Grade	☐ Stopping Sight Distance
☐ Superelevation	☐ Horizontal Curve Radius	☐ Other ____	

This design variation for lane width is being requested as part of the US 92 PD&E Study from County Line Road to Wabash Avenue in Polk County. The variation is being requested in anticipation that the posted speed after construction will be 50 mph to match the FDOT Spot Speed Study for the project limits. The proposed US 92 typical section is a modified suburban typical section with a design speed of 50 mph that requires a design variation for lane width. The proposed criterion for minimum lane width is 11 feet in lieu of the 12-foot standard criterion.

Recommended by:

[signature] Date 11/23/16
Responsible Professional Engineer or Landscape Architect (Landscape-Only Projects)

Approvals:

B.A. Masing Date 3-7-17
District ~~or Turnpike~~ Design Engineer

N/A Date ____
District Structures Design Engineer

N/A Date ____
State Roadway Design Engineer

N/A Date ____
State Structures Design Engineer

N/A Date ____
Chief Engineer

N/A Date ____
FHWA Division Administrator

Project Description

US 92 (SR 600) is classified as an Urban Other Principal Arterial that extends from County Line Road to Wabash Avenue in Polk County and the majority of the existing right-of-way width is 100 feet. US 92 is currently a two-lane undivided facility with 12-foot travel lanes (one in each direction) and 12-foot shoulders (5-feet paved). Stormwater runoff is collected in roadside swales. With the exception of the west leg of the Wabash Avenue intersection and along the Family Dollar property, there are no existing pedestrian facilities on US 92 within the project limits. The posted speed limit for the portion of US 92 between County Line Road and Airport Road/Galloway Road is 55 miles per hour (mph), while the posted speed limit for the portion between Airport Road/Galloway Road and Wabash Avenue is 45 mph.

The purpose of this project is to increase the capacity of US 92 from County Line Road to Wabash Avenue in order to achieve an acceptable Level of Service (LOS) on the facility in the future condition. While the road currently operates at an acceptable LOS, conditions will deteriorate below standards if no improvement occurs by 2040 as the roadway will have insufficient capacity to accommodate the projected travel demand.

The existing two-lane undivided facility will be expanded to a four-lane divided typical section. The proposed widening involves constructing four new travel lanes without saving the existing pavement. The proposed typical section for the widening of US 92 includes four 11-foot travel lanes, curb and gutter, and a 30-foot grass median. Six-foot sidewalks and seven-foot buffered bicycle lanes will accommodate pedestrian and bicycle traffic along the corridor. A total of 122 feet of right-of-way is needed to accommodate the proposed improvements. The proposed design speed for this modified suburban typical section is 50 mph.

Minimum Standards

The Florida Department of Transportation Plans Preparation Manual (PPM) Volume 1 (January 2017) was utilized to populate Table 1. The two typical sections compared in the table below are the Urban Typical Section with a design speed of 45 mph and the Suburban Typical Section with a design speed of 50 mph.

Table 1 Criteria Comparison Table

Design Element	Urban Typical Section	FDOT PPM Vol 1 2017	Suburban Typical Section	FDOT PPM Vol 1 2017
Design Speed	45 mph	Table 1.9.1	50 mph	Table 1.9.1/Section 2.16.1
Lane Width	11 ft	Table 2.1.1	12 ft	Table 2.1.1

Proposed Criteria

The proposed criteria for lane width for the suburban typical section and the proposed US 92 modified suburban typical section is listed in the Table 2.

Table 2 Proposed Criteria Table

Design Element	Suburban Typical Section	FDOT PPM Vol 1 2017	US 92 Typical Section	Comments
Design Speed	50 mph	Table 1.9.1/Section 2.16.1	50 mph	Provide 50 mph to match the FDOT Spot Speed Study
Lane Width	12 ft	Table 2.1.1	11 ft	Proposed Variation

Justification

Crash Data

Crash data for the years 2009 through 2013 were obtained from the FDOT's State Safety Office for the PD&E study limits – County Line Road (Milepost 0.000) to Wabash Avenue (Milepost 4.131). Table 3 summarizes the number of crashes, fatalities and injuries that occurred within the study corridor. This table indicates that 266 crashes, resulting in 219 injuries and 2 fatalities, occurred within the project limits during this five-year period. Of the 266 crashes, 125 resulted in property damage only.

Table 3 US 92 Crash Totals (2009-2013)

Year	Total No. of Crashes	No. of Fatality Crashes	No. of Injury Crashes	No. of Property Damage Crashes	Total No. of Fatalities	Total No. of Injuries
2009	54	0	29	25	0	47
2010	45	1	22	22	1	29
2011	55	1	31	23	1	56
2012	52	0	31	21	0	48
2013	60	0	26	34	0	39
5-Year Total	266	2	139	125	2	219

Table 4 summarizes the types of crashes that occurred between 2009 and 2013. The two most prevalent types of crashes were rear-end crashes (approximately 43.2%) and angle crashes (approximately 22.9%). Together, these two crash types accounted for approximately two-thirds of the total crashes that were reported within the study corridor. A review of Table 4 also indicates that there were 15 crashes involving vehicles hitting other vehicles on the roadway shoulder, nine head-on crashes and eight left-turn crashes. The proposed four-lane divided typical section will reduce these types of accidents and improve roadway safety.

Table 4 US 92 Crash Types (2009-2013)

Crash Type	No. of Crashes	% of Total Crashes
Rear-End Crash	115	43.23%
Angle Crash	61	22.93%
Vehicle Hit Another Vehicle On Shoulder	15	5.64%
Head-On Crash	9	3.38%
Left-Turn Crash	8	3.01%
Vehicle Hit Other Fixed Object	5	1.88%
Right-Turn Crash	5	1.88%
Vehicle Ran into Ditch/Culvert	4	1.50%
Vehicle Hit Bicyclist	4	1.50%
Vehicle Hit Traffic Gate	3	1.13%
Vehicle Hit Pedestrian	2	<1.0%
Sideswipe Crash	2	<1.0%
Vehicle Hit Moveable Object On Road	2	<1.0%
Vehicle Overturned	2	<1.0%
Vehicle Hit Parked Car	2	<1.0%
Vehicle Hit Train	1	<1.0%
Vehicle Ran Off Road Into Water	1	<1.0%
Vehicle Hit Fence	1	<1.0%
Tractor-Trailer Jackknifed	1	<1.0%
Tractor-Trailer Separated	1	<1.0%
Vehicle Backed Into Another Vehicle	1	<1.0%
Vehicle Hit Animal	1	<1.0%
Other/Unknown/Not Coded	20	7.52%
Total	266	100.00%

Future Land Use

Existing land uses adjacent to US 92 include a mixture of residential, commercial, and light industrial/warehousing land uses. The residential land uses consist primarily of mobile home communities and several of these are located close to the existing ROW line for US 92. The first step in the evaluation of typical sections for this project was to develop several typical sections ranging from an urban typical section requiring 110 feet of ROW with a design speed of 45 mph to a suburban typical section requiring 140 feet of ROW with a design speed of 50 mph.

The project was divided into two evaluation segments based on the existing posted speed limit and access management classifications of the existing roadway. Table 5 defines the limits of the two segments.

Table 5 ***Evaluation Segments***

Segment	Begin Segment	End Segment	Segment Length (mi)	Existing Posted Speed	Existing 85th % Speed[1]	Existing Access Classification
1	County Line Rd	Airport Rd/Galloway Rd	2.29	55	52	3
2	Airport Rd/Galloway Rd	Wabash Ave	1.84	45	50	5

1. FDOT speed study performed in February 2012.

Table 4 US 92 Crash Types (2009-2013)

Crash Type	No. of Crashes	% of Total Crashes
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Vehicle Overturned	2	<1.0%
Vehicle Hit Parked Car	2	<1.0%
Vehicle Hit Train	1	<1.0%
Vehicle Ran Off Road Into Water	1	<1.0%
Vehicle Hit Fence	1	<1.0%
Tractor-Trailer Jackknifed	1	<1.0%
Tractor-Trailer Separated	1	<1.0%
Vehicle Backed Into Another Vehicle	1	<1.0%
Vehicle Hit Animal	1	<1.0%
Other/Unknown/Not Coded	20	7.52%
Total	266	100.00%

Future Land Use

Existing land uses adjacent to US 92 include a mixture of residential, commercial, and light industrial/warehousing land uses. The residential land uses consist primarily of mobile home communities and several of these are located close to the existing ROW line for US 92. The first step in the evaluation of typical sections for this project was to develop several typical sections ranging from an urban typical section requiring 110 feet of ROW with a design speed of 45 mph to a suburban typical section requiring 140 feet of ROW with a design speed of 50 mph.

The project was divided into two evaluation segments based on the existing posted speed limit and access management classifications of the existing roadway. Table 5 defines the limits of the two segments.

Table 5 ***Evaluation Segments***

Segment	Begin Segment	End Segment	Segment Length (mi)	Existing Posted Speed	Existing 85th % Speed[1]	Existing Access Classification
1	County Line Rd	Airport Rd/Galloway Rd	2.29	55	52	3
2	Airport Rd/Galloway Rd	Wabash Ave	1.84	45	50	5

1. FDOT speed study performed in February 2012.

Spot Speed Study

Table 6 shows the results of spot speed studies performed by FDOT in March 2010 and February 2012 within the project limits.

Table 6 ***FDOT Speed Study Summary***

Study Date	Time	Mile Post	Location	Sample Size	Speed			
					Posted	85th %	50th %	Average
3/25/10	9:00	0.473	Between County Line Rd & Polk Parkway	249	55	53	49	49.4
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3/25/10	10:15	1.618	Between SR 570 & SR 572	225	55	51	48	48.1
2/28/12	24 Hr	2.140	West of SR 570	10,659	45	50	45	44.2
3/25/10	11:45	2.662	Between SR 572 & Publix Entrance	219	45	49	45	45.8
3/25/10	12:45	3.550	Between Publix Entrance & Wabash Ave	229	45	50	47	47.1
4/30/12	24 Hr	3.722	West of Chestnut Rd	15,251	45	49	44	43.2

Proposed Typical Section

It was determined that the urban typical sections with a 22-foot median was not preferred due to the inability for a passenger vehicle to make U-turns and the added safety of a wider median. The urban typical section with a 30-foot median was considered reasonable but a design speed of 45 mph is not consistent with the previous speed study performed that identified existing 85th percentile speeds of 52 mph for Segment 1 and 50 mph for Segment 2. The proposed US 92 typical section is a suburban typical section utilizing a design speed of 50 mph is illustrated in Appendix B.

Right-of-Way Costs

The right-of-way cost for the optimized alternative is $12,161,000 which includes five residential and two business relocations. The right-of-way cost estimate is included in Appendix C. The additional right-of-way area for a typical section utilizing 12-foot lanes instead of 11-foot lanes is 83,407 square feet. Based on an average square foot cost of $2.48 the additional right-of-way would cost $206,850. The design variation for lane widths is being requested in order to avoid the additional right-of-way cost.

Construction Costs

The construction cost for the proposed US 92 modified suburban typical section is $52,068,000 and the Long Range Estimate is included in Appendix D. Construction of the suburban typical section with 12-foot travel lanes would require approximately another $818,700 for the project as shown in Table 7. This would include widening the typical section another 4 feet. The design variation for lane widths is being requested in order to also avoid the additional project construction costs.

Table 7 Additional Cost for Suburban Typical Section

Description	Quantity	Unit	Unit Price	Amount
Clearing & Grubbing	1.92	AC	$15,000.00	$31,050.00
Embankment	6,691.13	CY	$14.73	$98,560.34
Type B Stabilization	10,036.69	SY	$4.85	$48,677.95
Optional Base Group 9	10,036.69	SY	$18.99	$190,596.74
Superpave Asphaltic Concrete, Traffic C	1,656.05	TN	$99.70	$165,108.19
Asphaltic Concrete, Traffic C, Friction Course	401.47	TN	$135.40	$54,359.04
			Subtotal	$588,352.26
			Mobilization (15%)	$88,252.84
			Subtotal	$676,605.10
			Mobilization (10%)	$67,660.51
			Subtotal	$744,265.61
			Project Unknowns (10%)	$74,426.56
			Total	$818,692.17

Recommendation

This design variation request for lane width is for US 92 typical section is to provide a minimum lane width of 11 feet. This design variation would allow a modified suburban typical section to be utilized with a design speed of 50 mph to match the FDOT Spot Speed Study for the project limits. By constructing a four-lane divided typical section, the number of accidents will be reduced and improve the corridor safety. The addition of buffered bike lanes and sidewalks on both sides of the typical section will improve pedestrian movements and increase safety over the existing condition.

Recommended by:_____

ERIK J. FLEMING LICENSE No. 56685 STATE OF FLORIDA PROFESSIONAL ENGINEER

Responsible Professional Engineer
Erik J. Fleming, P.E. No. 56685
AIM Engineering & Surveying, Inc.
3802 Corporex Park Drive, Suite 225
Tampa, Florida 33619
Certificate of Authorization 3114

Date: 11-23-16

Submittal/Approval Letter

To: B.A. Masing, P.E.
District ~~or Turnpike~~ Design Engineer

Date: November 23, 2016

Financial Project ID: 433558-1-22-01 New Const. ☑ RRR ☐
Federal Aid Number: TBD
Project Name: US 92 from County Line Road to Wabash Avenue
State Road Number: 600 Co./Sec./Sub. 16010 (Polk County)
Begin Project MP: 0.000 End Project MP: 4.131
Full Federal Oversight: Yes ☐ No ☑
Request for: Design Exception ☐ Design Variation ☑
Community Aesthetic Feature: Conceptual ☐ Final ☐
Re-submittal: Yes ☐ No ☑ Original Ref# _____ - ____ - _____

Requested for the following element(s):

☐ Design Speed	☐ Lane Width	☐ Shoulder Width	☐ Cross Slope
☐ Design Loading Structural Capacity	☐ Vertical Clearance	☐ Maximum Grade	☐ Stopping Sight Distance
☐ Superelevation	☐ Horizontal Curve Radius	☑ Other Lateral Offset	

This design variation for lateral offset is being requested as part of the US 92 PD&E Study from County Line Road to Wabash Avenue in Polk County. The variation is being requested in anticipation that the posted speed after construction will be 50 mph to match the FDOT Spot Speed Study for the project limits. The proposed US 92 typical section is a modified suburban typical section with a design speed of 50 mph that requires a design variation for lateral offset. The proposed criterion for lateral offset is 22 feet in lieu of the 24-foot standard criterion.

Recommended by:

_____ Date 11/23/16
Responsible Professional Engineer or Landscape Architect (Landscape-Only Projects)

Approvals:

B.A. Masing Date 3-7-17
District ~~or Turnpike~~ Design Engineer

N/A Date _____
District Structures Design Engineer

N/A Date _____
State Roadway Design Engineer

N/A Date _____
State Structures Design Engineer

N/A Date _____
Chief Engineer

N/A Date _____
FHWA Division Administrator

Project Description

US 92 (SR 600) is classified as an Urban Other Principal Arterial that extends from County Line Road to Wabash Avenue in Polk County and the majority of the existing right-of-way width is 100 feet. US 92 is currently a two-lane undivided facility with 12-foot travel lanes (one in each direction) and 12-foot shoulders (5-feet paved). Stormwater runoff is collected in roadside swales. With the exception of the west leg of the Wabash Avenue intersection and along the Family Dollar property, there are no existing pedestrian facilities on US 92 within the project limits. The posted speed limit for the portion of US 92 between County Line Road and Airport Road/Galloway Road is 55 miles per hour (mph), while the posted speed limit for the portion between Airport Road/Galloway Road and Wabash Avenue is 45 mph.

The purpose of this project is to increase the capacity of US 92 from County Line Road to Wabash Avenue in order to achieve an acceptable Level of Service (LOS) on the facility in the future condition. While the road currently operates at an acceptable LOS, conditions will deteriorate below standards if no improvement occurs by 2040 as the roadway will have insufficient capacity to accommodate the projected travel demand.

The existing two-lane undivided facility will be expanded to a four-lane divided typical section. The proposed widening involves constructing four new travel lanes without saving the existing pavement. The proposed typical section for the widening of US 92 includes four 11-foot travel lanes, curb and gutter, and a 30-foot grass median. Six-foot sidewalks and seven-foot buffered bicycle lanes will accommodate pedestrian and bicycle traffic along the corridor. A total of 122 feet of right-of-way is needed to accommodate the proposed improvements. The proposed design speed for this modified suburban typical section is 50 mph.

Minimum Standards

The Florida Department of Transportation Plans Preparation Manual (PPM) Volume 1 (January 2017) was utilized to populate Table 1. The two typical sections compared in the table below are the Urban Typical Section with a design speed of 45 mph and the Suburban Typical Section with a design speed of 50 mph.

Table 1 Criteria Comparison Table

Design Element	Urban Typical Section	FDOT PPM Vol 1 2017	Suburban Typical Section	FDOT PPM Vol 1 2017
Design Speed	45 mph	Table 1.9.1	50 mph	Table 1.9.1/Section 2.16.1
Lateral Offset	4 ft	Table 4.2.1	24 ft	Table 4.2.1

Proposed Criteria

The proposed criterion for lateral offset for the suburban typical section and the proposed US 92 modified suburban typical section is listed in the Table 2.

Table 2 Proposed Criteria Table

Design Element	Suburban Typical Section	FDOT PPM Vol 1 2017	US 92 Typical Section	Comments
Design Speed	50 mph	Table 1.9.1/Section 2.16.1	50 mph	Provide 50 mph to match the FDOT Spot Speed Study
Lateral Offset	24 ft	Table 4.2.1	22 ft[1]	Proposed Variation

1. The lateral offset provided on the west side is 22 feet and on the east side is 26 feet.

Justification

Crash Data

Crash data for the years 2009 through 2013 were obtained from the FDOT's State Safety Office for the PD&E study limits – County Line Road (Milepost 0.000) to Wabash Avenue (Milepost 4.131). Table 3 summarizes the number of crashes, fatalities and injuries that occurred within the study corridor. This table indicates that 266 crashes, resulting in 219 injuries and 2 fatalities, occurred within the project limits during this five-year period. Of the 266 crashes, 125 resulted in property damage only.

Table 3 US 92 Crash Totals (2009-2013)

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5-Year Total	266	2	139	125	2	219

Table 4 summarizes the types of crashes that occurred between 2009 and 2013. The two most prevalent types of crashes were rear-end crashes (approximately 43.2%) and angle crashes (approximately 22.9%). Together, these two crash types accounted for approximately two-thirds of the total crashes that were reported within the study corridor. A review of Table 4 also indicates that there were 15 crashes involving vehicles hitting other vehicles on the roadway shoulder, nine head-on crashes and eight left-turn crashes. The proposed four-lane divided typical section will reduce these types of accidents and improve roadway safety.

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Right-Turn Crash	5	1.88%
Vehicle Ran into Ditch/Culvert	4	1.50%
Vehicle Hit Bicyclist	4	1.50%
Vehicle Hit Traffic Gate	3	1.13%
Vehicle Hit Pedestrian	2	<1.0%
Sideswipe Crash	2	<1.0%
Vehicle Hit Moveable Object On Road	2	<1.0%
Vehicle Overturned	2	<1.0%
Vehicle Hit Parked Car	2	<1.0%
Vehicle Hit Train	1	<1.0%
Vehicle Ran Off Road Into Water	1	<1.0%
Vehicle Hit Fence	1	<1.0%
Tractor-Trailer Jackknifed	1	<1.0%
Tractor-Trailer Separated	1	<1.0%
Vehicle Backed Into Another Vehicle	1	<1.0%
Vehicle Hit Animal	1	<1.0%
Other/Unknown/Not Coded	20	7.52%
Total	266	100.00%

Future Land Use

Existing land uses adjacent to US 92 include a mixture of residential, commercial, and light industrial/warehousing land uses. The residential land uses consist primarily of mobile home communities and several of these are located close to the existing ROW line for US 92. The first step in the evaluation of typical sections for this project was to develop several typical sections ranging from an urban typical section requiring 110 feet of ROW with a design speed of 45 mph to a suburban typical section requiring 140 feet of ROW with a design speed of 50 mph.

The project was divided into two evaluation segments based on the existing posted speed limit and access management classifications of the existing roadway. Table 5 defines the limits of the two segments.

Table 5 ***Evaluation Segments***

Segment	Begin Segment	End Segment	Segment Length (mi)	Existing Posted Speed	Existing 85th % Speed[1]	Existing Access Classification
1	County Line Rd	Airport Rd/Galloway Rd	2.29	55	52	3
2	Airport Rd/Galloway Rd	Wabash Ave	1.84	45	50	5

1. FDOT speed study performed in February 2012.

Spot Speed Study

Table 6 shows the results of spot speed studies performed by FDOT in March 2010 and February 2012 within the project limits.

Table 6 FDOT Speed Study Summary

Study Date	Time	Mile Post	Location	Sample Size	Speed			
					Posted	85th %	50th %	Average
3/25/10	9:00	0.473	Between County Line Rd & Polk Parkway	249	55	53	49	49.4
2/28/12	24 Hr	0.268	East of County Line Rd	10,092	55	52	46	45.9
3/25/10	10:15	1.618	Between SR 570 & SR 572	225	55	51	48	48.1
2/28/12	24 Hr	2.140	West of SR 570	10,659	45	50	45	44.2
3/25/10	11:45	2.662	Between SR 572 & Publix Entrance	219	45	49	45	45.8
3/25/10	12:45	3.550	Between Publix Entrance & Wabash Ave	229	45	50	47	47.1
4/30/12	24 Hr	3.722	West of Chestnut Rd	15,251	45	49	44	43.2

Proposed Typical Section

It was determined that the urban typical sections with a 22-foot median was not preferred due to the inability for a passenger vehicle to make U-turns and the added safety of a wider median. The urban typical section with a 30-foot median was considered reasonable but a design speed of 45 mph is not consistent with the previous speed study performed that identified existing 85th percentile speeds of 52 mph for Segment 1 and 50 mph for Segment 2. The proposed US 92 typical section is a suburban typical section utilizing a design speed of 50 mph is illustrated in Appendix B.

Right-of-Way Costs

The right-of-way cost for the optimized alternative is $12,161,000 which includes five residential and two business relocations. The right-of-way cost estimate is included in Appendix C. The additional right-of-way area for a typical section utilizing 24-foot lateral offset instead of 22-foot is 41,704 square feet. Based on an average square foot cost of $2.38 the additional right-of-way would cost $103,420. The design variation for lateral offset is being requested in order to avoid the additional right-of-way cost.

Construction Costs

The construction cost for the proposed US 92 modified suburban typical section is $52,068,000 and the Long Range Estimate is included in Appendix D. Construction of the suburban typical section with a lateral offset of 24 feet would require approximately another $71,230 for the project as shown in Table 7. This would include widening the typical section another 2 feet. The design variation for lateral offset is being requested in order to also avoid the additional project construction costs.

Table 7 Additional Cost for Suburban Typical Section

Description	Quantity	Unit	Unit Price	Amount
Clearing & Grubbing	0.96	AC	$15,000.00	$14,400.00
Embankment	1,544.57	CY	$14.73	$22,751.52
Performance Turf	4,633.72	SY	$3.03	$14,040.17
			Subtotal	$51,191.69
			Mobilization (15%)	$7,678.75
			Subtotal	$58,870.44
			Mobilization (10%)	$5,887.04
			Subtotal	$64,757.75
			Project Unknowns (10%)	$6,475.75
			Total	$71,233.23

Recommendation

This design variation request for lateral offset for the US 92 typical section is to allow a minimum lateral offset of 22 feet. This design variation would allow a modified suburban typical section to be utilized with a design speed of 50 mph to match the FDOT Spot Speed Study for the project limits. By constructing a four-lane divided typical section, the number of accidents will be reduced and improve the corridor safety. The addition of buffered bike lanes and sidewalks on both sides of the typical section will improve pedestrian movements and increase safety over the existing condition.

Recommended by: _____

ERIK J. FLEMING LICENSE No. 56685 STATE OF FLORIDA PROFESSIONAL ENGINEER

Responsible Professional Engineer
Erik J. Fleming, P.E. No. 56685
AIM Engineering & Surveying, Inc.
3802 Corporex Park Drive, Suite 225
Tampa, Florida 33619
Certificate of Authorization 3114

Date: 11-23-16

Submittal/Approval Letter

To: B.A. Masing, P.E.
District ~~or Turnpike~~ Design Engineer

Date: November 23, 2016

Financial Project ID: 433558-1-22-01 New Const. ☑ RRR ☐
Federal Aid Number: TBD
Project Name: US 92 from County Line Road to Wabash Avenue
State Road Number: 600 Co./Sec./Sub. 16010 (Polk County)
Begin Project MP: 0.000 End Project MP: 4.131
Full Federal Oversight: Yes ☐ No ☑
Request for: Design Exception ☐ Design Variation ☑
Community Aesthetic Feature: Conceptual ☐ Final ☐
Re-submittal: Yes ☐ No ☑ Original Ref# _____ - ___ - ____

Requested for the following element(s):

☐ Design Speed	☐ Lane Width	☐ Shoulder Width	☐ Cross Slope
☐ Design Loading Structural Capacity	☐ Vertical Clearance	☐ Maximum Grade	☐ Stopping Sight Distance
☐ Superelevation	☐ Horizontal Curve Radius	☑ Other Median Width	

This design variation for median width is being requested as part of the US 92 PD&E Study from County Line Road to Wabash Avenue in Polk County. The variation is being requested in anticipation that the posted speed after construction will be 50 mph to match the FDOT Spot Speed Study for the project limits. The proposed US 92 typical section is a modified suburban typical section with a design speed of 50 mph that requires a design variation for median width. The proposed criterion for median width is 18 feet in lieu of the 30-foot standard criterion.

Recommended by:

_____ Date 11/23/16
Responsible Professional Engineer or Landscape Architect (Landscape-Only Projects)

Approvals:

B.A. Masing Date 3-7-17
District ~~or Turnpike~~ Design Engineer

N/A Date _____
District Structures Design Engineer

N/A Date _____
State Roadway Design Engineer

N/A Date _____
State Structures Design Engineer

N/A Date _____
Chief Engineer

N/A Date _____
FHWA Division Administrator

Project Description

US 92 (SR 600) is classified as an Urban Other Principal Arterial that extends from County Line Road to Wabash Avenue in Polk County and the majority of the existing right-of-way width is 100 feet. US 92 is currently a two-lane undivided facility with 12-foot travel lanes (one in each direction) and 12-foot shoulders (5-feet paved). Stormwater runoff is collected in roadside swales. With the exception of the west leg of the Wabash Avenue intersection and along the Family Dollar property, there are no existing pedestrian facilities on US 92 within the project limits. The posted speed limit for the portion of US 92 between County Line Road and Airport Road/Galloway Road is 55 miles per hour (mph), while the posted speed limit for the portion between Airport Road/Galloway Road and Wabash Avenue is 45 mph.

The purpose of this project is to increase the capacity of US 92 from County Line Road to Wabash Avenue in order to achieve an acceptable Level of Service (LOS) on the facility in the future condition. While the road currently operates at an acceptable LOS, conditions will deteriorate below standards if no improvement occurs by 2040 as the roadway will have insufficient capacity to accommodate the projected travel demand.

The existing two-lane undivided facility will be expanded to a four-lane divided typical section. The proposed widening involves constructing four new travel lanes without saving the existing pavement. The proposed typical section for the widening of US 92 includes four 11-foot travel lanes, curb and gutter, and a 30-foot grass median. Six-foot sidewalks and seven-foot buffered bicycle lanes will accommodate pedestrian and bicycle traffic along the corridor. A total of 122 feet of right-of-way is needed to accommodate the proposed improvements. The proposed design speed for this modified suburban typical section is 50 mph.

Minimum Standards

The Florida Department of Transportation Plans Preparation Manual (PPM) Volume 1 (January 2017) was utilized to populate Table 1. The two typical sections compared in the table below are the Urban Typical Section with a design speed of 45 mph and the Suburban Typical Section with a design speed of 50 mph.

Table 1 Criteria Comparison Table

Design Element	Urban Typical Section	FDOT PPM Vol 1 2017	Suburban Typical Section	FDOT PPM Vol 1 2017
Design Speed	45 mph	Table 1.9.1	50 mph	Table 1.9.1/Section 2.16.1
Median Width	22 ft	Table 2.2.1	30 ft	Section 2.16.4

Proposed Criteria

The proposed criteria for median width for the suburban typical section and the proposed US 92 modified suburban typical section is listed in the Table 2.

Table 2 Proposed Criteria Table

Design Element	Suburban Typical Section	FDOT PPM Vol 1 2017	US 92 Typical Section	Comments
Design Speed	50 mph	Table 1.9.1/Section 2.16.1	50 mph	Provide 50 mph to match the FDOT Spot Speed Study
Median Width	30 ft	Section 2.16.4	18 ft[1]	Proposed Criterion for Variation[1]

1. The majority of the proposed typical section has a 30 foot median width except under SR 570 (Polk Parkway) overpass where it is reduced to 18 feet.

Justification

Crash Data

Crash data for the years 2009 through 2013 were obtained from the FDOT's State Safety Office for the PD&E study limits – County Line Road (Milepost 0.000) to Wabash Avenue (Milepost 4.131). Table 3 summarizes the number of crashes, fatalities and injuries that occurred within the study corridor. This table indicates that 266 crashes, resulting in 219 injuries and 2 fatalities, occurred within the project limits during this five-year period. Of the 266 crashes, 125 resulted in property damage only.

Table 3 US 92 Crash Totals (2009-2013)

Year	Total No. of Crashes	No. of Fatality Crashes	No. of Injury Crashes	No. of Property Damage Crashes	Total No. of Fatalities	Total No. of Injuries
2009	54	0	29	25	0	47
2010	45	1	22	22	1	29
2011	55	1	31	23	1	56
2012	52	0	31	21	0	48
2013	60	0	26	34	0	39
5-Year Total	266	2	139	125	2	219

Table 4 summarizes the types of crashes that occurred between 2009 and 2013. The two most prevalent types of crashes were rear-end crashes (approximately 43.2%) and angle crashes (approximately 22.9%). Together, these two crash types accounted for approximately two-thirds of the total crashes that were reported within the study corridor. A review of Table 4 also indicates that there were 15 crashes involving vehicles hitting other vehicles on the roadway shoulder, nine head-on crashes and eight left-turn crashes. The proposed four-lane divided typical section will reduce these types of accidents and improve roadway safety.

Table 4 US 92 Crash Types (2009-2013)

Crash Type	No. of Crashes	% of Total Crashes
Rear-End Crash	115	43.23%
Angle Crash	61	22.93%
Vehicle Hit Another Vehicle On Shoulder	15	5.64%
Head-On Crash	9	3.38%
Left-Turn Crash	8	3.01%
Vehicle Hit Other Fixed Object	5	1.88%
Right-Turn Crash	5	1.88%
Vehicle Ran into Ditch/Culvert	4	1.50%
Vehicle Hit Bicyclist	4	1.50%
Vehicle Hit Traffic Gate	3	1.13%
Vehicle Hit Pedestrian	2	<1.0%
Sideswipe Crash	2	<1.0%
Vehicle Hit Moveable Object On Road	2	<1.0%
Vehicle Overturned	2	<1.0%
Vehicle Hit Parked Car	2	<1.0%
Vehicle Hit Train	1	<1.0%
Vehicle Ran Off Road Into Water	1	<1.0%
Vehicle Hit Fence	1	<1.0%
Tractor-Trailer Jackknifed	1	<1.0%
Tractor-Trailer Separated	1	<1.0%
Vehicle Backed Into Another Vehicle	1	<1.0%
Vehicle Hit Animal	1	<1.0%
Other/Unknown/Not Coded	20	7.52%
Total	266	100.00%

Future Land Use

Existing land uses adjacent to US 92 include a mixture of residential, commercial, and light industrial/warehousing land uses. The residential land uses consist primarily of mobile home communities and several of these are located close to the existing ROW line for US 92. The first step in the evaluation of typical sections for this project was to develop several typical sections ranging from an urban typical section requiring 110 feet of ROW with a design speed of 45 mph to a suburban typical section requiring 140 feet of ROW with a design speed of 50 mph.

The project was divided into two evaluation segments based on the existing posted speed limit and access management classifications of the existing roadway. Table 5 defines the limits of the two segments.

Table 5 ***Evaluation Segments***

Segment	Begin Segment	End Segment	Segment Length (mi)	Existing Posted Speed	Existing 85th % Speed[1]	Existing Access Classification
1	County Line Rd	Airport Rd/Galloway Rd	2.29	55	52	3
2	Airport Rd/Galloway Rd	Wabash Ave	1.84	45	50	5

1. FDOT speed study performed in February 2012.

Spot Speed Study

Table 6 shows the results of spot speed studies performed by FDOT in March 2010 and February 2012 within the project limits.

Table 6 ***FDOT Speed Study Summary***

Study Date	Time	Mile Post	Location	Sample Size	Speed			
					Posted	85th %	50th %	Average
3/25/10	9:00	0.473	Between County Line Rd & Polk Parkway	249	55	53	49	49.4
2/28/12	24 Hr	0.268	East of County Line Rd	10,092	55	52	46	45.9
3/25/10	10:15	1.618	Between SR 570 & SR 572	225	55	51	48	48.1
2/28/12	24 Hr	2.140	West of SR 570	10,659	45	50	45	44.2
3/25/10	11:45	2.662	Between SR 572 & Publix Entrance	219	45	49	45	45.8
3/25/10	12:45	3.550	Between Publix Entrance & Wabash Ave	229	45	50	47	47.1
4/30/12	24 Hr	3.722	West of Chestnut Rd	15,251	45	49	44	43.2

Proposed Typical Section

It was determined that the urban typical sections with a 22-foot median was not preferred due to the inability for a passenger vehicle to make U-turns and the added safety of a wider median. The urban typical section with a 30-foot median was considered reasonable but a design speed of 45 mph is not consistent with the previous speed study performed that identified existing 85th percentile speeds of 52 mph for Segment 1 and 50 mph for Segment 2. The proposed US 92 typical section is a modified suburban typical section utilizing a design speed of 50 mph illustrated in Appendix B.

Right-of-Way Costs

The right-of-way cost for the proposed typical section alternative is $12,161,000 which includes five residential and two business relocations. The right-of-way cost estimate is included in Appendix C. The additional right-of-way area required for a typical section utilizing a 30-foot median width instead of an 18-foot median width in the vicinity of SR 570 (Polk Parkway) Overpass is 3,163 square feet. Based on an average square foot cost of $2.38, the additional right-of-way would cost $7,528 utilizing the 30-foot median width. This design variation for median width is being requested in order to avoid the additional construction cost but would also avoid a minor right-of-way cost.

Construction Costs

Construction of the suburban typical section with a median width of 30 feet under SR 570 (Polk Parkway) would have a probable construction cost of approximately $4,140,000 higher than the 18-foot median width for the project as shown in Table 7. This would include constructing two new Polk Parkway bridges over US 92, a temporary bridge, and removing the existing bridges. The median width variation is being requested in order to avoid reconstructing the two Polk Parkway bridges.

Table 7 Additional Cost for Polk Parkway Bridges

Description	Quantity	Unit	Unit Price	Amount
Excavation	1,320.00	CY	$8.51	$11,233.20
Embankment	34,222.22	CY	$14.73	$504,093.30
Temporary Bridge	7,280.00	SF	$114.00	$829,920.00
Removal of Existing Bridge	11,800.00	SF	$37.72	$445,096.00
Bridge	13,000.00	SF	$114.00	$1,482,000.00
			Subtotal	$3,272,342.50
			Mobilization (15%)	$490,851.38
			Subtotal	$3,763,193.88
			Mobilization (10%)	$376,319.39
			Total	$4,139,513.26

Recommendation

This design variation request for US 92 is to allow a median width of 18 feet. This design variation would allow a modified suburban typical section to be utilized with a design speed of 50 mph to match the FDOT Spot Speed Study. This will avoid reconstruction of the two Polk Parkway bridges. By constructing a four-lane divided typical section, the number of accidents will be reduced and improve the corridor safety. The addition of buffered bike lanes and sidewalks on both sides of the typical section will improve pedestrian movements and increase safety over the existing condition.

Recommended by:_____

Responsible Professional Engineer
Erik J. Fleming, P.E. No. 56685
AIM Engineering & Surveying, Inc.
3802 Corporex Park Drive, Suite 225
Tampa, Florida 33619
Certificate of Authorization 3114

Date: 11-23-16

Submittal/Approval Letter

To: B.A. Masing, P.E.
District ~~or Turnpike~~ Design Engineer

Date: November 23, 2016

Financial Project ID: 433558-1-22-01 New Const. ☑ RRR ☐
Federal Aid Number: TBD
Project Name: US 92 from County Line Road to Wabash Avenue
State Road Number: 600 Co./Sec./Sub. 16010 (Polk County)
Begin Project MP: 0.000 End Project MP: 4.131
Full Federal Oversight: Yes ☐ No ☑
Request for: Design Exception ☐ Design Variation ☑
Community Aesthetic Feature: Conceptual ☐ Final ☐
Re-submittal: Yes ☐ No ☑ Original Ref# _____-___-____

Requested for the following element(s):

☐ Design Speed	☐ Lane Width	☑ Shoulder Width	☐ Cross Slope
☐ Design Loading Structural Capacity	☐ Vertical Clearance	☐ Maximum Grade	☐ Stopping Sight Distance
☐ Superelevation	☐ Horizontal Curve Radius	☐ Other _____	

This design variation for inside shoulder width is being requested as part of the US 92 PD&E Study from County Line Road to Wabash Avenue in Polk County. The variation is being requested in anticipation that the posted speed after construction will be 50 mph to match the FDOT Spot Speed Study for the project limits. The proposed US 92 typical section is a modified suburban typical section with a design speed of 50 mph that requires a design variation for inside shoulder width. The proposed criterion for inside shoulder width is 0 feet in lieu of the 4-foot standard criterion.

Recommended by:

_____ Date 11/23/16
Responsible Professional Engineer or Landscape Architect (Landscape-Only Projects)

Approvals:

B.A. Masing Date 3-7-17
District ~~or Turnpike~~ Design Engineer

N/A Date _____
State Roadway Design Engineer

N/A Date _____
Chief Engineer

N/A Date _____
District Structures Design Engineer

N/A Date _____
State Structures Design Engineer

N/A Date _____
FHWA Division Administrator

Project Description

US 92 (SR 600) is classified as an Urban Other Principal Arterial that extends from County Line Road to Wabash Avenue in Polk County and the majority of the existing right-of-way width is 100 feet. US 92 is currently a two-lane undivided facility with 12-foot travel lanes (one in each direction) and 12-foot shoulders (5-feet paved). Stormwater runoff is collected in roadside swales. With the exception of the west leg of the Wabash Avenue intersection and along the Family Dollar property, there are no existing pedestrian facilities on US 92 within the project limits. The posted speed limit for the portion of US 92 between County Line Road and Airport Road/Galloway Road is 55 miles per hour (mph), while the posted speed limit for the portion between Airport Road/Galloway Road and Wabash Avenue is 45 mph.

The purpose of this project is to increase the capacity of US 92 from County Line Road to Wabash Avenue in order to achieve an acceptable Level of Service (LOS) on the facility in the future condition. While the road currently operates at an acceptable LOS, conditions will deteriorate below standards if no improvement occurs by 2040 as the roadway will have insufficient capacity to accommodate the projected travel demand.

The existing two-lane undivided facility will be expanded to a four-lane divided typical section. The proposed widening involves constructing four new travel lanes without saving the existing pavement. The proposed typical section for the widening of US 92 includes four 11-foot travel lanes, curb and gutter, and a 30-foot grass median. Six-foot sidewalks and seven-foot buffered bicycle lanes will accommodate pedestrian and bicycle traffic along the corridor. A total of 122 feet of right-of-way is needed to accommodate the proposed improvements. The proposed design speed for this modified suburban typical section is 50 mph.

Minimum Standards

The Florida Department of Transportation Plans Preparation Manual (PPM) Volume 1 (January 2017) was utilized to populate Table 1. The two typical sections compared in the table below are the Urban Typical Section with a design speed of 45 mph and the Suburban Typical Section with a design speed of 50 mph.

Table 1 Criteria Comparison Table

Design Element	Urban Typical Section	FDOT PPM Vol 1 2017	Suburban Typical Section	FDOT PPM Vol 1 2017
Design Speed	45 mph	Table 1.9.1	50 mph	Table 1.9.1/Section 2.16.1
Inside Shoulder Width	0 ft[1]	Section 4.2.7.2	4 ft[2]	Section 2.16.5
Outside Shoulder Width	7 ft[1]	Section 8.4.1	6.5 ft[2]	Section 2.16.5

1. With Type F Curb & Gutter.
2. With Type E Curb & Gutter.

Proposed Criteria

The proposed criteria for the suburban typical section and the proposed US 92 modified suburban typical section is listed in the Table 2.

Table 2 Proposed Criteria Table

Design Element	Suburban Typical Section	FDOT PPM Vol 1 2017	US 92 Typical Section	Comments
Design Speed	50 mph	Table 1.9.1/Section 2.16.1	50 mph	Provide 50 mph to match the FDOT Spot Speed Study
Inside Shoulder Width	4 ft	Section 2.16.5	0 ft	Proposed Variation
Outside Shoulder Width	6.5 ft	Section 2.16.5	7 ft[1]	Meets Criteria

1. Seven foot buffered bike lane.

Justification

Crash Data

Crash data for the years 2009 through 2013 were obtained from the FDOT's State Safety Office for the PD&E study limits – County Line Road (Milepost 0.000) to Wabash Avenue (Milepost 4.131). Table 3 summarizes the number of crashes, fatalities and injuries that occurred within the study corridor. This table indicates that 266 crashes, resulting in 219 injuries and 2 fatalities, occurred within the project limits during this five-year period. Of the 266 crashes, 125 resulted in property damage only.

Table 3 US 92 Crash Totals (2009-2013)

Year	Total No. of Crashes	No. of Fatality Crashes	No. of Injury Crashes	No. of Property Damage Crashes	Total No. of Fatalities	Total No. of Injuries
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2012	52	0	31	21	0	48
2013	60	0	26	34	0	39
5-Year Total	266	2	139	125	2	219

Table 4 summarizes the types of crashes that occurred between 2009 and 2013. The two most prevalent types of crashes were rear-end crashes (approximately 43.2%) and angle crashes (approximately 22.9%). Together, these two crash types accounted for approximately two-thirds of the total crashes that were reported within the study corridor. A review of Table 4 also indicates that there were 15 crashes involving vehicles hitting other vehicles on the roadway shoulder, nine head-on crashes and eight left-turn crashes. The proposed four-lane divided typical section will reduce these types of accidents and improve roadway safety.

Table 4 US 92 Crash Types (2009-2013)

Crash Type	No. of Crashes	% of Total Crashes
Rear-End Crash	115	43.23%
Angle Crash	61	22.93%
Vehicle Hit Another Vehicle On Shoulder	15	5.64%
Head-On Crash	9	3.38%
Left-Turn Crash	8	3.01%
Vehicle Hit Other Fixed Object	5	1.88%
Right-Turn Crash	5	1.88%
Vehicle Ran into Ditch/Culvert	4	1.50%
Vehicle Hit Bicyclist	4	1.50%
Vehicle Hit Traffic Gate	3	1.13%
Vehicle Hit Pedestrian	2	<1.0%
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Vehicle Hit Moveable Object On Road	2	<1.0%
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Vehicle Hit Parked Car	2	<1.0%
Vehicle Hit Train	1	<1.0%
Vehicle Ran Off Road Into Water	1	<1.0%
Vehicle Hit Fence	1	<1.0%
Tractor-Trailer Jackknifed	1	<1.0%
Tractor-Trailer Separated	1	<1.0%
Vehicle Backed Into Another Vehicle	1	<1.0%
Vehicle Hit Animal	1	<1.0%
Other/Unknown/Not Coded	20	7.52%
Total	266	100.00%

Future Land Use

Existing land uses adjacent to US 92 include a mixture of residential, commercial, and light industrial/warehousing land uses. The residential land uses consist primarily of mobile home communities and several of these are located close to the existing ROW line for US 92. The first step in the evaluation of typical sections for this project was to develop several typical sections ranging from an urban typical section requiring 110 feet of ROW with a design speed of 45 mph to a suburban typical section requiring 140 feet of ROW with a design speed of 50 mph.

The project was divided into two evaluation segments based on the existing posted speed limit and access management classifications of the existing roadway. Table 5 defines the limits of the two segments.

Table 5 ***Evaluation Segments***

Segment	Begin Segment	End Segment	Segment Length (mi)	Existing Posted Speed	Existing 85th % Speed[1]	Existing Access Classification
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2	Airport Rd/Galloway Rd	Wabash Ave	1.84	45	50	5

1. FDOT speed study performed in February 2012.

Spot Speed Study

Table 6 shows the results of spot speed studies performed by FDOT in March 2010 and February 2012 within the project limits.

Table 6 ***FDOT Speed Study Summary***

Study Date	Time	Mile Post	Location	Sample Size	Speed			
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2/28/12	24 Hr	2.140	West of SR 570	10,659	45	50	45	44.2
3/25/10	11:45	2.662	Between SR 572 & Publix Entrance	219	45	49	45	45.8
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4/30/12	24 Hr	3.722	West of Chestnut Rd	15,251	45	49	44	43.2

Proposed Typical Section

It was determined that the urban typical sections with a 22-foot median was not preferred due to the inability for a passenger vehicle to make U-turns and the added safety of a wider median. The urban typical section with a 30-foot median was considered reasonable but a design speed of 45 mph is not consistent with the previous speed study performed that identified existing 85th percentile speeds of 52 mph for Segment 1 and 50 mph for Segment 2. The proposed US 92 typical section is a suburban typical section utilizing a design speed of 50 mph is illustrated in Appendix B.

Right-of-Way Costs

The right-of-way costs for a typical section eliminating the 4-foot inside shoulders does not affect overall typical section width therefor there is no additional right-of-way cost.

Construction Costs

The construction cost for the proposed US 92 modified suburban typical section is $52,068,000 and the Long Range Estimate is included in Appendix D. Construction of the suburban typical section with 4-foot inside shoulders would require approximately another $1,276,700 for the project as shown in Table 7. The design variation for inside shoulder widths is being requested in order to avoid the additional project construction costs.

Table 7 Additional Cost for Suburban Typical Section

Description	Quantity	Unit	Unit Price	Amount
Type B Stabilization	20,073.39	SY	$4.85	$97,355.94
Optional Base Group 9	20,073.39	SY	$18.99	$381,193.68
Superpave Asphaltic Concrete, Traffic C	3,312.11	TN	$99.70	$330,217.37
Asphaltic Concrete, Traffic C, Friction Course	802.94	TN	$135.40	$108,718.08
			Subtotal	$917,485.06
			Mobilization (15%)	$137,622.76
			Subtotal	$1,055,107.82
			Mobilization (10%)	$105,510.78
			Subtotal	$1,160,618.60
			Project Unknowns (10%)	$116,061.86
			Total	$1,276,680.46

Recommendation

This design variation request for inside shoulder width for the US 92 typical section is to allow a minimum inside shoulder width of 0 feet. This design variation would allow a modified suburban typical section to be utilized with a design speed of 50 mph to match the FDOT Spot Speed Study for the project limits. By constructing a four-lane divided typical section, the number of accidents will be reduced and improve the corridor safety. The addition of buffered bike lanes and sidewalks on both sides of the typical section will improve pedestrian movements and increase safety over the existing condition.

ERIK J. FLEMING LICENSE No. 56685 STATE OF FLORIDA PROFESSIONAL ENGINEER

Recommended by:_____

Responsible Professional Engineer
Erik J. Fleming, P.E. No. 56685
AIM Engineering & Surveying, Inc.
3802 Corporex Park Drive, Suite 225
Tampa, Florida 33619
Certificate of Authorization 3114

Date: 11-23-16

APPENDIX D

Signed Step 1 – Roundabout Screening Forms

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*Erik Fleming*	**Date Prepared:**	*8/24/15*
Financial Project ID:	*433558-1-22-01*	**Project Name:**	*US 92 PD&E Study*
FAP No.:		**State Road:**	*SR 600*
County:	*Polk*	**Intersecting Road:**	*Pine Chase Avenue*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ■ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ☐ yes ■ no

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ■ yes ☐ no

The design year (2040) AADT volume on US 92 is 37,050 vpd and on Pine Chase Avenue is 600 vpd for a total of 37,650 vpd. Therefore, the US 92 AADT volume is approximately 98% of the total intersection AADT.

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ■ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ■ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ☐ yes ■ no

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ☐ yes ■ no

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ■ no

Approved by:

L.K. NANDAM, P.E.
District Traffic Operations Engineer

11/18/15
Date

B.A. MASING, P.E.
FDOT District Design Engineer

11-18-15
Date

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*Erik Fleming*	**Date Prepared:**	*11/20/15*
Financial Project ID:	*433558-1-22-01*	**Project Name:**	*US 92 PD&E Study*
FAP No.:		**State Road:**	*SR 600*
County:	*Polk*	**Intersecting Road:**	*Clark Road*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ■ Signal ☐ All Way Stop ☐ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ■ yes ☐ no

The Polk Parkway (SR 570) is parallel to Clark Road and located approximately 140 feet west of Clark Road. The Polk Parkway bridge over US 92 is approximately 106.5 feet wide.

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ☐ yes ■ no

The design year (2040) AADT volumes on US 92 is 37,050 vpd and on Clark Road is 8,850 vpd for a total of 45,900 vpd. Therefore, the US 92 AADT volume is approximately 81% of the total intersection AADT.

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ■ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ■ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ☐ yes ■ no

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ☐ yes ■ no

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ■ no

Approved by:

L.K. NANDAM, P.E.
District Traffic Operations Engineer
11/18/15
Date

B.A. MASING, P.E.
FDOT District Design Engineer
11-18-15
Date

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*Erik Fleming*	**Date Prepared:**	*8/24/15*
Financial Project ID:	*433558-1-22-01*	**Project Name:**	*US 92 PD&E Study*
FAP No.:		**State Road:**	*SR 600*
County:	*Polk*	**Intersecting Road:**	*McCue Road*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ■ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ☐ yes ■ no

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ■ yes ☐ no

The design year (2040) AADT volume on US 92 is 37,200 vpd and on McCue Road is 650 vpd for a total of 37,850 vpd. Therefore, the US 92 AADT volume is approximately 98% of the total intersection AADT.

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ■ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ■ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ☐ yes ■ no

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ■ yes ☐ no

The roundabout would result in the relocation of five residences on the south side of US 92.

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ■ no

Approved by:

L.K. NANDAM, P.E. District Traffic Operations Engineer	11/18/15 Date	B.A. MASING, P.E. FDOT District Design Engineer	11-18-15 Date

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*Erik Fleming*	**Date Prepared:**	*8/24/15*
Financial Project ID:	*433558-1-22-01*	**Project Name:**	*US 92 PD&E Study*
FAP No.:		**State Road:**	*SR 600*
County:	*Polk*	**Intersecting Road:**	*Airport Road/Galloway Road*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ■ Signal ☐ All Way Stop ☐ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ☐ yes ■ no

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ☐ yes ■ no

The design year (2040) AADT volume on US 92 is 38,450 vpd and on Airport Road/Galloway Road is 24,400 vpd for a total of 62,850 vpd. Therefore, the US 92 AADT volume is approximately 61% of the total intersection AADT.

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ■ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ■ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ☐ yes ■ no

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ■ yes ☐ no

The construction of a roundabout with bypass lanes could result in two business relocations. (The existing gas stations located in the northwest and northeast quadrants.)

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ■ no

Approved by:

L.K. NANDAM, P.E. District Traffic Operations Engineer	11/18/15 Date	B.A. MASING, P.E. FDOT District Design Engineer	11-18-15 Date

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*Erik Fleming*	**Date Prepared:**	*8/24/15*
Financial Project ID:	*433558-1-22-01*	**Project Name:**	*US 92 PD&E Study*
FAP No.:		**State Road:**	*SR 600*
County:	*Polk*	**Intersecting Road:**	*Murray Drive*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ■ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ☐ yes ■ no

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ■ yes ☐ no

The design year (2040) AADT volume on US 92 is 38,550 vpd and on Murray Drive is 200 vpd for a total of 38,750 vpd. Therefore, the US 92 AADT volume is approximately 99.5% of the total intersection AADT.

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ■ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ■ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ☐ yes ■ no

Murray Drive is a gated entrance to Imperial Manor. If vehicles make a mistake in the roundabout and turn onto Murray Drive there will be no place to turn around.

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ☐ yes ■ no

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ■ no

Approved by:

L.K. NANDAM, P.E.
District Traffic Operations Engineer — 11/18/15 Date

B.A. MASING, P.E.
FDOT District Design Engineer — 11-18-15 Date

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*Erik Fleming*	**Date Prepared:**	*8/24/15*
Financial Project ID:	*433558-1-22-01*	**Project Name:**	*US 92 PD&E Study*
FAP No.:		**State Road:**	*SR 600*
County:	*Polk*	**Intersecting Road:**	*Wabash Avenue*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ■ Signal ☐ All Way Stop ☐ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ☐ yes ■ no

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ☐ yes ■ no

The design year (2040) AADT volume on US 92 is 32,850 vpd and on Wabash Avenue is 30,250 vpd for a total of 63,100 vpd. Therefore, the US 92 AADT volume is approximately 52% of the total intersection AADT.

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ■ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ■ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ☐ yes ■ no

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ■ yes ☐ no

The construction of a roundabout with bypass lanes could result in two business relocations. (The two existing business located in the northwest and northeast quadrants.) The Publix Corporate Headquarters in the southeast quadrant is considered eligible for the National Register of Historic Places.

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ■ no

Approved by:

L.K. NANDAM, P.E. District Traffic Operations Engineer	11/18/15 Date	B.A. MASING, P.E. FDOT District Design Engineer	11-18-15 Date

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*Erik Fleming*	**Date Prepared:**	*3/2/17*
Financial Project ID:	*433558-1-22-01*	**Project Name:**	*US 92 PD&E Study*
FAP No.:		**State Road:**	*SR 600*
County:	*Polk*	**Intersecting Road:**	*County Line Road*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ■ Signal ☐ All Way Stop ☐ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ☐ yes ■ no

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ☐ yes ■ no

The design year (2040) AADT volume on County Line Road is 42,200 vpd and on US 92 is 32,950 vpd for a total of 75,150 vpd. Therefore, the County Line Road AADT volume is approximately 56% of the total intersection AADT.

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ■ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ■ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ■ yes ☐ no

The CSX A-Line is parallel to US 92 and is located 75 feet south of the intersection on County Line Road. The rail line has crossing gates and is connected with the traffic signal.

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ☐ yes ■ no

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ■ no

Approved by: ☑ DDE or ☑ DTOE

Signature: B. A. Maging / Keith Slater

Date: 5-5-17 / 5-5-17

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*Erik Fleming*	**Date Prepared:**	*3/2/17*
Financial Project ID:	*433558-1-22-01*	**Project Name:**	*US 92 PD&E Study*
FAP No.:		**State Road:**	*SR 600*
County:	*Polk*	**Intersecting Road:**	*Edwards Avenue/Chestnut Road*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ■ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ☐ yes ■ no

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ☐ yes ■ no

The design year (2040) AADT volume on US 92 is 36,700 vpd and on Edwards Avenue/Chestnut Road is 4,150 vpd for a total of 40,850 vpd. Therefore, the US 92 AADT volume is approximately 90% of the total intersection AADT.

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ■ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ■ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ☐ yes ■ no

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ■ yes ☐ no

The installation of a roundabout could result in both residential and business relocations. Residential relocations in the northeast quadrant (mobile homes). Business relocations in the northwest (motel), southwest (auto sales), and southeast quadrants (gas station)

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ■ no

Approved by: ☑ DDE or ☐ DTOE

Signature: B. A. Mansing Date: 5-5-17

Keith Slatter 5-5-17

SIGNATURE INDEX SHEET
FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Financial Project ID:	433558-1-22-01
FAP No.:	
County:	Polk
Project Name:	US 92 PD&E Study
State Road:	SR 600

		Intersecting Road:										
		Advance Auto Parts	Kraft Rd	Tawny Lane	Holiday Blvd	Silver Moon Drive	Meadowbrook Ave	Publix Gate 8/10	Publix Gate 9	Publix Gate 7	Imperial Drive	Flint Ave
EXISTING CONTROL/PROJECT CLASSIFICATION												
Control	Signal							X				
	2 Way Stop	X	X	X	X	X	X		X	X	X	X
Classification	Other	X	X	X	X	X	X	X	X	X	X	X

SCREENING CRITERIA											
1 Does the intersection have physical or geometric constraints that would limit visibility or complicate construction?	No	No	No	No	No	No	No	No	No	No	No
2 Does the major roadway AADT exceed 90% of the total intersection AADT?*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3 Does the intersection have pedestrians with special needs that would have difficulty crossing the road?	No	No	No	No	No	No	No	No	No	No	No
4 Is the intersection located within a coordinated signal network?	No	No	No	No	No	No	No	No	No	No	No
5 Is there downstream traffic control or conditions that could cause queues to back up into the intersection?*	No	Yes	No	No	No	No	No	No	No	No	No
6 Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required?*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*Please refer to individual Step 1 - Roundabout Screening sheets for comments.

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2	No	No	No	No	No	No	No	No	No	No	No

Approved by:

Keith Slater 5-5-17

KEITH SLATER, P.E. Date
District Traffic Operations Engineer

B.A. Masing 5-5-17

B.A. MASING, P.E. Date
FDOT District Design Engineer

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*Erik Fleming*	**Date Prepared:**	*3/2/17*
Financial Project ID:	*433558-1-22-01*	**Project Name:**	*US 92 PD&E Study*
FAP No.:		**State Road:**	*SR 600*
County:	*Polk*	**Intersecting Road:**	*Advance Auto Parts*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ■ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ☐ yes ■ no

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ■ yes ☐ no

The design year (2040) AADT volume on US 92 is 36,900 vpd and on Advanced Auto Parts is 850 vpd for a total of 37,750 vpd. Therefore, the US 92 AADT volume is approximately 98% of the total intersection AADT.

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ■ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ■ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ☐ yes ■ no

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ■ yes ☐ no

The installation of a roundabout could result in residential relocations in the northwest quadrant.

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ■ no

Approved by:

Please see SIGNATURE INDEX SHEET for signature

KEITH SLATER, P.E.
District Traffic Operations Engineer

Date

Please see SIGNATURE INDEX SHEET for signature

B.A. MASING, P.E.
FDOT District Design Engineer

Date

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*Erik Fleming*	**Date Prepared:**	*3/2/17*
Financial Project ID:	*433558-1-22-01*	**Project Name:**	*US 92 PD&E Study*
FAP No.:		**State Road:**	*SR 600*
County:	*Polk*	**Intersecting Road:**	*Kraft Road*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ■ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ☐ yes ■ no

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ■ yes ☐ no

The design year (2040) AADT volume on US 92 is 37,500 vpd and on Kraft Road is 750 vpd for a total of 38,250 vpd. Therefore, the US 92 AADT volume is approximately 98% of the total intersection AADT.

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ■ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ■ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ■ yes ☐ no

There is a CSX rail line that crosses US 92 just east of Kraft Road that would cause queues when the track is in use.

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ■ yes ☐ no

The installation of a roundabout could result in a residential relocation south of US 92.

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ■ no

Approved by:

Please see SIGNATURE INDEX SHEET for signature

KEITH SLATER, P.E.
District Traffic Operations Engineer

Date

Please see SIGNATURE INDEX SHEET for signature

B.A. MASING, P.E.
FDOT District Design Engineer

Date

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*Erik Fleming*	**Date Prepared:**	*3/2/17*
Financial Project ID:	*433558-1-22-01*	**Project Name:**	*US 92 PD&E Study*
FAP No.:		**State Road:**	*SR 600*
County:	*Polk*	**Intersecting Road:**	*Tawny Lane*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ■ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ☐ yes ■ no

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ■ yes ☐ no

The design year (2040) AADT volume on US 92 is 37,600 vpd and on Tawny Lane is 150 vpd for a total of 37,750 vpd. Therefore, the US 92 AADT volume is approximately 100% of the total intersection AADT.

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ■ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ■ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ☐ yes ■ no

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ■ yes ☐ no

The installation of a roundabout could result in residential relocations south of US 92.

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ■ no

Approved by:

Please see SIGNATURE INDEX SHEET for signature

KEITH SLATER, P.E.
District Traffic Operations Engineer

Date

Please see SIGNATURE INDEX SHEET for signature

B.A. MASING, P.E.
FDOT District Design Engineer

Date

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*Erik Fleming*	**Date Prepared:**	*3/2/17*
Financial Project ID:	*433558-1-22-01*	**Project Name:**	*US 92 PD&E Study*
FAP No.:		**State Road:**	*SR 600*
County:	*Polk*	**Intersecting Road:**	*Holiday Boulevard*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ■ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ☐ yes ■ no

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ■ yes ☐ no

The design year (2040) AADT volume on US 92 is 39,050 vpd and on Holiday Boulevard is 450 vpd for a total of 39,500 vpd. Therefore, the US 92 AADT volume is approximately 99% of the total intersection AADT.

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ■ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ■ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ☐ yes ■ no

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ■ yes ☐ no

The installation of a roundabout could result in residential relocations north of US 92 and impact a historical resource (Silver Moon Drive In) to the south of US 92.

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ■ no

Approved by:

Please see SIGNATURE INDEX SHEET for signature

KEITH SLATER, P.E.
District Traffic Operations Engineer — Date

Please see SIGNATURE INDEX SHEET for signature

B.A. MASING, P.E.
FDOT District Design Engineer — Date

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*Erik Fleming*	**Date Prepared:**	*3/2/17*
Financial Project ID:	*433558-1-22-01*	**Project Name:**	*US 92 PD&E Study*
FAP No.:		**State Road:**	*SR 600*
County:	*Polk*	**Intersecting Road:**	*Silver Moon Drive*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ■ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ☐ yes ■ no

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ■ yes ☐ no

The design year (2040) AADT volume on US 92 is 39,250 vpd and on Silver Moon Drive is 750 vpd for a total of 40,000 vpd. Therefore, the US 92 AADT volume is approximately 98% of the total intersection AADT.

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ■ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ■ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ☐ yes ■ no

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ■ yes ☐ no

The installation of a roundabout could result in residential relocations in the northwest quadrant, a business relocation (gas station) in the northeast quadrant, and impact a historical resource (Silver Moon Drive In) to the south of US 92.

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ■ no

Approved by:

Please see SIGNATURE INDEX SHEET for signature

KEITH SLATER, P.E.
District Traffic Operations Engineer

Date

Please see SIGNATURE INDEX SHEET for signature

B.A. MASING, P.E.
FDOT District Design Engineer

Date

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*Erik Fleming*	**Date Prepared:**	*3/2/17*
Financial Project ID:	*433558-1-22-01*	**Project Name:**	*US 92 PD&E Study*
FAP No.:		**State Road:**	*SR 600*
County:	*Polk*	**Intersecting Road:**	*Meadowbrook Ave*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ■ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ☐ yes ■ no

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ■ yes ☐ no

The design year (2040) AADT volume on US 92 is 39,400 vpd and on Meadowbrook Avenue is 1,000 vpd for a total of 40,400 vpd. Therefore, the US 92 AADT volume is approximately 98% of the total intersection AADT.

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ■ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ■ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ☐ yes ■ no

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ■ yes ☐ no

The installation of a roundabout could result in residential relocations north of US 92.

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ■ no

Approved by:

Please see SIGNATURE INDEX SHEET for signature

KEITH SLATER, P.E.
District Traffic Operations Engineer

Date

Please see SIGNATURE INDEX SHEET for signature

B.A. MASING, P.E.
FDOT District Design Engineer

Date

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*Erik Fleming*	**Date Prepared:**	*3/2/17*
Financial Project ID:	*433558-1-22-01*	**Project Name:**	*US 92 PD&E Study*
FAP No.:		**State Road:**	*SR 600*
County:	*Polk*	**Intersecting Road:**	*Publix Gate 8/10*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ■ Signal ☐ All Way Stop ☐ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ☐ yes ■ no

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ■ yes ☐ no

The design year (2040) AADT volume on US 92 is 39,100 vpd and on Publix Gate 8/10 is 3,100 vpd for a total of 42,200 vpd. Therefore, the US 92 AADT volume is approximately 93% of the total intersection AADT.

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ■ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ■ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ☐ yes ■ no

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ■ yes ☐ no

The installation of a roundabout could result in business damages associated with circulation and security booth on the south side of US 92.

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ■ no

Approved by:

Please see SIGNATURE INDEX SHEET for signature

KEITH SLATER, P.E.
District Traffic Operations Engineer

Date

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B.A. MASING, P.E.
FDOT District Design Engineer

Date

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*Erik Fleming*	**Date Prepared:**	*3/2/17*
Financial Project ID:	*433558-1-22-01*	**Project Name:**	*US 92 PD&E Study*
FAP No.:		**State Road:**	*SR 600*
County:	*Polk*	**Intersecting Road:**	*Publix Gate 9*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ■ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ☐ yes ■ no

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ■ yes ☐ no

The design year (2040) AADT volume on US 92 is 38,650 vpd and on Publix Gate 9 is 900 vpd for a total of 39,550 vpd. Therefore, the US 92 AADT volume is approximately 98% of the total intersection AADT.

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ■ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ■ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ☐ yes ■ no

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ■ yes ☐ no

The installation of a roundabout could result in a business relocation on the south side of US 92.

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ■ no

Approved by:

Please see SIGNATURE INDEX SHEET for signature

KEITH SLATER, P.E.
District Traffic Operations Engineer

Date

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B.A. MASING, P.E.
FDOT District Design Engineer

Date

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*Erik Fleming*	**Date Prepared:**	*3/2/17*
Financial Project ID:	*433558-1-22-01*	**Project Name:**	*US 92 PD&E Study*
FAP No.:		**State Road:**	*SR 600*
County:	*Polk*	**Intersecting Road:**	*Publix Gate 7*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ■ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ☐ yes ■ no

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ■ yes ☐ no

The design year (2040) AADT volume on US 92 is 38,550 vpd and on Publix Gate 7 is 2,100 vpd for a total of 40,650 vpd. Therefore, the US 92 AADT volume is approximately 95% of the total intersection AADT.

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ■ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ■ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ☐ yes ■ no

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ■ yes ☐ no

The installation of a roundabout could result in residential relocations on the south side of US 92.

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ■ no

Approved by:

Please see SIGNATURE INDEX SHEET for signature

KEITH SLATER, P.E.
District Traffic Operations Engineer

Date

Please see SIGNATURE INDEX SHEET for signature

B.A. MASING, P.E.
FDOT District Design Engineer

Date

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*Erik Fleming*	**Date Prepared:**	*3/2/17*
Financial Project ID:	*433558-1-22-01*	**Project Name:**	*US 92 PD&E Study*
FAP No.:		**State Road:**	*SR 600*
County:	*Polk*	**Intersecting Road:**	*Imperial Drive*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ■ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ☐ yes ■ no

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ■ yes ☐ no

The design year (2040) AADT volume on US 92 is 38,350 vpd and on Imperial Drive is 400 vpd for a total of 38,750 vpd. Therefore, the US 92 AADT volume is approximately 99% of the total intersection AADT.

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ■ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ■ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ☐ yes ■ no

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ■ yes ☐ no

The installation of a roundabout could result in a residential relocation on the north side of US 92.

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ■ no

Approved by:

Please see SIGNATURE INDEX SHEET for signature

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District Traffic Operations Engineer

Date

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B.A. MASING, P.E.
FDOT District Design Engineer

Date

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*Erik Fleming*	**Date Prepared:**	*3/2/17*
Financial Project ID:	*433558-1-22-01*	**Project Name:**	*US 92 PD&E Study*
FAP No.:		**State Road:**	*SR 600*
County:	*Polk*	**Intersecting Road:**	*Flint Avenue*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ■ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ☐ yes ■ no

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ■ yes ☐ no

The design year (2040) AADT volume on US 92 is 35,250 vpd and on Flint Avenue is 550 vpd for a total of 35,800 vpd. Therefore, the US 92 AADT volume is approximately 98% of the total intersection AADT.

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ■ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ■ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ☐ yes ■ no

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ■ yes ☐ no

The installation of a roundabout could result in residential relocations on the north side of US 92.

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ■ no

Approved by:

Please see SIGNATURE INDEX SHEET for signature

KEITH SLATER, P.E.
District Traffic Operations Engineer

Date

Please see SIGNATURE INDEX SHEET for signature

B.A. MASING, P.E.
FDOT District Design Engineer

Date

APPENDIX E

Long Range Estimate

Date: 12/16/2016 10:33:59 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 433558-1-22-01 Letting Date: 01/2099

Description: US 92 FROM COUNTY LINE ROAD TO WABASH AVENUE

District: 01	County: 16 POLK	Market Area: 08	Units: English
Contract Class: 4	Lump Sum Project: N	Design/Build: N	Project Length: 2.590 MI

Project Manager: CES-MJB-ANS

Version 5 Project Grand Total $52,752,080.95

Description: US 92 PD&E Study from County Line Road to Wabash Ave. Preferred Alternative 3 - 12/16/16

Sequence: 1 NUR - New Construction, Undivided, Rural Net Length: 0.227 MI 1,200 LF

Description: Hillsborough County transition from two lanes to four lanes

---

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	50.00 / 50.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.227
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.75	AC	$15,000.00	$41,250.00
120-6	EMBANKMENT	12,370.03	CY	$14.73	$182,210.54

Earthwork Component Total	$223,460.54

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	330
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	5,867.37	SY	$4.85	$28,456.74
285-709	OPTIONAL BASE,BASE GROUP 09	3,288.39	SY	$18.99	$62,446.53
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	528.06	TN	$99.70	$52,647.58
337-7-43	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	128.02	TN	$135.40	$17,333.91

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE PAVEMENT MARKERS	31.00	EA	$3.66	$113.46
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.45	GM	$554.85	$249.68
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.23	GM	$411.70	$94.69
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	0.45	GM	$3,707.00	$1,668.15
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	0.23	GM	$1,091.08	$250.95

Roadway Component Total	$163,261.69

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	1,421.50	SY	$13.14	$18,678.51
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	73.34	TN	$99.70	$7,312.00
337-7-43	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	53.34	TN	$135.40	$7,222.24
570-1-2	PERFORMANCE TURF, SOD	712.09	SY	$3.03	$2,157.63

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,120.37	LF	$1.00	$3,120.37
104-11	FLOATING TURBIDITY BARRIER	56.82	LF	$8.32	$472.74
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	56.82	LF	$3.94	$223.87
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$1,748.01	$1,748.01
107-1	LITTER REMOVAL	2.75	AC	$44.38	$122.04
107-2	MOWING	2.75	AC	$53.09	$146.00

Shoulder Component Total	$41,203.42

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

400-2-2	CONC CLASS II, ENDWALLS	4.09 CY	$1,273.08	$5,206.90
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	184.00 LF	$135.02	$24,843.68
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	40.00 LF	$113.95	$4,558.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	10.00 EA	$1,853.87	$18,538.70
570-1-1	PERFORMANCE TURF	160.02 SY	$1.41	$225.63
	Drainage Component Total			$53,372.91

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$281.24	$281.24
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	5.00	AS	$1,164.22	$5,821.10
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$3,982.66	$3,982.66
	Signing Component Total				$10,085.00

Sequence 1 Total $491,383.56

Sequence: 2 NDU - New Construction, Divided, Urban — Net 2.292 MI Length: 12,102 LF

Description: Segment 1: From County Line Road to Airport/Galloway Rd. Sta. 10+42 to Sta. 131+43

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	59.00 / 63.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	2.292
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00

Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	33.89 AC	$15,000.00	$508,350.00
120-6	EMBANKMENT	296,986.15 CY	$14.73	$4,374,605.99
	Earthwork Component Total			$4,882,955.99

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	29.00 / 29.00
Structural Spread Rate	330
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	91,865.80 SY	$4.85	$445,549.13
285-709	OPTIONAL BASE,BASE GROUP 09	77,989.12 SY	$18.99	$1,481,013.39
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	12,868.20 TN	$99.70	$1,282,959.54
337-7-43	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	3,119.56 TN	$135.40	$422,388.42

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-0-11	CONC CLASS NS, GRAVITY WALL	833.60 CY	$536.09	$446,884.62

Turnouts/Crossovers Subcomponent

Description	Value
Asphalt Adjustment	31.00
Stabilization Code	Y
Base Code	Y
Friction Course Code	Y

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	28,478.40	SY	$4.85	$138,120.24
285-709	OPTIONAL BASE,BASE GROUP 09	24,176.63	SY	$18.99	$459,114.20
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	3,989.14	TN	$99.70	$397,717.26
337-7-43	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	967.06	TN	$135.40	$130,939.92

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE PAVEMENT MARKERS	928.00	EA	$3.66	$3,396.48
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	9.17	GM	$554.85	$5,087.97
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	4.58	GM	$411.70	$1,885.59
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	9.17	GM	$3,707.00	$33,993.19
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	4.58	GM	$1,091.08	$4,997.15

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
339-1	MISCELLANEOUS ASPHALT PAVEMENT	24.93 TN	$247.04	$6,158.71
536-1-1	GUARDRAIL- ROADWAY, GEN TL-3	708.00 LF	$17.53	$12,411.24
536-85-22	GUARDRAIL END ANCH ASSY/END TREA- FLARED	4.00 EA	$1,952.62	$7,810.48
536-85-24	GUARDRAIL END ANCH ASSY/END TRE,PARALLEL	4.00 EA	$1,795.00	$7,180.00
	Roadway Component Total			$5,287,607.53

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	13.25 / 13.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	6.00 / 6.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	12,101.76 LF	$20.56	$248,812.19
520-1-10	CONCRETE CURB & GUTTER, TYPE F	12,101.76 LF	$20.56	$248,812.19
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	16,135.68 SY	$35.69	$575,882.42
570-1-2	PERFORMANCE TURF, SOD	13,446.40 SY	$3.03	$40,742.59

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
521-72-21	SHLDR CONC BAR WALL,F SHAPE,10' SND WALL	445.00 LF	$472.57	$210,293.65
	Comment: Pier protection under the Polk Parkway			

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	24,203.52 LF	$1.00	$24,203.52

104-11	FLOATING TURBIDITY BARRIER	573.00 LF	$8.32	$4,767.36
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	573.00 LF	$3.94	$2,257.62
104-15	SOIL TRACKING PREVENTION DEVICE	3.00 EA	$1,748.01	$5,244.03
104-18	INLET PROTECTION SYSTEM	117.00 EA	$76.13	$8,907.21
107-1	LITTER REMOVAL	58.33 AC	$44.38	$2,588.69
107-2	MOWING	58.33 AC	$53.09	$3,096.74
	Shoulder Component Total			$1,375,608.21

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	30.00
Performance Turf Width	25.50

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	24,203.52 LF	$25.40	$614,769.41
520-5-51	TRAF SEP CONC, TYPE V, 4' WIDE	565.00 LF	$72.50	$40,962.50
570-1-1	PERFORMANCE TURF	34,288.32 SY	$1.41	$48,346.53
	Median Component Total			$704,078.44

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	41.26 CY	$1,273.08	$52,527.28
425-1-351	INLETS, CURB, TYPE P-5, <10'	83.00 EA	$4,278.29	$355,098.07
425-1-451	INLETS, CURB, TYPE J-5, <10'	23.00 EA	$3,981.53	$91,575.19
425-1-521	INLETS, DT BOT, TYPE C, <10'	12.00 EA	$3,243.68	$38,924.16
425-2-41	MANHOLES, P-7, <10'	12.00 EA	$2,343.33	$28,119.96
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	6,064.00 LF	$90.88	$551,096.32

430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	544.00 LF	$113.95	$61,988.80
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	11,464.00 LF	$149.10	$1,709,282.40
570-1-1	PERFORMANCE TURF	696.77 SY	$1.41	$982.45

Retention Basin 1

Description	Value
Size	2.5 AC
Multiplier	1
Depth	6.00
Description	

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.50	AC	$15,000.00	$37,500.00
120-1	REGULAR EXCAVATION	24,200.00	CY	$8.51	$205,942.00
400-2-2	CONC CLASS II, ENDWALLS	18.00	CY	$1,273.08	$22,915.44
425-1-361	INLETS, CURB, TYPE P-6, <10'	1.00	EA	$3,234.78	$3,234.78
425-2-71	MANHOLES, J-7, <10'	1.00	EA	$4,474.17	$4,474.17
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	56.00	LF	$129.71	$7,263.76
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	200.00	LF	$215.23	$43,046.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	1,335.00	LF	$22.70	$30,304.50
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	1.00	EA	$1,843.77	$1,843.77
570-1-1	PERFORMANCE TURF	12,100.00	SY	$1.41	$17,061.00

Retention Basin 2

Description	Value
Size	2 AC
Multiplier	2
Depth	6.00
Description	

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	4.00	AC	$15,000.00	$60,000.00
120-1	REGULAR EXCAVATION	38,720.00	CY	$8.51	$329,507.20
400-2-2	CONC CLASS II, ENDWALLS	36.00	CY	$1,273.08	$45,830.88

425-1-541	INLETS, DT BOT, TYPE D, <10'	2.00 EA	$2,484.17	$4,968.34
425-2-71	MANHOLES, J-7, <10'	2.00 EA	$4,474.17	$8,948.34
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	112.00 LF	$129.71	$14,527.52
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	400.00 LF	$215.23	$86,092.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	2,360.00 LF	$22.70	$53,572.00
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	2.00 EA	$1,843.77	$3,687.54
570-1-1	PERFORMANCE TURF	19,360.00 SY	$1.41	$27,297.60

Retention Basin 3

Description	Value
Size	1 AC
Multiplier	1
Depth	3.00
Description	floodplain compenstation site pond #1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.00	AC	$15,000.00	$15,000.00
120-1	REGULAR EXCAVATION	4,840.00	CY	$8.51	$41,188.40
570-1-2	PERFORMANCE TURF, SOD	4,840.00	SY	$3.03	$14,665.20

Retention Basin 4

Description	Value
Size	2.5 AC
Multiplier	3
Depth	4.55
Description	floodplain compenstataion site pond #2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	7.50	AC	$15,000.00	$112,500.00
120-1	REGULAR EXCAVATION	55,055.01	CY	$8.51	$468,518.14
570-1-1	PERFORMANCE TURF	36,300.00	SY	$1.41	$51,183.00

Drainage Component Total $4,600,666.21

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	56.00 AS	$281.24	$15,749.44
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	5.00 AS	$1,164.22	$5,821.10
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	5.00 AS	$5,101.38	$25,506.90
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	5.00 AS	$6,207.38	$31,036.90
	Signing Component Total			$78,114.34

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	6 Lane Mast Arm
Multiplier	1
Description	County Line Road and US 92

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.00 LF	$7.73	$5,411.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	300.00 LF	$25.35	$7,605.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	$3,370.95	$3,370.95
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00 EA	$583.04	$12,826.88
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00 AS	$1,695.89	$1,695.89
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00 LF	$4.30	$258.00
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	1.00 EA	$886.62	$886.62
649-1-10	STEEL STRAIN POLE, F&I, PEDESTAL	1.00 EA	$1,011.11	$1,011.11
649-31-105	M/ARM,F&I, WS-150,SINGLE ARM,W/0 LUM-78	4.00 EA	$39,678.65	$158,714.60
650-1-14	TRAFFIC SIGNAL,F&I ALUMINUM, 3 S 1 W	20.00 AS	$1,333.29	$26,665.80

653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00 AS	$667.19	$5,337.52
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	20.00 EA	$167.43	$3,348.60
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	20.00 AS	$912.11	$18,242.20
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00 EA	$198.58	$1,588.64
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	$24,623.05	$24,623.05
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00 EA	$202.65	$810.60

Signalization 2

Description	Value
Type	4 Lane Mast Arm
Multiplier	1
Description	Clark Road and US 92

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	750.00	LF	$7.73	$5,797.50
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	250.00	LF	$25.35	$6,337.50
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$3,370.95	$3,370.95
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	16.00	EA	$583.04	$9,328.64
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$1,695.89	$1,695.89
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	$4.30	$258.00
649-31-103	M/ARM,F&I, WS-150,SING ARM,W/0 LUM-60	4.00	EA	$34,252.60	$137,010.40
650-1-14	TRAFFIC SIGNAL,F&I ALUMINUM, 3 S 1 W	12.00	AS	$1,333.29	$15,999.48
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$667.19	$5,337.52
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	12.00	EA	$167.43	$2,009.16
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	12.00	AS	$912.11	$10,945.32
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$198.58	$1,588.64
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$24,623.05	$24,623.05

700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00 EA	$202.65	$810.60

Signalization 3

Description	Value
Type	4 Lane Mast Arm
Multiplier	1
Description	N Galloway Rd. and US 92

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	750.00 LF	$7.73	$5,797.50
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	250.00 LF	$25.35	$6,337.50
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	$3,370.95	$3,370.95
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	16.00 EA	$583.04	$9,328.64
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00 AS	$1,695.89	$1,695.89
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00 LF	$4.30	$258.00
649-31-103	M/ARM,F&I, WS-150,SING ARM,W/0 LUM-60	4.00 EA	$34,252.60	$137,010.40
650-1-14	TRAFFIC SIGNAL,F&I ALUMINUM, 3 S 1 W	12.00 AS	$1,333.29	$15,999.48
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00 AS	$667.19	$5,337.52
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	12.00 EA	$167.43	$2,009.16
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	12.00 AS	$912.11	$10,945.32
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00 EA	$198.58	$1,588.64
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	$24,623.05	$24,623.05
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00 EA	$202.65	$810.60
	Signalizations Component Total			$722,621.76

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value

Spacing MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	12,101.76	LF	$7.73	$93,546.60
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	2,402.02	LF	$25.35	$60,891.21
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	81.00	EA	$583.04	$47,226.24
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	44,198.93	LF	$3.16	$139,668.62
715-4-111	LIGHT POLE COMP, F&I, WS150, 40'	81.00	EA	$4,768.94	$386,284.14
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	81.00	EA	$489.66	$39,662.46
	Subcomponent Total				$767,279.27

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-600	LIGHT POLE COMP, REMOVE	8.00	EA	$835.23	$6,681.84
	Lighting Component Total				$773,961.11

BRIDGES COMPONENT

Bridge 160117

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	32.50
Width (LF)	108.00
Type	Low Level
Cost Factor	1.00
Structure No.	000001
Removal of Existing Structures area	1,137.50
Default Cost per SF	$114.00
Factored Cost per SF	$114.00
Final Cost per SF	$154.93
Basic Bridge Cost	$400,140.00

Description

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	1,137.50 SF	$37.72	$42,906.50
400-2-10	CONC CLASS II, APPROACH SLABS	240.00 CY	$365.89	$87,813.60
415-1-9	REINF STEEL- APPROACH SLABS	42,000.00 LB	$1.33	$55,860.00
	Bridge 160117 Total			$586,720.10
	Bridges Component Total			$586,720.10

MISCELLANEOUS COMPONENT

EX-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
0999 1 1	RAILROAD CROSSING UPGRADES	2.00 EA	$350,000.00	$700,000.00
	Miscellaneous Component Total			$700,000.00

Sequence 2 Total $19,712,333.69

Sequence: 3 NDU - New Construction, Divided, Urban — Net 1.985 MI / Length: 10,483 LF

Description: Segment #2: From Airport/Galloway Rd. to Wabash Ave. Sta. 131+43 to Sta. 228+71.75/Sta. 228+67.8 to Sta. 236+20

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	59.00 / 63.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	1.985
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %

Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	29.35	AC	$15,000.00	$440,250.00
120-6	EMBANKMENT	257,206.60	CY	$14.73	$3,788,653.22
	Earthwork Component Total				$4,228,903.22

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	29.00 / 29.00
Structural Spread Rate	330
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	79,576.95	SY	$4.85	$385,948.21
285-709	OPTIONAL BASE,BASE GROUP 09	67,556.54	SY	$18.99	$1,282,898.69
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	11,146.83	TN	$99.70	$1,111,338.95
337-7-43	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	2,702.26	TN	$135.40	$365,886.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-0-11	CONC CLASS NS, GRAVITY WALL	432.00	CY	$536.09	$231,590.88
536-1-1	GUARDRAIL- ROADWAY, GEN TL-3	388.00	LF	$17.53	$6,801.64
536-8	GUARDRAIL- BRIDGE ANCHORAGE ASSEM, F&I	2.00	EA	$2,388.62	$4,777.24
536-85-22	GUARDRAIL END ANCH ASSY/END TREA- FLARED	2.00	EA	$1,952.62	$3,905.24

Turnouts/Crossovers Subcomponent

Description	Value
Asphalt Adjustment	39.00
Stabilization Code	Y

Base Code	Y
Friction Course Code	Y

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	31,035.01	SY	$4.85	$150,519.80
285-709	OPTIONAL BASE,BASE GROUP 09	26,347.05	SY	$18.99	$500,330.48
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	4,347.26	TN	$99.70	$433,421.82
337-7-43	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	1,053.88	TN	$135.40	$142,695.35

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE PAVEMENT MARKERS	804.00	EA	$3.66	$2,942.64
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	7.94	GM	$554.85	$4,405.51
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	3.97	GM	$411.70	$1,634.45
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	7.94	GM	$3,707.00	$29,433.58
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	3.97	GM	$1,091.08	$4,331.59
	Roadway Component Total				$4,662,862.07

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	13.25 / 13.25
Total Outside Shoulder Perf. Turf	

Width L/R	5.00 / 5.00
Sidewalk Width L/R	6.00 / 6.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	10,482.91	LF	$20.56	$215,528.63
520-1-10	CONCRETE CURB & GUTTER, TYPE F	10,482.91	LF	$20.56	$215,528.63
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	13,977.22	SY	$35.69	$498,846.98
570-1-2	PERFORMANCE TURF, SOD	11,647.68	SY	$3.03	$35,292.47

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	20,965.82	LF	$1.00	$20,965.82
104-11	FLOATING TURBIDITY BARRIER	496.35	LF	$8.32	$4,129.63
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	496.35	LF	$3.94	$1,955.62
104-15	SOIL TRACKING PREVENTION DEVICE	2.00	EA	$1,748.01	$3,496.02
104-18	INLET PROTECTION SYSTEM	102.00	EA	$76.13	$7,765.26
107-1	LITTER REMOVAL	50.53	AC	$44.38	$2,242.52
107-2	MOWING	50.53	AC	$53.09	$2,682.64
	Shoulder Component Total				$1,008,434.22

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	30.00
Performance Turf Width	5.34

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	20,965.82	LF	$25.40	$532,531.83
520-5-	TRAF SEP CONC-TYPE I, 4'				

11	WIDE	655.00 LF	$34.62	$22,676.10
570-1-1	PERFORMANCE TURF	6,219.86 SY	$1.41	$8,770.00
	Median Component Total			$563,977.93

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	35.74 CY	$1,273.08	$45,499.88
425-1-351	INLETS, CURB, TYPE P-5, <10'	72.00 EA	$4,278.29	$308,036.88
425-1-451	INLETS, CURB, TYPE J-5, <10'	20.00 EA	$3,981.53	$79,630.60
425-1-521	INLETS, DT BOT, TYPE C, <10'	10.00 EA	$3,243.68	$32,436.80
425-2-41	MANHOLES, P-7, <10'	10.00 EA	$2,343.33	$23,433.30
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	5,256.00 LF	$90.88	$477,665.28
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	472.00 LF	$113.95	$53,784.40
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	9,928.00 LF	$149.10	$1,480,264.80
570-1-1	PERFORMANCE TURF	603.56 SY	$1.41	$851.02

Retention Basin 1

Description	Value
Size	2 AC
Multiplier	2
Depth	6.00
Description	

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	4.00 AC	$15,000.00	$60,000.00
120-1	REGULAR EXCAVATION	38,720.00 CY	$8.51	$329,507.20
400-2-2	CONC CLASS II, ENDWALLS	36.00 CY	$1,273.08	$45,830.88
425-1-541	INLETS, DT BOT, TYPE D, <10'	2.00 EA	$2,484.17	$4,968.34
425-2-71	MANHOLES, J-7, <10'	2.00 EA	$4,474.17	$8,948.34
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	112.00 LF	$129.71	$14,527.52

430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	400.00 LF	$215.23	$86,092.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	2,360.00 LF	$22.70	$53,572.00
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	2.00 EA	$1,843.77	$3,687.54
570-1-1	PERFORMANCE TURF	19,360.00 SY	$1.41	$27,297.60

Retention Basin 2

Description	Value
Size	2.5 AC
Multiplier	1
Depth	6.00
Description	

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.50	AC	$15,000.00	$37,500.00
120-1	REGULAR EXCAVATION	24,200.00	CY	$8.51	$205,942.00
400-2-2	CONC CLASS II, ENDWALLS	18.00	CY	$1,273.08	$22,915.44
425-1-361	INLETS, CURB, TYPE P-6, <10'	1.00	EA	$3,234.78	$3,234.78
425-2-71	MANHOLES, J-7, <10'	1.00	EA	$4,474.17	$4,474.17
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	56.00	LF	$129.71	$7,263.76
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	200.00	LF	$215.23	$43,046.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	1,335.00	LF	$22.70	$30,304.50
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	1.00	EA	$1,843.77	$1,843.77
570-1-1	PERFORMANCE TURF	12,100.00	SY	$1.41	$17,061.00

Retention Basin 3

Description	Value
Size	1.5 AC
Multiplier	2
Depth	6.00
Description	

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	3.00	AC	$15,000.00	$45,000.00
120-1	REGULAR EXCAVATION	29,040.00	CY	$8.51	$247,130.40

400-2-2	CONC CLASS II, ENDWALLS	36.00 CY	$1,273.08	$45,830.88
425-1-541	INLETS, DT BOT, TYPE D, <10'	2.00 EA	$2,484.17	$4,968.34
425-2-71	MANHOLES, J-7, <10'	2.00 EA	$4,474.17	$8,948.34
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	112.00 LF	$129.71	$14,527.52
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	400.00 LF	$215.23	$86,092.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	2,050.00 LF	$22.70	$46,535.00
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	2.00 EA	$1,843.77	$3,687.54
570-1-1	PERFORMANCE TURF	14,520.00 SY	$1.41	$20,473.20

Retention Basin 4

Description	Value
Size	2 AC
Multiplier	2
Depth	6.00
Description	

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	4.00	AC	$15,000.00	$60,000.00
120-1	REGULAR EXCAVATION	38,720.00	CY	$8.51	$329,507.20
400-2-2	CONC CLASS II, ENDWALLS	36.00	CY	$1,273.08	$45,830.88
425-1-541	INLETS, DT BOT, TYPE D, <10'	2.00	EA	$2,484.17	$4,968.34
425-2-71	MANHOLES, J-7, <10'	2.00	EA	$4,474.17	$8,948.34
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	112.00	LF	$129.71	$14,527.52
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	400.00	LF	$215.23	$86,092.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	2,360.00	LF	$22.70	$53,572.00
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	2.00	EA	$1,843.77	$3,687.54
570-1-1	PERFORMANCE TURF	19,360.00	SY	$1.41	$27,297.60

Retention Basin 5

Description	Value
Size	1.5 AC
Multiplier	2
Depth	2.30

Description	floodplain compenstation site pond #3

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	3.00 AC	$15,000.00	$45,000.00
120-1	REGULAR EXCAVATION	11,132.00 CY	$8.51	$94,733.32
570-1-1	PERFORMANCE TURF	14,520.00 SY	$1.41	$20,473.20
	Drainage Component Total			$4,827,450.96

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	48.00 AS	$281.24	$13,499.52
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	4.00 AS	$1,164.22	$4,656.88
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	4.00 AS	$5,101.38	$20,405.52
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	4.00 AS	$6,207.38	$24,829.52
	Signing Component Total			$63,391.44

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	4 Lane Mast Arm
Multiplier	1
Description	Publix Warehouse & US 92

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	750.00 LF	$7.73	$5,797.50
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	250.00 LF	$25.35	$6,337.50
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	$3,370.95	$3,370.95

635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	16.00 EA	$583.04	$9,328.64
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00 AS	$1,695.89	$1,695.89
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00 LF	$4.30	$258.00
649-31-103	M/ARM,F&I, WS-150,SING ARM,W/0 LUM-60	4.00 EA	$34,252.60	$137,010.40
650-1-14	TRAFFIC SIGNAL,F&I ALUMINUM, 3 S 1 W	12.00 AS	$1,333.29	$15,999.48
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00 AS	$667.19	$5,337.52
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	12.00 EA	$167.43	$2,009.16
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	12.00 AS	$912.11	$10,945.32
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00 EA	$198.58	$1,588.64
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	$24,623.05	$24,623.05
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00 EA	$202.65	$810.60

Signalization 2

Description	Value
Type	6 Lane Mast Arm
Multiplier	1
Description	Wabash Ave. & US 92

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.00	LF	$7.73	$5,411.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	300.00	LF	$25.35	$7,605.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$3,370.95	$3,370.95
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00	EA	$583.04	$12,826.88
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$1,695.89	$1,695.89
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	$4.30	$258.00
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	1.00	EA	$886.62	$886.62
649-1-10	STEEL STRAIN POLE, F&I, PEDESTAL	1.00	EA	$1,011.11	$1,011.11

649-31-105	M/ARM,F&I, WS-150,SINGLE ARM,W/0 LUM-78	4.00 EA	$39,678.65	$158,714.60
650-1-14	TRAFFIC SIGNAL,F&I ALUMINUM, 3 S 1 W	20.00 AS	$1,333.29	$26,665.80
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00 AS	$667.19	$5,337.52
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	20.00 EA	$167.43	$3,348.60
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	20.00 AS	$912.11	$18,242.20
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00 EA	$198.58	$1,588.64
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	$24,623.05	$24,623.05
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00 EA	$202.65	$810.60
	Signalizations Component Total			$497,509.11

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description Value

Spacing MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	10,482.91	LF	$7.73	$81,032.89
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	2,080.70	LF	$25.35	$52,745.74
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	70.00	EA	$583.04	$40,812.80
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	38,286.45	LF	$3.16	$120,985.18
715-4-111	LIGHT POLE COMP, F&I, WS150, 40'	70.00	EA	$4,768.94	$333,825.80
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	70.00	EA	$489.66	$34,276.20
	Subcomponent Total				$663,678.62

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-600	LIGHT POLE COMP, REMOVE	44.00	EA	$835.23	$36,750.12

Lighting Component Total	$700,428.74

BRIDGES COMPONENT

Bridge 000002

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	108.00
Width (LF)	46.50
Type	Low Level
Cost Factor	1.00
Structure No.	160026
Removal of Existing Structures area	1,627.50
Default Cost per SF	$114.00
Factored Cost per SF	$114.00
Final Cost per SF	$126.32
Basic Bridge Cost	$572,508.00
Description	WINSTON CREEK BRIDGE

Bridge Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	1,627.50 SF	$37.72	$61,389.30
400-2-10	CONC CLASS II, APPROACH SLABS	103.33 CY	$365.89	$37,807.41
415-1-9	REINF STEEL- APPROACH SLABS	18,082.75 LB	$1.33	$24,050.06
	Bridge 000002 Total			$695,754.77
	Bridges Component Total			$695,754.77

MISCELLANEOUS COMPONENT

EX-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
0999 1 1	RAILROAD CROSSING UPGRADES	1.00 EA	$350,000.00	$350,000.00
	Miscellaneous Component Total			$350,000.00

Sequence 3 Total	$17,598,712.46

Date: 12/16/2016 10:34:01 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 433558-1-22-01 Letting Date: 01/2099

Description: US 92 FROM COUNTY LINE ROAD TO WABASH AVENUE

District: 01	County: 16 POLK	Market Area: 08	Units: English
Contract Class: 4	Lump Sum Project: N	Design/Build: N	Project Length: 2.590 MI

Project Manager: CES-MJB-ANS

Version 5 Project Grand Total $52,752,080.95

Description: US 92 PD&E Study from County Line Road to Wabash Ave. Preferred Alternative 3 - 12/16/16

Project Sequences Subtotal			$37,802,429.71
102-1	Maintenance of Traffic	15.00 %	$5,670,364.46
101-1	Mobilization	10.00 %	$4,347,279.42
Project Sequences Total			$47,820,073.59
Project Unknowns		10.00 %	$4,782,007.36
Design/Build		0.00 %	$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	$150,000.00	$150,000.00
Project Non-Bid Subtotal					$150,000.00
Version 5 Project Grand Total					$52,752,080.95

APPENDIX F

Agency Coordination

FDOT

Florida Department of Transportation

RICK SCOTT
GOVERNOR

801 North Broadway
Bartow, FL 33830

ANANTH PRASAD, P.E.
SECRETARY

October 22, 2014

Ms. Cathy Kendall
Federal Highway Administration
545 John Knox Road, Suite 200
Tallahassee, FL 32303

RE: Cultural Resource Assessment Survey
Project Development and Environment (PD&E) Study
US 92 from County Line Road to Wabash Avenue
Polk County, Florida
FPID No.: 433558-1-22-01
FAP: Not assigned

RECEIVED
2014 NOV -4 P 2:
BUREAU OF

Dear Ms. Kendall:

The Florida Department of Transportation (FDOT) District One is conducting a Project Development and Environment (PD&E) study to evaluate the proposed widening of United States (US) Highway 92 (US 92) in northern Polk County from a two-lane undivided roadway to a four-lane divided roadway. The study begins at County Line Road (Polk-Hillsborough County Line) and ends at Wabash Avenue. The project is 4.1 miles (mi) in length with an existing right-of-way (ROW) width of approximately 100 feet (ft) for the majority of the project. This study also includes 10 pond site alternatives: one Regional Pond Alternative (RPA), three Floodplain Compensation (FPC) sites, and six Stormwater Management Facilities (SMF). As part of the PD&E study, a Cultural Resource Assessment Survey (CRAS) was prepared to comply with federal and state regulations. For the purpose of the CRAS, the archaeological area of potential effect (APE) was defined as the existing US 92 ROW (approximately 100 ft) and the area contained within each of the 10 pond alternatives. The historical/architectural APE was defined as the archaeological APE, structures within 250 ft of the centerline of the existing US 92 ROW, and within the viewshed of the pond alternatives.

The purpose of the CRAS was to locate and identify historic or archaeological sites within or immediately adjacent to the APE and to assess the significance of such sites in terms of eligibility for listing in the National Register of Historic Places (NRHP).

Enclosed you will find the CRAS Report. The following documents are attached:

- One bound copy of the CRAS final report and one CD containing a .pdf version of the report (for FHWA); and
- One SHPO package containing an unbound copy of the report, loose FMSF forms (one demolished building letter, eight updated FMSF forms, and 111 new FMSF forms for historic resources), a Survey Log, and a CD containing a .pdf version of the report, forms, and log.

The field work was conducted in accordance with the FDOT's PD&E Manual and the research plan and field methodology follows the standards and guidelines of the Florida Division of Historical Resources *Cultural Resource Management Standards and Operational Manual.*

Background research and a review of the Florida Master Site File (FMSF) and the NRHP indicated that eight archaeological sites have been recorded within one mile of the project, but none is contained within the archaeological APE. The site location predictive model for the region indicated a variable potential for archaeological sites within the study corridor and pond alternatives. As a result of this survey, no archaeological sites were discovered.

Historical background research, including a review of the FMSF and NRHP, indicated that eight historic resources (50 years of age or older) were previously recorded within the historical/architectural APE. These include the Polk County Line Obelisk (8HI5328), three Frame Vernacular style residences (8PO3997, 8PO3999, and 8PO4000), one Bungalow style residence (8PO3998), the Silver Moon Drive-In (8PO6530), FDOT Bridge No. 160026 (8PO4012), and the South Florida Railroad (8PO7219), which extends along the south of, and nearly parallel to, US 92. One of the residences, 8PO3999, is no longer extant. The other three residences (8PO3997, 8PO3998, and 8PO4000) and the bridge (8PO4012) were determined ineligible for listing in the NRHP by the Florida State Historic Preservation Officer (SHPO) (Kammerer 1995). Their FMSF forms were updated as part of this survey to record changes in the building materials, and due to their common design and lack of historical associations, remain ineligible for listing in the NRHP. The existing FMSF form for the South Florida Railroad (8PO7219) was updated to include the portions of the railroad within the historical/architectural APE. Previously recorded sections of this resource either have not been evaluated due to insufficient information or have been evaluated as ineligible for the NRHP (FMSF). Because the three segments within the project APE represent only a small section of the entire railroad, there is insufficient information to determine NRHP eligibility.

The Polk County Line Obelisk (8HI5328) previously was determined ineligible for listing in the NRHP by the SHPO (Kammerer 1993). However, based on new information discovered as part of this survey, it is the opinion of ACI's architectural historian that the obelisk is eligible for the NRHP at the local level under Criterion A in the areas of Transportation and Local History.

8PO6530, recorded as the Silver Moon Drive-In, has not been evaluated by the SHPO. Per coordination with the SHPO, the entire complex has been newly recorded as a resource group (8PO7950), the FMSF number 8PO6530 has been designated as the original movie screen, and the other historic resources within the complex have been newly recorded as historic buildings/structures (8PO7951-7954). The Silver Moon Drive-In (8PO7950), with these five contributing resources (8PO6530, 8PO7951-7954), is considered eligible for the NRHP at the state level under Criterion A in the areas of Entertainment/Recreation, Social History, and for its contributions to Florida's development of highway culture, and under Criterion C in the area of Architecture.

Aside from the newly recorded Silver Moon Drive-In resource group and contributing structures, historical field survey resulted in the identification of 107 newly recorded historic resources (50 years of age or older). These resources include 12 building complexes (8PO7792-7797 and 8PO7799-7804), 92 buildings (8PO7804-7894 and 8PO7955), two linear resources (8PO7791 and 8PO7798), and one bridge (8PO7790). One of these resources, the Publix Corporate Headquarters (8PO7894), is considered eligible for the NRHP at the state level under Criterion A in the areas of Commerce and Florida history, under Criterion B for its association with George W. Jenkins, and under Criterion C in the area of Architecture. All of the other buildings, resource groups, and linear resources represent commonly occurring types of architecture and/or engineering for the locale, and none is associated with significant historical events or persons. Therefore, it is the opinion of ACI's architectural historian that none of these is eligible for listing in the NRHP.

This information is being provided in accordance with the provisions of the National Historic Preservation Act of 1966 (as amended), which are implemented by the procedures contained in 36 CFR, Part 800, as well as the provisions contained in the revised Chapter 267, *Florida Statutes.*

Please process the attached report and accompanying documentation and then forward to the SHPO for their concurrence. The second copy of the report is for your files. If you have any questions, or if I may be of assistance, please contact me at (863) 519-2805 or martin.horwitz@dot.state.fl.us.

Sincerely,

Martin Horwitz
Environmental Project Manager

Enclosures

CC: Gwen Pipkin FDOT
Tony Sherrard FDOT
Erik Fleming, P.E. AIM
Marion Almy ACI

The FHWA finds the attached Cultural Resources Assessment Survey complete and sufficient and ✓ approves/ _____ does not approve the above recommendations and findings. Or, the FHWA finds the attached contains _____ insufficient information.

The FHWA requests the SHPO's opinion on the sufficiency of the attached report and the SHPO's opinion on the recommendations and findings contained in this cover letter and in the comment block below.

FHWA Comments:
Please also see email and parcel map for additional documentation of the Publix Corporate Headquarters site (8PO7894).

/s/ Cathy Kendall
Ms. Cathy Kendall
Federal Highway Administration

11/3/14
Date

The Florida State Historic Preservation Officer finds the attached Cultural Resources Assessment Survey complete and sufficient and ✓ concurs/ _____ does not concur with the recommendations and findings provided in this cover letter for SHPO/DHR Project File Number 2014-~~5080~~ 5079. Or, the SHPO finds the attached contains _____ insufficient information.

SHPO Comments:

Mr. Robert F. Bendus
State Historic Preservation Officer
Florida Division of Historical Resources

12/5/14
Date

Florida Department of Transportation

RICK SCOTT
GOVERNOR

801 North Broadway
Bartow, FL 33830

RACHEL D. CONE
INTERIM SECRETARY

March 13, 2017

Ms. Tarrie Ostrofsky
US Army Corps of Engineers
Jacksonville District
4400 PGA Boulevard
Suite 500
Palm Beach Garden, Florida 34410

Re: **Coordination of Natural Resources Evaluation**
US 92 PD&E Study
From County Line Road to Wabash Avenue
Financial Project ID: 433558-1-22-01
ETDM No.: 3192
Polk County, Florida

Dear Ms Ostrofsky,

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) study to evaluate the widening of US 92 from the Polk/Hillsborough County Line to Wabash Avenue in Lakeland, Polk County, Florida. The purpose of this PD&E study is to evaluate engineering and environmental data and document information that will aid FDOT District One (District) and the Office of Environmental Management (OEM) in determining the type, preliminary design and location of the proposed improvements. The study was conducted in order to meet the requirements of the National Environmental Policy Act (NEPA) and other related federal and state laws, rules and regulations.

The attached Natural Resources Evaluation (NRE) is being prepared as a part of this PD&E study. This report reviews the possible project related impacts to wetlands, and federal- and state-listed protected species. It also identifies measures to avoid, minimize and mitigate for any potential impacts resulting from construction and management of improvements to US 92.

We are seeking your written concurrence with our evaluation of wetlands within the project area as described in the attached NRE. As a result of the data collection effort, field reviews, and agency coordination, the District has concluded that impacts will occur to nine wetland and three surface water

systems for a total of 6.45 acres of wetland impacts and 0.22 acres of surface water impacts. The total functional loss associated with these impacts using the Uniform Mitigation Assessment Method (UMAM) is 3.90 units. Impacts will result from roadway widening and the creation of stormwater management facilities. There is no practicable alternative to the proposed construction in wetlands and the proposed action includes all practicable measures to avoid and minimize harm to wetlands.

The FDOT respectfully requests your review comments or a letter of concurrence with the findings of this document within 30 days. If you have any questions, please contact me at 863.519.2495 or Jonathon.Bennett@dot.state.fl.us.

Sincerely,

Jonathon A. Bennett
Environmental Project Manager

Cc: Gwen G. Pipkin, FDOT
Ron Miedema, EPA
David Rydene, NMFS
Chaz LaRiche, SWFWMD
Erik Fleming, AIM
Mark Easley, KCA

Erik Fleming

From: Mark Easley <Mark.Easley@kisingercampo.com>
Sent: Friday, April 14, 2017 4:01 PM
To: Ostrofsky, Tarrie L CIV USARMY CESAJ (US)
Cc: Erik Fleming
Subject: RE: Us 92 from County Line Road to Wabash Avenue (FPID: 433558-1-22-01) - Natural Resources Evaluation Review

Tarrie,

Thanks for providing comments on the NRE developed for the US 92 from County Line Road to Wabash Avenue project. I have provided responses to your comments in red below.

Please note that the project is presently in the PD&E phase and the information you requested below will be provided as the project progresses into the Design/Permitting project phase.

Please give me a call if you have any questions or would like to discuss the project or the NRE.

Thanks,

ME

KCA KISINGER CAMPO & ASSOCIATES

Mark Easley
Senior Project Manager - Environmental Services

Email: Mark.Easley@kisingercampo.com
Work: 813.871.5331 ext 4144
201 N. Franklin St., Suite 400, Tampa, FL 33602

-----Original Message-----
From: Ostrofsky, Tarrie L CIV USARMY CESAJ (US) [mailto:Tarrie.L.Ostrofsky@usace.army.mil]
Sent: Monday, April 10, 2017 9:53 AM
To: Mark Easley <Mark.Easley@kisingercampo.com>
Subject: RE: Us 92 from County Line Road to Wabash Avenue (FPID: 433558-1-22-01) - Natural Resources Evaluation Review

Good Morning Mark:

I have reviewed the PD&E document. Following are a few comments:

1. The report does not include wetland delineation forms. According to the information provided, it would appear that the findings are accurate. However, without wetland delineation forms, it is difficult to provide a thorough evaluation of the wetland findings within the document. Wetland delineation forms should be provided with a permit application, if one is submitted to the Corps. **Wetland delineation forms and agency field reviews of the project corridor will be**

conducted during the project's Design / Permitting phase. This information will be provided as part of the environmental permit applications submitted to both the USACE and SWFWMD.

2. Not related to the wetland delineation: The project is within the consultation area for skinks; however, evaluation of skinks is not included in the ESA species section. I also see comments in the ETDM document that FHWA and SWFWMD indicated the same regarding skinks. Has the site been evaluated for potential effects on skinks**? The project area does not meet the requirements of sand skinks (i.e., elevation or soils). As a result, the skinks were not considered a species of concern for the project. We have received a concurrence letter from John Wrublik of the USFWS for the determinations in the NRE. This information will be provided as part of the environmental permit application submitted to the USACE during the project's Design/Permitting phase.**

3. Not related to the wetland delineation: It appears that there may be potential cultural resources within the proposed project area. Has the FHWA reviewed the CRAS and made a determination on the findings and/or coordinated with the SHPO? **The project corridor does contain cultural resources. Coordination with the SHPO has been completed and they have provided concurrence with the findings of the project's CRAS. This information will be provided as part of the environmental permit application submitted to the USACE during the project's Design/Permitting phase.**

Thank you,

Tarrie

Tarrie Ostrofsky
U.S. Army Corps of Engineers
Jacksonville District - Regulatory Division Palm Beach Gardens Office
4400 PGA Blvd., Suite 500
Palm Beach Gardens, FL 33410-6557
561-472-3519

-----Original Message-----
From: Mark Easley [mailto:Mark.Easley@kisingercampo.com]
Sent: Monday, March 13, 2017 8:39 PM
To: Ostrofsky, Tarrie L CIV USARMY CESAJ (US)
Cc: Miedema.Ron@EPA.gov; David Rydene - NOAA Federal (david.rydene@noaa.gov); Chaz LaRiche; Bennett, Jonathon; Pipkin, Gwen G (Gwen.Pipkin@dot.state.fl.us)
Subject: [EXTERNAL] Us 92 from County Line Road to Wabash Avenue (FPID: 433558-1-22-01) - Natural Resources Evaluation Review

Tarrie,

Please find attached a copy of the FDOT transmittal letter and Natural Resources Evaluation for the US 92 from Hillsborough/Polk County Line to Wabash Avenue PD&E study. As outlined in the transmittal letter, we would ask that you review the attached document and provide comments or concurrence with its wetland findings. Please note that this document is part of a PD&E study and the impacts and functional losses shown are approximate. Final agency action will not be requested until the project's design and permit phase.

If you have any questions or would like to discuss the attached information, please call Jonathon Bennett at 853.519.2495 or me at the phone number below.

Thanks,

ME

Files attached to this message

Filename Size Checksum (SHA1)
17-03-13 US 92 - Draft Natural Resources Evaluation - ACOE submittal.zip 85 MB e02e6fc1100177e706db1ff50174fcf0257e6f46

Please click on the following link to download the attachments:
Blockedhttps://fta.kcaeng.com/message/eeBGnCMhhqMidhaLF7a86b
<Blockedhttps://fta.kcaeng.com/message/eeBGnCMhhqMidhaLF7a86b>

This email or download link can be forwarded to anyone.

The attachments are available until: Wednesday, 12 April.

Message ID: eeBGnCMh

KCA Logo

Mark Easley
Senior Project Manager - Environmental Services

Email: Mark.Easley@kisingercampo.com <mailto:Mark.Easley@kisingercampo.com>
Work: 813.871.5331 ext 4144
201 N. Franklin St., Suite 400, Tampa, FL 33602

CONFIDENTIALITY NOTE: This communication may be privileged and confidential. It should not be disseminated to others. If received in error, please immediately reply that you have received this communication in error and then delete it. Thank you.

Florida Department of Transportation

RICK SCOTT
GOVERNOR

801 North Broadway
Bartow, FL 33830

RACHEL D. CONE
INTERIM SECRETARY

March 13, 2017

Mr. John Wrublik
U.S. Fish and Wildlife Service
1339 20th Street
Vero Beach, Florida 32960

Re: **Coordination of Natural Resources Evaluation**
US 92 PD&E Study
From County Line Road to Wabash Avenue
Financial Project ID: 433558-1-22-01
ETDM No.: 3192
Polk County, Florida

Dear Mr. Wrublik,

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) study to evaluate the widening of US 92 from the Polk/Hillsborough County Line to Wabash Avenue in Lakeland, Polk County, Florida. The purpose of this PD&E study is to evaluate engineering and environmental data and document information that will aid FDOT District One (District) and the Office of Environmental Management (OEM) in determining the type, preliminary design and location of the proposed improvements. The study was conducted in order to meet the requirements of the National Environmental Policy Act (NEPA) and other related federal and state laws, rules and regulations.

The attached Natural Resources Evaluation (NRE) is being prepared as a part of this PD&E study. This report reviews the possible project related impacts to wetlands, and federal- and state-listed protected species. It also identifies measures to avoid, minimize and mitigate for any potential impacts resulting from construction and management of improvements to US 92.

We are seeking your written concurrence with our "Determination of Affect" for the federally-protected species identified and discussed in the attached NRE. As a result of the data collection effort, field reviews, and agency coordination, the District has concluded the following for federally-protected species that have the potential to be found within the project area.

May affect, but is not likely to adversely affect

American Alligator
(Alligator mississippiensis)

Eastern indigo snake
(Drymarchon corais couperi)

Wood stork
(*Mycteria americana*)

Bald eagle
(*Haliaeetus leucocephalus)*

The FDOT respectfully requests your review comments or a letter of concurrence with the findings of this document within 30 days. If you have any questions, please contact me at 863.519.2495 or Jonathon.Bennett@dot.state.fl.us.

Sincerely,

Jonathon A. Bennett
Environmental Project Manager

Cc: Gwen G. Pipkin, FDOT
Jane Chabre, FWC
Erik Fleming, AIM
Mark Easley, KCA

FDOT

Florida Department of Transportation

RICK SCOTT
GOVERNOR

801 North Broadway
Bartow, FL 33830

RACHEL D. CONE
INTERIM SECRETARY

March 13, 2017

Mr. John Wrublik
U.S. Fish and Wildlife Service
1339 20th Street
Vero Beach, Florida 32960

Re: **Coordination of Natural Resou**
US 92 PD&E Study
From County Line Road to Wa
Financial Project ID: 433558-1-
ETDM No.: 3192
Polk County, Florida

U.S. Fish and Wildlife Service
1339 20th Street
Vero Beach, Florida 32960
772-562-3909 Fax 772-562-4288

FWS Log No. 04EF 2000-2014-CPA-0188

The U.S. Fish and Wildlife Service has reviewed the information provided and finds that the proposed action is not likely to adversely affect any federally listed species or designated critical habitat protected by the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 et. seq.). A record of this consultation is on file at the South Florida Ecological Service Office.

This fulfills the requirements of section 7 of the Act and further action is not required. If modifications are made to the project, if additional information involving potential effects to listed species becomes available, or if a new species is listed, reinitiation of consultation may be necessary.

FOR Roxanna Hinzman, Field Supervisor — 3/16/2017 Date

Dear Mr. Wrublik,

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) study to evaluate the widening of US 92 from the Polk/Hillsborough County Line to Wabash Avenue in Lakeland, Polk County, Florida. The purpose of this PD&E study is to evaluate engineering and environmental data and document information that will aid FDOT District One (District) and the Office of Environmental Management (OEM) in determining the type, preliminary design and location of the proposed improvements. The study was conducted in order to meet the requirements of the National Environmental Policy Act (NEPA) and other related federal and state laws, rules and regulations.

The attached Natural Resources Evaluation (NRE) is being prepared as a part of this PD&E study. This report reviews the possible project related impacts to wetlands, and federal- and state-listed protected species. It also identifies measures to avoid, minimize and mitigate for any potential impacts resulting from construction and management of improvements to US 92.

We are seeking your written concurrence with our "Determination of Affect" for the federally-protected species identified and discussed in the attached NRE. As a result of the data collection effort, field reviews, and agency coordination, the District has concluded the following for federally-protected species that have the potential to be found within the project area.

FDOT

Florida Department of Transportation

RICK SCOTT
GOVERNOR

801 North Broadway
Bartow, FL 33830

RACHEL D. CONE
INTERIM SECRETARY

March 13, 2017

Ms. Jane Chabre
Conservation Services Coordinator
Florida Fish and Wildlife Conservation Commission
620 South Meridian Street
Tallahassee, Florida 32399

Re: **Coordination of Natural Resources Evaluation**
US 92 PD&E Study
From County Line Road to Wabash Avenue
Financial Project ID: 433558-1-22-01
ETDM No.: 3192
Polk County, Florida

Dear Ms. Chabre,

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) study to evaluate the widening of US 92 from the Polk/Hillsborough County Line to Wabash Avenue in Lakeland, Polk County, Florida. The purpose of this PD&E study is to evaluate engineering and environmental data and document information that will aid FDOT District One (District) and the Office of Environmental Management (OEM) in determining the type, preliminary design and location of the proposed improvements. The study was conducted in order to meet the requirements of the National Environmental Policy Act (NEPA) and other related federal and state laws, rules and regulations.

The attached Natural Resources Evaluation (NRE) is being prepared as a part of this PD&E study. This report reviews the possible project related impacts to wetlands, and federal- and state-listed protected species. It also identifies measures to avoid, minimize and mitigate for any potential impacts resulting from construction and management of improvements to US 92.

We are seeking your written concurrence with our "Determination of Affect" for the state-protected species identified and discussed in the attached NRE. As a result of the data collection effort, field reviews, and agency coordination, the District has concluded the following for state-protected species that have the potential to be found within the project area.

No effect

Least Tern
(Sterna antillarum)

May affect, but is not likely to adversely affect

Florida pine snake
(Pituophis melanoleucus mugitis)

Gopher tortoise
(Gopherus polyphemus)

Short-Tailed Snake
(Lampropeltis extenuate)

Florida burrowing owl
(*Athene cunicularia floridana*)

Florida sandhill crane
(Grus canadensis pratensis)

Southeastern American kestrel
(Falco sparverius paulus)

little blue heron
(Egretta caerulea),

roseate spoonbill
(*Platalea ajaja),* and

tricolored heron
(Egretta tricolor)

Sherman's fox squirrel
(Sciurus niger shermani)

Bald eagle
(*Haliaeetus leucocephalus)*

The FDOT respectfully requests your review comments or a letter of concurrence with the findings of this document within 30 days. If you have any questions, please contact me at 863.519.2495 or Jonathon.Bennett@dot.state.fl.us.

Sincerely,

Jonathon A. Bennett
Environmental Project Manager

Cc: Gwen G. Pipkin, FDOT
John Wrublik, USFWS
Erik Fleming, AIM
Mark Easley, KCA

Florida Fish and Wildlife Conservation Commission

Commissioners
Brian Yablonski
Chairman
Tallahassee

Aliese P. "Liesa" Priddy
Vice Chairman
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Executive Staff
Nick Wiley
Executive Director

Eric Sutton
Assistant Executive Director

Jennifer Fitzwater
Chief of Staff

Office of the
Executive Director
Nick Wiley
Executive Director

(850) 487-3796
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FAX

Managing fish and wildlife resources for their long-term well-being and the benefit of people.

620 South Meridian Street
Tallahassee, Florida
32399-1600
Voice: (850) 488-4676

Hearing/speech-impaired:
(800) 955-8771 (T)
(800) 955-8770 (V)

MyFWC.com

March 20, 2017

Jonathon Bennett
Environmental Project Manager
Florida Department of Transportation (FDOT) District One
801 North Broadway Avenue
Bartow, FL 33830
Jonathon.Bennett@DOT.state.fl.us

Re: US 92 from County Line Road to Wabash Avenue PD&E Study, Polk County, Natural Resources Evaluation Report

Dear Mr. Bennett:

The Florida Fish and Wildlife Conservation Commission (FWC) staff has reviewed the Natural Resources Evaluation Report (NRER) for the above-referenced project. The NRER was prepared as part of the PD&E Study for the proposed project. In June 2014 we reviewed this project via the Efficient Transportation Decision Making (ETDM) process as ETDM 3192. We provide the following comments and recommendations for your consideration in accordance with Chapter 379, Florida Statutes, and Rule 68A-27, Florida Administrative Code (F. A. C.).

The project involves four-laning a two-lane section of US 92 between the Hillsborough/Polk County line and Wabash Avenue, a distance of approximately 4.13 miles. The project vicinity primarily consists of urbanized lands, with a small amount of mixed hardwood/coniferous uplands and both wooded and herbaceous wetlands.

The NRER evaluated potential project impacts to 14 wildlife species classified under the Endangered Species Act as Federally Endangered (FE) or Threatened (FT), or by the State of Florida as Threatened (ST) or Species of Special Concern (SSC). Included were: American alligator (*Alligator mississippiensis* [FT based on similarity of appearance to the American crocodile]), Eastern indigo snake (*Drymarchon corais couperi* [FT]), wood stork (*Mycteria americana* [FT]), gopher tortoise (*Gopherus polyphemus* [ST]), Florida pine snake (*Pituophis melanoleucas mugitus* [ST]), short-tailed snake (*Stilosoma extenuatum* [ST]), least tern (*Sterula antillarum* [ST]), Southeastern American kestrel (*Falco sparverius paulus* [ST]), Florida sandhill crane (*Antigone canadensis pratensis* [ST]), Florida burrowing owl (*Athene cunicularia floridana* [ST]), little blue heron (*Egretta caerulea* [ST]), tri-colored heron (*Egretta tricolor* [ST]), roseate spoonbill (*Platalea ajaja* [ST]), and Sherman's fox squirrel (*Sciurus niger shermani* [SSC]).

Also evaluated was the bald eagle, which was delisted by state and federal agencies, but this species remains protected under state rule in Section 68A-16.002, F.A.C., and by the federal Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d).

Project biologists made a finding of "no effect" for the least tern due to a lack of suitable habitat for this species within the project area. For all the other federally and state-listed species plus the bald eagle, their findings were "may affect, but is not likely to adversely affect". We agree with these determinations.

We support the project commitments for protected species, which include the following:

1. With approval by the U.S. Fish and Wildlife Service, the FDOT will commit to mitigate for wetland impacts within a wood stork Core Foraging Area of one or more of the five wood stork colonies within an 18.6-mile radius of the project site. This mitigation should also prevent a net loss of essential habitat function for the state-listed wading bird species potentially using the project area.

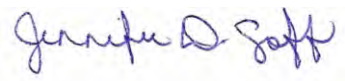
2. The standard FDOT Construction Precautions for the Eastern Indigo Snake will be followed during construction.

3. A gopher tortoise re-survey within the construction limits will be performed prior to construction per current FWC guidelines. FDOT will secure any relocation permits needed for this species during the project development and construction phases of the project and relocate gopher tortoises prior to construction. Species commensal with gopher tortoise burrows, such as the Florida pine snake and short-tailed snake, will be handled in accordance with FWC guidelines.

For gopher tortoise survey methodology and permitting guidance, we recommend that FDOT refer to the FWC's Gopher Tortoise Permitting Guidelines (Revised January 2017) at: http://www.myfwc.com/license/wildlife/gopher-tortoise-permits/.

Thank you for the opportunity to review the NRER for the US 92 project in Polk County. If you need further assistance, please do not hesitate to contact Jane Chabre either by phone at (850) 410-5367 or at FWCConservationPlanningServices@MyFWC.com. If you have specific technical questions regarding the content of this letter, contact Brian Barnett at (772) 579-9746 or email brian.barnett@MyFWC.com.

Sincerely,



Jennifer D. Goff
Land Use Planning Program Administrator
Office of Conservation Planning Services

jdg/bb
ENV 1-13-2
US 92 from County Line Road to Wabash Avenue_32652_032017

cc: Mark Easley, Mark.Easley@kisingercampo.com]

FDOT

Florida Department of Transportation

RICK SCOTT
GOVERNOR

801 North Broadway Avenue
Bartow, FL 33830

RACHEL D. CONE
INTERIM SECRETARY

March 17, 2017

Timothy A. Parsons, Ph.D., Director
State Historic Preservation Officer
Florida Division of Historical Resources
500 South Bronough Street
Tallahassee, FL 32399-0250

Attention: Alyssa McManus, Transportation Compliance Review Program

Re: **Section 106 Consultation Case Study Report**
US 92 Project Development and Environment (PD&E)
From County Line Road to Wabash Avenue
Polk County, Florida
Financial Project ID No.: 433558-1-22-01
Federal Aid Project No.: N/A

Dear Dr. Parsons:

The Florida Department of Transportation (FDOT), District 1, is planning improvements to portions of the US 92 corridor from County Line Road to Wabash Avenue in Polk County, Florida. The total project length is approximately 4.1 miles. The scope of work for this project includes capacity improvements consisting of widening US 92 as well as implementing bicycle lanes and sidewalks on both sides of the roadway. Improvements include the transition from two to four-lanes in the beginning west end of the project, and then transitioning from four to five lanes at the east end of the project. The proposed widening of US 92 holds the existing southern ROW line and widens to the north which requires approximately 22 feet of proposed ROW along the north side of US 92. The northern widening pertains to the majority of the project limits except for two locations. The alignment shifts to widening along the existing alignment under the Polk Parkway bridges to minimize impacts and shifts to the south at the east end of the project (from Twin Lakes Circle East to Wabash Avenue) to minimize impacts to residential communities and their internal circulation roadways.

Enclosed is one (1) copy of the Section 106 Consultation Case Study Report, Polk County, Florida (February 2017) that was prepared for the above referenced project and a CD containing a PDF file of this document.

At the request of the FDOT, District 1, Archaeological Consultants, Inc. (ACI) prepared a Cultural Resource Assessment Survey (CRAS) in October 2014 as part of the PD&E Study. All significant historic properties identified within the US 92 PD&E Study project area of potential effect (APE) are located on the south side of US 92. The Optimized Northern Alternative is the Preferred Build Alternative for this project shifting north of the existing roadway and avoiding any significant

historic properties.

As a result of the CRAS, three (3) significant cultural resources that are eligible for listing in the National Register of Historic Places (NRHP) were identified within the US 92 project APE. These significant historic properties include: the Polk County Line Obelisk (8HI05328), the Silver Moon Drive-In Resource Group (8PO07950) and its five contributing resources (8PO06530, 8PO07951-07954), and the Publix Corporate Headquarters (8PO07894). The Federal Highway Administration (FHWA) approved the recommendations and findings on November 3, 2014, and the State Historic Preservation Office (SHPO) concurred on December 5, 2014.

The objective of this Draft Section 106 Consultation Case Study Report is to evaluate the potential effects (primary and secondary) of the proposed undertaking to the three historic properties located within the project Area of Potential Effect (APE) as identified above. In consultation with the SHPO and FHWA, FDOT has applied the Criteria of Adverse Effect found in 36 CFR Part 800.5 and has determined that the project will have **no adverse effect** on the NRHP-eligible Silver Moon Drive-In Resource Group (8PO07950) and its five contributing resources (8PO06530, 8PO07951-07954), **no effect** on the Polk County Line Obelisk (8HI05328), and **no effect** on the Publix Corporate Headquarters (8PO07894), as discussed in the enclosed document.

I am requesting your concurrence with our evaluation that the **US 92 improvements** project will have *no adverse effect* on any resources listed or considered eligible for listing in the NRHP.

This information is being provided in accordance with the provisions of the National Historic Preservation Act of 1966 (as amended), which are implemented by the procedures contained in 36 CFR, Part 800, as well as the provisions contained in the revised Chapter 267, *Florida Statutes.*

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016, and executed by FHWA and FDOT.

If you have any questions, or if I may be of assistance, please contact me at (863) 519-2805 or Vivianne.Cross@dot.state.fl.us.

Sincerely,

Vivianne Cross

Vivianne Cross
Environmental Project Manager

Enclosures
CC: Gwen Pipkin, FDOT
Erik Fleming, AIM
Marlon Bizerra, FDOT
Marion Almy, ACI

The Florida State Historic Preservation Officer (SHPO)/Florida Division of Historical Resources (FDHR) finds the attached Cultural Resource Assessment Reconnaissance Survey and Effects Determination Technical Memorandum complete and sufficient and ✓ concurs/ _____ does not concur with the recommendations and findings provided in this cover letter for SHPO/DHR Project File Number 2014-5079 D. Or, the SHPO/FDHR finds the attached Technical Memorandum contains _____ insufficient information.

SHPO/FDHR Comments:

_____

_____

_____

_____

_____

_____ Deputy SHPO

For Timothy A. Parsons, Ph.D., Director
State Historic Preservation Officer
Florida Division of Historical Resources

4/21/2017
Date

Submittal Report

Financial Project:	433558-1-22-01	Submital Type:	REPORT
Submittal Phase:	PD&E	Submital Staff Type:	CONSULTANT
Received Date:	3/23/2017	Response Due Date:	5/23/2017
Grace Period:	0	District:	FIRST
Status:	OPEN	Create Date:	3/23/2017
Create User Id:	PD101GP	Last Update:	3/23/2017
		Last Update User Id:	PD101GP

Description:

US 92 CL to Wabash Case Study Report
with SHPO Transmittal Letter

Assignments:

Name	Assignment	Due Date	Status	Comments
Gwen Pipkin	IN-HOUSE PROJECT MANAGER	4/13/2017	ACTIVE	0
Katasha Cornwell	LEAD REVIEWER	4/13/2017	ACTIVE	3

No	Status	Current Holder	Reference	Categories
1	RESPONSE ACCEPTED		Case Study Report	ENVIRONMENTAL MANAGEMENT OFF.

Created By	Created On	Version	Delegate For
Katasha Cornwell	4/12/2017	1	

Page i - 4th paragraph - last sentence - strike OEM from sentence.

Page i - first sentence in last paragraph on the page - strike OEM from sentence.

Page 4 - first line - strike OEM from sentence.

Page 38 - strike OEM from first sentence.

Page 39 - Strike OEM from 4th sentence and change it to FDOT.

Page 39 - Strike OEM from last sentence.

KIMBERLY WARREN	4/27/2017	1	

As per our discussion and with SHPO's recent concurrence on 4/21/17 with the findings in the Case Study Report, we are not going to make these edits.

Katasha Cornwell	4/27/2017	1	

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
3	RESPONSE ACCEPTED		Append. C	ENVIRONMENTAL MANAGEMENT OFF.

Created By	Created On	Version	Delegate For
Katasha Cornwell	4/12/2017	1	

Cover page of NSR - add standard NEPA Assignment statement.

KIMBERLY WARREN	4/27/2017	1	

As per our discussion and with SHPO's recent concurrence on 4/21/17 with the findings in the Case Study Report, we are not going to make these edits.

Katasha Cornwell	4/27/2017	1	

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
4	RESPONSE ACCEPTED		Draft letter	ENVIRONMENTAL MANAGEMENT OFF.

Created By	Created On	Version	Delegate For
Katasha Cornwell	4/12/2017	1	

Letter to Tim Parsons - page 2, second paragraph: strike FHWA from second sentence to be consistent with the report.

KIMBERLY WARREN	4/27/2017	1	

As per our discussion and with SHPO's recent concurrence on 4/21/17 and sign-off on the letter, we are not going to make this edit.

Katasha Cornwell	4/27/2017	1	

Response Accepted & Comment Closed

KIMBERLY WARREN	CONSULTANT PROJECT MANAGER	5/23/2017	ACTIVE	0
Roy Jackson	REVIEWER	4/13/2017	ACTIVE	0
Thu-Huong Clark	LEAD REVIEWER	4/13/2017	ACTIVE	0*