

Federal Highway Administration
Region Four

**ADMINISTRATIVE ACTION
FINDING OF NO SIGNIFICANT IMPACT**

U.S. Department of Transportation

Federal Highway Administration

and

Florida Department of Transportation

**Financial Project Numbers: 242526 & 242483
State Project Numbers: 92130-1425 & 75280-1479
Federal Aid Project Numbers: N/A & NH-4-2(169)65
Work Program Item Numbers: 5147330 & 5147254**

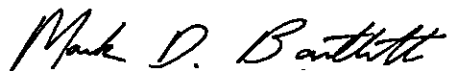
This project includes widening I-4 from four to six general use lanes plus high occupancy vehicle lanes along a 22.0 km (13.7 mile) stretch from C.R. 532 (Osceola-Polk County Line) to S.R. 528 (BeeLine Expressway) in Osceola and Orange Counties, Florida.

The Federal Highway Administration (FHWA) has determined that this project will not have any significant impact on the human environment. This Finding of No Significant Impact is based on the attached Environmental Assessment which has been independently evaluated by FHWA and determined to adequately and accurately discuss the environmental issues and impacts of the proposed project. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. The FHWA takes full responsibility for the accuracy, scope and contents of the attached Environmental Assessment.

Submitted pursuant to 42 U.S.C. 4332 (2)(c).

12 / 23 / 1999

Date


For: Division Administrator
Federal Highway Administration

FEDERAL HIGHWAY ADMINISTRATION
Finding of No Significant Impact

The Federal Highway Administration (FHWA) has determined that this project will have no significant impact on the human or natural environment. This Finding of No Significant Impact is based on the attached Environmental Assessment and Public Hearing Record which has been independently evaluated by FHWA and determined to adequately and accurately discuss the environmental issues and impacts of the proposed project. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. The FHWA takes full responsibility for the accuracy, scope and contents of the attached Environmental Assessment and Public Hearing Record.

The proposed project involves construction of improvements to a 22.0-kilometer (13.7 mile) existing segment of Interstate 4 (I-4) in central Florida. The project extends from C.R. 532 at the Polk-Osceola County line to S.R. 528 (BeeLine Expressway) in Orange County. The improvements for the project corridor include widening to six general use lanes, plus two and four high occupancy vehicle (HOV) lanes, as well as interchange and collector-distributor (CD) system improvements. The overall objectives of these improvements are to accommodate for long term travel demand as well as improve traffic operations and safety through this heavily traveled portion of Interstate 4. The proposed project area is shown on the attached Figures 1 and 2.

There is a demonstrated need for this project based on current and projected deficiencies in traffic capacity, safety concerns, consistency with local adopted transportation plans, and socioeconomic demands. According to a 1996 existing year Level of Service (LOS) analysis, I-4 currently operates under congested traffic conditions (LOS E or F) during the morning and afternoon peak periods. In addition, the No-Build analysis for this project shows that the entire roadway segment will operate at LOS F by the year 2020. As substantial population and employment growth are expected to continue through the year 2020, growth and congestion along I-4 will also continue. Without any roadway improvements, the traffic demand within the study area is expected to exceed capacity in 2020 by more than 30%, resulting in LOS F conditions spreading throughout the typical weekday.

Since I-4 is considered to be the backbone of central Florida's transportation system, the identified purpose is to better accommodate travel demand and improve traffic operations and traffic safety features within the corridor. Improvements are recommended in FDOT documents, MPO Urban Transportation Plans and Comprehensive Plans. These improvements will ease general freeway operations by removing geometric bottlenecks, upgrading deficient design elements, improving safety features and providing alternative transportation modes.

The FDOT Interstate Highway Policy has guided the development of the I-4 Multi-Modal Master Plan (MMMP), upon which these proposed improvements are based. During this three-tier study process, Conceptual Mobility Enhancement Alternatives (CMEAs) were identified,

developed and incorporated into a Major Investment Study (MIS). In addition to recommending six general use lanes plus two HOV lanes (6+2), the MIS recommended inclusion of a 13.4-meter (44 ft.) transit envelope to accommodate future transit facilities, as well as provisions to provide for a 6+4 lane layout (4 special use lanes extending to the southwest toward Tampa) for sections outside the beltway system. With the 1995 adoption of the Orange County MPO Year 2020 Long Range Transportation Plan, the I-4 MMMP advanced to tier 3 and further refined the HOV access plan.

It should also be noted that the MMMP also identified a light-rail transit (LRT) system generally paralleling the I-4 corridor, as part of the preferred investment strategy. The LRT alignment has been studied and is planned to be in a separate corridor, not within the I-4 Section 1 right-of-way (ROW). This project is being developed by the Central Florida Regional Transportation Authority, in cooperation with the FDOT, Federal Transit Administration (FTA) and several local governments. The LRT project is on a separate timeline and addressed in environmental documents with FTA as the lead federal agency.

Specific improvements which are proposed as part of this project include converting the existing six-lane divided roadway to six general use lanes plus HOV lanes. The portion of the roadway between U.S. 27 and U.S. 192 is scheduled to be widened from four to six lanes prior to the construction of this project. Therefore, this project will provide for the extension of four special use lanes from Polk-Osceola County line to the World Drive Interchange. These two widening improvement concepts account for the project's two typical sections: 6+2 (northeast of World Drive to Lake Avenue) and 6+4 (southwest of World Drive and northeast of Lake Avenue). Each of these typical sections incorporates the 13.4-meter (44 ft.) envelope in the median for future transit.

Modifications, including widening or replacing of 27 bridges, will be necessary at eight existing interchanges to accommodate the wider I-4 typical sections. These interchanges include C.R. 532, World Drive, S.R. 417 (Southern Connector), U.S. 192 (S.R. 530), Osceola Parkway, S.R. 536, S.R. 535 and Central Florida Parkway. Two new interchanges are proposed at S.R. 429 (Western Beltway) and Lake Avenue. These interchange improvements will also include the construction of new collector-distributor (CD) access roads between selected interchanges to accommodate increased traffic demands, improve traffic safety, and enhance access to HOV lanes.

Subsequent to the I-4 public hearing held on May 4, 1999, FHWA had some concerns about the ability of the Western Beltway interchange to accommodate the future possibility of direct connect HOV ramps to and from both directions along I-4. As a result, the interchange concept recommended in the Western Beltway PD&E Study has been modified to accommodate the future HOV ramps when the long-term improvements for I-4 are being implemented. Also, it was decided that the Western Beltway PD&E Study had progressed to the point that the ultimate interchange concept should be consistent in both PD&E Studies. Therefore, the interchange concept within this study has been revised. Features of the revised interchange concept include an 80 kph (50 mph) design speed for all ramps including the HOV direct connect ramps, deeper infield ponds within the interchange, and dual lanes on both flyover structures to prevent the need for future widening. Other revisions include the reconstruction of the C.R. 545 overpass to the east of the existing alignment to avoid impacts to the TECO Gas Substation (a low risk contamination site) and the relocation of the eastbound to northbound ramp to avoid a potential sinkhole. The C.R. 545 bridge will be

lengthened 30.0 m (100 ft.) to accommodate the future HOV ramps passing underneath.

The additional impacts associated with the revised Western Beltway interchange concept, as compared to the prior concept originally selected in this study, are summarized in the following table. As shown, the modified interchange will result in roughly 6 additional acres of wetland impacts than the previous concept. A reduced border width has been used along the north side of I-4 east of C.R. 545 to minimize additional wetland impacts. The modified interchange now proposed requires additional ROW along I-4 and will acquire the Paradise RV Park, which involves relocation of eight permanent residences and one business (the trailer park itself). However, the revised concept reduces the required ROW in the vicinity of the TECO Gas Station, in order to avoid impacts, as described above.

COMPARISON OF WESTERN BELTWAY INTERCHANGE CONCEPTS

Criteria/Impact	Previous Concept	Revised Concept	Change with Revised Concept
Relocations			
Residential	0	8	8
Business	0	1	1
Environmental Impacts			
Archeological Sites	0	0	0
Contamination Sites (low risk)	1	0	-1
Historical Structures	0	0	0
Floodplains (acres)	3.63	4.57	0.94
Wetlands (acres)	6.48	12.08	5.6

Subsequent to the I-4 public hearing held on May 4, 1999, several other minor design refinements and modifications have been made to the Preferred Alternative. These refinements and modifications represent no significant changes to the construction cost, ROW requirements or environmental impacts previously estimated for the Preferred Alternative. Some of these refinements were developed as a result of the findings in the Systems Access Modification Report (SAMR), prepared for FHWA review. These design changes are described below.

The eastbound HOV slip ramp east of World Drive has been relocated to the west, between the special use lane flyover exit ramp to the World Drive CD road and World Drive overpass structures. In conjunction with this modification, the special use lanes have been extended eastward from the

flyover ramp to this slip ramp. The designation of the slip ramp has changed as it will serve as the end of the special use lanes, as well as the HOV exit to US 192, Osceola Parkway and SR 536.

These modifications enhance operations along the special use lane flyover exit ramp and the weave along the World Drive CD road by removing the traffic which desires to continue east on I-4 but is not eligible for using the HOV lanes. The World Drive CD road would then primarily serve as the means of collecting and distributing I-4 traffic to/from World Drive and to/from the Southern Connector (SR 417).

Since I-4 is an existing facility, a minimal amount of ROW acquisition will be required for a project of this nature. While narrow strips of ROW are required in many areas along I-4, there are eight residential relocations and one business relocation required for the entire project, all related to the Paradise RV Park near the proposed Western Beltway interchange location, and due to the revised Western Beltway interchange design described previously. New ROW to be required for the project will approximate 86.6 hectares (214.0 acres). Of this total, stormwater facilities will require approximately 28.3 hectares (70.0 acres) from adjacent properties. Property will need to be acquired from the Magnolia Oaks DRI, which is undeveloped, but approved for Business Park, Commercial, Mixed Use, Resort Residential, Hotel, Residential and Golf Course.

If this project is constructed prior to I-4 Section 2 (adjacent to the north), two additional relocations would be necessary. Improvements to the S.R. 528 interchange will impact the Sea World Sales & Promotion Office building and the proposed location of Pond B-2 will require one residential relocation.

A cultural resource assessment survey was conducted for the project, including background research and field survey. No historic or archaeological resources were identified which would be affected by the proposed project. The FHWA, in compliance with Section 106 of the National Historic Preservation Act and in consultation with the State Historic Preservation Officer (SHPO), has determined that the proposed action will have no historic properties effected.

This project does not encroach upon or make use of any property which serves as a park, school or other public recreation area or facility. The proposed action will not use any properties as defined by Section 4(f) of the Department of Transportation Act. FHWA has determined that Section 4(f) does not apply.

An air quality screening test was conducted to identify potential air quality impacts associated with the proposed improvements. This screening test uses various worst-case assumptions about the meteorology, traffic and site conditions to determine the "critical" or closest distance a receptor can be located to a given intersection/roadway segment without incurring significant air quality impacts. The critical distance calculated for all alternatives was less than 38.5 meters (126 feet). Since the closest receptors are more than 50.4 meters (165 feet) from I-4, no adverse air quality impacts are anticipated.

This project is in an area which has been designated as an attainment area for the ozone standards under the criteria provided in the Clean Air Act Amendments of 1990. This project is in

conformance with the State Implementation Plan because it will not cause violations of the National Ambient Air Quality Standards and will not interfere with any transportation control measures.

Potential traffic noise impacts associated with the Preferred Build Alternatives were evaluated in accordance with 23 CFR 772, "Procedures for Abatement of Highway Traffic Noise and Construction Noise" and Chapter 335.17, Florida Statutes. A detailed STAMINA 2.1 computer analysis was performed to evaluate potential impacts to noise-sensitive sites identified within the 65dBA noise contour. A total of seven noise-sensitive sites are predicted to experience noise levels which would approach or exceed the federal noise abatement criteria. These sites would experience increases in traffic-generated noise ranging from 2 to 4 dBA, reaching 65 to 80 dBA during peak traffic hours. Traffic management and alignment modifications are not feasible abatement solutions, as they would not provide significant beneficial alterations to the acoustical environment.

Barrier analyses conducted during the noise study indicated that only two of the impacted sites (Paradise RV Park and Monterey Lake Apartments) would meet FDOT criteria for reasonableness and feasibility, based on the degree of decibel reduction and cost per benefitted receiver. Based on the studies completed to date, FDOT intends to construct a noise barrier at the Monterey Lake Apartments. However, since the updated Western Beltway interchange concept will require acquisition of the Paradise RV Park, a noise barrier will not be required at this location. If conditions along the I-4 corridor are found to have changed during the design phase, abatement measures will be reviewed at that time. A final decision on the applicability of noise mitigation will be made upon completion of the project design.

Potential floodplain impacts associated with the Preferred Build Alternatives have been evaluated in accordance with Executive Order 11988 "Floodplain Management" and 23 CFR, Part 771 "Environmental Impacts and Related Procedures." Encroachments are proposed within eight floodplain areas: Davenport Creek, Davenport Creek Swamp, Reedy Creek, Reedy Creek Swamp, Bonnet Creek, Black Lake, Lake Willis and Big Sand Lake. It should be noted that part of the Reedy Creek Swamp is independently insured and is therefore not included in the Federal Emergency Management Agency (FEMA) flood area mapping. Surface waters within this area are managed by the Reedy Creek Improvement District (RCID). Based on the Location Hydraulics Report, the proposed improvements are categorized as replacement of existing drainage structures without record of prior drainage problems. The total floodplain volume affected for the project will be approximately 15.6 hectares (38.5 acres), mainly at Reedy and Davenport Creek floodplains. This volume includes the additional impacts of the revised Western Beltway interchange and is not considered to be a significant floodplain impact. Based on this analysis, the following determination has been made for the proposed roadway improvements: The construction of the drainage structures proposed for this project will cause changes in flood stage and flood limits. These changes will not result in any significant adverse impacts on floodplain values or flooding risk potentials along the project corridor. These changes have been reviewed by the regulatory authorities who have concurred with the determination that there will be no significant impacts. There will not be significant change in the potential for interruption or termination of emergency service or emergency evacuation routes.

Pursuant to Executive Order 11988 "Floodplain Management", the proposed action was

determined to be within the base floodplain associated with low areas and drainage ditches. Impacts associated with the encroachment have been evaluated and determined to be minimal. Therefore, the proposed action does not constitute a significant encroachment.

Potential wetland impacts associated with the proposed improvements were evaluated in accordance with Executive Order 11990 "Protection of Wetlands". Unavoidable wetland impacts totaling 31.0 hectares (76.6 acres) will be mitigated under the provisions of S. 373.4137 F.S., which requires that mitigation of FDOT construction impacts be implemented by the jurisdictional water management district. This includes the additional impacts created by the revised Western Beltway interchange. Wetland avoidance and impact minimization alternatives were considered as part of the project's development. The avoidance alternative (No Build) will not satisfy the purpose and need of the project in terms of providing the necessary traffic capacity. The minimization alternatives do not offer sufficient wetland impact reduction to justify other higher project costs unrelated to wetlands. Based upon the above considerations, it is determined that there is no practicable alternative to the proposed widening in wetlands and the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

The proposed improvements are located within the jurisdiction of three regulatory agencies that permit surface water management systems: United States Environmental Protection Agency (USEPA), South Florida Water Management District (SFWMD) and Orange County. Stormwater management facilities designed as part of this project will meet, at a minimum, the water quantity requirements for water quality impacts as required by the USEPA National Pollutant Discharge Elimination System permit; SFWMD Chapters 40E-4, 40E-40, 41 and 42 of the Florida Administrative Code; and the Orange County Subdivision Regulation and Flood Plain Ordinance. Based on these considerations, the proposed project improvements will cause no significant degradation in water quality.

Potential impacts to protected species were evaluated for the proposed improvements. The project area is not located within any habitat designated by the United States Fish and Wildlife Service (USFWS) as 'critical' to the survival of any protected species. The project does traverse wetland and scrub habitats which have the potential to support 23 threatened and endangered species and thirteen Florida Game and Fresh Water Fish Commission species of special concern. The results of literature review and extensive field surveying by project biologists revealed localities for eight protected species; these species are listed in Table 7. Impacts to protected species and their habitats have been minimized by designing widening improvements to the existing roadway facility and through the strategic placement of stormwater facilities. Further coordination with both federal and state agencies will be required prior to construction activities, specifically in the case of active gopher tortoise burrows. It has been determined by the USFWS and FHWA that this project will be 'not likely to adversely affect' threatened or endangered species.

Through coordination with the Natural Resource Conservation Service, it has been determined that no farmlands as defined by 7 CFR 658 are located in the project vicinity.

The Office of Planning and Budget, Office of the Governor, has determined that this project is consistent with the Florida Coastal Zone Management Plan.

A Public Involvement Program was conducted throughout the course of this I-4 PD&E Study, as described in Section 5.2 of the attached Environmental Assessment. This Environmental Assessment was approved for public availability on March 24, 1999, and the public hearing was held on May 4, 1999. Approximately 89 persons attended the public hearing with most indicating support for the project. Concerns identified during the formal public testimony and by written comment included potential water quality impacts and drainage concerns for Lake Willis, potential noise impacts and concerns about the locations of stormwater facilities. FDOT has committed to reviewing the locations of stormwater facilities proposed adjacent to Lake Willis during the future design phase, as discussed above.

In addition to the formal public hearing, FDOT sponsored several advertised public informational meetings for this section as well as the overall I-4 corridor during the past three years. Additionally, FDOT's study team had a number of meetings with special interest groups, concerned property owners and local and state agencies throughout the PD&E process. This enabled the FDOT team to understand a broad range of concerns and address them in the planning process such that the proposed action appears to have broad community support. Concerns expressed have been almost entirely focused on localized noise and drainage impact issues which have been addressed to the extent practical in this phase.

It should also be noted that the FDOT's Turnpike District sponsored a public hearing on September 16, 1999 that covered the 8 kilometer (5 mile) Western Beltway project, including the aforementioned I-4/Western Beltway interchange. The revised I-4/Western Beltway interchange conceptual design was displayed at the public hearing. Those hearing transcripts and related correspondence and documentation are included in this EA/FONSI for reference as Appendix D.

As displayed during the I-4 public hearing, Ponds 70.1a ALT and 70.5 ALT are adjacent to Lake Willis. Several residents living adjacent to Lake Willis had concerns about water quality, water quantity, aesthetics and noise resulting from the construction of the Preferred Alternative and the proposed ponds. They requested that alternative pond locations be investigated to avoid potential impacts to the lake and their neighborhood. Additionally, there was some concern about Pond 70.8, which is located at the intersection of Central Florida Parkway and Turkey Lake Road. This location is a prime commercial site. As a result, the drainage basin limits were reviewed. Two alternative pond locations have been identified on the west side of I-4 near the outfall ditch from Lake Willis to Big Sand Lake. Additionally, Pond 70.8 could be moved to the south. It should be noted that these alternative ponds and adjustments to Pond 70.8 are alternatives to the ponds shown in the Preferred Alternative preliminary plans. The drainage design and pond locations will be finalized in the project's final design and ROW phase, but at this time, there are feasible alternatives that address several of the concerns of the Lake Willis area residents.

The approved Environmental Assessment and Appendices address all of the viable alternatives that were studied during the project's development. The environmental effects of all alternatives under consideration were evaluated when preparing the assessment. Although the Environmental Assessment was made available to the public before the public hearing, this Finding of No Significant Impact was made after consideration of all comments received as a result of the

public availability and the public hearing on May 4, 1999, as well as after further coordination with the FDOT Turnpike District and the Western Beltway public hearing held on September 16, 1999.

In conclusion, this FONSI is based on the following requirements and commitments that FDOT will adhere to during future phases of project development:

1. Wetlands - Mitigation of anticipated wetland impacts (28.4 hectares [71.0 acres]) will be provided under the provisions of S. 373.4137 F.S., which requires that mitigation of FDOT construction impacts be implemented by the appropriate water management district where the impacts occur. Coordination with the South Florida Water Management District confirms that the WMD intends to provide the necessary mitigation to offset these impacts.
2. Contamination - Information regarding eleven potential petroleum contamination sites will be updated, including site evaluations and organic vapor analyzer (OVA) screening/monitoring if necessary, during the final design phase and prior to construction or right-of-way acquisition. Estimated areas of contamination will be marked on the design drawings and any necessary clean-up will take place during construction if deemed feasible. Special provisions for handling expected and unexpected contamination during construction will be included in the construction plans package.
3. Salvaging of materials (i.e., signs, traffic signals, roadway lighting, lime rock and asphalt) will be given consideration along all of the sections of roadways being displaced by construction activities.
4. Noise - Two potential noise barriers were determined to be reasonable and feasible based on the results of the STAMINA 2.1 barrier analysis. Due the revised Western Beltway interchange concept and the associated acquisition of the Paradise RV Park, a noise barrier will no longer be required at that location. For the Monterey Lake Apartments in Orange County near the BeeLine Expressway (S.R. 528), a potential noise barrier of 145 meters (476 feet) in length and 5.0 meters (16 feet) in height was shown to be reasonable and feasible.

The FDOT is committed to the construction of noise barriers at the Monterey Lake Apartments, contingent upon the following conditions:

- Detailed noise analyses during the final design phase supports the need for abatement.
- Reasonable cost analyses indicate that the economic cost of the barrier(s) will not exceed the FDOT guidelines.
- Community input regarding the barrier(s), solicited by the FDOT District Five office during the final design phase, is positive.
- Safety and engineering aspects as related to the roadway user and the adjacent

property owner(s) are acceptable.

- Any other mitigating circumstances have been resolved.
 - If, during the final design phase of the project, any of the contingency conditions listed above cause abatement to no longer be considered reasonable or feasible for a given location or locations, such determination will be made prior to requesting approval for construction advertisement. In addition, during final design and prior to construction, those sites which may be affected through any final design alignment changes including those sites now considered borderline will be revised insofar as a noise analysis.
5. Water Quality - Stormwater pond sizes have been developed for the purpose of estimating right-of-way requirements only. The actual physical size and configuration of all required water management facilities will be determined during the final design phase of the project. All stormwater facility design will be in accordance with the most stringent regulations of the various permitting agencies, including the South Florida Water Management District and Orange County.
 6. Drainage Structures To Enhance Wildlife Connectivity - With respect to providing habitat and cover for wildlife, the existing I-4 crossing locations provide essential aquatic and terrestrial connectivity between portions of both Reedy and Davenport Creeks. The Davenport Creek system is currently crossed via a series of concrete box culverts. The largest of these crossings consists of a multiple-opening (4) box arrangement at the main stream channel. The culvert structures within the Davenport Creek system provide aquatic connectivity and allow terrestrial animal access only during low water stages. The project design must include drainage structures which preserve the existing hydrologic openings to meet drainage requirements. As part of the drainage final design, FDOT is committed to the evaluation and consideration of cross drain culvert configurations which also serve to enhance the opportunity for wildlife to utilize these structures as crossing locations.
 7. Access Management - A break in access along Lake Avenue will be provided to the Embassy Suites Hotel, which is located in the southwest quadrant of the proposed I-4/Lake Avenue interchange, across from a proposed I-4 exit ramp intersection with Lake Avenue. The Department believes the design concept as shown is a reasonable compromise, balancing traffic operations and cost issues.
 8. Special Features - Barrier separated special use/HOV lanes will be used throughout Section 1. A park and ride lot will be located adjacent to the I-4/Lake Avenue interchange.
 9. Transportation Systems Management (TSM) - TSM measures have been considered extensively in the development of, and are an integral part of, this project. The TSM measures which are incorporated into this project include High Occupancy Vehicle (HOV) lanes, an additional median transit envelope for future transit facilities, Intelligent

Transportation Systems (ITS) features, interchange improvements, and ramp-to-ramp auxiliary lanes. Further, the Central Florida Regional Transportation Agency is planning on providing light rail transit (LRT) service adjacent to the corridor to further enhance mobility and provide modal options for commuters and visitors.

10. Noise, Landscaping, and Retention Pond Issues at Lake Willis - The Department is committed to re-evaluating the need for noise abatement, landscaping treatments, and the location of retention ponds in the vicinity of Lake Willis during final design.

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1.0 DESCRIPTION OF THE PROPOSED ACTION

The Florida Department of Transportation (FDOT) is proposing improvements to a 120-kilometer (75 miles) segment of Interstate 4 (I-4) in central Florida (Figure 1). The project extends from County Road 532 (C.R. 532) in Polk County to Interstate 95 in Volusia County and is divided into four sections, including three roadway projects and one light rail transit (LTR) assignment, each with unique project numbers. This report addresses the area for the southernmost section of the project (Section 1), from C.R. 532 at the Polk-Osceola County Line to State Road 528 (S.R. 528, BeeLine Expressway) in Orange County, a distance of 22.0 kilometers (13.7 miles). State Project Number 92130-1425 has been assigned to the project area within Osceola County and Number 75280-1479 for the portion occurring in Orange County. The limits of Section 1 are shown on the project location map (Figure 2). The improvements along this section of the project corridor include widening to six general use plus two and four high occupancy vehicle lanes (HOV), as well as interchange and collector-distributor (CD) system improvements, to accommodate increased traffic demands, current roadway deficiencies and safety concerns. Twenty-seven bridge structures are located along this portion of I-4, with most of the bridges occurring in pairs. I-4 passes over C.R. 532, Reedy Creek, Bonnet Creek, S.R. 535 and Central Florida Parkway with twin spans at each location. Concrete box culverts exist where I-4 crosses Davenport Creek. Bridges over I-4 include C.R. 545, World Drive, Southern Connector Extension (S.R. 417), U.S. 192 (S.R. 530), Osceola Parkway, S.R. 536 and the Central Florida Parkway Flyover.

I-4 is generally considered to be the backbone of Central Florida's transportation system, serving the greatest number of trips of any transportation facility in the region. The facility has evolved from a highway which serves long-distance trips to one which serves many short trips within the metropolitan area. As the area has grown, much of the development has centered on I-4. As growth in both the tourism industry and population of Central Florida are expected to continue, travel operation conditions on I-4 will continue to decline. Traditional solutions for improving I-4 by adding more lanes, often at great expense to the environment and urban structure, are becoming less feasible. Increasing emphasis is being placed on transit options. The FDOT has recognized the limitations of continually adding lanes to existing facilities.

The FDOT Interstate Highway Policy has been developed to address the expansion of the state's Interstate system. This Policy limits the number of lanes which can be added to interstate highways and promotes public transportation and ridesharing. The Policy supports the needs of commerce and personal mobility, as well as environmental preservation and growth management. The Policy limits the expansion of interstate highways to ten lanes in urban areas, with six lanes for general use traffic and four lanes for special use traffic. Under this Policy, the special use lanes may serve HOV, express bus and single occupant through trips, and may be separated from the general use lanes by a buffer or barrier. Urban rail transit service or intercity high speed rail (HSR) service should also be considered for the interstate highway corridor.

The FDOT Interstate Highway Policy has guided the development of the I-4 Multi-Modal Master Plan (MMMP) through Central Florida. This master planning effort was divided into three tiers. During the first tier, fourteen Conceptual Mobility Enhancement Alternatives (CMEAs) were

developed which offered a broad range of transportation solutions. Through the evaluation process, the number of CMEAs were subsequently reduced. Details of the Tier 1 evaluation process CMEAs are provided in *Tier Simulation Evaluation Paper* (PBS&J Team, July 1993).

A Major Investment Study (MIS) was completed as part of Tier 2 of the I-4 MMMP. An MIS is required for major transportation investments which require federal funds. These studies incorporate National Environmental Policy Act (NEPA) principles and policies to corridor level transportation issues that may lead to significant capital investments and impacts. As described in 23 CFR 450.318, an Option 1 MIS allows the results of the study to be documented in a report and adopted by the MPOs prior to preparing NEPA documentation and serves as input to the preparation of final environmental documents. Alternatively, a draft NEPA document is prepared as part of an Option 2 MIS. The I-4 MMMP was developed to conform to an Option 1 MIS.

As a condition of Option 1, critical issues such as modal choice, alternative development and evaluation, public involvement, social and environmental factors, and interagency coordination have been effectively addressed. This step was essential prior to the development of an Environmental Impact Statement (EIS) or Environmental Assessment (EA). For a specific design concept, prior actions will not have precluded the ability to comply with environmental regulations contained in 23 CFR 771. The tier 2/MIS provided a corridor level evaluation of each alternative's adherence to defined engineering standards, implementation impacts, cost-effectiveness, and the likelihood of success in achieving study goals. The outcome of the tier 2/MIS evaluation was a design concept for the corridor which consists of six general use lanes and two special use lanes (6+2) plus a LRT system. It is intended to be developed as a 20 year improvement program, with capital cost for improvements estimated at \$2.7 billion in 1995 dollars. The MIS also incorporates the results of a Regional Systems Plan prepared by LYNX, which identified the greater I-4 corridor as the region's highest priority corridor for fixed guideway transit.

Alternative evaluations conducted in the Tier 2/MIS concluded that the six general use and four special use/HOV lane (6+4) alternatives were not financially feasible within the I-4 MMMP 2020 design year. It was also determined that through trips and trucks make up such a small percentage of the traffic population that the investment to provide two additional HOV/special use lanes was not warranted. Within the Orlando metropolitan area, the Central Florida Greenway (S.R. 417) is proposed as a suitable long-term alternative for through trips. Therefore, the six general use and two HOV lane (6+2) alternative with LRT was adopted. The I-4 MMMP recommended that steps be taken to insure that a 6+4 potential section including a 13.4 m (44 ft.) rail envelope be possible for sections outside of the beltway system. The 6+2 with LRT concept provides the best incremental improvement in mobility for the cost and possesses the greatest incentive to increase vehicle occupancy rates, without significantly diluting LRT performance. The LRT system produces cost-effective capacity, provides a long-term mobility option and offers long term urban design potential.

In December 1995, Orlando and Volusia County MPOs approved their respective Year 2020 Long Range Transportation Plans, which included the MIS recommended improvements. With the adoption of the I-4 concept, the I-4 MMMP transitioned to Tier 3. Tier 3 refined and expanded the concept by refining the HOV access plan and support facilities, identifying separation treatment

(barrier versus buffer) types and locations, addressing potential interchange improvements, and exploring transportation management strategies. A detailed staging and financing strategy was also developed.

Upon conclusion of the I-4 MMMP, the study area was divided into three sections for Project Development and Environment (PD&E) Studies. These studies are to refine and expand the engineering and environmental work began during the I-4 MMMP (Option 1 MIS) to meet NEPA requirements and to gain Location and Design Concept Acceptance. An EIS for the LRT system has been completed which has determined the final alignment, station locations and phasing. Within I-4 Section 1, the minimum operable segment of the LRT alignment is outside of the I-4 right-of-way from the I-4/Central Florida Parkway interchange to northeast of the BeeLine Expressway. When the LRT is extended from Central Florida Parkway to Celebration, the alignment will be outside of the I-4 median transit envelope. However, the I-4 Section 1 project preserves the transit envelope for potential use by HSR. The envelope which has been provided is 13.4 m (44 ft.) horizontally and 5.0 m (16.5 ft.) vertically.

The project addressed in this EA is Section 1 of the I-4 improvement program and includes the following improvements which were identified in the I-4 MMMP and MIS and are further expanded in this document:

- Converting the existing six-lane divided interstate highway (note: I-4 to be widened to six lanes between U.S. 27 and U.S. 192 by separate contract prior to this project) to six general use lanes plus two HOV lanes northeast of the World Drive Interchange. Further, the project will provide for the extension of the special use lanes from the Polk/Osceola County Line to the World Drive Interchange. This will be an extension of the six general use lanes plus four special use lanes.
- Preservation of a transit envelope for potential use by HSR which is 13.4 m (44 ft.) horizontally and 5.0 m (16.5 ft.) vertically.
- Modification of the following eight existing I-4 interchanges to accommodate the proposed additional lanes:
 - C.R. 532, World Drive, S.R. 417 (Southern Connector), U.S. 192 (S.R. 530), Osceola Parkway (to be constructed FY 99), S.R. 536, S.R. 535 and Central Florida Parkway.
- Construction of two new interchanges on I-4 as follows:
 - S.R. 429 (Western Beltway) and Lake Avenue.
- CD system improvements at the existing interchanges and development of new CD systems at proposed new interchanges to accommodate increased traffic demands, current design deficiencies and address safety concerns. Further, the CD system will be a mechanism to enhance access to the HOV roadway in many areas of Section 1. Additionally, ramp-to-ramp auxiliary lanes have been added at many locations to enhance ramp merge and diverge movements with the mainline.

- Widening or reconstruction of 27 bridge structures, most occurring in pairs, to accommodate the additional lanes proposed in this project.

The details of these improvements are discussed in Section 3.3 of this document. Further, the improvements have been shown in plan view in Appendix A. The project's primary improvement, as evaluated and selected in the I-4 MMMP and MIS, is the integration of a 13.4 m (44 ft.) rail transit envelope and special use/HOV lanes into the I-4 corridor. These improvements are consistent with the FDOT Interstate Highway Policy as they promote both public transportation and ridesharing.

A key component of these improvements could be park and ride lots for both the LRT and HOV lanes. The area within Section 1 served by these improvements is primarily commercial with a focus on the tourist industry. As such, the land use surrounding I-4 in Section 1 primarily represents trip destinations. Park and ride lots serve as the trip origin, such as residential areas. Few locations within the corridor are planned for residential developments; however, significant residential development is planned in the vicinity of the I-4/Lake Avenue interchange. A park and ride lot is planned near this interchange. Other park-and-ride facilities are expected to be developed northeast of the I-4 Section 1 study area.

2.0 NEED

From the Walt Disney World - International Drive tourist area in Kissimmee and Orlando to Daytona Beach at the northeast end of the corridor, I-4 serves a variety of travel needs and offers unique opportunities for transportation solutions. The Orlando and Volusia County MPOs have recognized that the I-4 corridor is one of the most important transportation corridors in the area. Continued mobility within the I-4 corridor is critical to the region's economic future.

Section 1 of the I-4 corridor includes one of the world's largest concentrations of hotels and major tourist attractions. Major expansion of these attractions is anticipated. This segment of the corridor exhibits high vehicle occupancy rates, largely controlled by the tourist industry's family orientation. I-4 also provides direct connection to several other major activity centers, including the Orlando Central Business District, which are outside of the Section 1 study area but directly influence the amount of traffic using I-4 within Section 1. These activity centers are expected to continue strong growth trends.

As substantial population and employment growth is expected through year 2020, growth and congestion along I-4 will also continue. Without any roadway improvements, the traffic demand within the Section 1 study area is expected to exceed capacity in 2020 by more than 30%. Improvements are recommended in FDOT documents, MPO Urban Transportation Plans and Comprehensive Plans. These improvements will ease general freeway operations by removing geometric bottlenecks, upgrading deficient design elements, improving safety features and providing alternative transportation modes.

2.1 Deficiencies

Deficiencies present along Section 1 of I-4 include congested travel conditions, 112 substandard vertical curves, one substandard horizontal curve, inadequate base clearance above design high water in many locations, inconsistent ramp termini treatments and inconsistent highway lighting. Specifically, most of I-4 along Section 1 currently operates under congested traffic conditions (LOS E or F) during the morning and afternoon peak periods, according to a 1996 existing year Level of Service (LOS) analysis. Widening I-4 to six lanes from U.S. 27 to U.S. 192 will provide additional capacity to relieve the existing congestion; however, the no-build analysis, which assumes six lanes throughout Section 1, shows that by the year 2020 this segment will be at LOS F.

Substandard horizontal and vertical curvatures were identified along Section 1 using an assumed design speed of 110 kph (70 mph). Near the Central Florida Parkway, horizontal curvature does not meet the design criteria due to inadequate stopping sight distance. The majority of the vertical curvatures which fail to meet design criteria are short, but otherwise meet the criteria for a 110 km/h design speed. Some of the vertical curvatures are not required as a result of the small grade changes associated with the roadway.

Ramp termini utilized along this section of roadway are inconsistent in design attributes. Many of the ramps along Section 1 do not meet the current American Association of State Highway and Transportation Officials (AASHTO) criteria. Additionally, interchange spacing does not meet FDOT Access Management Standards between S.R. 536 and S.R. 535 as well as Central Florida Parkway and the BeeLine Expressway (S.R. 528). The sources of lighting along I-4 are also varied, with mixed areas of high mast, conventional and no lighting. The majority of the main interchanges along I-4 are supplied with high mast lighting. The C.R. 532 interchange and the segment from the S.R. 536 interchanges to the rest areas have no lighting. The remainder of the project is provided with conventional light sources. In addition, drainage along the project corridor does not meet current stormwater management regulations. There are many locations where there is not adequate base clearance over design high water. These clearances have been determined from a review of "as-built" plans and will require further verification in the design phase. Further, drainage retention basins required by today's design and environmental standards are not used for much of Section 1.

As a result of the previously described conditions, the existing highway system in the project area is currently deficient for serving increasing travel demand. These growing deficiencies are identified within local and regional transportation plans. According to *Florida's Level of Service Standards and Guidelines Manual for Planning* (1995), the minimum acceptable LOS is "D" for I-4 within Section 1, substantiating the need for improvements. However, the improvements must also be consistent with the FDOT Interstate Highway Policy, which requires that improvements beyond six basic lanes include multi-modal improvements.

2.2 Safety

High crash areas are defined by the FDOT as locations where safety ratios are greater than or equal to 1.0. Current crash data for the I-4 corridor indicate safety ratios of less than 1.0 for all of the I-4 mainline, and the U.S. 192 (S.R. 530) and S.R. 536 interchanges within the study area. Therefore, none of these roadway segments are considered high crash locations. However, the safety ratio alone for the S.R. 535 interchange has significantly exceeded the safety threshold from 1992 to 1994 (1.7 to 1.8), but has declined somewhat following reconstruction of the I-4/S.R. 535 interchange (0.8 in 1995 and 1.2 in 1996). At this interchange, the most common crashes included rear end, angle and left turn crashes. A high number of injuries have occurred along S.R. 535, more than on any segment of I-4 except from S.R. 535 to Central Florida Parkway. That segment of I-4 had approximately the same number of injuries in 1993 and 1994, but the I-4 segment is five times the length and carries more than double the traffic volume. Crash data are further discussed in Section 4.1.9 of the Preliminary Engineering Report and include a more detailed review for S.R. 535. Additional improvements may be necessary on S.R. 535 near the I-4 interchange to address safety concerns. The proposed modifications along Section 1 of I-4 are expected to improve the safety ratios for the corridor.

2.3 Consistency with Transportation Plans

FDOT planning studies, the FDOT Transportation Improvement Program (TIP), MPO Urban Area Transportation Plans and Comprehensive Plans for Orange and Osceola Counties have been reviewed to determine whether the proposed improvements within the I-4 PD&E Study are consistent with adopted plans. The review of the various transportation studies in the vicinity of the study area for the I-4 Section 1 PD&E study clearly demonstrates that the project corridor has been officially included within the MPO Urban Area Long Range Transportation Plan. The development of the PD&E study for the project, utilizing the same corridor as contained in the Urban Area Transportation Plan, is funded within the FDOT 5 Year Work Program for FY 97/98 to 01/02. Policy 4.3 of the Reedy Creek Improvement District (RCID) Comprehensive Plan Traffic Circulation Element mentions that, after the adoption of the plan, RCID will coordinate with various agencies to pursue recommendations in the I-4 Corridor Study, the Orange County and Osceola County Comprehensive Plans, and MPO Urban Area Transportation Plan and other planning studies. The Cities of Kissimmee and Orlando are supportive of the recommended improvements.

The current Traffic Circulation Elements within Osceola County's Comprehensive Plan and Orange County's Comprehensive Plan do not reference the improvements of the I-4 MMMP and MIS; however, this is a result of the date of these documents and both agencies are currently in the process of updating their Traffic Circulation Elements. Osceola County's Traffic Circulation Element does mention the widening of I-4 to six lanes from C.R. 532 to the proposed Western Beltway, with recommendation for construction between the years 2000 and 2005.

Since the construction of the recommended improvements within this project are not expected to commence within the next 5 years, these modifications are not referenced in the Orlando Urban Area TIP, RCID Comprehensive Plan Capital Projects and 5 year road programs of FDOT and both Orange and Osceola Counties. However, there are improvements planned for I-4 within the study area, which are expected to be completed prior to the improvements recommended within this PD&E study. These improvements consist of preliminary engineering and right-of-way acquisition for the widening of I-4 to six lanes, from the Polk County line to U.S. 192, and the final design of the I-4/U.S. 192 interchange. While construction of these projects is not shown within the 5 year work programs, construction is expected to be completed prior to the improvements within this study.

Based on further review of the transportation plans, improvements are planned for several other roadways within the project study area. These include the widening of U.S. 192 and S.R. 536, design and construction of the I-4/Osceola Parkway interchange, preliminary engineering and right-of-way acquisition for improvements to the I-4/U.S. 192 interchange, and the final design of the Western Beltway from I-4 to north of the study area. A few other projects are also listed in the plans, which have recently been completed. These include the four-lane World Drive extension from U.S. 192 to I-4, the I-4/World Drive interchange, and the Southern Connector (S.R. 417).

The widening and extension of several roadways within the study area are expected to meet local transportation needs and to help prevent further deterioration of I-4 as a regional facility, by reducing short distance, localized trips. These include improvements to Turkey Lake Road (currently under construction), Westwood Boulevard, and Lake Avenue. The addition of LRT and expansion of the bus system will provide other mode choices to serve trips within the corridor.

Even with these improvements, the year 2020 analysis shows that the I-4 corridor will operate at LOS F. Further details concerning the review of these transportation plans are provided in Section 3.3 of the Preliminary Engineering Report.

2.4 Social and Economic Demands

The Orange County, Osceola County and RCID Comprehensive Plans indicate that the I-4 corridor will experience tremendous growth in the future. In Osceola County, development is anticipated to continue focusing on the northwest part of the county because of its proximity to the Orlando attractions and metropolitan area. Future growth in Orange County along I-4 southwest of the BeeLine Expressway is projected to focus on activity centers. Continued development is planned for the International Drive/Disney activity area, a primary destination for tourists. Since this segment of I-4 is designated as an Activity Center on the Future Land Use Map, Orange County has identified this area as appropriate for intense development with a mixture of uses.

Within the Section 1 study area, additional commercial, office, residential and industrial development has been approved. These primarily include approximately 5.2 million square feet of commercial development and 5.4 million square feet of office development. More than 28,000 additional hotel rooms and approximately 9,000 additional resort residential/time share units have been approved. Also, more than 17,000 additional permanent residential dwelling units have also been approved. Some of this additional development is currently under construction.

While the expansion of I-4 may facilitate further growth, the project will not create development patterns different from those already existing or planned for the community. In addition to supporting planned growth for permanent residents, improvements to I-4 will ensure continued access for tourists which are a primary component of Central Florida's economic base.

3.0 ALTERNATIVES CONSIDERED

The recently completed (1996) I-4 MMMP serves as the blueprint for improvements to I-4 throughout District Five. Several planned and programmed improvements to the study corridor will be in-place prior to the implementation of any activities recommended by this project. These include:

- Widening the I-4 mainline from four to six lanes from U.S. 27 in Polk County to U.S. 192 (S.R. 530) in Osceola County,
- Modification of the C.R. 532 interchange to provide additional I-4 on-ramp and off-ramp access from the northeast (construction complete),
- Construction of the World Drive Extension/I-4 interchange (construction complete),
- Connecting the new World Drive Extension interchange to the Southern Connector Extension via CD roadways (construction complete),
- Construction of the Osceola Parkway interchange and
- Construction of the Western Beltway and its interchange with I-4.

Several improvements are also being planned for roadways paralleling I-4 to better serve local traffic, including International Drive, Turkey Lake Road/Palm Parkway and Vineland Avenue. International Drive, located east of I-4, currently extends from a point north of the Section 1 study area to S.R. 536. This roadway is planned to be extended south to U.S. 192 (S.R. 530). Turkey Lake Road runs parallel to I-4 from Central Florida Parkway beyond the northern Section 1 project limit. Palm Parkway intersects with C.R. 535 at Lake Avenue and extends north. Improvements to Turkey Lake Road are planned to extend the alignment southward to connect with Palm Parkway. Vineland Avenue currently runs from S.R. 535 to the north before curving east. The northern portion of this roadway will be realigned and extended to International Drive. As has been previously discussed, even with these corridor improvements, the existing deficiencies and unacceptable LOS warrant the investigation of improvement alternatives in the I-4 corridor. The I-4 MMMP and MIS have conducted the initial phases of the alternatives evaluation. As previously noted, these documents chose the improvement alternative of six general use lanes plus two HOV lanes in the Orlando area. This is the basis upon which the more detailed alternatives analysis will be conducted. The current project is considering several potential alternatives for the I-4 Section 1 improvements, including the No Build, Transportation Systems Management (TSM) and Build Alternatives.

3.1 No Build Alternative

The first alternative considered is the No Build. Specifically, adoption of the No Build would mean that no improvement activities would occur and the project limits would remain unchanged. However, this alternative does include those improvements listed above. The new interchange planned at Lake Avenue in the I-4 MMMP is *not* considered part of the No Build Alternative. If the project data and analyses indicate that none of the considered alternatives would achieve the project's goals, or if construction of the project would cause other significant negative effects, the No Build will be recommended as the best course of action. The No Build also provides a baseline to show how the recommended improvements will meet the purpose and need of the project.

In general, all mainline segments of the I-4 within Section 1 currently operate at LOS E or F. As listed above, an interim improvement will widen I-4 to six lanes from U.S. 27 west of the Polk/Osceola County line to U.S. 192. Even with this interim improvement, all of Section 1 is expected to be operating at LOS F by design year 2020 without further improvements. These results are based on the analysis contained within the I-4 MMMP Traffic Report. Under the No Build scenario, no additional roadway capacity is provided to relieve this congestion other than those improvements listed above.

Based on this information, it is clear that the No Build Alternative would not satisfy the purpose and need for the project in terms of improving mobility throughout the corridor and providing some capacity enhancement. In addition, the No Build Alternative would be considered inconsistent with approved area-wide transportation plans and would result in decreased air quality, reduced traffic safety and increased user costs. Deficient horizontal and vertical curvature, aging bridge structures, insufficient length of ramp terminals, inconsistent ramp terminal treatments and existing drainage features would remain unchanged.

The No Build Alternative does, however, present several advantages over the alternatives considered. It would require no cost expenditures for ROW acquisition, business damages and/or construction. In addition, there would be no disruption of local traffic during construction and no significant environmental impacts due to construction. The No Build Alternative will continue to be considered a viable alternative through the public hearing process.

3.2 Transportation Systems Management Alternatives

TSM alternatives involve transportation improvements designed to maximize the utilization and efficiency of the present transportation system. The various forms of TSM options can include:

- Traffic signal timing improvements
- Intersection/Interchange improvements
- Auxiliary turn lanes
- One-way pairs
- Widening of parallel arterials
- Ridesharing
- HOV lanes
- Reversible flow roadway systems
- Transit
- Intelligent Transportation Systems (ITS)
- Ramp-to-ramp auxiliary lanes

TSM was considered extensively during the development of the I-4 MMMP. Traffic signal timing improvements, intersection improvements, auxiliary turn lanes and one-way pairs are

more appropriate for the cross streets and at-grade ramp termini, but do not apply directly to I-4. These types of TSM measures would improve traffic flow heading to and from I-4, but would not necessarily improve conditions on I-4. Extensive widening of arterials was also given consideration during the I-4 MMMP, but was not shown to effectively enhance traffic flow on I-4.

Ridesharing is a TSM option which involves one person sharing a ride with other passengers in a common vehicle and is composed of carpools, vanpools and transit. This TSM option has the ability to increase person-trip capacity without requiring an increase in vehicle-trip capacity. There are several methods that can be used to encourage ridesharing. Park and ride lots provide a location for people to meet, share a ride and park vehicles. However, the creation of park and ride lots will not guarantee increases in ridesharing, even if they are properly located. Also, ridesharing is relatively insensitive to increases in congestion, where HOV lanes do not exist. If HOV lanes are added to a facility, congestion in the general use lanes will provide an incentive for ridesharing and HOV lane use.

The land use in the I-4 Section 1 study area is principally dominated by major activity centers, such as Walt Disney World, International Drive and other major employers, which are destination arrivals. Park and ride facilities typically work best at the trip origin, such as residential areas. Few locations within the corridor are planned for residential developments; however, significant residential development is planned in the vicinity of the I-4/Lake Avenue interchange. A 1.5 acre park and ride lot has been located adjacent to this interchange to serve the HOV travel demand to and from the northeast along I-4. The lot size was determined based on the volume of HOV traffic accessing the HOV lanes at Lake Avenue and information from other studies. This information helped to estimate the proportion of carpools which contain family members and the portion of carpools forming from adjacent park and ride lots. Other park-and-ride facilities along I-4 will be northeast of the BeeLine Expressway, closer to other trip origins in the Orlando metropolitan area. The HOV lanes will serve as the conveyance method for these trips to the employment destination.

The use of HOV lanes often provides congestion relief in the general use lanes. HOV lanes can be signed and enforced for the exclusive use of carpools, vanpools, taxis and shuttle buses. Typically, carpools and vanpools require either a minimum of two occupants per vehicle (HOV2+) or three occupants per vehicle (HOV3+). Due to the tourist and resort land uses within Section 1, vehicle occupancy rates are expected to be higher within Section 1 than along other sections of I-4 within the Orlando metropolitan area. Therefore, diversion of traffic volumes from the general use lanes to the HOV facility can be expected immediately after project opening, even without incentives for ridesharing. To further encourage the use of the HOV lanes, it is anticipated that the facility will be initially operated as an HOV2+ facility. Design traffic projections show that to maintain a quality LOS in the HOV lane, it must be converted to HOV3+ prior to the year 2020. As shown in the I-4 MMMP Traffic Report, the largest year 2020 HOV traffic demand in the Orlando

Metropolitan area is in Section 1, between Lake Avenue and the BeeLine Expressway. The I-4 MMMP recommended two HOV lanes in each direction for this segment of I-4.

Another TSM option that may be considered is the use of reversible lanes. Reversible lanes can be used for either general use or HOV lanes and are most successful on roadways with high peak hour factors and/or high directional flows during peak periods. This results in very high volumes in one direction and much lower volumes in the other direction. Due to the existing and anticipated future peaking characteristics on I-4 within Section 1, reversible lanes would not be appropriate.

Other transit options can be considered, such as a facility within a separate ROW. The I-4 MMMP-recommended typical section included a 13.4-m (44 feet) transit envelope within the median of I-4 from the Polk/Osceola County line to the BeeLine Expressway. The transit envelope is intended to provide the opportunity for future rail facilities to utilize the I-4 corridor. LRT, which was recommended within the I-4 MMMP, provides an alternative transportation mode which would divert vehicle trips away from I-4. The LRT study has been recently completed and concluded that the extension for LRT service from Central Florida Parkway to Celebration would not be within the median of I-4. The HSR study is being conducted by Florida Overland Express (FOX). The I-4 corridor is being considered as an alternative alignment from generally southwest of S.R. 536 to Tampa. This could involve the I-4 median transit envelope from the Polk/Osceola County line to S.R. 536.

ITS features currently exist within the corridor. However, an expanded treatment of these features will not improve conditions sufficiently without some other improvements. The Advanced Traffic Management System that currently exists will be expanded as part of the improvements recommended by this study.

A scope of services is currently being developed on the I-4 Surveillance and Motorist Information System (SMIS) Phase III as a design/build project. The existing system currently extends from the I-4/World Drive interchange area to the northeast beyond the Section 1 study area. The exact limits of the expansion have not been determined, but it appears that the project will extend the SMIS from the I-4/World Drive interchange to the Polk/Osceola County line as a minimum. The maximum expansion would extend from World Drive to 2.4 km (1.5 miles) southwest of U.S. 27 in Polk County. In addition, an extension of the SMIS is planned from its northeastern terminus on the north side of the Orlando metropolitan area (in the vicinity of Lake Mary Boulevard) to near DeLand. The northern limit of that project has not been determined, although several locations are being considered.

The ITS Early Deployment Planning Study (Metro Orlando) is being conducted to identify needed functional areas, user services requirements and system architecture. Included within the study is information on candidate technologies, a public/private workshop for local businesses and the development of system components. The result of the study will be a

User Service Plan, system architecture and ITS implemental plan. The study primarily focuses on I-4 through downtown Orlando, which is in the Section 2 PD&E Study.

Long acceleration/deceleration lanes at ramp terminals may be considered to smooth operations and eliminate breakdown conditions where large ramp volumes and/or few gaps exist in the freeway stream. Ramp-to-ramp auxiliary lanes can be used where adjacent ramp gores are closely spaced and weaving volumes are high. CD roadways and grade-separated ramps can also be used to smooth operations. These last two treatments are especially useful where excessively large mainline volumes would exist between two adjacent interchanges and are being integrated into the improvement plans.

As determined in the I-4 MMMP, a vigorously applied combination of approaches is necessary to reduce peak hour travel demand sufficiently to meet the project purpose and need. Sufficient study was completed in the I-4 MMMP to determine the general types of improvements for the entire 23-km (75 miles) I-4 corridor through District Five. The purpose of this PD&E study is to refine the recommendations for Section 1. It should be noted that the I-4 MMMP studied each Section of I-4 in enough detail to recommend typical sections, interchange improvements, HOV access locations, separation treatments between HOV and general use lanes, support facilities (i.e. park-and-ride and park-and-pool lots) and system mobility management needs. The I-4 MMMP considered TSM options in sufficient detail that further study is not warranted. Since the traffic demand on I-4 in Section 1 exceeds the capacity limitations set by the FDOT Interstate Policy, the recommendations in the I-4 MMMP and further refined herein are TSM improvements.

3.3 Build Alternatives

The Build alternatives for this project include many of the TSM options listed above. These alternatives include a transit envelope, HOV lanes, CD roadways, improved ramp-terminal treatments, auxiliary lanes and grade-separated ramps. A 13.4 m (44 ft.) transit envelope is included in the Build alternatives to provide the opportunity for future rail facilities to utilize the I-4 corridor. As stated previously, the tourist and resort land uses within the corridor tend to increase vehicle occupancy rates, and taxi and shuttle bus services already exist within the corridor. This creates an immediate demand for HOV facilities, and the long-term level of congestion in the general use lanes will provide an incentive for ridesharing. In addition, the Build alternatives will provide CD roadways, longer acceleration/deceleration lanes at ramp terminals, ramp-to-ramp auxiliary lanes and grade-separated ramps to remove geometric bottlenecks and to smooth weaving operations.

The I-4 MMMP addressed various possible mainline improvements and considered the cost effectiveness of those improvements in the development of recommended improvements. The FDOT Interstate Highway Policy, established in November 1991, limits the number of general use lanes to six. In urban areas, four additional lanes may be considered, which must be physically separated from the general use lanes. The FDOT Interstate Highway Policy represents a change from traditional single mode planning by promoting urban interstate

highways as multi-modal corridors and optimizing the movement of people rather than the flow of vehicles. This Policy ensures that interstate highways continue to serve the needs of both commerce and personal mobility, serve the environment and support growth management goals. Where the maximum number of general use lanes is not expected to provide sufficient capacity, HOV lanes and transit provide the greatest potential for increasing person-trip capacity.

I-4 MMMP Typical Sections

The I-4 MMMP recommended the following typical sections within I-4 Section 1:

- Six general use and two HOV lanes (6+2) from C.R. 532 to northeast of Lake Avenue and
- Six general use and four HOV lanes (6+4) from northeast of Lake Avenue to the BeeLine Expressway (S.R. 528).

These typical sections are consistent with the FDOT Interstate Highway Policy and were determined in the I-4 MMMP to be cost feasible. The I-4 MMMP and MIS process evaluated the financial feasibility and affordability of providing additional HOV lanes in the Orlando area. This analysis demonstrated that the most appropriate solution was to constrain HOV ridership to 3+ occupants in the design year such that a single HOV lane in each direction can function at an acceptable LOS. As stated in the I-4 MMMP, the Central Florida Greenway is proposed as a long-term alternative route for vehicles traveling through the Orlando area.

Traffic Volume Projections

The state of Florida has experienced tremendous growth in population over the last two decades. It has been predicted that the state's population will grow approximately 36 percent between 1995 and 2020. During that period, the largest population increase in the state is expected to occur in Central Florida. As a result, travel demand throughout Central Florida and the I-4 corridor is expected to increase significantly. On a regional basis, it is anticipated that the number of daily person-trips made will increase from 3.18 million in 1990 to 6.47 million in the year 2020. Therefore, the total daily person-trips is expected to double from 1990 levels by the year 2020.

An important part of forecasting traffic volumes for the I-4 corridor involves an understanding of population and employment growth, activity center development and existing and future land use patterns. These items are covered in detail in the I-4 MIS. Walt Disney World is the Orlando area's largest activity center with the greatest total non-resident (i.e., hotels, motels, etc.) population and total employment. Other major activity centers near the I-4 Section 1 study area include Orlando Central Park and Orlando International Airport, which are located adjacent to the BeeLine Expressway (S.R. 528) corridor.

The development of traffic volume projections was covered in detail in the I-4 MIS, I-4 MMMP Traffic Report and the I-4 MMMP Conceptual Engineering Report. The modeling efforts for the I-4 MMMP tiers 1 and 2 were based on the 2010 OUATS model. The model was expanded to include highway and transit network improvements and changes in socio-economic conditions that would be reasonably expected by the year 2020. This model featured the addition of HOV modeling capabilities and a comprehensive treatment of transit options. The model was developed in a consistent manner with the Florida Standard Urban Transportation Model Structure, with the specific new multi-modal features.

Tier 2/MIS of the I-4 MMMP documented the need for transportation improvements within the I-4 corridor and is based on forecasts of substantial increases in travel demand within the already congested I-4 travel corridor. Several Conceptual Mobility Enhancement Alternatives were developed and evaluated during the tier 2/MIS process. This tier was concluded by the adoption of a combined highway and transit improvement strategy by the Orlando and Volusia County MPOs.

For refinement of the adopted MIS recommendations, more detailed traffic forecasts were required to provide a better understanding of the operational needs of I-4 roadway elements and opportunities for optimizing both existing elements and potential improvements. By the time the master planning process reached the end of Tier 2, the Orlando MPO was preparing a transportation plan update, which included the development of an enhanced model and updated database to model year 2020 conditions. This updated 2020 OUATS model was based on the I-4 Tier 2 model, but included the addition of Lake County and a portion of Polk County, as well as updates to model inputs such as external trip ends, gravity model parameters and a renumbered traffic analysis zone system. The underlying highway network for the model is the 2020 Financially Feasible Plans of the Orlando and Volusia County MPOs. This model was validated in November 1995 and adopted by the Orlando MPO as the new regional model in December 1995.

In order to maintain consistency with future regional modeling activities, FDOT decided to change the model in tier 3 of the Master Plan to the adopted 2020 OUATS model. The baseline highway network of the model was used in forecasting traffic for both the 2020 build and no-build scenarios. The tier 3 forecasts reflect refined conditions in terms of interchange improvements, HOV access locations, system management strategies, background highway system improvements and transit assumptions. The tier 3 traffic forecasts and analyses presented in the I-4 MMMP Traffic Report were anticipated to serve as design hour traffic for the PD&E studies and a starting point for the more detailed analysis needed to set final design parameters and geometry. Consistent with those recommendations, the projections developed for tier 3 of the Master Plan were carried forward for use in this PD&E study.

The volume projections for the year 2020 no-build condition and the associated LOS analysis contained within the I-4 MMMP Traffic Report remain applicable. According to the LOS analysis, the general use lanes are expected to operate at LOS F throughout Section 1 in the design year 2020 with the improvements proposed in the I-4 MMMP.

Other issues of concern were the beltway to beltway connection between the Western Beltway and the Southern Connector/Central Florida Greenway (S.R. 417) and the poor LOS of the general use lanes. This connection is being accommodated by the I-4 general use lanes. It was felt that additional capacity should be provided in the general use lanes between these two facilities to better serve this beltway to beltway connection. Due to these issues, alternatives were considered to better utilize this part of the facility. This resulted in a change in the typical sections for Section 1, as described in the following subsection.

I-4 PD&E Typical Sections

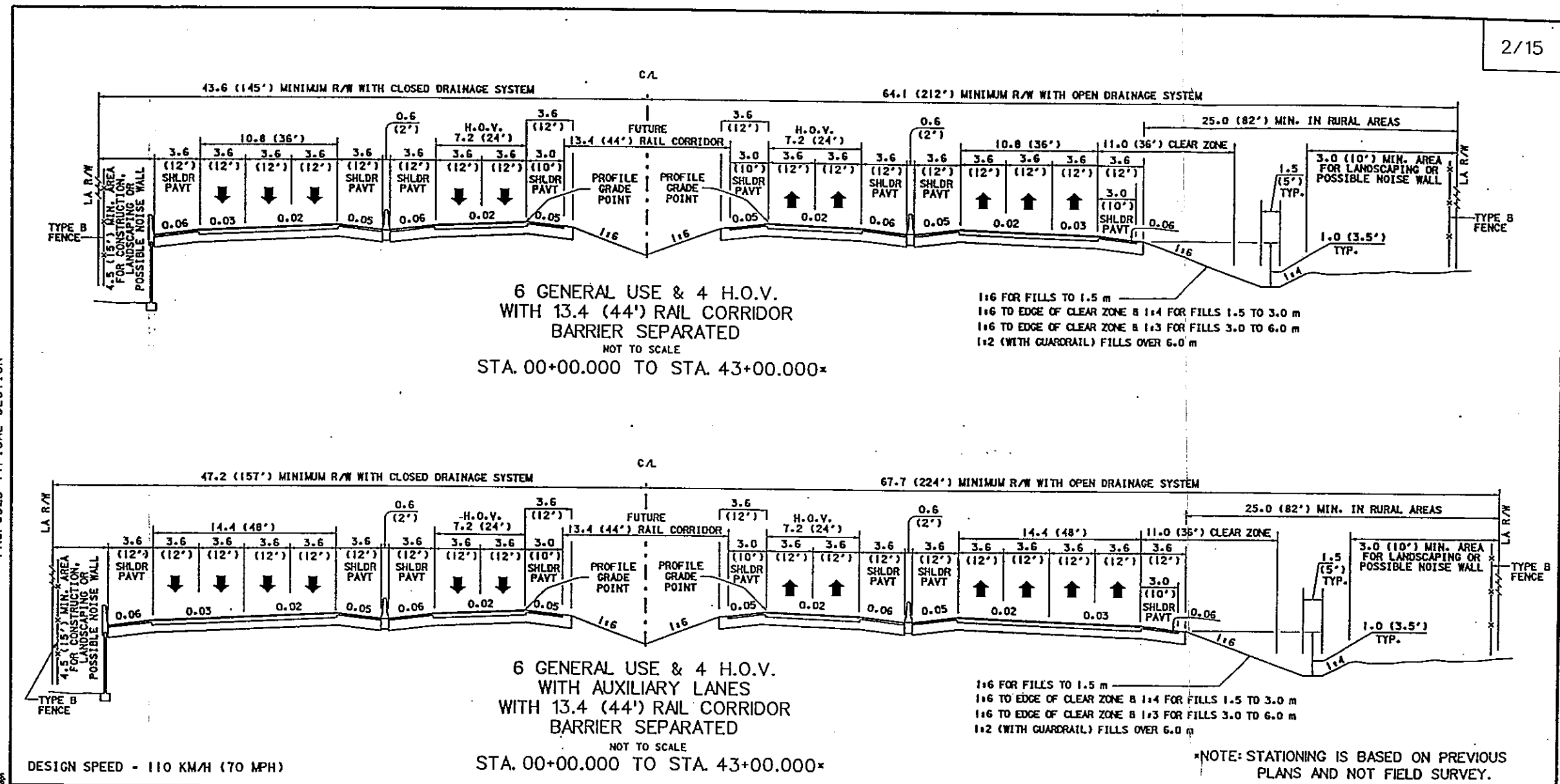
This PD&E study further evaluated the typical sections recommended in the I-4 MMMP, since this study considers a more detailed focus on actual typical sections and alignments rather than on the corridor level. Further coordination within FDOT concerning the transition between the I-4 typical section in District One versus District Five's typical has led to modifications to the typical sections for Section 1 (Figure 3):

- Six general use and four special use lanes (6+4) from C.R. 532 to southwest of World Drive;
- Six general use and two HOV lanes (6+2) from southwest of World Drive to northeast of Lake Avenue; and
- Six general use and four HOV lanes (6+4) from northeast of Lake Avenue to the BeeLine Expressway.

The special use lanes southwest of World Drive continue the treatment in District One, which permits long distance through single occupant vehicles (SOV) and local HOV2+. Moving the transition between special use and HOV to the south end of World Drive allows a direct connection to the Southern Connector/Central Florida Greenway (S.R. 417), better implementing the intent of the I-4 MMMP as well as to World Drive for access to Walt Disney World and return to I-4 via the CD roadway system. Throughout the remainder of Section 1, SOVs and HOV2+ must use the general use lanes; the HOV/special use lanes are limited to HOV3+. The I-4 MMMP also discussed the need to preserve the potential for 6+4 outside the beltway system.

The transition between the District One and Five typical sections has been further coordinated with the Districts. It was agreed that the transition at the Polk/Osceola County line should be re-evaluated. The I-4 MMMP typical section of 6+2 was planned to begin at the Polk/Osceola County line. This I-4 Section 1 PD&E study has reviewed the location of the transition from 6+4 to 6+2. Through further coordination with Districts One and Five, this transition was moved further east to the World Drive interchange. This transition serves three purposes. First, it allows a direct connection to the World Drive interchange and the Walt Disney World resort area without requiring traffic to weave across the general use lanes, which are anticipated to be congested during peak periods. Second, it allows through trips access to the Southern Connector/Central Florida Greenway (S.R. 417), which serves as a bypass route in the Orlando area and serves trips to the airport and the east side of the metropolitan area. Finally, it allows traffic to return to the general use lanes.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PROPOSED TYPICAL SECTION



COUNTY	ROAD NO.	LENGTH	TERMINI	SECTION	JOB	EST. COST
OSCEOLA	SR400 (I-4)	2.680 KM (7.88 MI.)	STA. 00+00.00 TO STA. 126+80.00 POLK / OSCEOLA COUNTY LINE TO OSCEOLA/ORANGE COUNTY LINE	92130	1425	171.8 M (CONSTRUCTION)
FEDERAL AID PROJECT NO.	WPI NO.	FINANCIAL PROJECT ID	APPROVED BY	CONCURRENCE:	CONCURRENCE:	
NA	5147330	242526-1	<i>John H. Freeman</i> DATE: August 21, 1988	DISTRICT DESIGN ENGINEER	FHWA DISTRICT ENGINEER	

FIGURE 3

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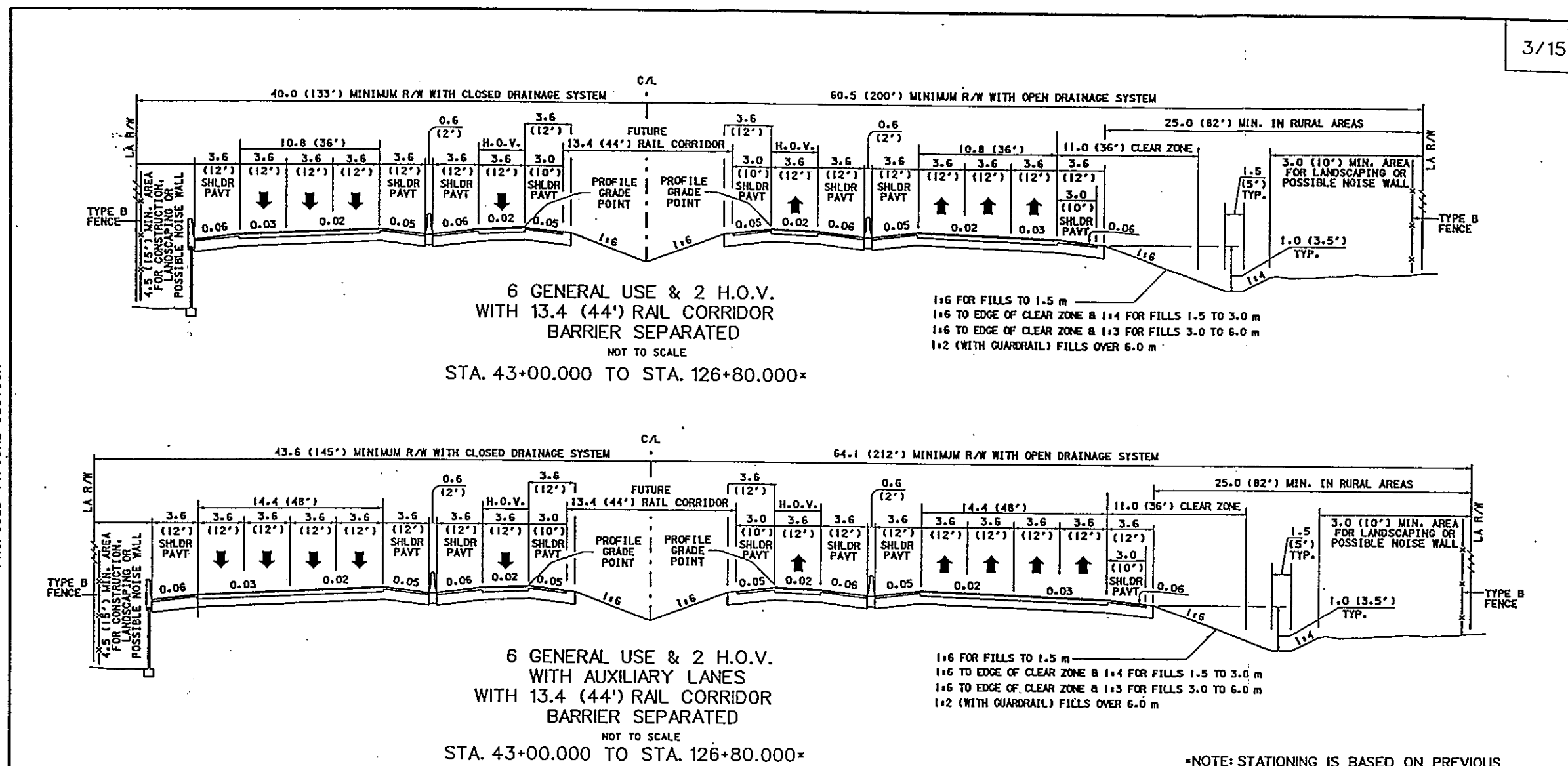
REVISIONS							
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY

HNTB ARCHITECTS ENGINEERS PLANNERS

FLORIDA DEPARTMENT OF TRANSPORTATION

I-4 PD & E
TYPICAL SECTIONS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PROPOSED TYPICAL SECTION



COUNTY	ROAD NO.	LENGTH	TERMINI	SECTION	JOB	EST. COST
OSCEOLA	SR400 (I-4)	12.680 KM (7.88 MI)	STA. 00+00.000 TO STA. 126+80.000 POLK / OSCEOLA COUNTY LINE TO OSCEOLA / ORANGE COUNTY LINE	92130	1425	171.8 M (CONSTRUCTION)
FEDERAL AID PROJECT NO.	WPI NO.	FINANCIAL PROJECT ID	APPROVED BY	CONCURRENCE	CONCURRENCE	
NA	5147330	242526-1	<i>John V. ...</i> CONSULTANT DATE: August 21, 1996	DISTRICT DESIGN ENGINEER	FHWA DISTRICT ENGINEER	

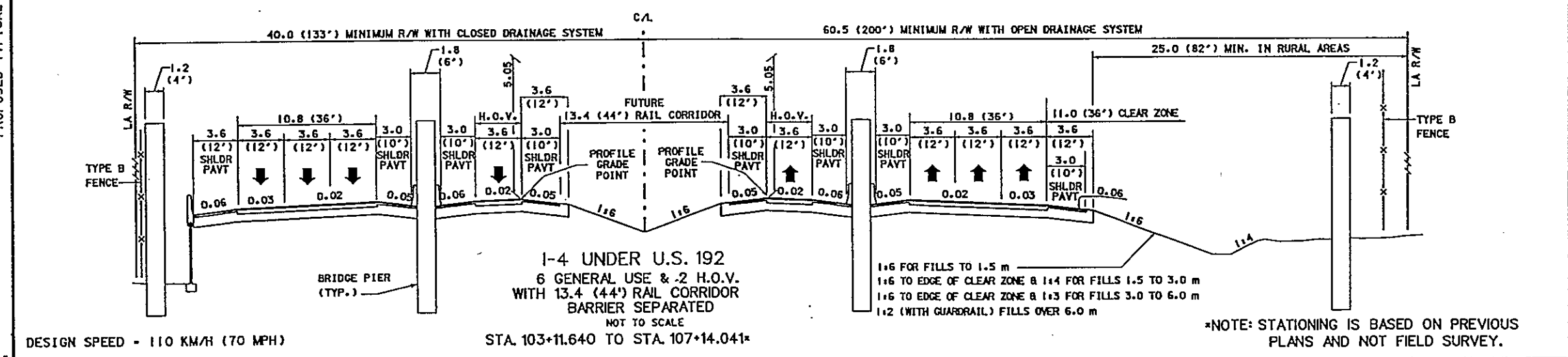
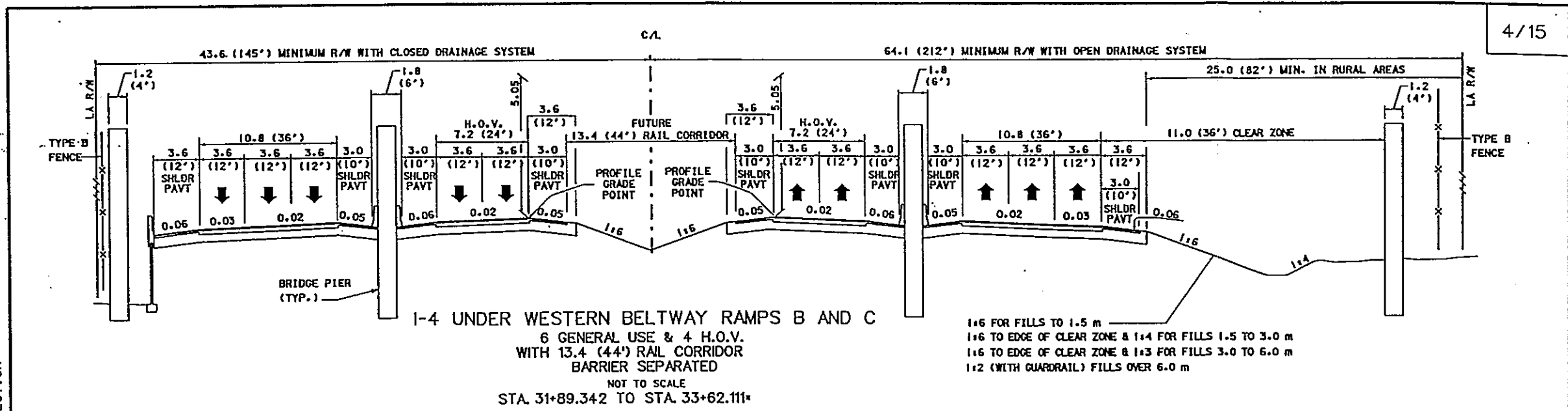
FIGURE 3 (CONT)

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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HNTB ARCHITECTS ENGINEERS PLANNERS	FLORIDA DEPARTMENT OF TRANSPORTATION	I-4 PD & E TYPICAL SECTIONS
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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PROPOSED TYPICAL SECTION



*NOTE: STATIONING IS BASED ON PREVIOUS PLANS AND NOT FIELD SURVEY.

COUNTY OSCEOLA	ROAD NO. SR400 (I-4)	LENGTH 2.680 KM (7.88 MI.)	TERMINI STA. 100+00.000 TO STA. 126+80.000 POLK / OSCEOLA COUNTY LINE TO OSCEOLA / ORANGE COUNTY LINE	SECTION 92130	JOB 1425	EST. COST 171.8 M (CONSTRUCTION)
FEDERAL AID PROJECT NO. NA	WPI NO. 5147330	FINANCIAL PROJECT ID 242526-1	APPROVED BY <i>John R. [Signature]</i> CONSULTANT August 21, 1998 DATE	CONCURRENCE: DISTRICT DESIGN ENGINEER DATE	CONCURRENCE: FHWA DISTRICT ENGINEER DATE	

FIGURE 3 (CONT)

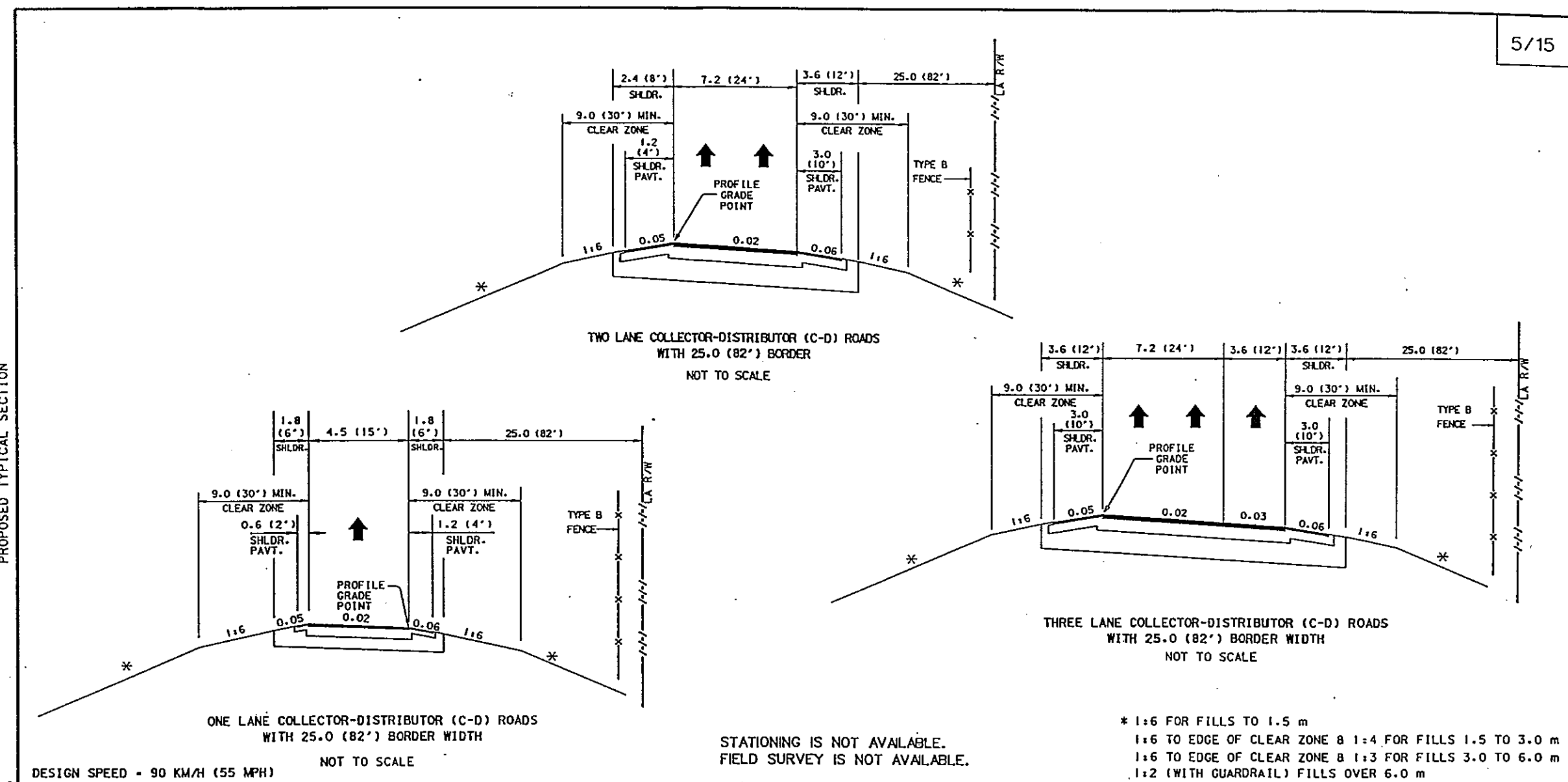
DATE		BY		DESCRIPTION		DATE		BY		DESCRIPTION	

HNTB ARCHITECTS ENGINEERS PLANNERS

FLORIDA DEPARTMENT OF TRANSPORTATION

I-4 PD & E TYPICAL SECTIONS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PROPOSED TYPICAL SECTION



COUNTY	ROAD NO.	LENGTH	TERMINI	SECTION	JOB	EST. COST
OSCEOLA	SR400 (I-4)	2.680 KM (7.88 MI.)	STA. 00+00.000 TO STA. 126+80.000 POLK / OSCEOLA COUNTY LINE TO OSCEOLA / ORANGE COUNTY LINE	92130	1425	171.8 M (CONSTRUCTION)
FEDERAL AID PROJECT NO.	WPI NO.	FINANCIAL PROJECT ID	APPROVED BY	CONCURRENCE	CONCURRENCE	
NA	5147330	242526-1	<i>John R. Sullivan</i> CONSULTANT DATE: August 24, 1996	DISTRICT DESIGN ENGINEER	FHWA DISTRICT ENGINEER	

FIGURE 3 (CONT)

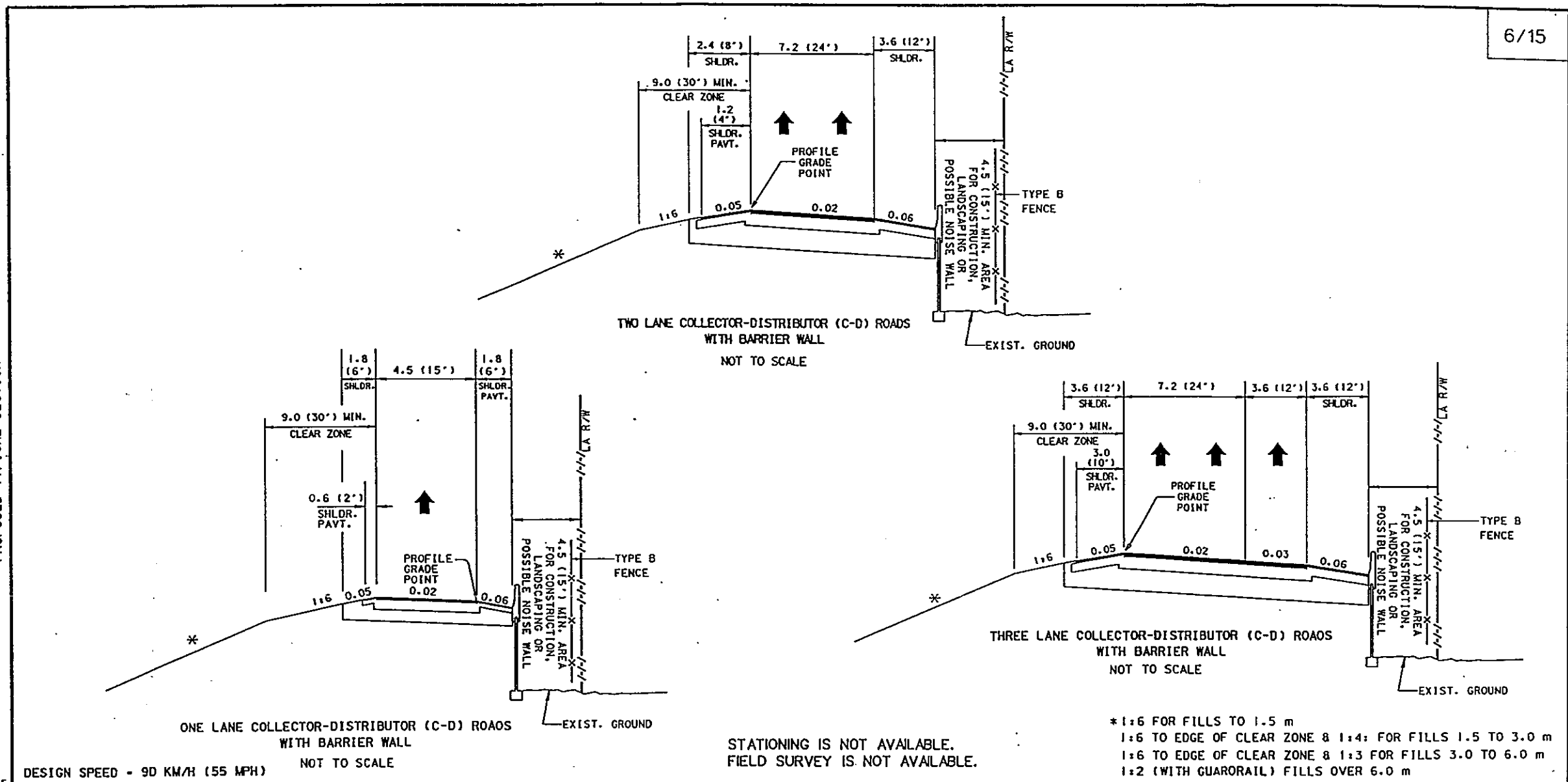
REVISIONS							
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY

HNTB ARCHITECTS
ENGINEERS
PLANNERS

FLORIDA DEPARTMENT OF
TRANSPORTATION

I-4 PD & E
TYPICAL SECTIONS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PROPOSED TYPICAL SECTION



STATIONING IS NOT AVAILABLE.
FIELD SURVEY IS NOT AVAILABLE.

* 1:6 FOR FILLS TO 1.5 m
1:6 TO EDGE OF CLEAR ZONE & 1:4 FOR FILLS 1.5 TO 3.0 m
1:6 TO EDGE OF CLEAR ZONE & 1:3 FOR FILLS 3.0 TO 6.0 m
1:2 (WITH GUARORAIL) FILLS OVER 6.0 m

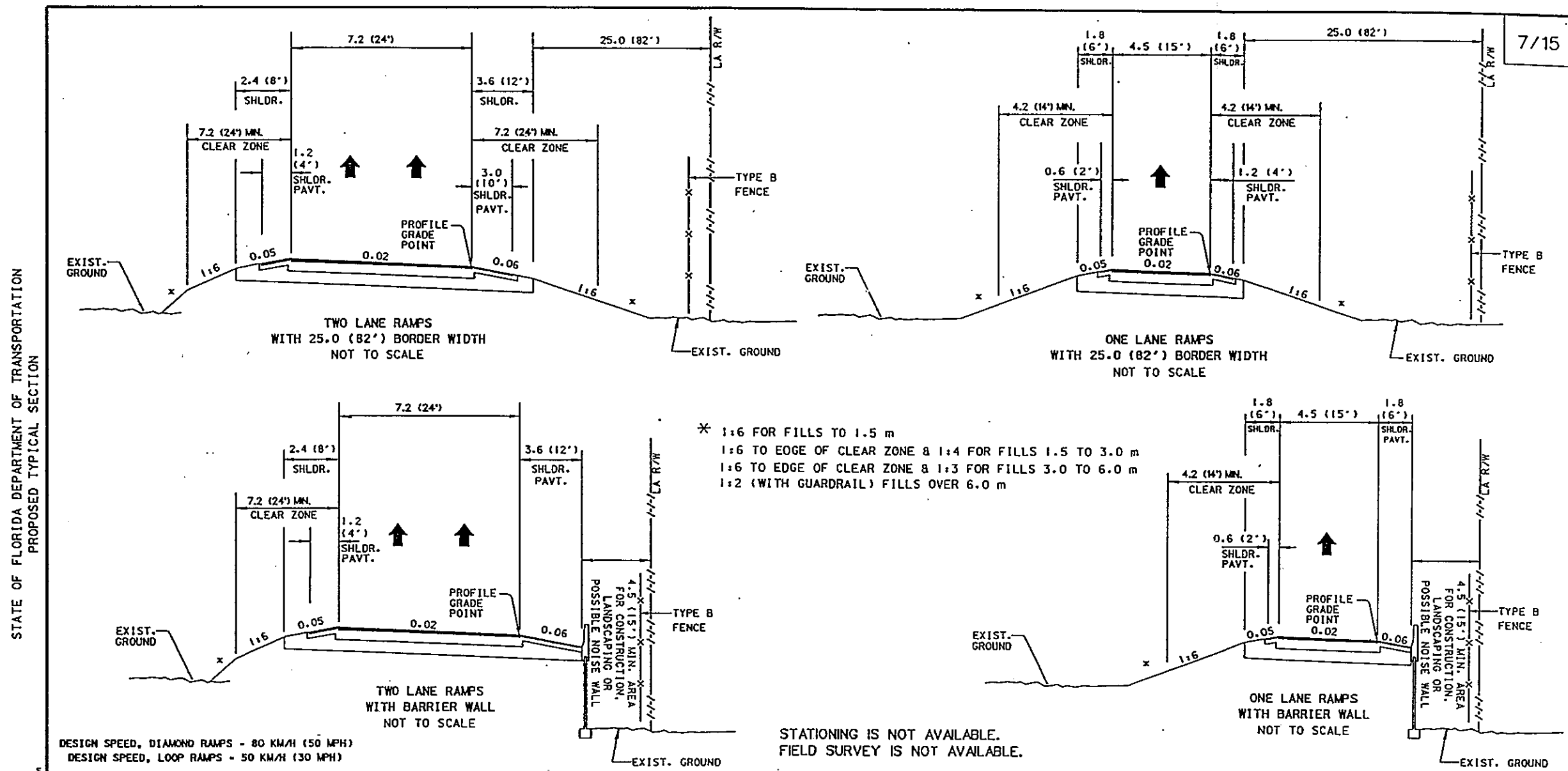
COUNTY OSCEOLA	ROAD NO. SR400 (I-4)	LENGTH 2.680 KM (7.88 MI.)	TERMINI POLK / OSCEOLA COUNTY LINE TO OSCEOLA / ORANGE COUNTY LINE	SECTION 92130	JOB 1425	EST. COST 171.8 M (CONSTRUCTION)
FEDERAL AID PROJECT NO. NA	WPI NO. 5147330	FINANCIAL PROJECT ID 242526-1	APPROVED BY <i>[Signature]</i> DATE: August 21, 1996	CONCURRENCE: DISTRICT DESIGN ENGINEER DATE:	CONCURRENCE: FHWA DISTRICT ENGINEER DATE:	

FIGURE 3 (CONT)

04-AUG-1996 2:43 PM C:\P\1425\SR400\I4\FIG3\FIG3.DGN
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DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY

HNTB	ARCHITECTS ENGINEERS PLANNERS	FLORIDA DEPARTMENT OF TRANSPORTATION	I-4 PD & E TYPICAL SECTIONS
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DESIGN SPEED, DIAMOND RAMPS - 80 KM/H (50 MPH)
 DESIGN SPEED, LOOP RAMPS - 50 KM/H (30 MPH)

COUNTY	ROAD NO.	LENGTH	TERMINI	SECTION	JOB	EST. COST
OSCEOLA	SR400 (I-4)	2.680 KM (7.88 MI.)	STA. 00+00.000 TO STA. 126+80.000 POLK / OSCEOLA COUNTY LINE TO OSCEOLA / ORANGE COUNTY LINE	92130	1425	171.8 M (CONSTRUCTION)
FEDERAL AID PROJECT NO.	WPI NO.	FINANCIAL PROJECT ID	APPROVED BY	CONCURRENCE	CONCURRENCE	
NA	5147330	242526-1	<i>[Signature]</i> DATE: August 21, 1996	DISTRICT DESIGN ENGINEER	FHWA DISTRICT ENGINEER	

FIGURE 3 (CONT)

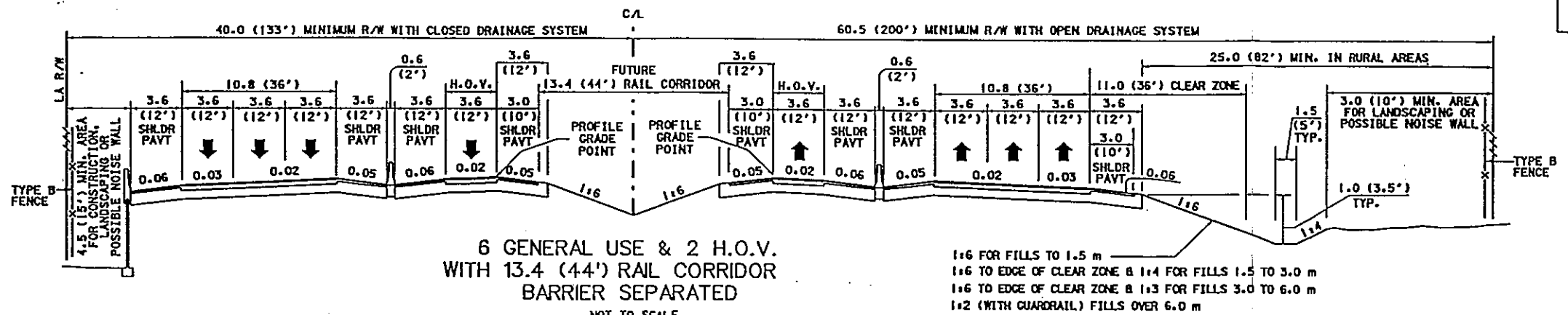
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HNTB ARCHITECTS
 ENGINEERS
 PLANNERS

FLORIDA DEPARTMENT OF
 TRANSPORTATION

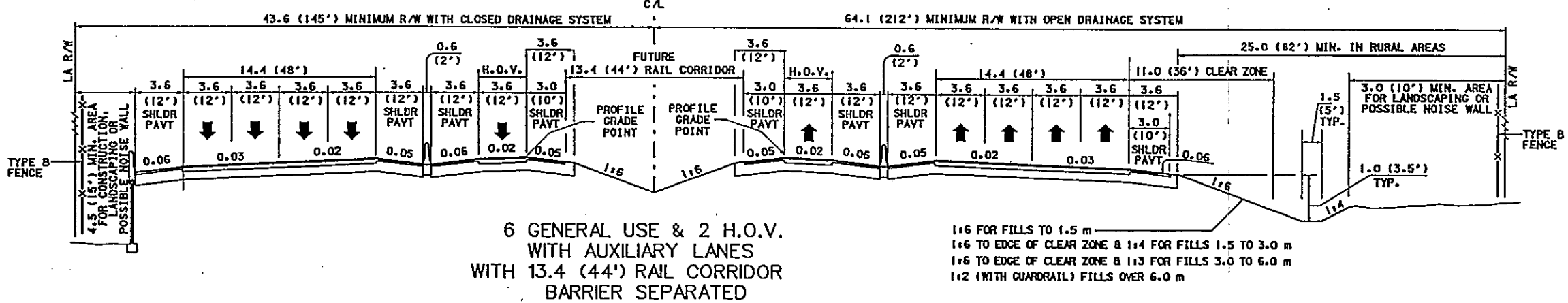
I-4 PD & E
 TYPICAL SECTIONS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PROPOSED TYPICAL SECTION



6 GENERAL USE & 2 H.O.V.
WITH 13.4 (44') RAIL CORRIDOR
BARRIER SEPARATED
NOT TO SCALE
STA. 126+80.000 TO STA. 206+20.000*

1:6 FOR FILLS TO 1.5 m
1:6 TO EDGE OF CLEAR ZONE & 1:4 FOR FILLS 1.5 TO 3.0 m
1:6 TO EDGE OF CLEAR ZONE & 1:3 FOR FILLS 3.0 TO 6.0 m
1:2 (WITH GUARDRAIL) FILLS OVER 6.0 m



6 GENERAL USE & 2 H.O.V.
WITH AUXILIARY LANES
WITH 13.4 (44') RAIL CORRIDOR
BARRIER SEPARATED
NOT TO SCALE
STA. 126+80.000 TO STA. 206+20.000*

1:6 FOR FILLS TO 1.5 m
1:6 TO EDGE OF CLEAR ZONE & 1:4 FOR FILLS 1.5 TO 3.0 m
1:6 TO EDGE OF CLEAR ZONE & 1:3 FOR FILLS 3.0 TO 6.0 m
1:2 (WITH GUARDRAIL) FILLS OVER 6.0 m

DESIGN SPEED - 110 KM/H (70 MPH)

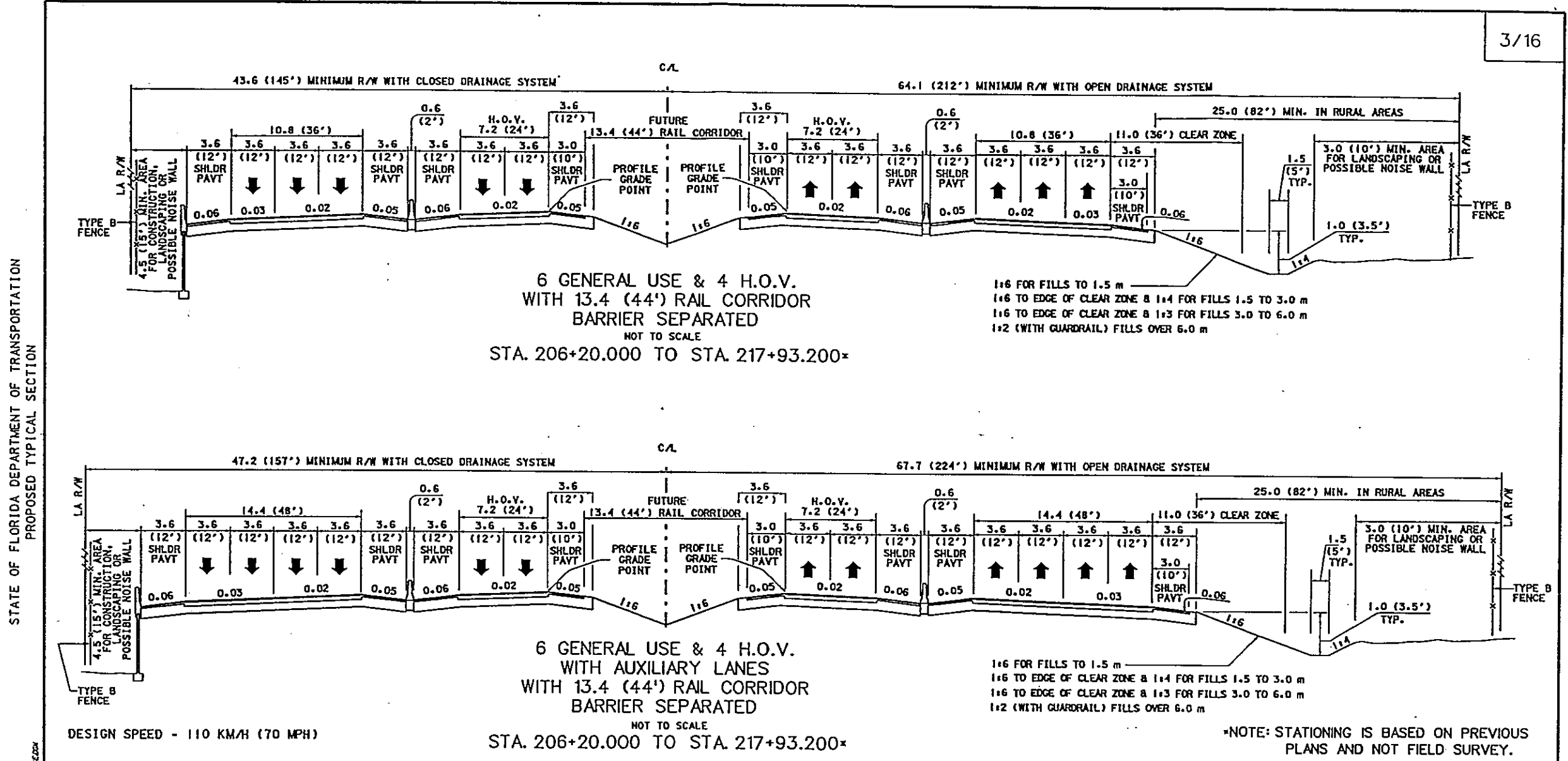
*NOTE: STATIONING IS BASED ON PREVIOUS PLANS AND NOT FIELD SURVEY.

COUNTY	ROAD NO.	LENGTH	TERMINI	SECTION	JOB	EST. COST
ORANGE	SR400 (I-4)	9.113 KM (5.66 MI)	STA. 126+80.000 TO STA. 217+93.200 OSCEOLA/ORANGE COUNTY LINE TO WEST OF THE BEELINE EXPRESSWAY	75280	1479	147.3 M (CONSTRUCTION)
FEDERAL AID PROJECT NO.	WPI NO.	FINANCIAL PROJECT ID	APPROVED BY	CONCURRENCE:	CONCURRENCE:	
NH-4-2 (169) 65	5147254	242483-1	<i>[Signature]</i> DATE: August 21, 1996	DISTRICT DESIGN ENGINEER	FHWA DISTRICT ENGINEER	

FIGURE 3 (CONT)

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HNTB ARCHITECTS ENGINEERS PLANNERS
FLORIDA DEPARTMENT OF TRANSPORTATION
I-4 PD 8 E
TYPICAL SECTIONS



STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PROPOSED TYPICAL SECTION

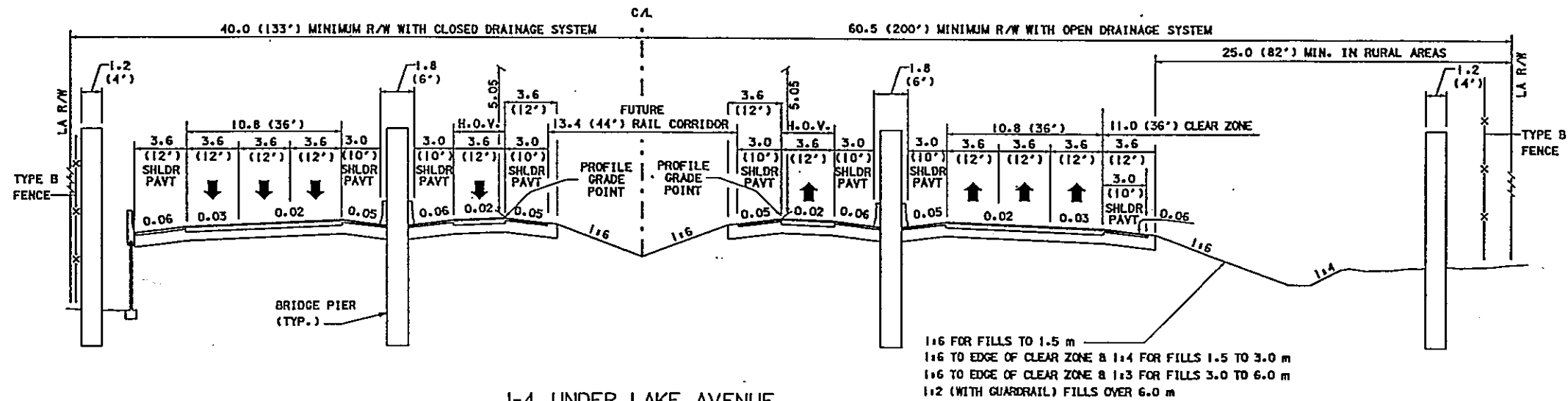
COUNTY	ROAD NO.	LENGTH	TERMINI	SECTION	JOB	EST. COST
ORANGE	SR400 (I-4)	9.113 KM (5.66 MI.)	STA. 126+80.000 TO STA. 217+93.200 OSCEOLA / ORANGE COUNTY LINE TO WEST OF THE BEELINE EXPRESSWAY (S.R. 528)	75280	1479	147.3 M (CONSTRUCTION)
FEDERAL AID PROJECT NO.	WPI NO.	FINANCIAL PROJECT ID	APPROVED BY	CONCURRENCE	CONCURRENCE	
NH-4-2 (169) 65	5147254	242483-1	<i>[Signature]</i> DATE: August 20, 1998	DISTRICT DESIGN ENGINEER	FHWA DISTRICT ENGINEER	

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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HNTB ARCHITECTS ENGINEERS PLANNERS
FLORIDA DEPARTMENT OF TRANSPORTATION
I-4 PD & E TYPICAL SECTIONS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PROPOSED TYPICAL SECTION



I-4 UNDER LAKE AVENUE
6 GENERAL USE & 2 H.O.V.
WITH 13.4 (44') RAIL CORRIDOR
BARRIER SEPARATED
NOT TO SCALE
STA 188+52.638 TO STA 189+82.188*

DESIGN SPEED - 110 KM/H (70 MPH)

*NOTE: STATIONING IS BASED ON PREVIOUS PLANS AND NOT FIELD SURVEY.

COUNTY	ROAD NO.	LENGTH	TERMINI	SECTION	JOB	EST. COST
ORANGE	SR400 (I-4)	9.113 KM (5.66 MI.)	STA. 126+80.000 TO STA. 217+93.200 OSCEOLA/ORANGE COUNTY LINE TO WEST OF THE BEELINE EXPRESSWAY (S.R. 528)	75280	1479	147.3 M (CONSTRUCTION)
FEDERAL AID PROJECT NO.	WPI NO.	FINANCIAL PROJECT ID	APPROVED BY	CONCURRENCE	CONCURRENCE	
NH-4-2 (169) 65	5147254	242483-1	<i>[Signature]</i> August 21, 1918	DISTRICT DESIGN ENGINEER	FHWA DISTRICT ENGINEER	
			DATE	DATE	DATE	

FIGURE 3 (CONT)

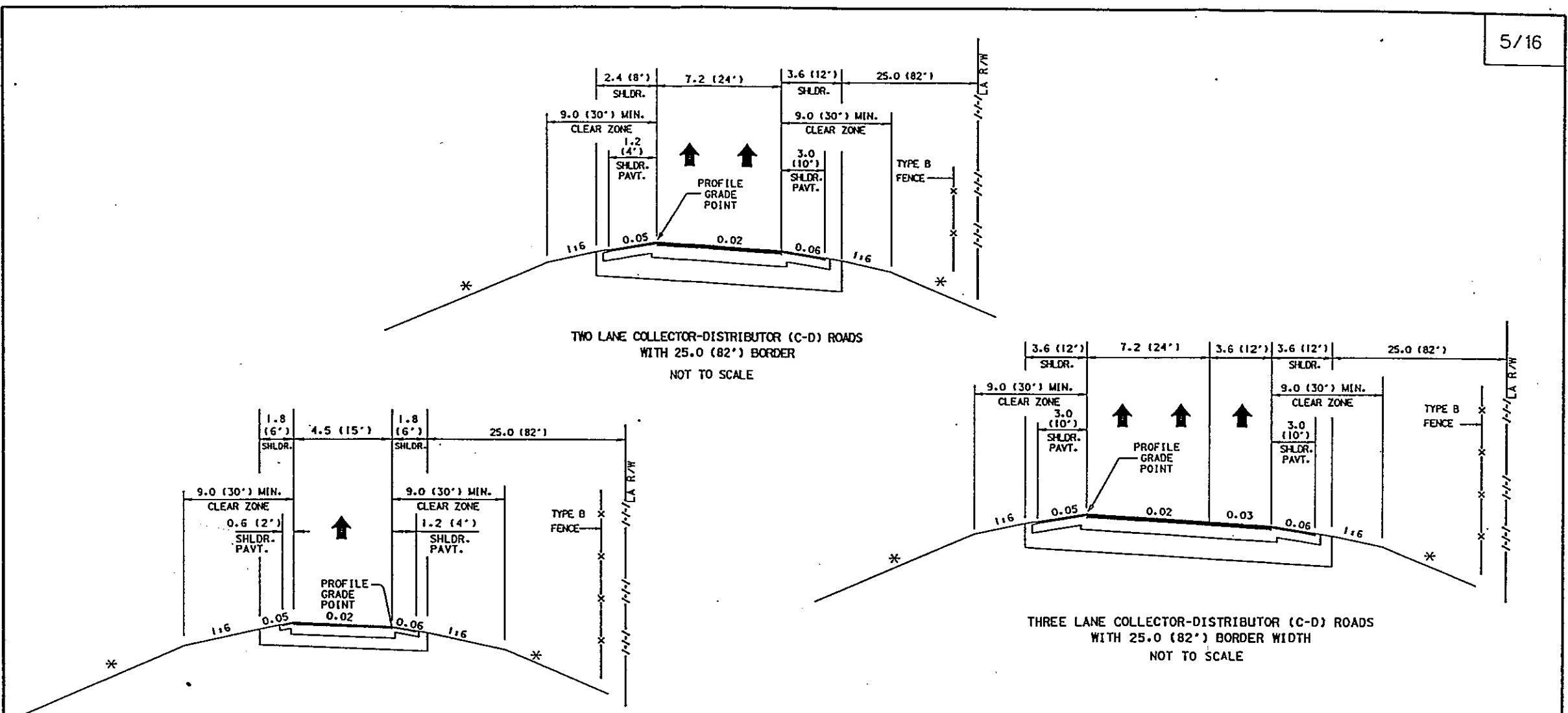
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HNTB ARCHITECTS
ENGINEERS
PLANNERS

FLORIDA DEPARTMENT OF
TRANSPORTATION

I-4 PD & E
TYPICAL SECTIONS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PROPOSED TYPICAL SECTION



DESIGN SPEED - 90 KM/H (55 MPH) NOT TO SCALE

STATIONING IS NOT AVAILABLE. FIELD SURVEY IS NOT AVAILABLE.

* 1:6 FOR FILLS TO 1.5 m
 1:6 TO EDGE OF CLEAR ZONE & 1:4 FOR FILLS 1.5 TO 3.0 m
 1:6 TO EDGE OF CLEAR ZONE & 1:3 FOR FILLS 3.0 TO 6.0 m
 1:2 (WITH GUARDRAIL) FILLS OVER 6.0 m

COUNTY	ROAD NO.	LENGTH	TERMINI	SECTION	JOB	EST. COST
ORANGE	SR400 (I-4)	9.113 KM (5.66 MI.)	STA. 126+80.000 TO STA. 217+93.200 OSCEOLA/ORANGE COUNTY LINE TO WEST OF THE BEELINE EXPRESSWAY (S.R. 528)	75280	1479	147.3 M (CONSTRUCTION)
FEDERAL AID PROJECT NO.	WPI NO.	FINANCIAL PROJECT ID	APPROVED BY	CONCURRENCE:	CONCURRENCE:	
NH-4-2 (169) 65	5147254	242483-1	<i>John W. ...</i> DATE: August 21, 1998	DISTRICT DESIGN ENGINEER	FHWA DISTRICT ENGINEER	

FIGURE 3 (CONT)

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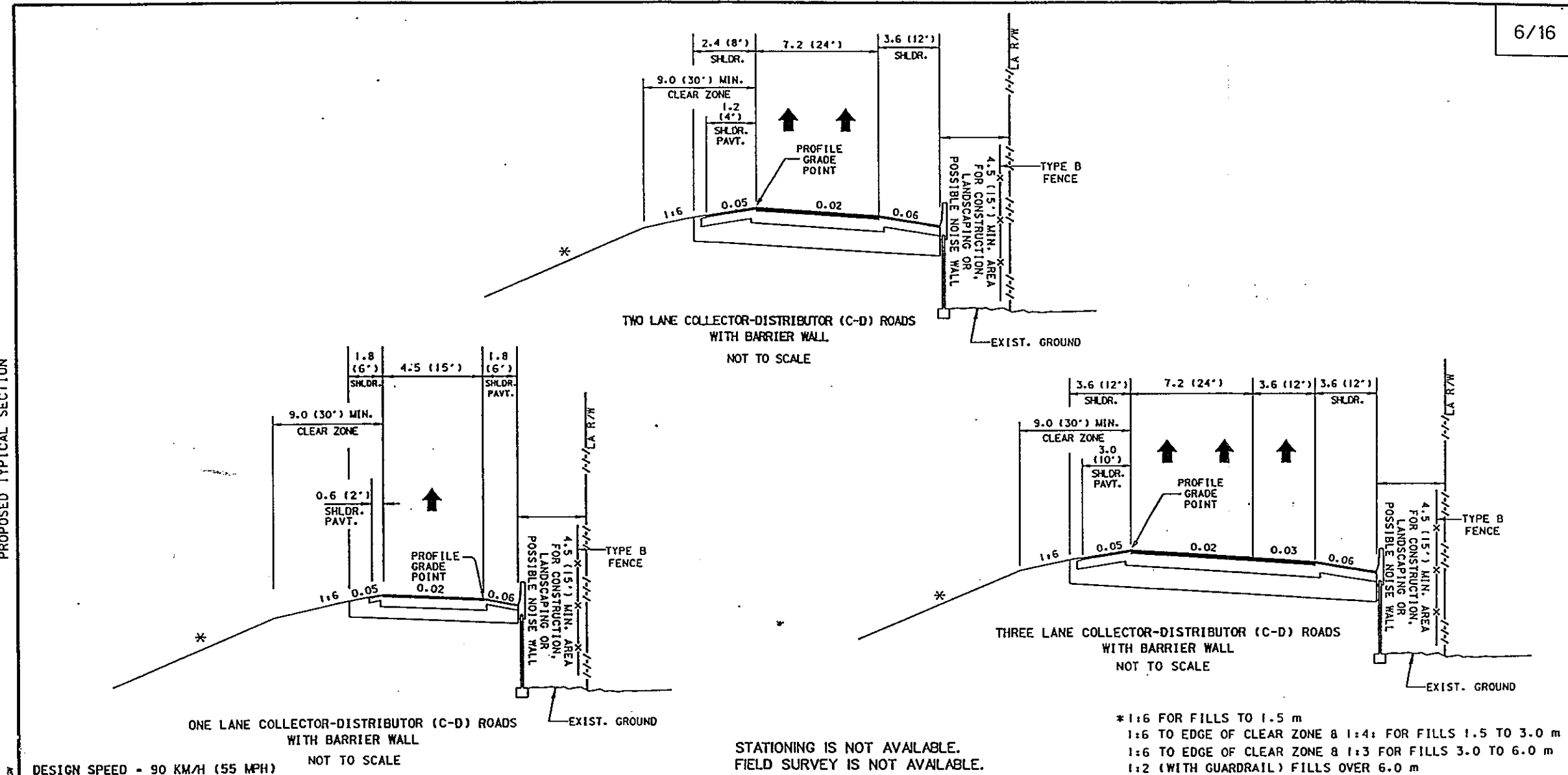
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HNTB ARCHITECTS
ENGINEERS
PLANNERS

FLORIDA DEPARTMENT OF
TRANSPORTATION

I-4 PD & E
TYPICAL SECTIONS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PROPOSED TYPICAL SECTION



COUNTY	ROAD NO.	LENGTH	TERMINI	SECTION	JOB	EST. COST
ORANGE	SR400 (I-4)	9.113 KM (5.66 MI.)	STA. 126+80.000 TO STA. 217+93.200 OSCEOLA/ORANGE COUNTY LINE TO WEST OF THE BEELINE EXPRESSWAY (S.R. 528)	75280	1479	147.3 M (CONSTRUCTION)
FEDERAL AID PROJECT NO.	WPI NO.	FINANCIAL PROJECT ID	APPROVED BY	CONCURRENCE	CONCURRENCE	
NH-4-2 (169) 65	5147254	242483-1	<i>John R. Sullivan</i> August 21, 1990	DISTRICT DESIGN ENGINEER	FHWA DISTRICT ENGINEER	
			DATE:	DATE:	DATE:	

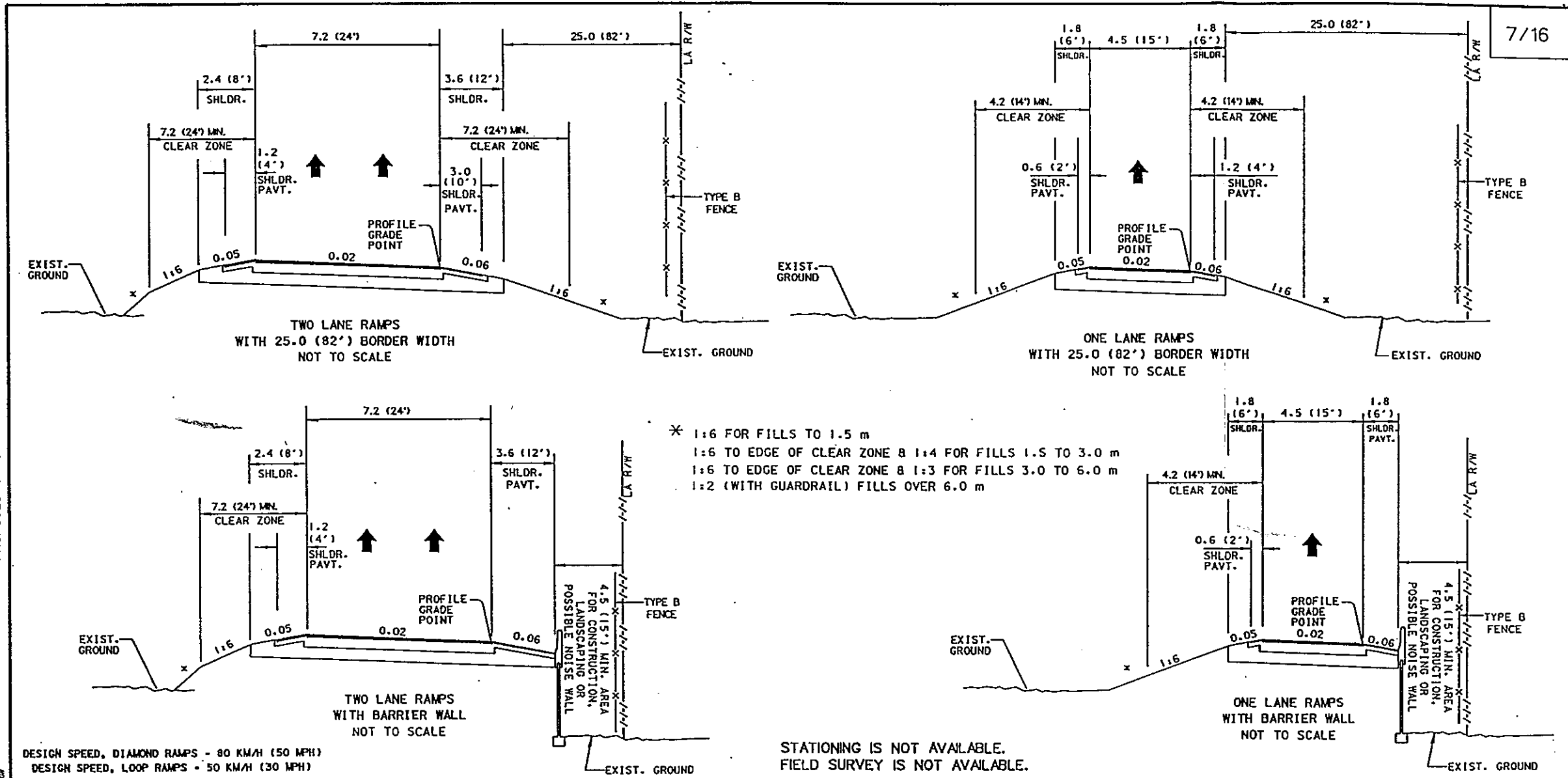
FIGURE 3 (CONT)

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DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY

HNTB ARCHITECTS ENGINEERS PLANNERS
FLORIDA DEPARTMENT OF TRANSPORTATION
I-4 PD & E
TYPICAL SECTIONS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PROPOSED TYPICAL SECTION



DESIGN SPEED, DIAMOND RAMPS - 80 KM/H (50 MPH)
DESIGN SPEED, LOOP RAMPS - 50 KM/H (30 MPH)

STATIONING IS NOT AVAILABLE.
FIELD SURVEY IS NOT AVAILABLE.

COUNTY ORANGE	ROAD NO. SR400 (I-4)	LENGTH 9.113 KM (5.66 MI.)	TERMINI STA. 126+80.000 TO STA. 217+93.200 OSCEOLA/ORANGE COUNTY LINE TO WEST OF THE BEELINE EXPRESSWAY (S.R. 528)	SECTION 75280	JOB 1479	EST. COST 147.3 M. (CONSTRUCTION)
FEDERAL AID PROJECT NO. NH-4-2 (169) 65	WPI NO. 5147254	FINANCIAL PROJECT ID 242483-1	APPROVED BY: <i>John P. Friedman</i> CONSULTANT August 21, 1996 DATE:	CONCURRENCE: DISTRICT DESIGN ENGINEER DATE:	CONCURRENCE: FHWA DISTRICT ENGINEER DATE:	

FIGURE 3 (CONT)

REVISIONS							
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY

HNTB ARCHITECTS ENGINEERS PLANNERS
FLORIDA DEPARTMENT OF TRANSPORTATION
I-4 PD & E TYPICAL SECTIONS

The relocated transition resolves the previous issues, which are explained as follows. The urban service area begins east of C.R. 545, which is between the Western Beltway and World Drive interchanges. The I-4 MMMP-projected HOV volumes showed this lane to be underutilized between C.R. 532 and World Drive. By extending the special use treatment to World Drive, the transition to HOV3+ would occur at the first interchange within the urban service area, where the volumes first begin to warrant this HOV treatment. This will provide significant additional capacity to the I-4 segment between the Western Beltway and Southern Connector (Central Florida Greenway) connections. The placement of four special use lanes to the World Drive interchange creates six general use, four special use, and two ramp-to-ramp auxiliary lanes in this area. Between World Drive and the Southern Connector, the I-4 typical section is reduced to six general use lanes and two HOV lanes, but a CD system into the Southern Connector varies between two and four lanes. The combination of these facilities provides significantly improved service between these two beltway facilities. By extending the special use lanes to World Drive, general use lane operations are improved due to the diversion of traffic from the general use lanes to the special use lanes. This also better serves the beltway to beltway connection, which enhances these ramp to ramp operations.

This point of transition provides a more logical terminus for the 6+4 typical section than the Polk/Osceola County line. In the I-4 MMMP concept, all vehicles with less than three occupants (SOV and HOV2) plus traffic exiting at World Drive and Southern Connector would have had to exit the special use lanes at the county line, which is expected to be a large volume for one slip ramp. However, the transition at World Drive separates the movements heading for World Drive and the Southern Connector/Central Florida Greenway (S.R. 417) from the traffic heading to the general use lanes, along the CD road.

The I-4 MMMP-recommended typical section provided a painted buffer separation between the HOV lane and general use lanes from the Polk/Osceola County line to Lake Avenue. Northeast of Lake Avenue, with the additional HOV lane in each direction (6+4), the I-4 MMMP recommended that barrier separation be provided. Consistent with this recommended treatment, the separation treatment was changed to be barrier between the Polk/Osceola County line and World Drive, corresponding with the change in typical section from 6+2 to 6+4. As a result of this change, this left a relatively short section (World Drive to Lake Avenue) of potential buffer separation treatment. Upon re-evaluation of the two separation treatments, the barrier separation was chosen for the 6+2 section for the following reasons:

- The barrier separation provides better system continuity because barrier separation is provided throughout District One (Polk County) and a majority of this study area.
- The I-4 corridor in Section 1 is heavily traveled by tourists and typically has higher vehicle occupancy rates. Therefore, the HOV lanes have a higher level of opportunity of being used by a driver unfamiliar with the area. The barrier separation affords better control of traffic entering and exiting the HOV system.

- The barrier separation better facilitates HOV enforcement by having shoulders on both sides of the HOV lane. Further, the physical separation will aid general use lane flow when a HOV violation stop is made.

Although the general use lanes will remain at LOS F for most segments, corridor mobility will be greatly enhanced by the addition of the HOV lanes, the inclusion of additional CD roadways and interchange improvements. Further, the corridor will provide a 13.4 m (44 ft.) wide rail envelope for future rail considerations. While the LRT has decided that any improvements will be outside the I-4 median, the HSR EIS is presently evaluating this envelope as an alternative alignment location.

The existing mainline typical sections for I-4 Section 1 have 91.4 m (300 ft.) of right-of-way. These are discussed in Section 4.1.2 of the Preliminary Engineering Report and shown in Exhibit 4-2 of that report. The proposed typical sections, as shown on Figure 3, require a minimum of 80.0 m (266 ft.) to a maximum of 135.4 m (448 ft.) of right-of-way. The required right-of-way varies depending on the number of HOV lanes, the presence of auxiliary lanes and whether a closed or open drainage system is used.

Special Use Lanes

The 6+4 typical section proposed in District One will provide six general use lanes and four special use lanes with a 13.4-meter-wide (44 feet) median to accommodate HSR. The special use lanes will accommodate local HOV2+ and interregional SOV. This typical will begin at the Hillsborough/Polk County line at the end of the Tampa urban service boundary and continue to the Polk/Osceola County line (District One/District Five boundary). Access to the special use lanes is limited in Polk County to the following slip ramp locations, which is explained in more detail below.

- Between the C.R. 582 and S.R. 33 interchanges,
- West of the proposed Polk County Parkway (East) interchange,
- Between the Polk County Parkway (East) and U.S. 27 interchanges, and
- In the area of the Polk/Osceola County line or the I-4/C.R. 532 interchange.

The selection of these locations was based on a minimum spacing of 4.8 km (3.0 miles), demand at major destinations in the corridor, the spacing of interchanges, mainline geometry and the potential for environmental impacts. Weaving analysis was also used to determine the minimum distance from adjacent interchanges for acceptable operations.

The first location serves the special use demand from the Lakeland interchanges at Kathleen Road, U.S. 98 and C.R. 582, approximately 16 km (10 miles) east of the Hillsborough/Polk County line. The slip ramps at this location provide special use lane access to and from the east along I-4. The second location is west of the proposed Polk County Parkway (East) interchange, approximately 6.3 km (3.9 miles) from the first location. This location provides special use lane access to and from the west. The next location serves demand from the Polk

County Parkway (East) interchange and was originally planned between the S.R. 559 and C.R. 557 interchanges. Due to physical, geometric and environmental constraints, the eastbound and westbound slip ramps will not be adjacent. Access to the special use lanes is provided to and from the east. The fourth slip ramp location was planned in the area of the Polk/Osceola County line (near the I-4/C.R. 532 interchange) to provide a transition between the District One and Five typical sections. A precise location was not specified for this slip ramp pair. However, a LOS analysis conducted as part of the I-4 Polk County PD&E Study showed that the I-4 general use lanes east of this slip ramp pair would be unacceptable. The Preliminary Engineering Report for the I-4 District One PD&E study stated that the location of this slip ramp may be affected by the results of the I-4 MMMP conducted in District Five.

The relocation of the transition to the 6+2 typical section to World Drive will not accommodate the traffic exiting the special use lanes at the Polk/Osceola County line which desire access to the Western Beltway. Also, there is a significant volume of traffic that enters at U.S. 27 in the eastbound direction or exits to U.S. 27 in the westbound direction. These two considerations prompted the addition of two special use lane access points in Polk County. A slip ramp was added west of U.S. 27 to allow eastbound special use lane traffic to weave across the general use lanes to exit at U.S. 27, C.R. 532 and the Western Beltway. A slip ramp was added east of U.S. 27 to allow traffic from U.S. 27 and heading eastbound on I-4 to enter the special use lanes. A complementary ramp was added in the westbound direction in roughly the same locations as the eastbound ramps to accommodate the complementary movements.

Study Segments

Corridor analysis and alternative roadway alignments were covered in the I-4 MMMP and the MIS. Both of those studies focused on the full 119 km (74 miles) I-4 corridor in District Five. While the corridor analysis within those studies was sufficient to be carried forward into this PD&E study, alternative roadway alignments are given further study. Within the I-4 MMMP, there was considered to be no other reasonable alternative corridor for I-4 due to the extensive development. Therefore, the alternative roadway alignments developed in this PD&E study are within the existing I-4 corridor.

The I-4 Section 1 study area has been divided into four segments. Roadway improvement alternatives/options for each segment are described below. Plan and profile sheets are provided in Appendix A. The first segment extends from the southern terminus of the project to south of U.S. 192 (station 98); the transition between the 6+4 District One typical section to the 6+2 District Five typical section is accomplished within this segment. The interchange improvements proposed in this area will allow a direct connection to World Drive and the Walt Disney World resort area without requiring HOV traffic to weave across the general use lanes, which are anticipated to be congested during peak periods. Additionally, through-trip access to the Southern Connector/Central Florida GreeneWay (S.R. 417) will serve as a bypass route in the Orlando area. Two alternatives were identified

for this segment, including direct connection of the HOV lanes to World Drive (Alternative A) and direct connection of the HOV lanes only in the eastbound direction at World Drive (Alternative B).

Also included within segment 1 are three alternatives for the Western Beltway Interchange. Each alternative provides access in all directions to and from the east and westbound lanes of I-4. The alternatives vary with respect to number of travel lanes provided through the interchange as well as the geometry of the access ramps. Option 1 is the general MMMP concept, being a trumpet interchange with a flyover eastbound exit ramp from I-4 and a looped eastbound entrance ramp to I-4. Options 2 and 3 are fully directional T-interchanges with variations in movement emphasis and ramp geometry. The flyover ramps of Option 2 cross I-4 in the same location and provide equivalent emphasis to all movement directions. With Option 3, the flyover ramps are separated over I-4, crossing each other to the south of I-4. The configuration of the ramps to and from the west along I-4 emphasizes these movements in order to provide for the continuation of the Western Beltway to the south.

The second segment extends north from station 98 to include S.R. 536 (station 160). Six interchange alternatives are considered for both U.S. 192 and Osceola Parkway, including the Master Plan with and without aerial connector distributor (CD) lanes (Alternatives A and B), a wide diamond design with and without aerial CD lanes (Alternatives C and D) and a three-level diamond design with and without aerial CD lanes (Alternatives E and F). An aerial CD option is proposed to minimize impacts to development immediately adjacent to the ROW on the northeast side of the interchange. Direct-connect flyover ramps to and from the HOV lanes and S.R. 536 will allow tourists and employees access to the Walt Disney World resort area without weaving across potentially congested general use lanes.

The third segment extends from north of S.R. 536 to Lake Avenue (station 207) and alternatives for the Lake Avenue interchange are being considered. The Lake Avenue interchange concept presented in the I-4 MMMP (Alternative A) includes a half-diamond design and restricts northeast access to and from I-4. The modified Lake Avenue interchange (Alternatives B&C) includes a full interchange to provide additional southwest access to and from I-4. In the short CD option (Alternative B), a CD road extends from the S.R. 535 interchange ramp to the Lake Avenue interchange due to the anticipated high weaving volume between the two interchanges. Alternative C also contains a full interchange at Lake Avenue, but without a CD road along the mainline. All of the access ramps are located on the northeast side of the interchange to maximize mainline weaving distance. The transition from the 6+2 to 6+4 typical section occurs at Lake Avenue. The additional HOV lanes are needed through segments 2 and 3 to accommodate the expected HOV demand in this area. The existing rest areas in this segment will be eliminated prior to implementing the recommended improvements in this study.

The final study segment continues from station 207 to just north of the Central Florida Parkway (station 221). Two alternatives were evaluated, including a modified Master Plan interchange (Alternative A) and diamond design (Alternative B). The modification of the Master Plan (Alternative A) includes the addition of diamond ramps to and from the

northeast. Alternative B is proposed to remove the existing flyover ramp and modify the BeeLine Expressway to a full standard diamond interchange. The piers for the existing flyover ramp will be impacted by future planned mainline widening and this ramp will need to be rebuilt if it remains. Also located within segment 4 are direct connect HOV ramps to the BeeLine Expressway. As part of these ramps, the 6+4 typical section transitions back to the 6+2 section.

3.4 Preferred Alternative

The development of the preferred alternative for this project was based on the information presented and evaluated in the Preliminary Engineering Report. The evaluation criteria for this project included travel characteristics, project costs, community impacts and relocations and environmental impacts. On April 28, 1998, a design review meeting was held with FDOT District Five personnel to discuss design alternatives for the four segments. Based on a review of the comparative evaluation (Tables 1 and 2), the following options were selected for each segment.

For segment 1, Alternative B was selected as the preferred alternative. The reasons for selecting this alternative were as follows:

1. This alternative provides better operations into the special use lanes for westbound traffic because traffic is split between two entrance points between World Drive and the Polk/Osceola County line. The first entry point will be immediately west of the World Drive overpass structures and will handle traffic that enters I-4 from U.S. 192 eastward. This will also be the point at which the additional lane in the westbound direction is added and the transition is made to special use lanes. The second entrance point will be located west of the Western Beltway interchange. This will allow traffic from the Western Beltway, the Southern Connector Extension (S.R. 417) and World Drive to enter at this location. Having two entrances provides for a better distribution of traffic entering the special use lanes. Further, it facilitates a better signing plan for I-4 in the westbound direction and eliminates a weaving problem on the westbound CD system caused by Alternative A.
2. The cost of this alternative was the lower cost alternative.
3. This alternative has less floodplain and wetland impacts to Reedy Creek, especially on the more pristine north side of I-4.

For segment 2, Alternative E was selected as the preferred alternative. The reasons for selecting this alternative were as follows:

1. Based upon the traffic analysis provided in the Design Traffic Technical Memorandum, it appears that the LOS provided by each of the interchange alternatives is essentially the same. It was noted that Alternative E provides motorists the opportunity to make a U-turn, which is a good feature, given the tourist nature of this area.

Table 1. Comparative Evaluation Matrix

Criteria	Segment 1 Station 0+00 to Station 98+00				Segment 2 Station 98+00 to 160+00				Segment 3 Station 160+00 to 206+00				Segment 4 Station 206+00 to 221+00					
	No-Build	A	B	C	D	E	F	No-Build	A	B	C	No-Build	A	B				
Travel Characteristics																		
Mainline LOS																		
Eastbound	F	E	E	E	E	E	E	F	F	F	F	F	F	F				
Westbound	F	E	E	E	E	E	E	F	F	F	F	F	F	F				
Mainline Weave																		
U.S. 192 to Osceola Parkway, Eastbound Only																		
S.R. 535 to Lake Avenue																		
Eastbound	F	D	F	D	F	D	F	n/a	n/a	n/a	n/a	n/a	n/a	n/a				
Westbound																		
HOV LOS																		
Eastbound	n/a ¹	C	C	C	B	B	B	n/a	C	C	C	n/a	C	C				
Westbound	n/a	C	C	C	B	B	B	n/a	C	C	C	n/a	C	C				
Interchange LOS																		
Western Beltway	F	D	D															
U.S. 192																		
S.R. 535																		
Lake Avenue																		
Central Florida Parkway																		
Cross Street Flow																		
U.S. 192																		
S.R. 535																		
Lake Avenue																		
Central Florida Parkway																		
Project Costs (\$ Millions)																		
Construction ²	\$0	\$95.9	\$89.2		\$146.7	\$130.3	\$146.8	\$138.2	\$138.2	\$139.0	\$133.2	\$0	\$68.5	\$67.5	\$66.8	\$0	\$23.4	\$17.4
Right-of-Way	\$0	\$14.3	\$14.1		\$33.8	\$29.3	\$30.1	\$25.6	\$25.6	\$29.7	\$23.2	\$0	\$24.1	\$29.5	\$36.8	\$0	\$11.0	\$11.0
Relocations	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Residential	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Environmental Impacts																		
Archeological Sites	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contamination Sites																		
(by Risk potential) ³																		
number HIGH risk	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
number MEDIUM risk	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
number LOW risk	0	2	2		1	1	1	1	1	1	1	0	0	0	0	0	0	0
Historic Structures	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Floodplains (acres)	0.0	29.4	28.8		8.7	8.4	6.6	5.8	6.7	6.7	6.7	0.0	3.4	3.4	3.4	0.0	0.0	0.0
Wetlands (acres)	0.0	32.6	32.2		36.4	36.2	34.4	34.4	32.9	32.9	32.7	0.0	4.2	5.5	4.2	0.0	0.0	0.0

¹ n/a = not applicable

² Construction costs include roadway, structures, drainage improvements, traffic engineering, maintenance of traffic, etc.

³ Contamination site risk potential: HIGH = potential exists for contamination based on review of available information / further assessment required to determine actual presence or level of contamination; MEDIUM = available information indicates some contamination, either not requiring remediation, under remediation, and/or requiring further remediation; LOW = hazardous materials are associated with the site use but there is no evidence of contamination.

Table 2. Western Beltway Interchange Evaluation Matrix

Criteria	Western Beltway Interchange			
	No-Build	Option 1	Option 2	Option 3
Travel Characteristics				
I-4 Mainline LOS				
Eastbound	F	E	E	E
Westbound	F	F	F	F
HOV LOS				
Eastbound	n/a ¹	C	C	C
Westbound	n/a	C	C	C
Interchange LOS				
Western Beltway Ramps				
I-4 EB Exit Ramp	n/a	D	D	D
I-4 EB Entrance Ramp	n/a	C	B	B
I-4 WB Exit Ramp	n/a	E	C	D
I-4 WB Entrance Ramp	n/a	D	D	A
Project Costs (\$ Millions)				
Construction ²	\$0	\$11.6	\$12.5	\$13.0
Right-of-Way	\$0	\$31.2	\$18.8	\$17.4
Relocations				
Residential	0	0	0	0
Business	0	0	1	0
Environmental Impacts				
Archeological Sites	0	0	0	0
Contamination Sites				
(by Risk potential) ³				
number HIGH risk	0	0	0	0
number MEDIUM risk	0	0	0	0
number LOW risk	0	1	1	1
Historic Structures	0	0	0	0
Floodplains (acres)	0.0	1.37	1.15	3.63
Wetlands (acres)	0.0	2.52	4.45	8.15

¹ n/a = not applicable

² Construction costs include roadway, structures, drainage improvements, traffic engineering, maintenance of traffic, etc.

³ Contamination site risk potential: HIGH = potential exists for contamination based on review of available information / further assessment required to determine actual presence or level of contamination; MEDIUM = available information indicates some contamination, either not requiring remediation, under remediation, and/or requiring further remediation; LOW = hazardous materials are associated with the site use but there is no evidence of contamination.

2. The maintenance of traffic for constructing Alternative E was the simplest due to the configuration of the interchange.
3. The interchange configuration had the lowest construction cost and required the least amount of ROW.
4. This alternative had the least amount of floodplain and wetland impacts.
5. The provision of the aerial CD provided a better LOS for I-4 eastbound, between U.S. 192 and Osceola Parkway by eliminating a mainline weave. Also, providing the aerial CD allowed for the opportunity to provide for direct connection into Osceola Parkway eastbound without having to make a left turn from the loop ramp.

Alternative B was selected as the preferred alternative for segment 3. This alternative was selected for the following reasons.

1. The proposed Lake Avenue interchange alternatives include the I-4 MMMP concept (Alternative A) which provides for partial access to the I-4 general use lanes. It is generally accepted practice that in providing new access to interstate highways that all traffic movements be provided. In the area to be serviced by the Lake Avenue interchange, this is important due to the high percentage of tourist traffic. The driver expectation is to be able to access all directions at an interstate interchange. Since Alternative A does not provide this service and does not meet driver expectation, it was dropped from further consideration.
2. It has been agreed that any new interchange alternative considered must provide for LOS D or better for all ramp movements to and from the interchange. Alternative C contains ramps to and from the west at the Lake Avenue interchange which result in LOS E and F on I-4 due to the weave with the SR 535 ramps and high mainline volumes. This alternative will impact the operation of the mainline and affect ramp operations with the SR 535 interchange ramp. In evaluating Alternatives B and C, only B is able to meet this LOS criteria.
3. Despite the fact that Alternative B has a higher construction cost and a considerably higher right-of-way cost, it is the only alternative which meets this criteria and was selected as the preferred alternative.

For segment 4, the preferred alternative is A. The reason for this alternative being selected was the operational characteristics of the two interchange alternatives. In Alternative B, the left turn movement serving westbound Central Florida Parkway to westbound I-4 would cause significant operational concerns during the peak hour. The traffic volume served by this movement would also enter the intersection at the eastbound ramps. Due to the increase in traffic at this intersection, the analysis shows that the eastbound exit ramp could have queues spilling back onto the mainline. The TRAF-NETSIM analysis performed as part of

the Design Traffic Technical Memorandum indicated these operational concerns show the interchange area operating at a LOS E/F. By replacing the flyover as is presently provided, these operations substantially improve. Despite the fact that this alternative is several million dollars higher than Alternative B, Alternative A is the preferred option.

Based on the results of the engineering and environmental analyses, as well as public input and discussions with FDOT District Five personnel, the following options were selected to represent the Preferred Build Alternative:

- Segment one – Alternative B,
- Segment two – Alternative E,
- Segment three – Alternative B and
- Segment four – Alternative A.

The Preferred Build Alternative reconstructs all deficient horizontal and vertical curves, improves safety, improves drainage, and provides additional mobility options. The project also recommends that highway lighting is improved. It is recommended that conventional lighting be extended from the World Drive CD roads to the BeeLine Expressway (S.R. 528). Continuous lighting is needed in this area to aid in the enforcement of the HOV lanes due to their 24 hours/7 days a week operation. High mast lighting is recommended for the C.R. 532 and Western Beltway interchanges.

Although the general use lanes will remain at LOS F for most segments, corridor mobility will be greatly enhanced by the addition of the HOV lanes, the inclusion of additional CD roadways and interchange improvements. Further, the corridor will provide a 13.4 m (44 ft.) wide rail envelope for future rail considerations. Also, the project is consistent with area-wide transportation plans. The Preferred Build Alternative will be further refined to include the development of detailed stormwater management concepts and minor modifications to minimize impacts and maximize user benefits.

As stated previously, I-4 will be widened to six lanes from U.S. 27 in Polk County to U.S. 192 in Osceola County. That improvement will be accomplished within the existing right-of-way and is expected to be completed prior to the improvements recommended in this document. This project will provide a transition into the six-lane section of I-4 west of the Polk/Osceola County line. The transition will have minimal impacts in Polk County.

The Polk/Osceola County line eastbound transition begins within the I-4/C.R. 532 interchange area and involves the addition of a fourth lane to the inside (median) of the existing alignment. The special use lanes are developed at the slip ramp location proposed by the Preferred Build Alternative in the I-4/C.R. 532 interchange area. The four eastbound lanes are split into three general use lanes and two special use lanes at this slip ramp location. The eastbound transition will have minimal additional construction cost and impact due to the lane addition. The westbound general use and special use lanes are transitioned into three general use lanes within the I-4/C.R. 532 interchange area to match the three general use lanes in Polk County. No additional ROW will be required to accommodate these transitions. Further, the costs and impacts developed in this study consider the effect of

implementing the full (6+4) typical section to meet with the ultimate (6+4) typical section developed in District One. The costs and impacts associated with constructing the transitions would be somewhat less. Therefore, the costs and impacts for the full width section are somewhat conservative and are discussed in subsequent sections of this report. The transition detail has been included in Appendix A.

The I-4 Section 2 PD&E Study runs from the BeeLine Expressway (S.R. 528) at the northeast end of Section 1 to the north side of the Orlando metropolitan area. At this time, it is not certain whether Section 1 or Section 2 will be constructed first. In the event Section 1 is constructed prior to Section 2, a transition was developed to transition the improved roadway in Section 1 to match the existing roadway east of the BeeLine Expressway. This transition provides a ramp-to-ramp auxiliary lane between the BeeLine Expressway and Sand Lake Road interchanges. The additional costs and impacts associated with this transition area are incorporated into this report and are subsequently discussed in the appropriate section. The transition detail has been included in Appendix A.

Typical Section

Two mainline typical sections (6+2 and 6+4) have been identified for I-4 Section 1. These typical sections, shown in Figure 3, are described as follows:

The first mainline typical section will provide six general use lanes and four special use/HOV lanes within a minimum of 129.2 m (424 feet) of ROW with open drainage or a minimum of 88.0 m (290 feet) with closed drainage. This typical section will be used from the Polk/Osceola County line to west of World Drive. The special use lanes along this segment continue the treatment proposed in District One which allows long distance through trips. This typical section is also used from east of Lake Avenue to the BeeLine Expressway (S.R. 528). Along that segment, the four HOV lanes are restricted to HOV3+.

The second mainline typical section will provide six general use lanes and two HOV lanes within a minimum of 122.0 m (400 feet) of ROW with open drainage or a minimum of 81.0 m (266 feet) with closed drainage. This typical section will be used from west of World Drive to east of Lake Avenue. The two HOV lanes are restricted to HOV3+.

Both typical sections provide design speeds of 110 kph (70 mph). Other common features of both typical sections include:

- 3.6 m (12 feet) outside and inside (median) shoulders,
- 3.0 m (10 feet) paved outside and inside (median) shoulders,
- 3.6 m (12 feet) paved shoulders on the inside of the general use lanes and on the outside (right) of the special use/HOV lanes,
- 0.6 m (1.2 feet) barrier walls between the general use and special use/HOV lanes and
- 13.4 m (44 feet) wide future transit corridors.

Alignment and Right-of-Way Needs

The Preferred Build Alternative follows the existing horizontal alignment throughout the project limits. The horizontal alignment and vertical profile near Central Florida Parkway would be improved by the Preferred Alternative to meet current design standards, which will also improve stopping sight distance.

Many of the existing vertical curves meet current design standards. There are a number of curves that do not meet the minimum length requirement for a 110 kph (70 mph) design speed. Since many of the short vertical curves do not appear to present a safety problem, a request for a design variance was considered. However, drainage requirements for the project require that the vertical profile be raised above design and seasonal high water. As a result, all deficient vertical curves are proposed to be improved to meet current design standards.

Additional ROW will be required for the proposed I-4 Section 1 improvements as a result of the need for land areas for the mainline improvements, transit envelope, interchange improvements, crossroad improvements and stormwater management. This project minimizes ROW acquisition since the project follows the existing alignment. Where additional ROW is required, attempts have been made to keep acquisition to a minimum. A 4.5-meter-wide (15 feet) border is used with a barrier wall to minimize ROW acquisition. Between U.S. 192 (S.R. 530) and Osceola Parkway, the aerial CD in the eastbound direction is used to minimize impacts to the Hyatt Hotel. The piers for the aerial CD will be located between the mainline auxiliary lane and shoulder, with the CD roadway cantilevered over the shoulder.

Right-of-Way Costs

The ROW costs for the proposed I-4 Section 1 improvements are estimated to be \$113.0 million. This cost includes ROW acquisition for the mainline, cross road and stormwater improvements, as well as relocation costs, severance and business damages, administrative and support costs and accountant and attorney fees. A summary of these costs by segment is presented below:

- Segment One (C.R. 532 to Southwest of U.S. 192): \$9.6 million
- Segment Two (Southwest of U.S. 192 to S.R. 536): \$29.7 million
- Segment Three (S.R. 536 to Northeast of Lake Avenue): \$62.9 million
- Segment Four (Northeast of Lake Avenue to S.R. 528): \$10.8 million
- **Total: \$113.0 million**

The total \$113.0 million represents the overall ROW costs for Section 1. If Section 1 is constructed prior to Section 2, an additional ROW cost of \$24.1 million will be required. The additional ROW is required for the construction of the additional I-4 mainline improvements from the end of Section 1 to east of the BeeLine Expressway and the

improvements to the BeeLine Expressway interchange. A detail for transitioning Section 1 into the existing roadway is provided in Appendix A.

The ROW costs shown in segment one do not include \$17.4 million for the Western Beltway interchange. It is anticipated that construction of this interchange will be done by others in advance of the I-4 improvements. Detailed information regarding these ROW costs is available at the FDOT District Five office in DeLand, Florida.

Construction Costs

The estimated total construction and Construction Engineering Inspection (CEI) costs for the proposed I-4 Section 1 improvements is \$328.2 million. The construction cost and CEI costs are summarized by segment below. The construction costs shown in segment one do not include \$13.0 million for the Western Beltway interchange as it is anticipated that construction of the interchange will be done by others in advance of the I-4 improvements.

- Segment One (C.R. 532 to Southwest of U.S. 192): \$109.5 million
- Segment Two (Southwest of U.S. 192 to S.R. 536): \$132.5 million
- Segment Three (S.R. 536 to Northeast of Lake Avenue): \$61.0 million
- Segment Four (Northeast of Lake Avenue to S.R. 528): \$25.2 million
- **Total: \$328.2 million**

The total \$328.2 million represents the overall construction cost for Section 1. If Section 1 is constructed prior to Section 2, there will be an additional construction cost of \$115.4 million. This additional construction cost is required to construct the improvements to the BeeLine Expressway interchange and to extend the I-4 mainline improvements to east of the BeeLine Expressway. Further, the additional cost includes construction of a transition to the existing roadway section.

If Section 1 is constructed prior to the ultimate improvements proposed in District One, the transition shown in Appendix A would be constructed. The cost to build this transition would be less than the cost associated with the full improvements to meet with the ultimate improvements in District One. In that case, the above cost is somewhat conservative.

Direct construction costs include:

- Roadway, interchanges and cross road improvements. These costs were developed based on a cost per meter for each typical section which was projected throughout the length of the project.
- Bridges and retaining walls. These costs were calculated using the horizontal and vertical geometry for each alternative at bridge locations.
- Embankment volumes were also based on the horizontal and vertical geometry of each alternative and the width of the typical sections.
- Mitigation costs were derived from impact wetlands.

- Utility relocation costs were estimated for each alternative.
- Drainage, mobilization, maintenance of traffic, contingency and miscellaneous item costs are various percentages of the direct construction cost that make up the total construction costs.

Contamination clean-up cost estimates were not included as part of the construction cost estimates. To provide clean-up cost estimates, Level II contamination screenings must be performed. However, Level II screenings are not required on PD&E projects unless ROW acquisition is in the FDOT 5 year Work Program; this project is not currently in the FDOT 5 Year Work Program.

The construction of the Osceola Parkway interchange in conjunction with the replacement of the Bonnet Creek bridges is one of the more significant constructability issues of this project. The proximity of structures will prohibit normal crane operation. A special launching rig will be required to position beams and other structural members. Pile driving operations will require several lane shifts and a sequenced demolition plan. Further details concerning the constructability of this interchange and bridge structures as well as for other interchanges are discussed in further detail in section 9.16 of the Preliminary Engineering Report. Preliminary traffic control plans are also discussed.

Stormwater Management Facilities

The stormwater management facilities associated with the proposed I-4 improvements must be designed in accordance with the performance criteria as set forth in Chapters 40E-4, 40E-40, 40E-41 of the SFWMD's Management and Storage of Surface Waters Permit Information Manual, Volume IV (4/96) and the Florida Administrative Code, Chapter 14-86, Critical Duration criteria. Other applicable criteria that shall govern drainage design on the project are contained in the FDOT Drainage Manual.

The Soil Conservation Service (SCS) Runoff Curve Number method was utilized to determine approximate retention/detention pond sizes and ROW requirements. During the final design, other methodologies may be used to design the ponds and the control structures. The ponds were sized to accommodate the runoff from the entire ROW, assuming runoff volumes from offsite areas are being conveyed through the project, and are not included in the pond volumes. Pond sizes and locations were determined based on USGS topographic maps, the alignment profile, the SCS Soil Surveys for Osceola and Orange Counties, 100-year floodplain limits, wetland locations, intersecting roadway alignments (existing and proposed), potential soil contamination sites, locations of endangered species, existing utilities, archaeological sites and ROW cost.

In developing the contributory basins, the proposed systems were evaluated with consideration to the profile, outfall locations, available pond size, ROW cost and potential adverse impacts. Basin limits were selected to maximize the available pond size while minimizing the impacts on adjacent properties by utilizing existing ROW areas within interchange infields as much as practical and locating pond sites outside of the ROW in upland areas with minimal impacts to floodplains, wetlands, endangered species, utilities,

hazardous materials sites and archaeological sites as much as possible. The retention volumes were calculated using the SCS Runoff Curve Number method for the ROW using the ultimate build-out condition. Pond areas include 1:4 inside side slopes, a 6.0 m (20 feet) maintenance berm and 1:2 outside side slopes to existing ground. The normal water elevation at the ponds and storage depths have been determined based on field conditions utilizing the SCS Soil Surveys and roadside boring information. As more exact data is obtained in the final design stage, the normal high water elevation and available storage depths for each pond may be adjusted.

In determining preliminary pond volumes for the proposed improvements, the project was divided into 20 basins. The basin divides were determined by either high points in the roadway profile, alignment terminals, hydraulic considerations or available pond locations and capacity. Alternate pond sites were evaluated within each basin and sites were recommended which best met the selection criteria. The selection criteria included economics, environmental impacts, floodplain encroachment, hydraulics, hydrology, social impacts, utility conflicts and archaeological and historic resources impacts. The details of the pond analysis and selection of the preferred pond locations is provided in the Pond Siting Report. The actual size, location and configuration of the ponds will be determined in the final design phase.

Access Management

Access management is the practice of controlling vehicular access to a roadway in order to increase roadway efficiency and improve travel safety by reducing the number of traffic conflicts encountered by roadway users. The State Highway System Access Management Act (335.18 F.S.) mandates the implementation of access management standards based on the Access Management Classification System developed in Administrative Rule 14-97. I-4 has been identified as Access Management Class 1 under this system.

Property access impacts were evaluated to determine whether access can be maintained in interchange areas via the local roadway network. Meetings were conducted with some property owners regarding property access. The only impacted development where access may be restricted due to the recommended improvements is the Embassy Suites Hotel located in the southwest quadrant of the proposed I-4/Lake Avenue interchange. This issue was discussed with the FDOT Access Management Committee.

The Embassy Suites Hotel currently has two full access driveways on Lake Avenue. FDOT right-of-way estimates are that this is a \$62 million parcel. The two parcels shown on the aerial photography as vacant in the southeast quadrant of the Lake Avenue/Palm Parkway intersection are under construction with two new hotels. Access to Embassy Suites cannot be provided through these new hotel sites. Further, Turkey Lake Road is under construction to be extended southward from Central Florida Parkway to Palm Parkway. This will create a major intersection of Palm Parkway/Turkey Lake Road with Lake Avenue. The next intersection to the east will be the ramp terminal intersection on the west side of the Lake

Avenue interchange. Access management will not allow an additional full access location between these two intersections. Therefore, driveway access is being considered directly opposite the I-4 westbound ramps/Lake Avenue intersection. Without a driveway at this intersection, the only access that could be provided is a right-in/right-out driveway. This will cause significant business damages to the Embassy Suite Hotel resulting in extremely expensive right-of-way costs. Further, it will impact the traffic operations of the interchange by forcing all traffic exiting the site destined to either I-4 westbound or local access west of I-4 to U-turn within the interchange area. The design concept with a break in the limited access as shown, is a reasonable compromise, balancing traffic operations and cost issues. Further consideration should be given to access management during final design.

Other issues relevant to the preliminary design analysis for the Preferred Build Alternative are covered in Chapter 9 of the Preliminary Engineering Report. These issues include the pedestrian and bicycle facilities, traffic control plan, special features and recycling of salvageable material.

4.0 IMPACTS

4.1 Social and Economic Impacts

Land Uses

As an existing roadway corridor, improvements to I-4 are not expected to create any disruption to the land use patterns already established. Activity centers are a dominant feature of the corridor and intensification of these areas can be expected in the future.

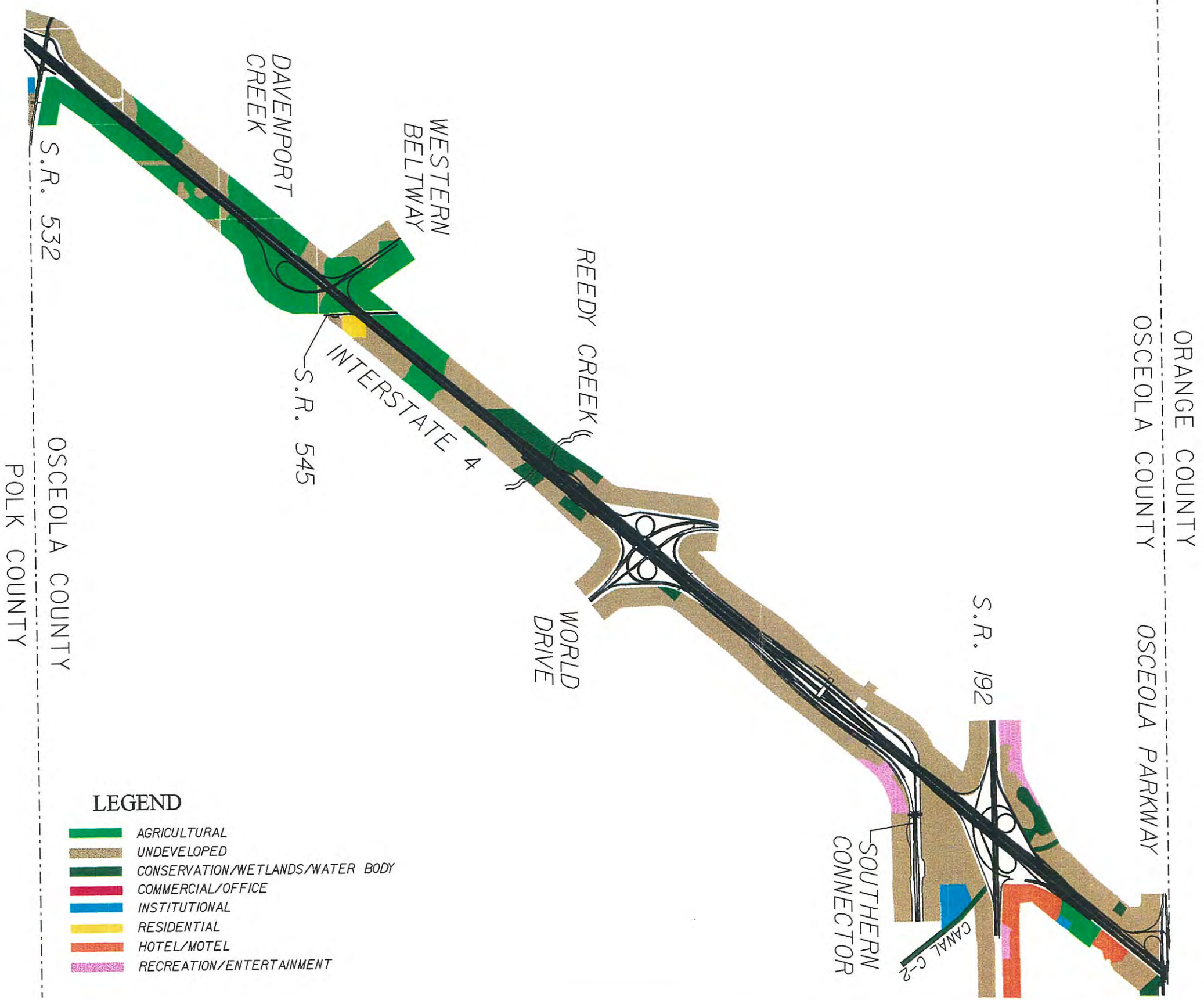
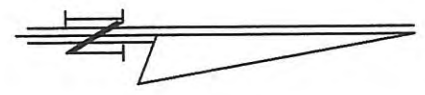
Existing land use data were compiled from the Florida Land Use Cover Classification Level III for Township 24 South, Range 28 East (provided by the Orange County Planning Department), a subject area reference map provided by RCID Planning and Engineering and field reconnaissance. Existing land uses are shown on Figure 4. Land uses were grouped into the following 8 categories.

Existing Land Use Categories

Land Use	Included Items
Agricultural	Pasture; groves/nurseries/horticulture
Undeveloped	Forests; grassland; areas under construction
Conservation/Wetlands/Water Body	Wetlands; natural and man-made water bodies
Commercial	Shopping centers; restaurants; office
Institutional	Religious; governmental; medical; utility
Residential	Single-family; multi-family; RV park
Hotel/Motel	Hotel; motel
Entertainment/Recreation	Entertainment facilities

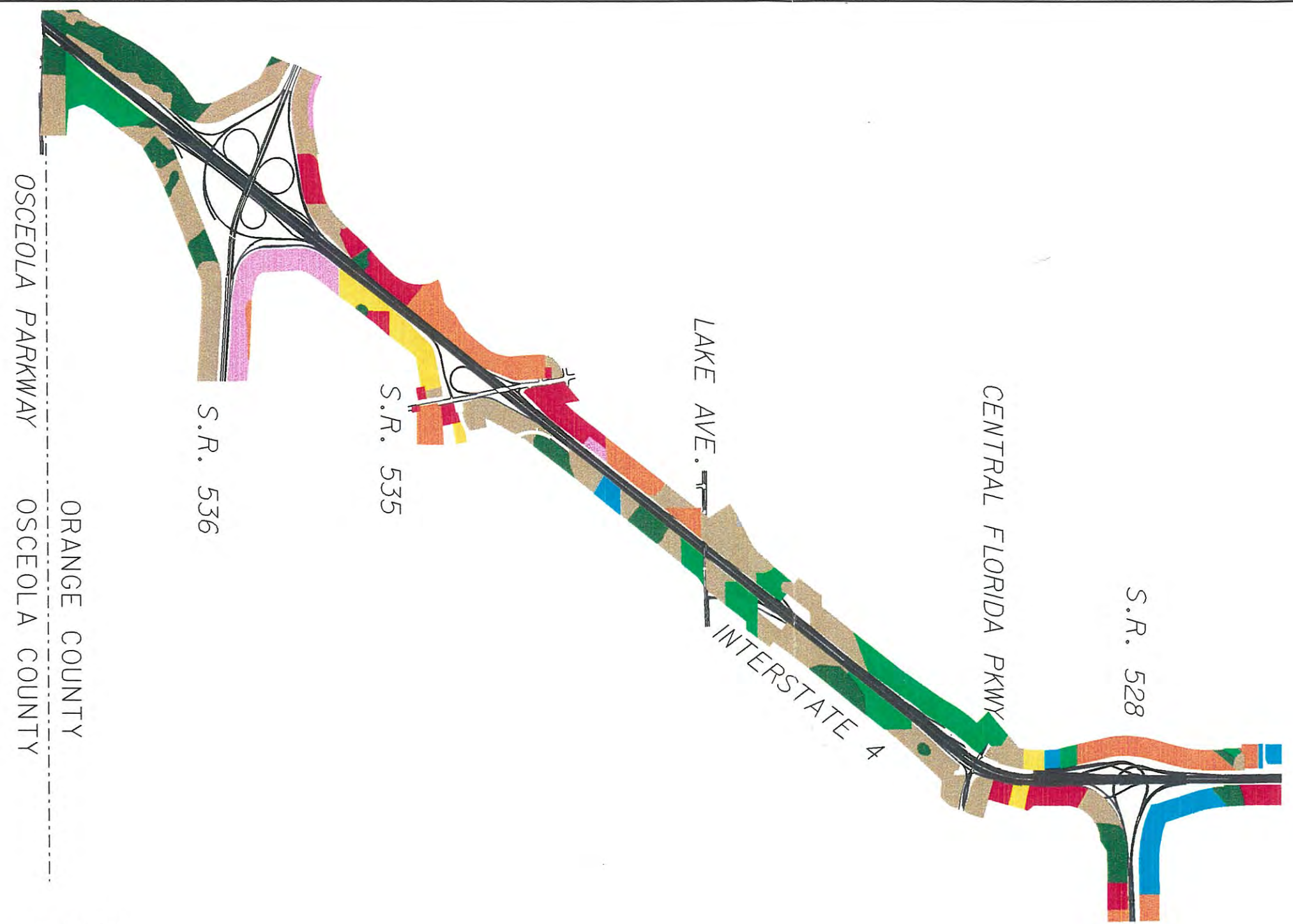
The existing land use from the Polk/Osceola County line to U.S. 192 is primarily undeveloped and agricultural with the exception of the Oak Hill Baptist Church at the I-4/S.R. 532 interchange and Paradise RV Park located south of I-4 at S.R. 545. Also located in this area is Reedy Creek, which crosses the I-4 corridor west of World Drive. The area around the I-4/U.S. 192 interchange includes Celebration Golf Course, Disney Sports Complex, the Celebration Health Center, hotel uses (Hyatt Orlando and Radisson Resort Parkway) and a water treatment facility.

The Paradise RV Park currently has three permanent households with a total of twelve residents. This is an unusual situation since recreational vehicle parks are typically licensed by the local government for less than six months. These permanent residences will likely be displaced by the construction of the Western Beltway interchange prior to the I-4 improvements. Therefore, the I-4 mainline improvements will not require any relocations. If the Western Beltway interchange project does impact these residences, the community of Kissimmee has the capacity to accommodate these residents and a total cost of \$75,000 is estimated for the relocations.



I-4 P.D. & E.

GENERALIZED EXISTING
LAND USE
FIGURE 4



LEGEND

- AGRICULTURAL
- UNDEVELOPED
- CONSERVATION/WETLANDS/WATER BODY
- COMMERCIAL/OFFICE
- INSTITUTIONAL
- RESIDENTIAL
- HOTEL/MOTEL
- RECREATION/ENTERTAINMENT

I-4 P.D. & E.
GENERALIZED EXISTING LAND USE FIGURE 4 (CONT)

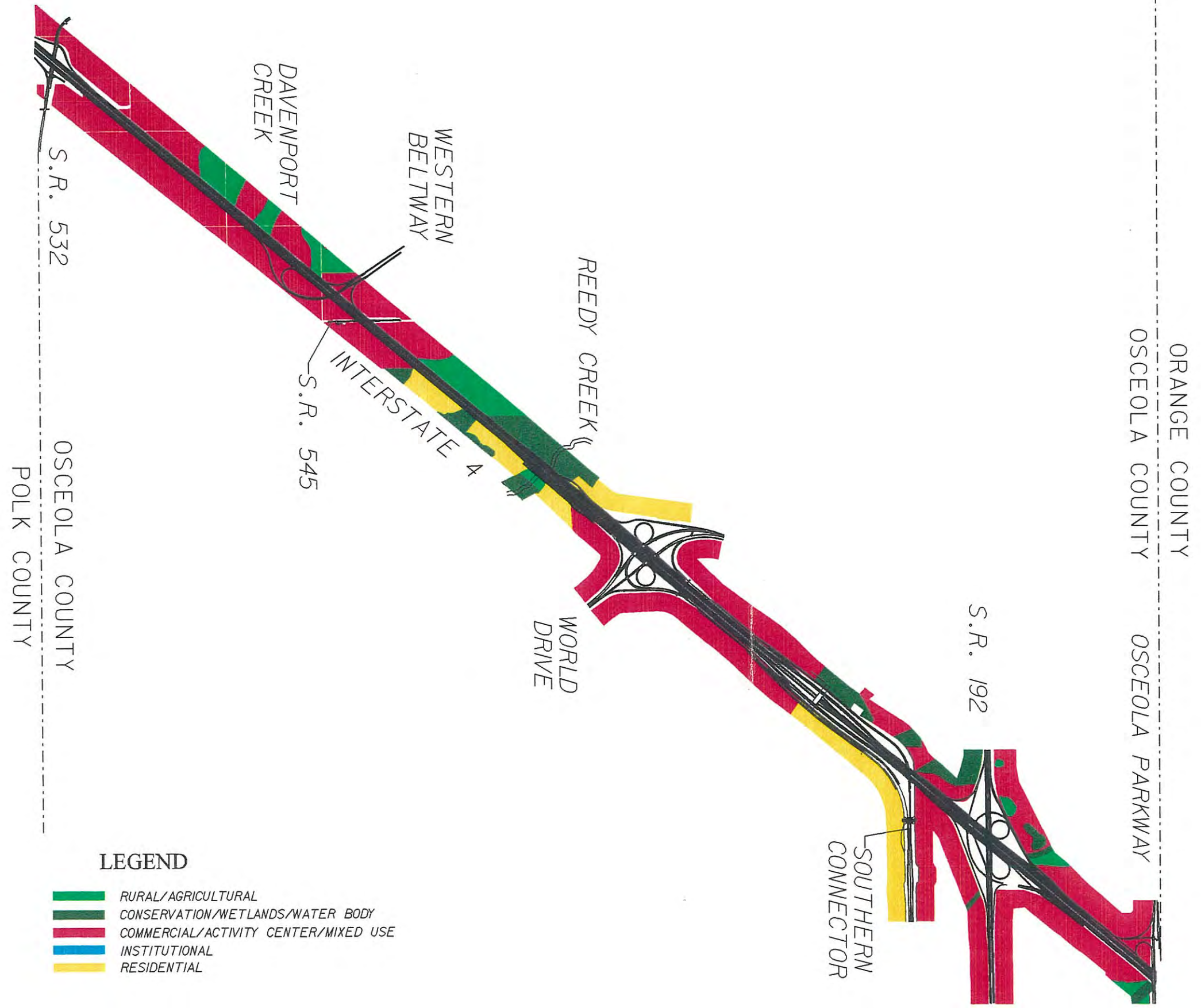
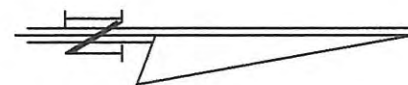
Between U.S. 192 and S.R. 536, land north of I-4 is undeveloped. A small area south of I-4 is developed as hotel (Homewood Suites Condominiums and Hampton Inn) and the area around the I-4/S.R. 536 interchange includes Team Disney and Marriott's Orlando World Center golf course. From S.R. 536 to S.R. 535 and around the I-4/S.R. 535 interchange, land is heavily developed with a mixture of uses. The Disney Casting Center, SunTrust Bank, Hilton, Marriott Courtyard, Hotel Royal Plaza, Doubletree Suites, Chevron gas station, Days Inn, Waffle House, Giftland and Crossroads Shopping Complex occur to the north of I-4 and Lake Vista Village, Vistana Resort (condos and offices), Vista Way Apartments, Shell gas station, Wendy's, 7 Eleven, Holiday Inn Sunspree Resort, Lone Star restaurant, Landry Seafood restaurant and Plantation Park at Little Lake Bryan and a single family development around Lake Willis are south of the interstate.

Between S.R. 535 and Lake Avenue, development is sporadic. The area south of I-4 consists of undeveloped land and agricultural uses except for a religious facility, Mary Queen of the Universe Shrine, which is located midway between the S.R. 535 interchange and Lake Avenue. North of I-4 is Pirate's Cove Mini-Golf, Comfort Inn and Embassy Suites. The I-4 corridor from Lake Avenue to the Central Florida Parkway is undeveloped and contains agricultural uses. The area from the Central Florida Parkway to the BeeLine Expressway is well-developed with a mixture of uses. North of I-4 are an RV Park, the Sand Lake Post Office and Westgate Lakes Hotel. South of I-4 are the Busch Properties Corporate Office, Monterey Lakes Apartments and Westwood Center Office Complex.

Future land use data were compiled from Osceola County Northwest Future Land Use Map 2010 (adopted April 22, 1991 as amended through December 3, 1993), Orange County 1990-2010 Future Land Use Map (adopted July 1, 1991, amended August 11, 1992 and August 31, 1992), Future Land Use 2001, Reedy Creek Improvement District Comprehensive Plan 1990 (as amended through Amendment #95-2), Celebration DRI Application for Development Approval, Map H1, June 1991 and Little Lake Bryan Design Traffic Report, January 1996. The last two documents listed were references because the Celebration and Little Lake Bryan DRIs have been de-annexed from the Reedy Creek Improvement District and have not been included on the latest Osceola County and Orange County Future Land Use Maps, respectively. Future land uses are shown on Figure 5. Because each document uses a different land use category scheme, a simplified list of categories was developed which fit all of the documents. The following simplified list of land use categories combined some of the categories used in the existing land use.

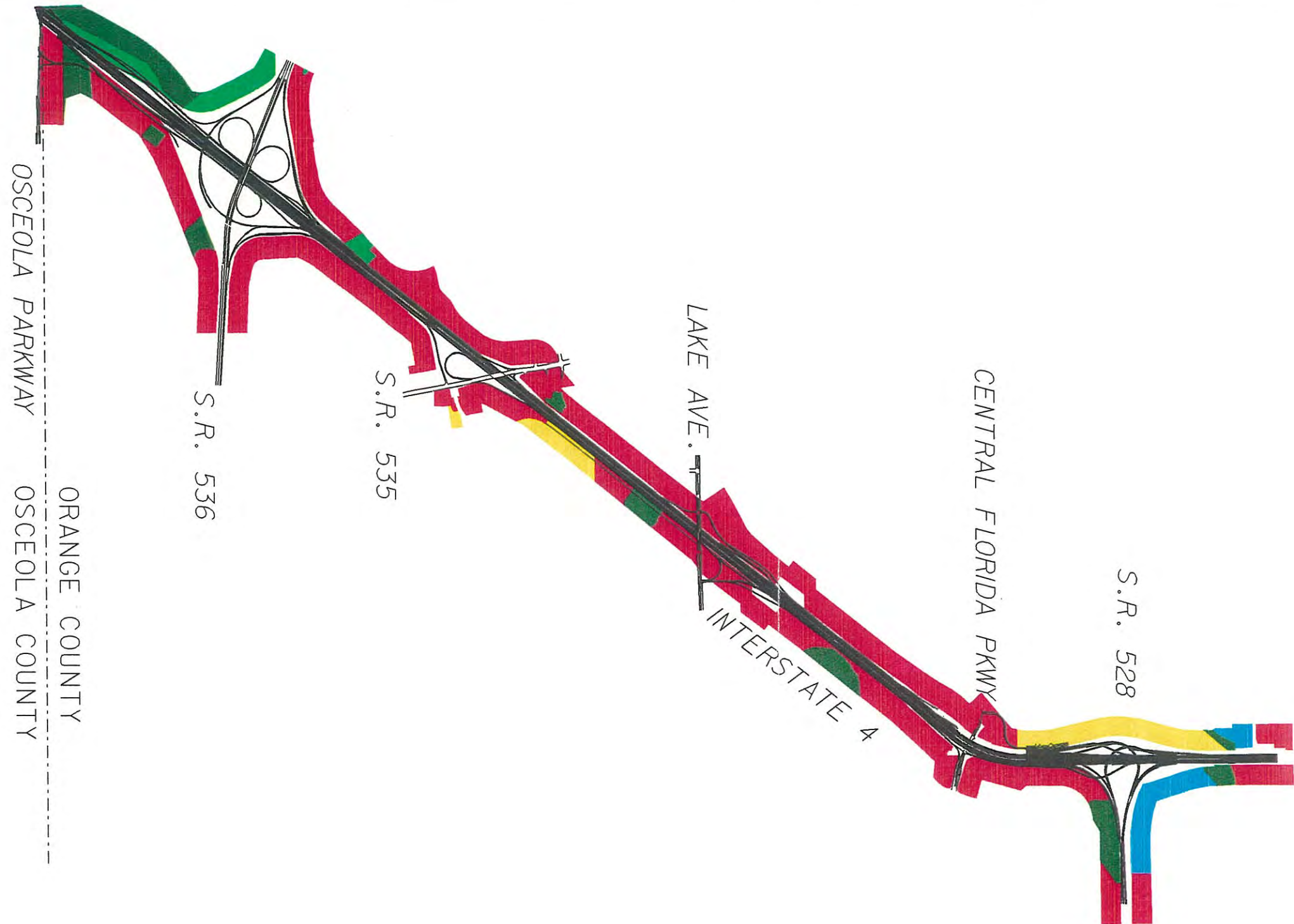
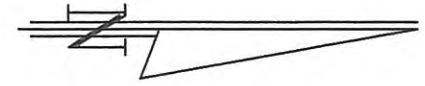
Future Land Use Categories

Land Use	Included Items
Agricultural/Rural	Agricultural and Undeveloped
Conservation/Wetlands/Water Body	Same as existing land use
Commercial/Activity Center/Mixed Use	Commercial, Hotel and Entertainment
Institutional	Same as existing land use
Residential	Same as existing land use



- LEGEND**
- █ RURAL/AGRICULTURAL
 - █ CONSERVATION/WETLANDS/WATER BODY
 - █ COMMERCIAL/ACTIVITY CENTER/MIXED USE
 - █ INSTITUTIONAL
 - █ RESIDENTIAL

I-4 P.D. & E.
FUTURE LAND USE
FIGURE 5



OSCEOLA PARKWAY

OSCEOLA COUNTY

ORANGE COUNTY

S.R. 536

S.R. 535

LAKE AVE.

INTERSTATE 4

CENTRAL FLORIDA PKWY

S.R. 528

LEGEND

-  RURAL/AGRICULTURAL
-  CONSERVATION/WETLANDS/WATER BODY
-  COMMERCIAL/ACTIVITY CENTER/MIXED USE
-  INSTITUTIONAL
-  RESIDENTIAL

I-4 P.D. & E.

FUTURE LAND USE

FIGURE 5 (CONT)

Future land use along the I-4 corridor is dominated by activity centers. The activity center or mixed-use designation may contain several different types of land uses including commercial, residential, hotel, and office. While the existing land uses from the Polk/Osceola County line to U.S. 192 are primarily undeveloped or agricultural, the future land uses in this area are mixed, including commercial, hotel and entertainment/recreation. There are several parcels of land north of I-4 which will remain agricultural and the area around Reedy Creek will retain its conservation designation in the future. While there are no residential uses existing in this area, south of I-4 there are several residential areas planned in the future. The I-4/U.S. 192 interchange will continue to consist of activity centers with a mixture of uses.

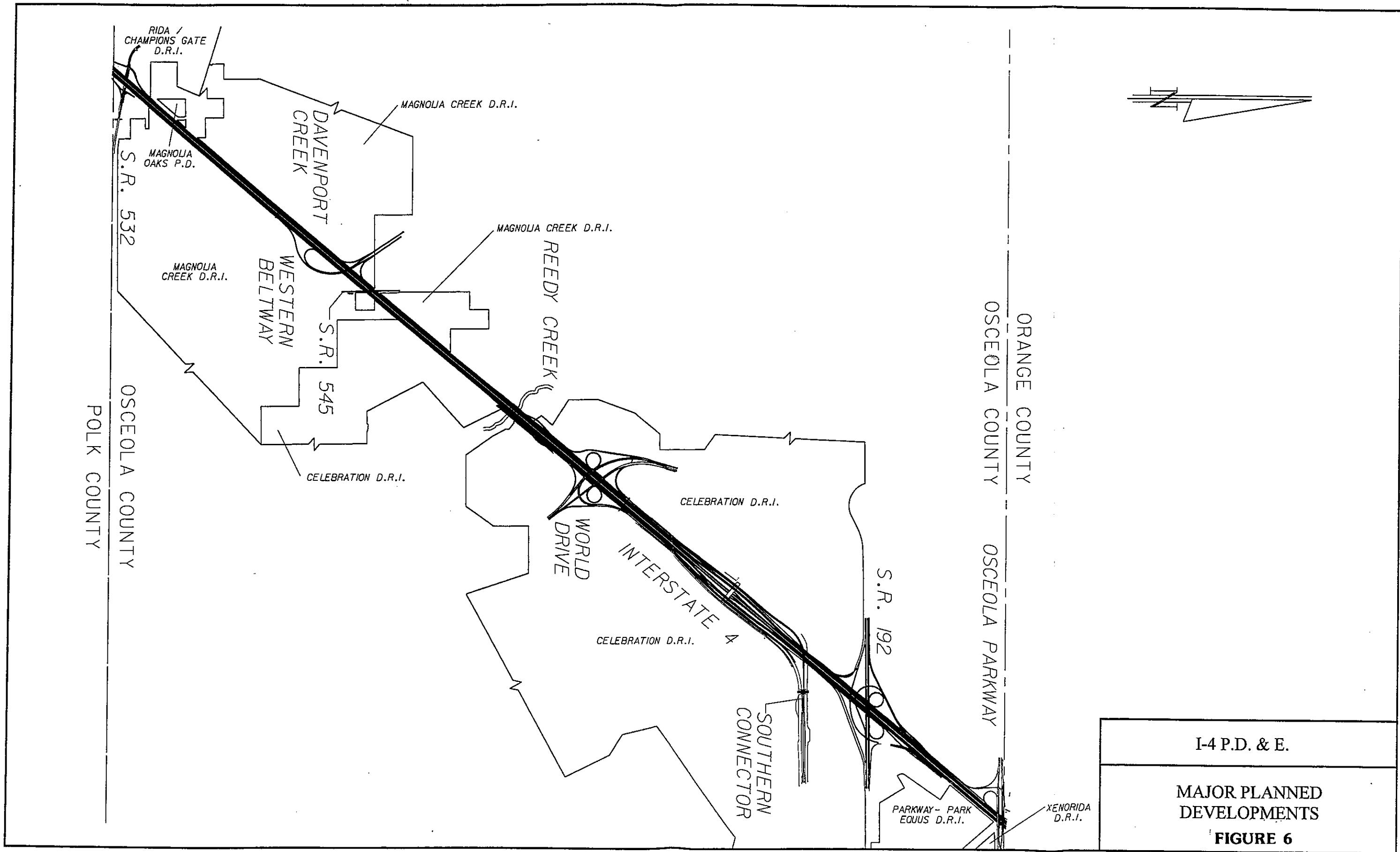
Between U.S. 192 and Osceola Parkway, land north of I-4 is currently undeveloped, but is planned for commercial, hotel, entertainment/recreation or office uses. The area north of I-4 from Osceola Parkway to S.R. 536 will retain its agricultural and conservation use in the future. Land south of I-4 will continue to have hotel uses and activity centers. From S.R. 536 to the BeeLine Expressway, activity centers with a mixture of uses are planned for the entire corridor, including a small residential area east of S.R. 535 and conservation area around Bonnet Creek west of the Central Florida Parkway. There is also a significant residential area planned north of the I-4/BeeLine interchange.

It is clear from the map depicting future land use that the I-4 corridor is planned for intense development consisting of commercial, hotel, office, entertainment/recreation and some residential uses, representing an intensification of uses already existing along I-4. A major component of the transition between existing and future land uses is Planned Developments (PD) and DRIs. There are several significant developments located adjacent to the I-4 corridor which are already approved. These developments range in size from 4 hectares (10 acres) to over 2023 hectares (5,000 acres). A complete list of major developments located along I-4 and the development status of each is provided in Table 3. The location of these developments is shown in Figure 6. Although these developments have already received approval, only a few have actually started construction. Significant development currently exists within Celebration DRI, Parkway-Park Equus DRI, Marriott World Center DRI, Lake Vista Village PD and Vistana PD. The undeveloped properties include Magnolia Oaks PD, Magnolia Creek DRI, Bonnet Creek DRI, Greene Project DRI, Waterford Commons PD, Vineland Pointe PD, Ruby Lake Ranch PD, Rida/Champions Gate DRI and Interstate 4 Plaza DRI. The level of development planned or approved in the I-4 corridor indicates that this area will experience tremendous growth in the future.

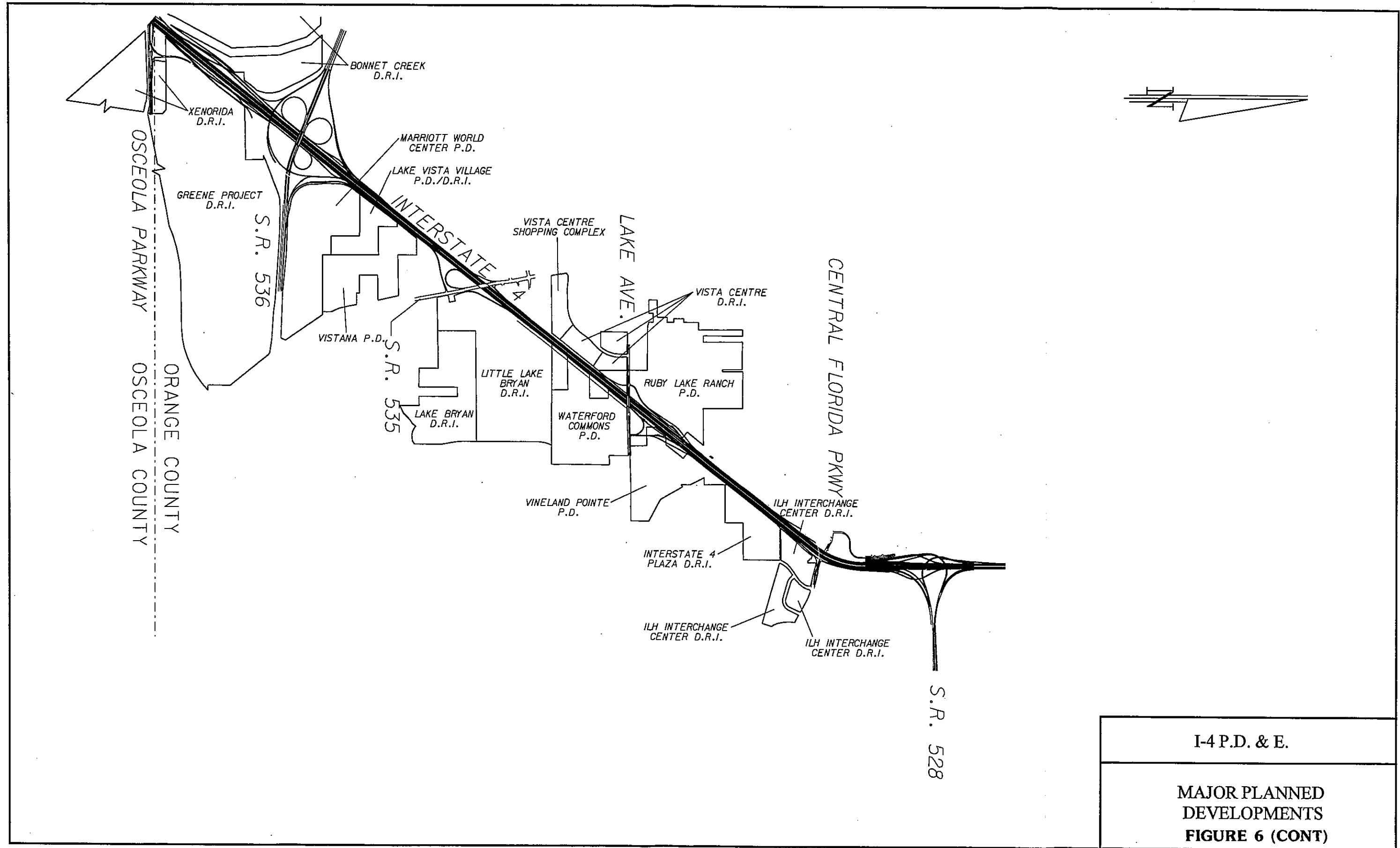
All of the major developments identified in this section have been approved through the DRI or Planned Development (PD) process. As part of the approval process, the transportation impacts and appropriate mitigation for these projects were identified, such as improvements to local roads. Therefore, the transportation impacts of these major developments have been addressed, including those involving I-4. Specifically, the improvement proposed with the current project will support the growth of these developments by providing the required transportation facilities for the service area.

Table 3. DRIs/Planned Developments

DRI/Development	Location adjacent to I-4	Size (Acres)	Commercial (s.f.)	Hotel (rooms)	Resort Res./ Time Share (units)	Permanent Residential (du.)	Development Program						Status: Existing, Under Construction or Approved/Vacant	
							Office (s.f.)	Business Park (s.f.)	Industrial (s.f.)	Medical Center (beds)	Conference Center (s.f.)	Golf Course (holes)		Theatre (seats)
Rida/Champions Gate DRI	North	1212	426,000	4,136	1,636	—	148,104	—	—	—	—	54	—	Approved/Vacant
Magnolia Oaks PD	North	10	114,250	—	—	—	—	—	—	—	—	—	—	Approved/Vacant
Magnolia Creek DRI	North + South	2,130	400,000	1,200	2,064	3,736	500,000	1,200,000	—	—	—	18	—	Approved/Vacant
Celebration DRI	North + South	5,150	2,125,000	810	325	8,065	3,100,000	—	3,560,000	150	—	18	—	Under Construction
Parkway-Park Equus DRI	South	194	144,000	2,018	360	652	—	—	—	—	—	—	1,200	Existing, Some Vacant
Xenorida DRI	South	216	471,077	5,050	—	520	1,250,000	—	—	—	—	—	—	Approved/Vacant
Greene Project DRI	South	865	265,000	6,000	600	1,200	300,000	—	—	—	—	18	—	Approved/Vacant
Bonnet Creek DRI	North	482	50,000	3,000	1,635	—	—	—	—	—	250,000	—	—	Approved/Vacant
Marriot World Center PD	South	206	—	2,003	401	—	—	—	—	—	—	18	—	Existing
Lake Vista Village PD/DRI	North	50	—	1,838	—	—	—	—	—	—	—	—	—	Existing
Vistana PD	South	131	30,805	—	1,034	—	64,485	18,724	—	—	—	—	—	Existing
Little Lake Bryan DRI	South	300	375,000	1,380	—	2,700	—	—	—	—	—	—	—	Under Construction
Lake Bryan DRI	Not Adjacent (South)	163	225,000	2,000	—	—	—	—	—	—	—	—	—	Approved/Vacant
Waterford Commons PD	South	—	399,000	1,245	—	547	72,500	—	—	—	—	—	—	Approved/Vacant
Vineland Pointe PD	South	113	85,600	245	358	440	—	—	—	—	—	—	—	Approved/Vacant
Vista Centre DRI	North	28	—	400	325	—	—	—	—	—	—	—	—	Under Construction
Ruby Lake Ranch PD	North	270	2.5 acres	—	765	97	—	—	—	—	—	—	—	Approved/Vacant
Interstate 4 Plaza DRI	South	72	175,000	1,200	315	—	—	—	—	—	—	—	—	Approved/Vacant
ILH Interchange Center DRI	South	77	130,000	1,600	1,000	—	—	—	—	—	—	—	—	Approved/Vacant



I-4 P.D. & E.
 MAJOR PLANNED DEVELOPMENTS
 FIGURE 6



I-4 P.D. & E.
MAJOR PLANNED DEVELOPMENTS FIGURE 6 (CONT)

Community Cohesion

The proposed project corridor utilizes the existing I-4 roadway and therefore will not adversely affect community cohesion. Although there are approved developments with property both north and south of I-4, the roadway existed long before these developments were approved. Therefore, the proposed improvements will not split existing neighborhoods or isolate ethnic groups or neighborhoods (Civil Rights Act of 1964, as amended by the Civil Rights Act of 1968). Additionally, the I-4 project will not create development patterns different than those already existing or planned for the community. Improvements to I-4 will facilitate new in-fill development, as well as providing enhanced service to those developments already approved. The project will also provide additional capacity to serve commuters, enhance public safety and increase mobility for the community. The project will not affect non-vehicular travel or impede pedestrian access.

Relocations and Acquisitions

Because I-4 is an existing facility, a minimal amount of ROW acquisition will be required for the proposed improvements. Therefore, only minor impacts to adjacent properties and major developments are expected. Based on a review of the available land use information, it appears that there will be areas of up to 4.1 hectares (10.2 acres) of ROW and 22.6 hectares (55.8 acres) for ponds that may need to be purchased from adjacent properties.

The Rida property located north of I-4 adjacent to the Osceola/Polk county line is being proposed for a DRI, although it has not received final approval. The Magnolia Oaks PD is approved for commercial development adjacent to I-4, but no development currently exists. Property will need to be acquired from the Magnolia Creek DRI to satisfy additional ROW needs. This DRI is approved for Business Park, Commercial, Mixed Use, Resort Residential, Hotel, Residential and Golf Course adjacent to I-4, but no development currently exists. In addition, the Master Development Plan for the Magnolia Creek DRI shows an internal road located adjacent to I-4 which may be impacted by proposed pond sites located south of the interstate.

The impacts described above represent the overall impacts for the I-4 Section 1 improvements. If Section 1 is constructed prior to Section 2, two additional relocations will become necessary. The Sea World Sales & Promotion Office building, located near the BeeLine Expressway interchange (parcel code 1001), will be impacted. The additional ROW required for the construction of Section 2 in this area will involve approximately 5 percent of the total property. Additionally, the proposed location of Pond B-2, immediately west of the Sand Lake Road interchange, involves one residential relocation. The additional ROW required for Pond B-2 will involve most of this parcel and will take the existing single-family residence.

A Conceptual Stage Relocation Plan was prepared for the proposed I-4 improvements in accordance with Florida Statute 339.09, the Uniform Relocation Assistance and Real Property Acquisition Act of 1970 (Public Law 91-646) and the FDOT PD&E Manual. A copy of this plan is available at the FDOT District V office in DeLand, Florida. In order to

minimize the unavoidable effects of ROW acquisition and displacement of people, FDOT will carry out a ROW Acquisition and Relocation Assistance Program.

Community Services

Community services refer to schools, churches, recreation areas, governmental agencies, medical facilities, community centers and police and fire protection. Section 1 of the I-4 corridor contains several of these services which were identified through existing data review, contact with public agencies and field reviews along the corridor (Table 4, Figure 7). As an existing roadway, improvements to I-4 are not expected to create any disruption to these properties. No existing or planned schools, social service agencies, recreation areas or police and fire facilities were identified within the Section 1 corridor.

The two religious facilities within the I-4 corridor are the Oak Hill Baptist Church and Cemetery and Mary Queen of the Universe Shrine. The Oak Hill Baptist Church is located at the Polk/Osceola county line south of I-4. The church has 200 resident members, but also serves tourists and seasonal residents with regular services on Sundays. Mary Queen of the Universe Shrine is a tourist ministry located at Vineland Avenue. As a result of their size and location, this church serves both residents and international tourists with daily services. Weekday services typically consist of 100 to 150 people, while weekend services can draw up to four or five thousand people.

Celebration Health – Florida Hospital is the only medical facility located within this section of the corridor. Upon completion, the hospital will be a 1,478-bed acute care facility that serves the seven counties of the Central Florida area. Currently, on-site medical practices and the fitness center are open. Celebration Health has received approval for 60 hospital beds, which will be completed in August 1998.

Two major intermodal transfer facilities exist near the I-4 corridor. The Orlando International Airport (OIA) is located just south of the S.R. 436/BeeLine Expressway interchange. OIA's service area extends into ten counties surrounding the Orlando metropolitan area. The Kissimmee Amtrak Station is located near the intersection of U.S. 17-92 and U.S. 192 in Kissimmee. Its service area extends approximately eight miles north and nine miles south. Although both of these facilities are located several miles from the I-4 corridor, they are mentioned here because of their large service areas.

Additionally, the FOX HSR line is proposing two terminals serving the Orlando area. The proposed attractions station would be located on or near International Drive south of the BeeLine Expressway and north of U.S. 192. The airport station would most likely be located at the north and (proposed) south terminal at Orlando International Airport.

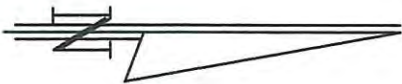
The Sand Lake Branch Post Office is located in the northern part of Section 1 at Turkey Lake Road. Its service area extends along I-4 from the Orange/Osceola county line north to the Florida Turnpike and extends up to five miles east and six miles west of the I-4 corridor.

Table 4. Community Services

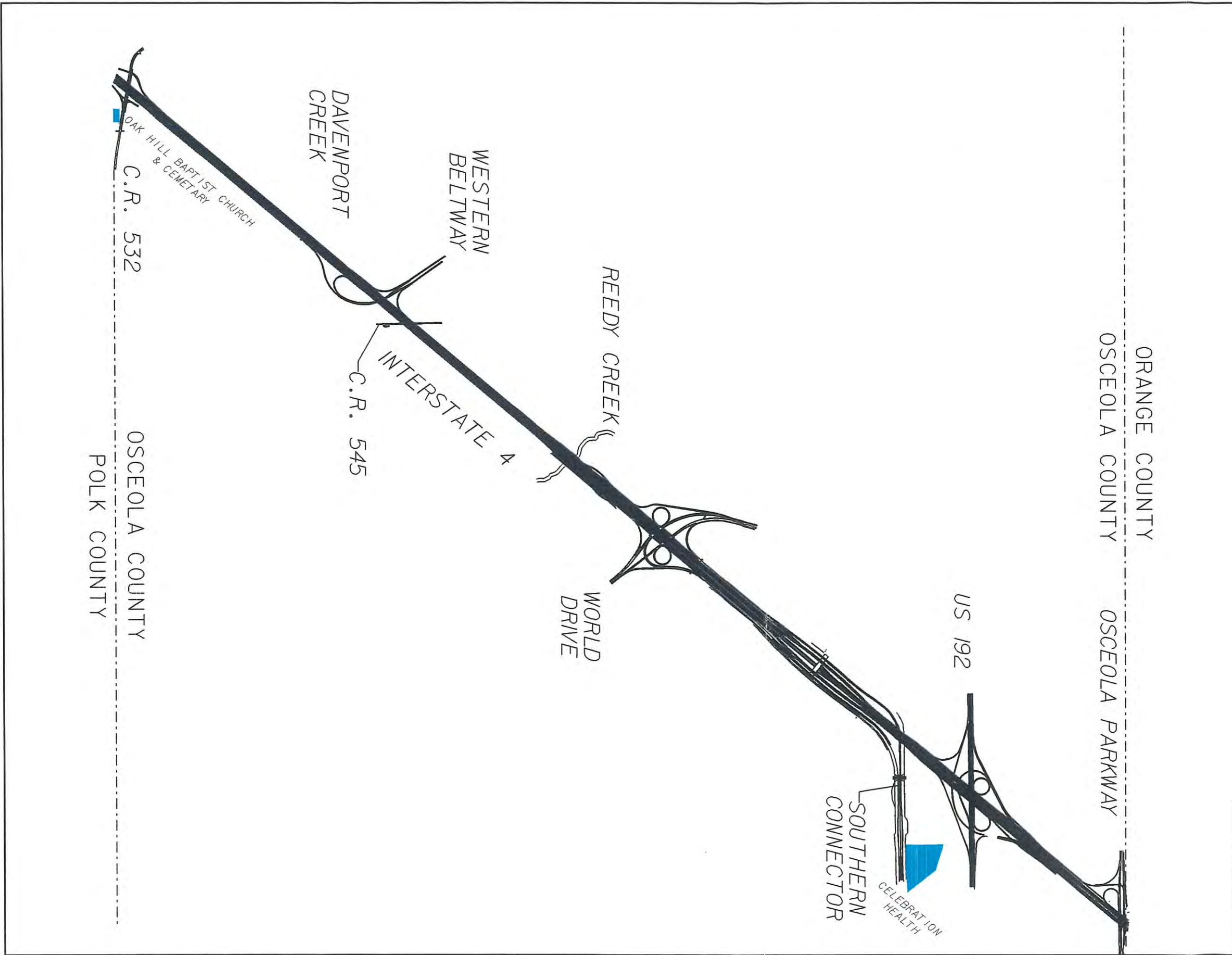
CATEGORY	DESCRIPTION	CONDITION	COUNTY	LOCATION
Schools	---	---	---	---
Recreation Areas	---	---	---	---
Churches	Mary Queen of the Universe Shrine *	Existing	Orange	Vineland Avenue
	Oakhill Baptist Church & Cemetery *	Existing	Osceola	SR 532
Social Service Agencies	---	---	---	---
Medical Facilities	Celebration Health Center	Under Construction	Osceola	Celebration Place
Community Centers	---	---	---	---
Police and Fire Protection	---	---	---	---
Other Community Services	Orlando International Airport **	Existing	Orange	SR 436 & SR 528
	Kissimmee Amtrak Station **	Existing	Osceola	US 17-92 & US 192
	Sand Lake Branch Post Office	Existing	Orange	Turkey Lake Rd.
	FOX Stations**	Potential Potential	Orange Orange	International Drive Orlando International Airport
	Water Treatment Facility	Existing	Osceola	Parkway Blvd.

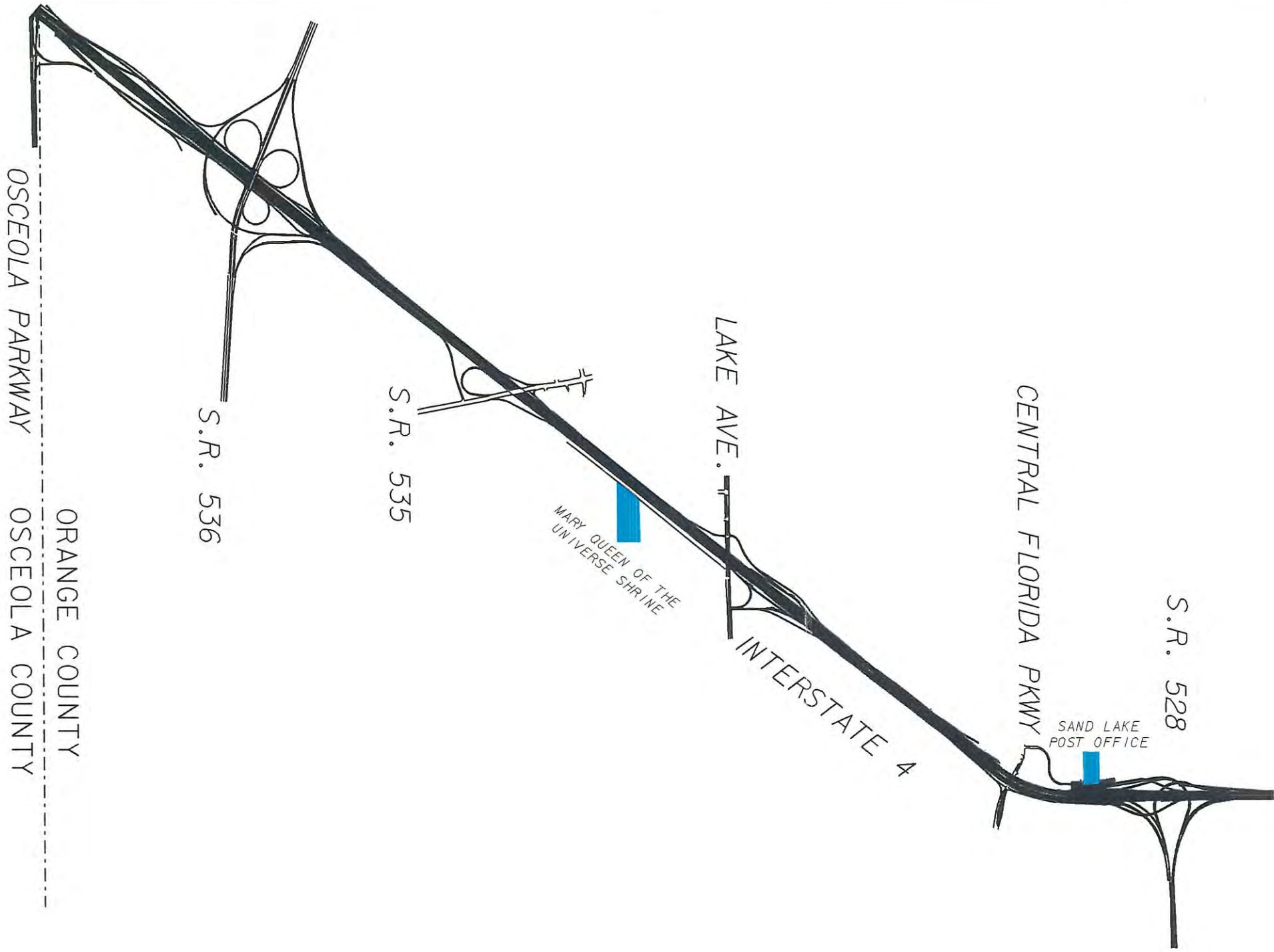
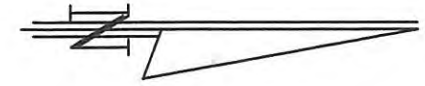
* - Cultural Resources adjacent to I-4 with the potential for disruption from I-4 improvements, from Conceptual Engineering Report, PBS&J Team, October 1996

** - Not adjacent to I-4, but within service area for these facilities



I-4 P.D. & E.
COMMUNITY SERVICES
FIGURE 7





I-4 P.D. & E.

COMMUNITY SERVICES

FIGURE 7 (CONT)

Utility sites which exist along the I-4 corridor include a small water treatment facility located next to the Hyatt Hotel off of Parkway Boulevard and an on-site sewage treatment system at the Paradise RV Park. These are private facilities that only provide service to the properties on which they are located. In addition, a TECO substation is located at World Drive and a natural gas gate valve is located in the northwest quadrant of I-4 and C.R. 545.

Two properties may potentially be impacted by the proposed I-4 improvements. Those properties include Mary Queen of the Universe Shrine and Marriott World Center Golf Course. Additional ROW will need to be acquired for the I-4 improvements. However, based on a review of the available land use information, the I-4 improvements will have a minimal impact on the identified community services. Additional ROW of up to 2.8 hectares (7.0 acres) may need to be acquired on the Disney Sports Complex property for interchange modifications. These activities will not affect the developed areas of the properties or inhibit access.

New ROW acquisition will result in minor impacts to Pirate's Cove Mini-Golf, Mary Queen of the Universe Shrine and the Hyatt water treatment facility (aerial easement). No new ROW will be acquired which affects the Marriott World Center, Paradise Adventure Mini-Golf, Oak Hill Baptist Church and Cemetery, Celebration Health Center, Orlando International Airport, Kissimmee Amtrak Station, Sand Lake Branch Post Office or the proposed FOX stations. The proposed I-4 improvements will not alter the accessibility to these services and most of these community services will benefit as they have large service areas and the improvements will provide greater accessibility to these services.

The impacts described above represent the overall impacts for Section 1. If Section 1 is constructed prior to Section 2, two additional community services are located within the project corridor, the Sand Lake Hospital and YMCA Aquatic Center. However, no impacts will be associated with either of these locations.

4.2 Cultural Resources

Archaeological and Historical

As required by Section 106 of the National Historic Preservation Act of 1966 (amended by P.L. 89-655), Archaeological and Historic Preservation Act (amended by P.L. 93-291), Executive Order 11593 and Chapter 267 of the Florida Statutes, a Cultural Resource Assessment, including background research and a field survey coordinated with the State Historic Preservation Officer (SHPO), was performed for the project. As a result of the assessment, 57 prehistoric archaeological sites were recorded within 1.6 kilometers (0.6 miles) of the project area (Figure 8). Background research indicates that these sites would most likely be small lithic or artifact scatters. FHWA, after application of the National Register Criteria of Significance, found that the sites to be impacted are not eligible for listing on the National Register of Historic Places. The SHPO rendered the same opinion. The Cultural Resource Assessment was submitted to SHPO for review and concurrence in

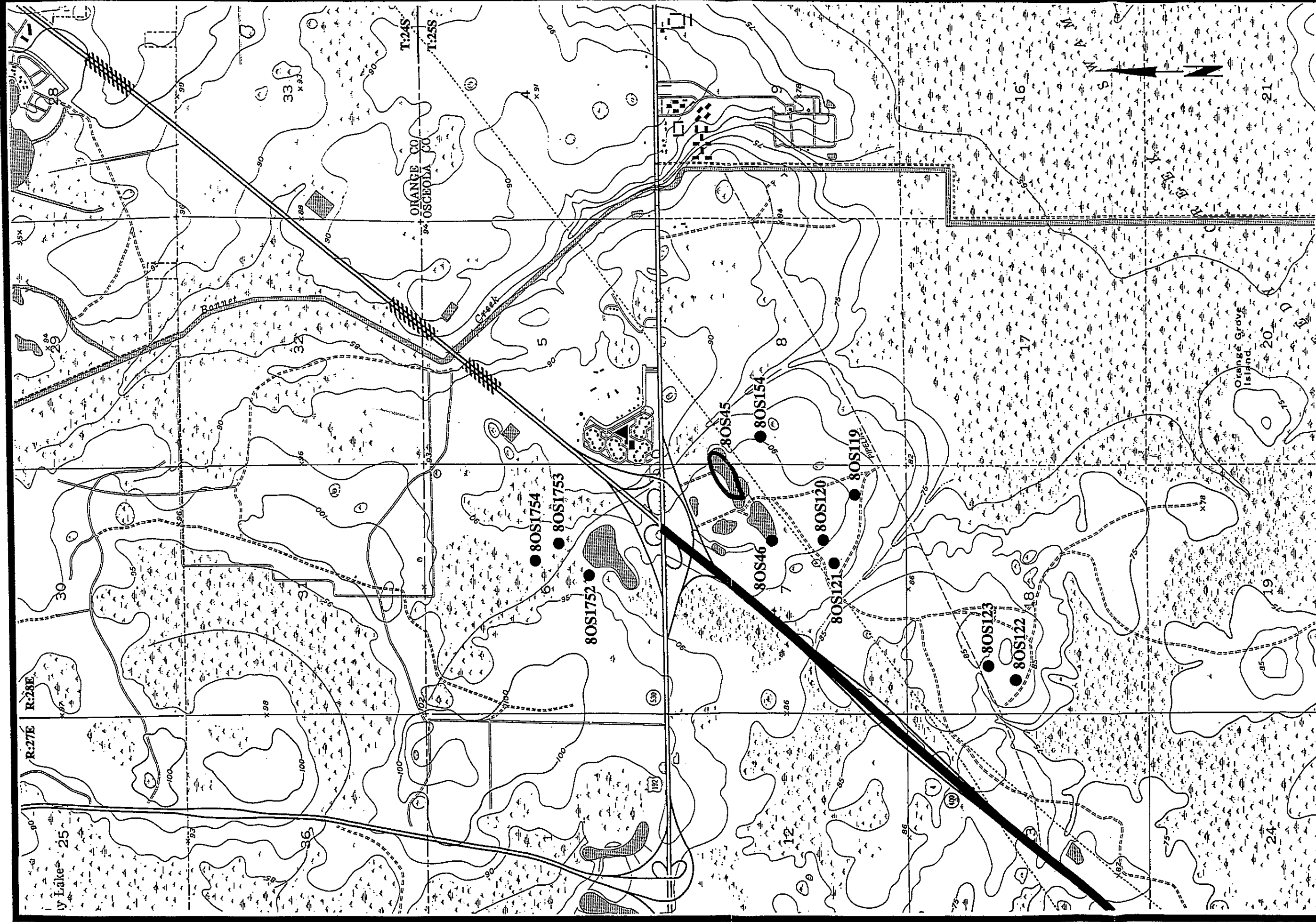


FIGURE 8

(CONT). Previously Recorded Archaeological Sites and Archaeological Probability Zones. Diamond pattern = HPZ; crosshatch pattern = MPZ; black line = previous survey area. USGS Intercession City, Fla. 1953, PR 1980, PI 1985; Townships 24/25 South, Ranges 27/28 East. Scale 1:24,000.

I-4 (S.R. 400) PD&E Study
 from C.R. 532 to S.R. 528 in
 Osceola & Orange Counties
 SPN: 92130-1425 & 75280-1479
 WPI: 5147330 & 5147254
 FAP: N/A & NH-4-2(169)65

May 1998. The report is available at the FDOT District V office in DeLand, Florida. Based on the fact that no additional archaeological or historic sites are expected to be encountered during subsequent project development, both the FHWA and SHPO (July 7, 1998) have determined that there will be "no effect" on Section 106 properties as a result of the proposed I-4 improvements.

The impacts described above represent the overall impacts for Section 1. No additional archaeological impacts are anticipated if Section 1 is constructed prior to Section 2.

Recreational and 4(f) Lands

The proposed project will not involve any activities within public parks, recreation areas or wildlife refuges. The area around Reedy Creek was evaluated for potential applicability of Section 4(f) of the U.S. Department of Transportation Act of 1966 since the I-4 project will require additional ROW north and south at the point where Reedy Creek is crossed. However, following evaluation of these properties with regard to Section 4(f) criteria, it has been determined that Section 4(f) does not apply based on private ownership and the absence of historic and archaeological resources. A Technical Memorandum was submitted (May 1998) to the State Historic Preservation Officer (SHPO) for review. SHPO agreed with the the 'no effect' determination; the Section 4(f) Memorandum and SHPO concurrence letter (July 7, 1998) are shown in Appendix C.

The impacts described above represent the overall impacts for Section 1. The construction of Section 1 prior to Section 2 will not result in additional impacts to recreational and 4(f) lands.

4.3 Natural Impacts

Wetlands

A total of 210 wetlands, representing a variety of community types, are present along the 720-meter-wide (2400 foot) study corridor through Osceola and Orange counties. These range from extensive and semi-pristine areas, such as Reedy and Davenport Creeks and isolated cypress domes, to highly disturbed sites such as utility easements and ditches. Wetlands account for 316 hectares (780 acres) within the project study area. Forested wetlands comprise the majority of the wetlands along the corridor, with non-forested and open water wetlands being approximately equally represented (Table 5). Forested wetlands within the project limits comprise five community types, primarily composed of cypress, hardwood and mixed forest swamps with bay and pond pine swamps represented to a lesser extent. The non-forested wetlands are classified into habitat categories including waterways, inland ponds, shrub marshes, emergent marshes and wet prairies.

Table 5. Summary of wetland communities occurring within the I-4 corridor

Forested		Non-Forested		Open Water	
Hardwood Swamp	36	Emergent Marshes	31	Drainage Ponds	38
Cypress Swamp	25	Shrub Marshes	29	Natural Waterways	9
Mixed Forest Swamp	18	Wet Prairies	5	Borrow Pits	7
Bay Swamp	3			Golf Course Ponds	4
Pond Pine Swamp	2			Canals	3
Total	84	Total	65	Total	61

Wetland quality and functional values were assessed using the U.S. Army Corps of Engineers (COE) Wetland Evaluation Technique, version 2.1 (WET II). Using this procedure, one or more wetlands representative of each classification were selected for analysis. Functions such as importance to wildlife, capacity for flood storage, removal of nutrients, sediment stabilization and value in human recreation rate as low, moderate or high.

Three natural stream ecosystems are present along the project corridor. Reedy and Davenport Creeks are the most extensive swamp systems. Both are currently crossed by I-4 via bridges and box culverts. The Davenport Creek system is the last remaining linkage between the Green Swamp and Reedy Creek/Kissimmee River. Reedy Creek, being part of an extensive drainage basin and associated with a large cypress swamp, has been placed into conservation by the Celebration DRI. Specifically, riparian habitat 150 meters (500 feet) on either side of the stream centerline has been designated. Both of these systems rate high in such wetland functions as flood flow alteration and sediment stabilization as well as importance to wildlife functions (i.e., breeding, migration, wintering). The third stream system, Bonnet Creek, drains Bay Lake and Cypress Creek and lies within the Reedy Creek Drainage Basin. This waterway is presently channelized and contains water control structures both upstream and downstream of the existing I-4 crossing. Little Lake Bryan, Lake Willis and Big Sand Lake are the natural lakes occurring along the corridor. These range in size from less than 4 hectares (10 acres) in area to over 40 hectares (100 acres). Uplands around these waterbodies are partially developed either by I-4 or residential and light commercial activities. Recreation values for these lakes rate high compared to other wetlands within the study area as human uses of these areas include swimming, fishing/boating and nature appreciation. Many of the remaining non-forested wetland communities are the result of anthropogenic activities, such as drainage ponds, borrow pits, roadside ditches and utility easements. While these systems do not generally rate high for wildlife or recreation values, other functions are important. For example, these altered and man-made wetlands provide important flood storage during storm events and help filter particulates from runoff.

Throughout the development of the preferred alternative, avoidance and minimization techniques have been implemented whenever possible along the project corridor. The use of the current I-4 alignment substantially reduces the degree of wetlands that would be impacted if a new alignment was chosen. Additionally, adjustments in median and ROW widths as well as interchange configurations have been made to avoid direct and indirect impacts to wetlands within the study area. Existing ditches and stormwater systems will be maintained when feasible and any relocations will generally be incorporated adjacent to existing wetland areas. The location of these facilities in these areas will serve as buffers and may provide additional fresh water to areas which have previously been adversely impacted by drainage and/or construction activities.

Although every practical effort has been made to avoid wetland encroachment, the preferred alternative will impact approximately 28.4 hectares (71.0 acres) of wetlands along Section 1 (Table 6). Within the project corridor, approximately 14.3 hectares (36.3 acres) of forested wetlands, 9.4 hectares (23.3 acres) of non-forested systems and 4.7 hectares (11.4 acres) of open water areas will be impacted. The majority of the forested impacts will occur in hardwood and mixed forest swamps while the proposed non-forested encroachments are relatively equal among emergent and shrub marshes. Overall, impacts to open water wetlands will be minimal. Additionally, approximately 7.5 hectares (18.5 acres) of the total wetland impacts will occur in existing drainage ditches along the project corridor. Based on the above considerations, it is determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use. The Wetland Evaluation Report provides more detail and is available for review at the District V office in DeLand, Florida.

Early coordination with SFWMD and COE regarding mitigation for the proposed impacts associated with the construction of the I-4 improvements has occurred throughout the project study. Wetland impacts which will result from the construction of this project will be mitigated for pursuant to s373.4137 F.S. to satisfy all mitigation requirements of Part VI Chapter 373, F.S. and 33 U.S.C. s1344. A concurrence letter from SFWMD was received in February 1998 verifying their intent to accept mitigation for these impacts in accordance with this state legislation. The Wetland Evaluation Report was submitted to the COE and SFWMD in March 1998 for review and concurrence with the project. Following review of the Wetland Report, the SFWMD did not have any questions or comments on the proposed project's need, design or wetland impacts and mitigation (telephone records May 21 and October 5, 1998). A concurrence letter from the COE was received in June 1998, indicating their conclusion that all practicable measures have been taken to avoid and minimize harm to wetlands

The impacts described above represent the overall impacts for Section 1. The construction of Section 1 prior to Section 2 will result in an additional 4.6 hectares (11.5 acres) of wetland impacts. These impacts primarily involve man-made and disturbed wetlands such as ditches and utility easements. The exception includes a single unaltered mixed forested system along the BeeLine Expressway.

Table 6. Summary of Wetland Community Impacts

Forested	Size ha (ac)	Impact ha (ac)	Non-Forested	Size ha (ac)	Impact ha (ac)	Open Water	Size ha (ac)	Impact ha (ac)
Hardwood Swamp	89.8 (221.8)	8.2 (20.3)	Emergent Marshes	10.6 (26.1)	4.2 (10.4)	Drainage Ponds	33.8 (83.5)	3.0 (7.3)
Cypress Swamp	43.9 (108.5)	1.6 (4.1)	Shrub Marshes	13.8 (34.0)	5.1 (12.6)	Natural Waterways	25.7 (63.4)	0.6 (1.4)
Mixed Swamp	60.7 (150.0)	3.9 (9.7)	Wet Prairies	6.1 (15.1)	0.1 (0.1)	Borrow Pits	10.8 (26.6)	0.3 (0.8)
Bay Swamp	11.9 (29.4)	0.2 (0.6)				Golf Course Ponds	2.6 (6.5)	0.0 (0.0)
Pond Pine Swamp	1.3 (3.2)	0.4 (0.9)				Canals	4.7 (11.6)	0.8 (1.9)
Total	207.6 (513.0)	14.3 (36.3)	Total	30.4 (75.2)	9.4 (23.3)	Total	77.5 (191.6)	4.7 (11.4)

Water Quality

The proposed project and its potential for effects to water quality have been considered as part of this PD&E study. Osceola and Orange counties, and therefore the entire project alignment, are located within the streamflow and recharge zone of the sole source Biscayne Aquifer. In addition, public water supply wellfields and treatment facilities are located within 1.25 kilometers (2 miles) of I-4. Based on the proximity of these resources, a detailed Water Quality Impact Evaluation (WQIE) was performed. The WQIE checklist is included in Appendix C, as well as a map depicting the locations of public water supplies. The Kissimmee West Wellfield is located approximately 1.25 kilometers (2 miles) northwest of I-4 north of U.S. 192. This wellfield is hydrologically upstream of the project area and would not be influenced by project activities. The Camelot West Wellfield and the Vistana Water Treatment Plant are both located south of I-4 near U.S. 192 and S.R. 536, respectively. An Environmental Protection Agency (EPA) review of a project information package (sent January 30, 1998) indicated that EPA will be interested in reviewing all project phases as the location falls within the boundaries and recharge zone of the Biscayne Aquifer. EPA has concurred that the planned practices should adequately protect the sole source aquifer and the project is therefore confirmed to move ahead. The response letter is included in Appendix C (April 2, 1998).

Water quality should be enhanced as a result of the proposed project. There are portions of I-4 within the project limits which do not meet current stormwater requirements. The proposed project will have stormwater treatment facilities, including ditches, swales and ponds, which will meet or exceed current requirements. The proposed stormwater facility design will include, at a minimum, the water quantity requirements for water quality impacts as required by SFWMD in Chapters 40E-4, 40E-40 and 40E-41, FAC. Therefore, no further mitigation for water quality impacts will be needed. Please see the attached WQIE checklist for additional information.

Wild and Scenic Rivers

No waterways that are listed in the National Park Service Southeastern Rivers Inventory are present within the project limits. Therefore, the coordination requirement for the Wild and Scenic Rivers Act does not apply to this project.

Floodplains

The extent of floodplains within the project corridor was based on 100-year flood elevations on Federal Insurance Rate Maps published by the Federal Emergency Management Agency (FEMA). It should be noted that part of the project area encompassing a significant portion of the Reedy Creek Swamp is independently insured and therefore not included in the FEMA flood area mapping. Surface waters within this area are managed by the RCID and flood zone determinations are not available. The proposed project does not involve impacts to any designated regulatory floodways, according to both FEMA maps and coordination with

RCID. Along the project corridor, approximately 259 hectares (639 acres) lie within the FEMA 100-year floodplain.

Floodplain encroachments will be necessary in order to construct the proposed widening of I-4. Encroachments are proposed in the following floodplains: Davenport Creek Swamp, Davenport Creek, Reedy Creek Swamp, Reedy Creek, Bonnet Creek, Black Lake, Lake Willis and Big Sand Lake. Floodplain impacts have been minimized as much as possible with the use of walls to limit the amount of fill placed below the 100-year flood elevation. Compensating storage volumes will be provided within each of the floodplains to avoid any increase to the flood stages. Encroachments associated with proposed improvements along Section 1 of I-4 will impact approximately 15.2 hectares (37.6 acres), with effectively all of these impacts occurring in segment 1. Minimal impacts (4.1 ha/10.1 ac) are associated with segments 2 and 3, and segment 4 will not encroach into any floodplains.

Potential impacts to the existing hydrologic conditions within the project area were determined in accordance with Executive Order 11988 "Floodplain Management" and Chapter 23, CFR Part 771 "Environmental Impacts and Related Procedures." The results are detailed in the Location Hydraulics Report, on file at the FDOT District V office in DeLand, Florida. Based on the Location Hydraulics Report, the proposed improvements to I-4 are categorized as replacement of existing drainage structures without record of prior drainage problems and do not involve regulatory floodways or incompatible base floodplain development. The drainage structures proposed with the current project will perform hydraulically in a manner equal to or greater than the existing structure and backwater surface elevations are not expected to increase. As a result, there will be no significant adverse impacts on natural and beneficial floodplain values. There will also be no significant change in flood risk or potential for interruption or termination of emergency service or emergency evacuation routes. Therefore, it has been determined that the floodplain encroachment proposed for the current project is not significant. Additionally, it has been determined through consultation with local, state and federal water resources and floodplain management agencies that there is no floodway involvement on the proposed project and that the project will not support base floodplain development that is inconsistent with existing floodplain management programs.

The impacts described above represent the overall impacts for Section 1. The construction of Section 1 prior to Section 2 will not result in additional floodplain impacts.

Coastal Zone Consistency

The State Clearinghouse Intergovernmental Affairs Policy Unit, Office of the Governor has determined that this project is consistent with the Florida Coastal Management Program (FCMP) at the Advance Notification Stage (see letter in Appendix C, dated July 18, 1996).

Wildlife and Habitat

Certain habitats are considered essential to wildlife species because of location, quality or limited availability. Those habitat areas which have been designated by the U.S. Fish and Wildlife Service (USFWS) to be 'critical to the survival' of an endangered species are denoted as *critical habitat*. According to the USFWS' Red Book, this project is not located within or adjacent to any designated critical habitat. However, several habitat types are important to wildlife, particularly protected species. For example, wetlands provide foraging habitat and cover for wading birds and habitat for American alligators. No wading bird rookeries are documented within the project corridor, with the two closest localities (OSCE001001 and OSCE001011) being over a mile southeast of I-4 within Reedy Creek. During the field surveys, two broad categories of natural habitats for protected species, scrub and wetlands, were identified along the project corridor.

Scrub habitats important to several listed species are numerous along the corridor. Six scrub communities are present along the proposed I-4 expansion corridor, including oak scrub, sand pine scrub and scrubby flatwoods. All scrub areas within the proposed project corridor are geographically located on Florida's central ridge system. The scrub communities support animal and plant species adapted to xeric conditions. Under normal ecological conditions, the areas support a low density pine tree canopy with a sub-canopy of woody shrub species. The ground cover is typically dominated by both woody and herbaceous species that require high sun exposure. Although ground cover can achieve 100% areal cover, large areas of nonvegetated sand frequently occur. The soils are extremely well-drained, siliceous sand that contain little to no silt, clay or organic material, resulting in very low nutrient substrata. The quality of scrub communities along the proposed corridor have been affected by development, resulting in the fragmentation and/or isolation of several scrub communities. Beyond development impacts, canopy closure resulting from the lack of a natural fire regime reduces habitat quality for many plant and wildlife species. As most protected plant species that occur in scrub are herbaceous, maintenance of groundcover diversity is important.

With respect to providing habitat and cover for wildlife, both Reedy and Davenport Creeks are clearly the most important wetland systems within the project limits. The existing I-4 crossing locations provide essential aquatic and terrestrial connectivity between portions of these systems bisected by the existing alignment of I-4. The concrete piling supported bridge structure currently spanning the main channel of Reedy Creek provides the major habitat link for this swamp system. In addition to the aquatic connection, the stream channel is bordered by a terrestrial buffer which allows for unimpeded small mammal movement. Davenport Creek system currently is crossed via a series of concrete box culverts. The largest of these crossings consists of a multiple-opening (4) box arrangement at the main stream channel. The culvert structures within the Davenport Creek system provide aquatic connectivity and allow terrestrial animal access only during low water stages. As the hydrologic openings within these systems must be preserved to meet drainage requirements, opportunities to alter the configurations of the structures in order to enhance wildlife usage will be considered during future design phases.

Twenty-three threatened and endangered species and thirteen species of special concern have been determined to occur in Osceola and Orange counties and are considered to potentially occur along the project corridor. Coordination with state and federal agencies and site surveys have identified specific localities for eight protected species within the designated I-4 corridor (Table 7).

Table 7. Protected species with known localities within the I-4 corridor

Scientific Name	Common Name	State Status	Federal Status
<i>Alligator mississippiensis</i>	American alligator	S	T
<i>Drymarchon corais couperi</i>	Eastern indigo snake	T	T
<i>Egretta caerulea</i>	Little blue heron	S	
<i>Egretta tricolor</i>	Tricolored heron	S	
<i>Gopherus polyphemus</i>	Gopher tortoise	S	
<i>Lechea cernua</i>	Scrub pinweed	T	
<i>Lupinus aridorum</i>	Scrub lupine	E	E
<i>Nolina brittoniana</i>	Britton's bear grass	E	E

Note: T=threatened, E=endangered, S=species of special concern

Although critical habitat for listed species has not been designated in the vicinity of the current project, it is apparent that scrub habitats important to several listed species are numerous along the corridor. Florida mice (*Podomys floridans*) were not observed during the site evaluations, but potential habitat was identified in all of the scrub areas along this project. Additionally, several red-cockaded woodpecker (*Picoides borealis*) colonies and appropriate habitat, three Florida scrub jay (*Aphelocoma coerulescens*) colonies, a gopher frog (*Rana capito*) population and three bald eagle (*Haliaeetus leucocephalus*) nests have been documented to occur adjacent to the project site, but all of these are at least one mile from the existing roadway. Three populations of sand skinks (*Neoseps reynoldsi*) are also present near the corridor, with the closest locality being approximately a half mile away.

The proposed improvements to the I-4 corridor through Osceola and Orange Counties will involve impacts to wetlands and encroachment into fragmented scrub areas along the immediate corridor. Improvement of the existing alignment and strategic stormwater facility placement have been incorporated into the proposed project concept, thereby avoiding and minimizing effects to wildlife. Further coordination with both federal and state agencies will be required prior to construction activities, specifically in the case of active gopher tortoise burrows. Based on the information presented and evaluated in this report, FHWA has determined that this project will be 'not likely to adversely affect' threatened or endangered species along the project corridor. The Wildlife and Habitat Assessment was submitted to FGFWFC and USFWS on March 6, 1998. The USFWS has determined that the proposed

project is not likely to adversely affect threatened or endangered species (August 19, 1998). A copy of the Wildlife and Habitat Assessment is on file at the FDOT District V office in DeLand, Florida.

The impacts described above represent the overall impacts for Section 1. If Section 1 is constructed prior to Section 2, additional impacts to wildlife and habitats are unlikely and unexpected. The available habitats in this area, due to their low vegetative diversity and small, isolated nature, are likely to accommodate only small populations. No known localities for protected species occur in the extended project area. Isolated scrub communities along this corridor may provide suitable habitat for gopher tortoises and their commensal species.

Farmlands

Through coordination with the Natural Resource Conservation Service (formerly SCS), it has been determined that no farmlands as defined by 7 CFR 658 are located in the project vicinity. The completed Farmland Conversion Impact Rating form and NRCS concurrence (January 1998) is provided in Appendix D.

Secondary and Cumulative Impacts

Secondary and cumulative impacts associated with the I-4 Section 1 project will be prevented and minimized to the greatest extent possible. This will be accomplished through compliance with regulatory procedures and Best Management Practices designed to protect wetlands, floodplains, threatened and endangered species and public health, safety and welfare.

The county comprehensive plans have been prepared in accordance with the Local Government Comprehensive Planning and Land Development Regulation Act, Florida Statute Chapter 163, which requires inclusion of land use, traffic circulation, floodplain, conservation, recreation space and infrastructure elements of these plans. These comprehensive plans have taken into consideration protection of the natural environment including wetlands and floodplains. These plans reference I-4 in the traffic circulation element. Osceola and Orange Counties both have a complete set of land development regulations including zoning, subdivision regulations and building permits.

Proposals for land use changes not in conformance with these comprehensive plans must proceed through a comprehensive plan amendment process that is subject to review and approval by not only the local jurisdiction, but the State of Florida DCA which also distributes and receives comments from all other affected state agencies. The state provides a further check on maintaining the integrity of the local government plans against local development pressures that would undermine them.

Federal and state agencies have authority over the protection of wetlands, floodplains and endangered and threatened species in the study area that may be threatened by pressure for development resulting from the project. All public works and land development projects with

potential wetland impacts are subject to permitting by the COE and SFWMD. Development cannot occur without permits issued by these agencies. Floodplain encroachment and mitigation are also regulated by the SFWMD. Both the USFWS and the Florida Game and Fresh Water Fish Commission (FGFWFC) have regulatory authority over proposed development affecting threatened and endangered species.

The proposed project provides a significant safeguard from development-related secondary and cumulative impacts and will not cause any impacts beyond those resulting from the currently planned land uses adjacent to I-4. The roadway is proposed as a controlled access facility which will serve to limit development adjacent to the roadway and the purchase of controlled frontage access rights will preclude direct parcel access except at designated intersections.

In consideration of the criteria presented in the Basis of Review of the SFWMD Permit Information Manual, this project will not cause adverse secondary or cumulative impacts to wetlands and is not contrary to the public interest. For example, construction of this project will not adversely affect the public health, safety or welfare or the property of others. As proposed, this project is planned to accommodate increased (and projected increases in) traffic volume along this corridor, while increasing motorist safety through adherence to FDOT design safety standards.

Construction of this project will not adversely affect the conservation of fish and wildlife, including endangered or threatened species, or their habitats. This is consistent with the ecological value assessed for the proposed impact area and with the wildlife results presented and discussed. The current conditions and relative values of functions being performed by the proposed impact area will be compensated pursuant to s373.4137 FS.

This project is not proposed within navigable waters and does not propose to adversely affect the flow of water or cause harmful erosion or shoaling. A detailed erosion control plan will be included in construction plans produced for the project. Additionally, this project will have no effect on fishing or recreational values or marine productivity.

4.4 Physical Impacts

Noise

Potential traffic noise impacts associated with the preferred alternative were evaluated in accordance to 23 CFR 772 "Procedures for Abatement of Highway Traffic Noise and Construction Noise" and Chapter 335.17 of the Florida Statutes. The results of this study are detailed in the Noise Study Report, a copy of which is available for review at the FDOT District V office in DeLand, Florida.

Seven noise sensitive receptors were identified within approximately 150 m (500 feet) of the existing I-4 roadway, including the Oak Hill Baptist Church and surrounding single family

residences, Paradise RV Park, Walt Disney World Vista Way Apartments, Little Lake Bryan Resort Area, Mary Queen of the Universe Church, Lake Willis residences and Monterey Lake Apartments. Simultaneous field noise measurements and traffic counts were taken at three sites along the project corridor to verify the applicability of the computer model to the specific project. Computer modeling using the STAMINA 2.1/OPTIMA program and existing and 2020 design year traffic data indicated that six of the noise sensitive sites exceeded FDOT noise abatement criteria. These sites would experience increases in traffic generated noise ranging from 2 to 4 decibels (dBA), reaching 65 to 80 dBA during peak traffic hours. Traffic management and alignment modifications are not feasible abatement solutions for the current project, as they would not provide significant beneficial alterations to the acoustical environment.

Barrier analyses indicated that only two of the impacted sites (Paradise RV Park and Monterey Apartments) would meet FDOT's criteria of reasonableness and feasibility, based on the degree of decibel reduction and cost per benefitted receiver. Based on the studies so far completed, the FDOT intends to install these noise barriers. During the public involvement phase of this project, the noise mitigation needs at all six sites will be reviewed based on regular outdoor activities and the owners' desire for mitigation. Special attention will be given to the location of permanent residences at the Paradise RV Park. Should the review indicate a change in mitigation needs, and if it subsequently develops during final design that these conditions have substantially changed, the abatement measures will be reviewed. A final decision on the applicability of noise mitigation will be made upon completion of the project design and the public involvement process.

The impacts described above represent the overall impacts for Section 1. If Section 1 is constructed prior to Section 2, five additional noise sensitive areas, all apartment and hotel complexes, will be impacted. None of these noise sensitive sites meet FDOT's criteria of reasonableness and feasibility. However, additional noise impacts are expected at the Monterey Lake Apartments, which can be abated as described above through the use of a noise wall. Further evaluations will be made during the final design and through the public involvement process to determine the appropriate and feasible noise abatement solutions.

Air

An air quality screening test was performed to identify sections of roadway where more detailed air analyses may need to be performed in conjunction with project development activities. Two areas within the project corridor were selected based on the probability of representing the worst case scenario, high volume coupled with low speed, in regards to air quality. The traffic data for both the build (2000) and design year (2020) at the I-4/S.R. 535 interchange and along I-4 from S.R. 535 to Lake Avenue were used as input for modeling potential air impacts for both the No Build and Build alternatives. The critical distance calculated for all of the alternatives was less than 46 meters (152 feet). Since the closest reasonable receptors for both the interchange and roadway segment are over 50.4 meters (165 feet) from I-4, the proposed Build alternatives pass the air quality screening test and are not anticipated to require detailed air analyses during future project phases. This project is in an area which has been designated as attainment for the ozone standards under the criteria provided in the Clean Air Act Amendments of 1990. This project is in conformance with

the State Implementation Plan because it will not cause violations of the National Ambient Air Quality Standards. The Air Quality Report is on file at the District V office in DeLand, Florida.

Construction

Construction activities for the proposed I-4 project will have temporary air, noise, water quality and traffic flow impacts for those residents and travelers within the immediate vicinity of the project. The air quality impacts will be temporary and primarily in the form of emissions from diesel powered construction equipment and dust from haul route areas. Air pollution associated with the creation of air-borne particles will be effectively controlled through the use of watering or the application of calcium chloride in accordance with FDOT's "Standard Specifications for Road and Bridge Construction" as directed by the FDOT Project Manager.

Noise and vibration impacts will be from heavy equipment movement and construction activities. Noise control measures will include those contained in FDOT's "Standard Specifications for Road and Bridge Construction."

Water quality impacts resulting from erosion and sedimentation will be controlled in accordance with FDOT's "Standard Specifications for Road and Bridge Construction" and through the use of Best Management Practices.

Maintenance of traffic and sequence of construction will be planned and scheduled so as to minimize traffic delays throughout the project (i.e., during seasonal low traffic volumes). Signs will be used as appropriate to provide notice of pertinent information to the traveling public. The local news media will be notified in advance of construction-related activities which could excessively inconvenience the community so that motorists, residents and business persons can plan travel routes in advance. A sign providing the name, address and telephone number of a Department contact person will be displayed on-site to assist the public in obtaining immediate answers to questions and logging any complaints about project activity.

Access to all businesses and residences will be maintained to the extent practical through controlled construction scheduling. Temporary detour roads will only be required at the location of the waterway crossings during construction. The contractor will be required to maintain one standard lane of traffic in both directions of I-4 at all times and to comply with the Best Management Practices of FDOT.

The proposed construction will require the excavation of unsuitable material, placement of embankments and the use of roadway and bridge materials. The removal of structures and debris will be in accordance with local and state regulating agencies permitting this operation. Salvageable materials will be recycled when appropriate. Temporary erosion control features as specified in FDOT's "Standard Specifications for Road and Bridge Construction," Section 104 will consist of temporary grassing, sodding, mulching, sandbagging, slope drains, sediment basins and berms.

Contamination

The contamination screening evaluation utilized relevant information from regulatory agencies, historic aerial photographs, previous environmental reports and site reconnaissance to identify and evaluate all potential contamination sites within the project corridor. Eleven businesses, sites or areas (Table 8) were identified within the project limits which may pose some risk of contamination impacts for the proposed I-4 improvements. The identified sites are potentially associated with petroleum and/or hazardous materials contamination. Of these 11 sites, seven have a contamination risk potential rating of Low, two have a risk rating of Medium and two have a risk rating of High. A Precautionary Level II Soil and Groundwater Investigation as well as agency coordination are recommended for those sites with High risk ratings. A copy of the Contamination Screening Evaluation Report is available for review at the FDOT District V office in DeLand, Florida. The State of Florida has evaluated the proposed ROW and has identified potentially contaminated sites for the preferred alternative. During the design phase of the project, a site assessment will be performed to the degree necessary to determine levels of contamination and, if necessary, evaluate options for remediation along with the associated costs. Resolution of the problems associated with contamination will be coordinated with the appropriate regulatory agencies prior to ROW acquisition and appropriate action will be taken, where applicable.

The impacts described above represent the overall impacts for Section 1. If Section 1 is constructed prior to Section 2, an additional contamination site, the Orange County Civic Center, rated as a Low contamination risk, will need to be considered.

Table 8. Summary of Potential Contamination Impact Sites

Site	Address	Risk Rating	Recommendation
1. Ethylene Dibromide Delineation Area 49263268	South of S.R. 545 610 meters southeast of I-4	Low	Coordination with the local water management district.
2. Above Ground Petroleum Storage Tank	East of S.R. 545 200 meters south of Paradise RV Park	High	Precautionary Level II Soil and Groundwater Investigation.
3. American Golf Corporation	1110 Celebration Blvd.	Low	Not applicable.
4. Hyatt Orlando	6475 W. Irlo Bronson Hwy.	Low	Coordination with OCPSD and FDEP*.
5. Exxon #4-0433	1475 E. Buena Vista Dr.	Low	Not applicable.
6. Hilton Hotel - Walt Disney World Resort	1751 E. Buena Vista Dr.	Medium	Coordination with OCEPD and FDEP*.
7. Hotel Royal Plaza	1905 Hotel Plaza Blvd.	Low	Not applicable.
8. Chevron #47765	I-4 and S.R. 535	Medium	Coordination with OCEPD and FDEP*.
9. Lake Buena Vista Outlet and Waffle House Gala Store #11	12805 Apopka-Vineland Road	High	A ground penetrating radar (GPR) study to evaluate the presence of underground storage tanks on the subject site and a Precautionary Level II Soil and Groundwater Investigation.
10. Days Inn Hotel - Lake Buena Vista	12799 Apopka-Vineland Road	Low	Continued review of OCEPD inspection files.
11. Sea World of Florida, Inc.	6825 Academic Drive	Low	Continued review of OCEPD inspection files.

* OCPSD: Osceola County Public Safety Department, FDEP: Florida Department of Environmental Protection, OCEPD: Orange County Environmental Protection Department.

5.0 COMMENTS AND COORDINATION

A Public Involvement Program has been developed and is being carried out as an integral part of this project. The purpose of this program is to establish and maintain communication with the public at-large and individuals and agencies concerned with the project and its potential impacts. To ensure open communication and input from agencies and the public, the Department has provided an early notification package to State and Federal agencies and other interested parties defining the project and describing anticipated issues and impacts. In addition, in order to expedite the project development process, eliminate unnecessary work and provide a substantial issue identification/problem solving effort, the Department has carried out the scoping process as required by the Council of Environmental Quality Guidelines.

Finally, in an effort to resolve all issues identified, the Department has conducted an extensive interagency coordination and consultation effort as well as a public participation process. This section of the document details the Department's program to fully identify, address and resolve all project-related issues identified through the public involvement program.

5.1 Advance Notification Process

The Florida Department of Transportation, through the Advance Notification Process (AN), informed a number of Federal, State and local agencies of the existence of this project and its scope. The Department of Transportation initiated early project coordination on May 30, 1996, by distribution of an Advance Notification Package to the Office of Planning and Budgeting (see Appendix B). Individual packages were also sent to local governments directly by the Department. The following government agencies, non-government organizations (NGO) and elected officials (EO) received Advance Notification Packages.

Federal

- Federal Aviation Administration
- Federal Emergency Management Agency
- Federal Highway Administration
- Federal Railroad Administration
- U.S. Army Corps of Engineers
 - Jacksonville District
- U.S. Coast Guard
- U.S. Department of Health and Human Services
 - Center for Disease Control
 - Center for Environmental Health and Injury Control
- U.S. Department of Housing and Urban Development
- U.S. Department of the Interior
 - Fish and Wildlife Service
 - National Marine Fisheries Service
 - Habitat Conservation Division
 - Bureau of Land Management
 - Geological Survey

U.S. Environmental Protection Agency
U.S. House of Representatives
U.S. Senate

State

Florida Department of Environmental Protection
 Office of Land Use Planning and Biological Services
 Central District Office
 Marine Fisheries Commission
Florida Game and Fresh Water Fish Commission
South Florida Water Management District
Southwest Florida Water Management District
State House of Representatives
State Senate

Regional

Central Florida Regional Planning Council
Central Florida Regional Transportation Authority
East Central Florida Regional Planning Council

Local

City of Kissimmee
 Commission
City of Lake Buena Vista
 Commission
 Engineering Department
 Public Works Department
City of Orlando
 Commission
 Engineering Department
 Planning Department
Metropolitan Planning Organization Advisory Committee
Orange County
 Commission
 Engineering Department
 Public Works Department
Orlando/Orange County Expressway Authority
Orlando Urban Area Metropolitan Planning Organization
Orlando Urban Area Transportation Technical Committee
Osceola County
 Commission
 Public Works Department

Non-government Organizations

Florida Audubon Society
League of Environmental Organizations
Sierra Club – Central Florida Group
1000 Friends of Florida

A single comment was received in response to the AN, from SFWMD. The comment and response are presented below.

Comment: The following, relative to SFWMD's permitting criteria, should be considered on the design, construction and permitting of this project:

- 1) The proposed roadway improvements will require an Environmental Resource Permit for construction and operation of the proposed surface water management system and for any proposed wetland impacts or dredge and fill activities, pursuant to Rules 40E-1, 40E-4, 40E-40, 40E-41 and 40E-400, FAC.
- 2) The proposed roadway improvement must meet SFWMD's water quality and water quantity criteria as specified in the Basis of Review for Environmental Resource Permit Applications within SFWMD. Since this project involves the widening of the existing roadway, water quality treatment must be provided for the new portions of the road at a minimum. In order to provide the required water quality treatment, additional right-of-way beyond that currently anticipated may be required.
- 3) To the extent possible, wetland impacts due to location, design and construction techniques should be minimized. Where wetland impacts cannot be prevented, mitigation proposals must be included with the permit application that meet current SFWMD criteria, as contained in Appendix 7 of the Basis for Review for Environmental Resource Permit Applications. Please note that information which documents that any proposed wetland impacts are unavoidable will be required at the time of permit application, as well as information on the alternatives considered to reduce the proposed impacts.
- 4) A water use permit may be required for any dewatering activities associated with the proposed roadway improvements, pursuant to Rule 40E-2, FAC. Please contact the Water Use Division of our Regulation Department at (561)687-6926, prior to the initiation of any dewatering activities and subsequent to the completion of the Contamination Screening Evaluation Report, to schedule a pre-application conference to discuss the details of the proposed dewatering activities. Please note that if the proposed roadway improvements include dewatering activities within contamination areas or if the dewatering activities have the potential to result in the induced movement of the contamination plume, a pre-application meeting involving SFWMD Water Use staff and the appropriate staff from the Florida Department of Environmental Protection should be scheduled to discuss management of dewatering effluent, including the design of appropriate containment/treatment methods.

Response: All of the comments offered by SFWMD will be taken into consideration throughout the project development for the proposed I-4 improvements.

5.2 Interagency Coordination and Consultation

As a result of the scoping meeting and to better define and address concerns of Federal and State environmental permit and review agencies, as well as citizen concerns, numerous contacts were made in the form of correspondence, telephone contacts and informational meetings. Documentation of the coordination is presented in chronological order in Appendix C. Provided below is a chronology of coordination meetings which have taken place on the project to meet the concerns identified at the project meetings and disseminate project information to the public. An aggressive public involvement program for the entire I-4 project area has been in progress throughout the PD&E process. The challenge of reaching the public with project information has been met by making public involvement personnel available at meetings and locations where motorists are most likely to take the time to learn about the project. One of the most frequent comments from citizens is that construction improvements are too far in the future. In order to address this type of concern, the project team offered citizens additional information on the Project Development process as well as providing information concerning other transportation improvements which will occur prior to this project's construction.

Date	Time	Government or Organization
October 23, 1996	10:00 am	Orlando MPO Citizen's Advisory Committee 1011 Wymore Road, Room 200 Winter Park, Florida
October 25, 1996	10:00 am	Orlando MPO Transportation Technical Committee 1011 Wymore Road, Room 200 Winter Park, Florida
October 31, 1996	9:00 am	Status / Coordination Meeting FDOT Dist. V Lake Conf. Room
November 7, 1996	1:30 pm	Environmental Advisory Committee Orange Co. Public Library, 101 E. Central Blvd
November 13, 1996	10:00 am	Orlando MPO 1011 Wymore Road, Room 200 Winter Park, Florida
November 13, 1996	1:30 pm	Project Advisory Group PBS&J Bsmnt Level Conf Rm., 1560 Orange Ave
November 14, 1996	9:00 am	Status / Coordination Meeting FDOT Dist. V Cypress A Conf. Room
November 20, 1996	4:00 pm	LRT Workshop - Kissimmee Civic Center 210 Dakin Avenue, Downtown Kissimmee
December 4, 1996	1:30 pm	Project Advisory Group PBS&J Bsmnt Level Conf Rm., 1560 Orange Ave
December 5, 1996	9:00 am	Status / Coordination Meeting FDOT Dist. V Cypress A Conf. Room
December 13, 1996	4:00 pm	FDOT Work Program Public Hearing Orange Co. Admin. Bldg, Board of Co.Comm Chambers
December 19, 1996	9:00 am	Status / Coordination Meeting FDOT Dist. V Lake Conf. Room

January 16, 1997	9:00 am	Status / Coordination Meeting FDOT Dist. V Lake Conf. Room
January 17, 1997	1:30 pm	South Florida Water Management District Orlando Service Center, 7335 Lake Ellenor Drive
January 22, 1997	1:00 pm	US Army Corps of Engineers FDOT Dist. V Marion Co. Conf. Room, DeLand
January 24, 1997	1:30 am	SJRWMD / FDEP SJRWMD Office, 618 E. South St, Orlando
January 30, 1997	9:00 am	Status / Coordination Meeting FDOT Dist. V Lake Conf. Room
February 13, 1997	9:00 am	Status / Coordination Meeting FDOT Dist. V Volusia Conf. Room
February 20, 1997	8:00 am	I-4 Association Barnett Bank Center, Downtown Orlando
March 5, 1997	1:30 pm	PAG Meeting PBS&J Bsmnt Level Conf Rm.,1560 Orange Ave
March 10, 1997	2-4 pm	Trans4mation Station Media Review Cranes Roost Office Park, Altamonte Springs
March 11, 1997	7:00 am	Channel Six Morning News Interview Orlando
March 16, 1997	6:30 am	WHTQ - Central Florida Digest Orlando - (half hour radio talk show)
March 20, 1997	9:00 am	Status / Coordination Meeting FDOT Dist. V Volusia Conf. Room
March 21, 1997	9:00 am	Orange County Transportation Planning O.C.Public Works Complex
April 11, 1997	11am-2pm	FDOT Public Involvement Statewide Taskforce FDOT Urban Office, 5151 Adanson Street, Orlando
April 11, 1997	2:30 pm	Orlando Neighborhood Services Orlando City Hall, Orlando
April 17, 1997	11:30 am	International Right of Way Association Holiday Inn, 626 Lee Road, Orlando
April 18,19 1997	10am-9pm	Lawn and Garden Show Orlando Convention Center, International Drive,
April 22, 1997	1:30 pm	Urban Design Group ORMC Educational Center, 925 S. Orange Ave, Orlando
April 25, 1997	11:00 am	Florida Hospital 11th Floor, Switzer Board Rm, 601 E Rollins Ave.
April 30, 1997	1:30 pm	Project Advisory Group PBS&J Bsmnt Level Conf Rm.,1560 Orange Ave,
May 15, 1997	9:00 am	Status / Coordination Meeting FDOT Dist. V Volusia Conf. Room
June 10, 1997	10:00 am	Universal Studios 1000 Universal Studios Plaza, Orlando
June 11, 1997	9:30 am	Orlando MPO 1011 Wymore Road, Room 200, Winter Park
June 11, 1997	3:00 pm	Close Up - Channel 18 (aired 5/15@5:30am) 602 Cortland St. Ste. 200, Orlando

June 12, 1997	9:00 am	Status / Coordination Meeting FDOT Dist. V Volusia Conf. Room
June 17, 1997	10:30 am	Law Enforcement Focus Group Orange County Sheriff's Dept.
July 10, 1997	9:00 am	Status / Coordination Meeting FDOT Dist. V Volusia Conf. Room
July 25, 1997	10:00 am	Orlando MPO - TAC 1011 Wymore Road, Room 200, Orlando
July 28, 1997	1:30 pm	Environmental Advisory Committee Orlando Library - 101 E. Central, Orlando
August 7, 1997	9:00 am	Status / Coordination Meeting FDOT Dist. V Volusia Conf. Room
September 3, 1997	1:30 pm	Project Advisory Group PBS&J Bsmnt Level Conf Rm.,1560 Orange Ave
September 4, 1997	9:00 am	Status / Coordination Meeting FDOT Dist. V Volusia Conf. Room
October 3, 1997	6:00 pm	Statewide Neighborhood Conference City Hall, Orlando, Fl
October 23, 1997	9:00 am	Status / Coordination Meeting FDOT Dist. V Volusia Conf. Room
November 12, 1997	9:00 am	Community Traffic Safety Team Meeting Osceola Co. 108 W Drury Ave, Kissimmee, Fl
November 13, 1997	9:00 am	Status / Coordination Meeting FDOT Dist. V Volusia Conf. Room
November 18, 1997	8:30 am	Community Traffic Safety Team Meeting Orange Co.Public Works Bldg,4800 S.JY Parkway
December 3, 1997	9:00 pm	Freeway Incident Management Team Orlando City Hall, 9th Fl. Conf Rm. Orlando
December 9, 1997	8:00 am	Southern Public Affairs Workshop Grovsnr Hotel, Disney, Orlando, Fl
December 10, 1997	3:30 pm	Work Program Public Hearing Dist V Lynx Board Rm, 225 E. Robinson St. Orlando, Fl
December 17, 1997	9:00 am	EAC-Reedy Creek Swamp/Davenport Creek I-4 Rest Area, Westbound, Milepost 70
December 18, 1997	9:00 am	Status / Coordination Meeting FDOT Dist. V Volusia Conf. Room
January 13, 1998	1:30 pm	Project Advisory Group PBS&J Bsmnt Level Conf Rm.,1560 Orange Ave
January 14, 1998	10:30 am	FBOT/FTBA Conference Delta Resort, Orlando
January 15, 1998	9:00 am	Status / Coordination Meeting FDOT Dist. V Volusia Conf. Room
January 28, 1998	10:30 am	Fashion Square Mall 3001 E. Colonial Drive, Orlando
February 11, 1998	1:30 pm	Project Advisory Group PBS&J Bsmnt Level Conf Rm.,1560 Orange Ave
February 12, 1998	9:00 am	Status / Coordination Meeting FDOT Dist. V Volusia Conf. Room

Feb 27-28, and Mar 1, 1998	10am-10pm	Central Florida Boat Show Orlando Convention Center, I-Drive, Orlando
March 4, 1998	8am-5pm	FHWA Review 1713 Mahan Drive, Tallahassee, Fl
March 9, 1998	11:00am	Interview with Channel 2 (aired at 5:00pm) 370 Whooping Loop, Altamonte Springs Fl
March 10,12, 1998	10:30am	Williamsburg Downs Shopping Center 5426 Central Florida Parkway, Orlando
March 12, 1998	9:00 am	Status / Coordination Meeting FDOT Dist. V Volusia Conf. Room
March 12, 1998	1:00 pm	MPO Alliance Meeting 123 W. Indiana St. Training Rm 1&2, DeLand
March 13, 1998	10:30am	Interview with WDBO (aired 3/15 @6:30) 370 Whooping Loop, Altamonte Springs Fl
March 17, 1998	10:30am	Walmart Shopping Center 4444 W. Vine Street, Kissimmee
March 18, 1998	10:30am	CrossRoads Shopping Center Lake Buena Vista
March 19, 1998	10:30am	Walmart Shopping Center 4444 W. Vine Street, Kissimmee
March 20, 1998	10:30am	CrossRoads Shopping Center Lake Buena Vista
March 23, 1998	6:00-7:00 pm	Prior to the City of Orlando Commission Meeting John H. Jackson Center, 1002 W.Carter St., Orlando
March 25, 1998	10:30am	Waterbridge Downs Shopping Center 11230 South OBT, Orlando
March 27, 1998	10:30am	Waterbridge Downs Shopping Center 11230 South OBT, Orlando
March 31, 1998	10:30am	Ventura Downs Shopping Center 1980 Osceola Parkway, Kissimmee
April 2, 1998	10:30am	Ventura Downs Shopping Center 1980 Osceola Parkway, Kissimmee
April 4, 1998	10am-4pm	Lake Eola Festival in the Park Lake Eola, Downtown Orlando
April 7, 1998	10:30am	Poinciana Office & Industrial Park 1818 Poinciana Blvd. Kissimmee
April 8, 1998	8:30am	Community Traffic Safety Team-Osceola Co 2701 W. Vine Street, Kissimmee
April 8, 1998	10:30am	Vista Center Shoppes 8556 Palm Parkway, Orlando
April 9, 1998	9:00 am	Status / Coordination Meeting FDOT Dist. V Volusia Conf. Room
April 9, 1998	10:30am	Poinciana Towne Center 900 Cypress Parkway, Poinciana
April 13, 1998	11:00 am	Talking Points Meeting FDOT Dist. V Lake Conf. Room

April 14, 1998	4:00-7:00 pm	Section 1 Alternatives Workshop Hyatt Orlando Convention Center, Kissimmee Room 6375 West Irlo Bronson Memorial Hwy (US 192)
April 20, 1998	10:00am	Social Security Administration 80 N. Hughey Ave, Orlando
April 21, 1998	10am	South Chase Village Shopping Center Wetherbee and South OBT, Orlando
April 21, 1998	1:30pm	Section 1 Workshop DeBriefing HNTB Office, TGLee Blvd., Orlando
April 22, 1998	8:30am	Community Traffic Safety Team-Orange Co Oran.Co.Pub.Works, 4200 S.JohnYoung Pkwy
April 22, 1998	10am	South Chase Village Shopping Center Wetherbee and South OBT, Orlando
April 23, 1998	10am	South Chase Village Shopping Center Wetherbee and South OBT, Orlando
April 28-30, 1998	10-3pm	MetroWest Shopping Center Hiawasse Rd & Westpointe Blvd, Orlando
May 2, 1998	9:00am	Central Florida Public Safety Day Cranes Roost Office Park, Altamonte Sprgs
May 14, 1998	9:00 am	Status / Coordination Meeting FDOT Dist. V Volusia Conf. Room
May 15, 1998	9:30am	Orange County Transportation Planning Group OC Public Works, 4200 S. John Young Parkway, Orlando
May 18, 1998	7:30am	Seminole Transportation Summit Hilton Hotel, S. NorthLake Blvd, Maitland
June 10, 1998	9:00 am	Status / Coordination Meeting FDOT Dist. V Volusia Conf. Room
June 12, 1998	8:00am	I-4 Association SunTrust Bank Building, Orlando
July 1, 1998	9:30am	Freeway Incident Management Team FDOT Urban Office, 5151 Adanson St, 2 nd Floor, Orlando
July 9, 1998	9:00 am	Status / Coordination Meeting FDOT Dist. V Volusia Conf. Room
July 28, 1998	1:30 pm	Project Advisory Group PBS&J Bsmnt Level Conf Rm., 1560 Orange Ave, Winter Park
August 13, 1998	9:00 am	Status / Coordination Meeting FDOT Dist. V Volusia Conf. Room

September 10, 1998	9:00 am	Status / Coordination Meeting FDOT Dist. V Volusia Conf. Room
October 8, 1998	9:00 am	Status / Coordination Meeting FDOT Dist.. V Volusia Conf.. Room
October 15, 1998	6:30 pm	American Association of Cost Engineers 5979 Cargo Road, Orlando
November 12 1998	9:00 am	Status /Coordination Meeting FDOT Dist.. V Volusia Conf.. Room
November 18, 1998	9:30 am	MetroPlan Orlando-Board meeting (RESCHEDULE) 315 E. Robinson Street, Orlando
December 2, 1998	10:00 am	MetroPlan Orlando - CAC 315 East Robinson Street, Suite 355
December 4, 1998	10:00 am	MetroPlan Orlando - TTC 315 East Robinson Street, Suite 355
December 10, 1998	9:00 am	Status / Coordination Meeting FDOT Dist.. V Volusia Conf.. Room
January 6, 1999	10:00 am	FHWA Coordination Meeting FDOT Office, Burns Bldg, 5 th Floor, Tallahassee
January 7, 1999	11:30 am	TV Channel 2 interview 370 Whooping Loop, Suite 1154, Altamonte Springs
January 14, 1999	9:00 am	Status / Coordination Meeting FDOT Dist.. V. Lake Conf. Room
January 25, 1999	1:30 pm	Osceola County Commission Commission Chambers, Kissimmee
February 11, 1999	9:00 am	Status / Coordination Meeting (Canceled) FDOT Dist.. V. Lake Conf.. Room
February 23,24,25	8:00 am	FHWA Partnering Session CH2M Hill Office, 225 E. Robinson, Orlando
March 2, 1999	9:15 am	Educational Outreach - Discovery Elementary 975 Abigail Drive, Deltona
March 3, 1999	12:00 pm	Educational Outreach - Pine Loch Elementary 3101 Woods Avenue, Orlando
March 9, 1999	8:45 am	Educational Outreach - Shingle Creek Elementary 5620 Harcourt Avenue, Orlando
March 10, 1999	9:30 am	MetroPlan Orlando Board Meeting 315 E. Robinson Street, Orlando
March 11, 1999	8:30 am	FHWA CORSIM Review Meeting URS Griener Office, 315 E. Robinson Street, Orlando
March 16, 1999	1:30 pm	Section 1 Review Meeting HNTB, 5850 TG Lee Blvd, Orlando
March 18, 1999	9:00 am	Status / Coordination Meeting FDOT Dist.. V. Lake Conf.. Room
March 23, 1999	12:35 pm	Educational Outreach - Killarney Elementary 2401 Wellington Blvd, Winter Park
March 26, 1999	10:45 am	Educational Outreach - Spring Lake Elementary 695 Orange Avenue, Altamonte Springs
March 30, 1999	10:45 am	Educational Outreach - Blakner Elementary TBA
April 6, 1999	1:30 pm	Project Advisory Group Meeting PBS&J Bsment Level Conf Rm.,1560 Orange Ave, Winter Park

April 15, 1999	9:00 am	Status / Coordination Meeting FDOT Dist.. V. Lake Conf.. Room
April 16, 1999	9:00 am	Orange County Transportation Planning Group Orange Co. Public Works, 4200 S. John Young Pkwy, 1 st fl conf
April 20, 1999	8:30 am	Educational Outreach - Saddler Elementary 4000 W. Oak Ridge Road, Orlando
April 22, 1999	9:00 am	Educational Outreach - Friendship Elementary 2746 Fulford Street, Deltona
April 22, 1999	11:00 am	Educational Outreach - Bring Your Kid to Work Day FDOT District V, DeLand, FL
April 27, 1999	8:45 am	Educational Outreach - Longwood Elementary 840 Orange Ave, Longwood
April 27, 1999	9:30 am	Section 1 Pubic Hearing Review K&S Office, 370 Whooping Loop, Altamonte Springs, Fl
April 28, 1999	1:00 pm	MetroPlan/ Volusia MPO Alliance Gemini Springs Park, Deltona, Fl
April 29, 1999	1:00 pm	Educational Outreach - Eccleston Elementary TBA
April 30, 1999	1:30 pm	Educational Outreach - Woodlands Elementary 1420 E.E. Williamson Road, Longwood
May 4, 1999	7:00 pm	Public Hearing (Open House 4 to 7) Sea World of Florida, Shivers Pavilion, 7007 Sea World Dr.
May 5, 1999	8:45 am	Educational Outreach - Riverside Elementary 3125 Pembroke Drive, Orlando
May 6, 1999	10:00 am	Educational Outreach - Catalina Elementary 2510 Gulfstream Road, Orlando
May 6, 1999	1:00 pm	Educational Outreach - Washington Shores Elem. 944 W. Lake Mann Drive, Orlando
May 10, 1999	10:15 am	Educational Outreach - Princeton Elementary 311 W. Princeton Street, Orlando
May 11, 1999	9:30 am	Section 1 Pubic Hearing Recap K&S Office, 370 Whooping Loop, Altamonte Springs, Fl
May 12, 1999	9:15 am	Educational Outreach - Lake Como Elementary 901 Bumby Avenue, Orlando
May 13, 1999	9:00 am	Status / Coordination Meeting FDOT Dist.. V. Lake Conf.. Room
June 3, 1999	9:00 am	Section 1 Public Hearing Recap HNTB Office, TG Lee Blvd, Orlando
June 8, 1999	9:00 am	Orange County Commission Workshop O.C. Commission Chambers, 210 S. Rosalind Ave, Orlando
June 9, 1999	1:00 pm	MetroPlan Workshop Church Street Station, Orlando
June 17, 1999	9:00 am	Status / Coordination Meeting FDOT Dist.. V. Lake Conf.. Room
June 22, 1999	10:00 am	Florida's Turnpike - Western Beltway FDOT Dist.. V. Lake Conf.. Room

July 13, 1999	11:30 am	NAIOP Grand Ballroom, Church Street, Orlando
July 15, 1999	9:00 am	Status / Coordination Meeting FDOT Dist.. V. Lake Conf.. Room
August 19, 1999	9:00 am	Turnpike Authority - Western Beltway FDOT Dist.. V. Lake Conf.. Room
August 19, 1999	10:00 am	Status / Coordination Meeting FDOT Dist.. V. Lake Conf.. Room

Project Advisory Group

During the course of the Master Plan Study, a Project Advisory Group (PAG) was formed to provide input, review and study results and aid in the formation of special recommendations. The group membership consisted of representatives from local governments, Orlando Urban Area MPO, Volusia County MPO, transit providers, state agencies and special interest groups, typically consisting of technical experts in their field. The PAG has continued to meet on a regular basis throughout the PD&E study and provide overall project guidance. Meeting minutes for the PAG are presented in Appendix C.

Environmental Advisory Committee

The I-4 MMMP study was issued by FDOT District V in October 1995 to examine methods for providing multi-modal transportation improvements along 119 km (73 miles) of the I-4 corridor. During the course of this study, an I-4 Environmental Advisory Committee (EAC) was formed to work directly with FDOT and the technical consultants to address community and environmental planning issues. Participants of the EAC included staff from regional, state and federal agencies as well as citizens, grass roots organizations and local governments in Osceola, Orange, Seminole and Volusia counties. This type of public involvement group fostered comprehensive regional planning initiatives due to the diversity and scope of participants and provided the opportunity to collectively review and discuss linkages between transportation, community and environmental planning issues. At the onset of the PD&E phase of the I-4 project (July 1996), it was determined based on the significant contribution of the EAC to the MMMP that the participation of the EAC would continue throughout the PD&E process as well. An initial meeting was held with the EAC participants in November 1996 to introduce the technical consultants and provide a preliminary overview of the PD&E study process. Subsequent meetings of the EAC focused on issues such as maintaining connectivity for planned and future greenways and trails which might intersect the I-4 corridor, including opportunities for pedestrian and bicycle crossovers and/or underpasses. In response to concerns about the future of existing hydrologic connections along the corridor, FDOT held an environmental technical review meeting on December 17, 1997. Meeting participants discussed wildlife utilization of existing hydrologic connections and the provision of equal or improved accessibility to wildlife following project construction. It was agreed that during the project's design phase FDOT will consider cross drain/box culvert configurations which are conducive to use by small wildlife. In addition to the interactive meetings, FDOT has also solicited and responded to written comments from the EAC, summaries of the comments and responses are provided in Appendix C. The meeting minutes from the EAC meetings are also present in Appendix C.

Public Involvement Consultant

A Public Involvement Consulting firm was chosen to oversee and coordinate the Public Involvement Program (PIP) for all of the I-4 roadway sections and LRT. The establishment of a common PIP was implemented to create an interactive team unit and produce a unified product for the entire I-4 development project. The PIP has coordinated all meetings associated with the project, established a project 800 hotline and internet web page to enhance public communication and attended a wide variety of public gatherings for project exposure. Additionally, a Public Involvement Van has been created specifically for the I-4 expansion project which appears at public events as an extra effort to generate interest and inform the community regarding the proposed I-4 activities.

Wildlife Agencies

Following the AN, the initial coordination efforts with the FGFWFC and USFWS commenced in November 1996 in the form of letters introducing the project concept and requesting preliminary locality information and comments from each agency. Responses to these inquiries were received by December 1996 for use in project data collection and impact analysis. Coordination with these agencies has continued throughout the project development through their participation in the EAC. Individual contact was again initiated in December 1997 for the Section 1 EAC field review meeting to insure awareness and attendance of the agencies. The Wildlife and Habitat Assessment was submitted to each agency in March 1998. The USFWS has concurred that the proposed improvements to I-4 are not likely to adversely affect threatened and endangered species along the project corridor (August 19, 1998).

Permitting Agencies

In addition to agency involvement through participation in the EAC meetings, individual agency meetings were conducted with the SFWMD, COE, Florida Department of Environmental Protection (FDEP) and RCID during January 1997. The purpose of these meetings was to update the agencies on the progress of the project as well as discuss specific issues regarding the future permitting of the proposed improvements, particularly wetland and floodplain impacts and mitigation/compensation. Individual coordination with each agency occurred again prior to and/or at the Section 1 EAC meeting during December 1997.

A letter was directed to SFWMD in January 1998 regarding the intent of FDOT to mitigate for project wetland impacts pursuant to s373.4137 FS in order satisfy all mitigation requirements of Part VI, Chapter 373, FS and 33 USC s1344. A concurrence letter was received from SFWMD in February 1998 verifying their intent to accept mitigation for the proposed project in accordance with the above legislation.

The Wetland Evaluation Report was submitted to SFWMD, COE, FDEP and RCID in March 1998. Extensive discussion of this document has occurred via telephone conversations (Appendix C) with SFWMD and COE. A letter from COE (June 15, 1998) indicates the

agency's concurrence with the Wetland Evaluation Report conclusion that the project alternatives incorporate all practicable measures to minimize wetland impacts. The SFWMD provided a verbal concurrence with the Wetland Evaluation Report, indicating they had no questions or comments on the proposed project (May 21 and October 5, 1998).

Coordination through the EPA regarding project impacts to sole source aquifers and water quality was initiated in December 1996. A completed WQIE was submitted to the EPA for review and comment in January 1998. A response was received in April 1998, indicating that the EPA will be interested in reviewing all project phases due to the location of the project within the boundaries and recharge zone of the Biscayne Aquifer. The letter also indicated that in the opinion of the EPA, all necessary precautions are planned with the project to prevent contamination of the aquifer.

Public Workshop

Informal Public Workshops were held for each of the I-4 sections in order to present the project material to interested parties as well as gather input prior to submittal of the FHWA documents. The Section 1 Workshop was conducted on April 14, 1998. Approximately 35 people attended the workshop with most representing property or business owners interested in potential impacts to their property. Those attending the workshop appeared to have a prior understanding of the project and their attitudes were inquisitive, not upset or demanding. Specific comments generally addressed concerns regarding access, HOV lanes, pond site utilization and property acquisition. Overall, those attending expressed support for the project without favoring any specific alternative. Several attendees expressed dismay at the time frame for completing the proposed improvements; the general view being that improvements are needed at this time. A court reporter was present throughout the duration of the workshop. A summary of this meeting, specific comments and responses and the court reporter's transcript are presented in Appendix C.

Public Hearing

A formal public hearing was held on May 4, 1999 at the Shivers Pavilion in Sea World, Orlando, Florida. Approximately 89 residents, property owners and business owners attended the hearing. Twenty-nine participants submitted formal public testimony either through comments spoken into the record or as written comments. In addition to this input, a petition signed by 24 residents and citizens was submitted to express concern about project elements proposed in the vicinity of Lake Willis.

Project documents were made available for public inspection prior to the Public Hearing. Specifically, Public Notice advertisements were published in area newspapers 21 days prior to the hearing and again 5 - 12 days prior, depending on their publication schedules. The hearing was advertised in the following area newspapers:

- *Orlando Sentinel, Orange Extra,*
- *Orlando Sentinel, Osceola Edition,*

- *La Prensa,*
- *Orlando Business Journal,*
- *Osceola News-Gazette,*
- *Orlando Times.*

Documents were available for review at the FDOT District Office in Deland, Orlando Public Library, Osceola County Public Library, the I-4 Public Involvement Office in Altamont Springs, HNTB Corporation Office in Orlando, Osceola County Administrator's Office in Kissimmee and Kissimmee City Hall.

A review of the public testimony and written comments received during the Public Hearing period indicates the concerns were drainage, location and design of stormwater facilities, the water quality of Lake Willis, noise in the vicinity of Lake Willis and the design of HOV lanes. Comments in support of the project were received along with the concerns. Statements of project support accompanied seven of the written comments and were included in six spoken statements as recorded in the Public Hearing transcript.

The entire Public Hearing transcript including the formal presentation, public comments, FDOT responses at the hearing and written responses to each written comment are included in Appendix D, Post-Hearing Correspondence.

5.3 COMMITMENTS AND RECOMMENDATIONS

Commitments

All project construction activities will be accomplished in accordance with the provisions in the Florida Department of Transportation *Standard Specifications for Road and Bridge Construction*. To minimize impacts to the human and natural environment, FDOT is committed to the following additional measures:

1. Wetlands - Mitigation of anticipated wetland impacts (28.4 hectares [71.0 acres]) will be provided under the provisions of S. 373.4137 F.S., which requires that mitigation of FDOT construction impacts be implemented by the appropriate water management district where the impacts occur. Coordination with the South Florida Water Management District confirms that the WMD intends to provide the necessary mitigation to offset these impacts.
2. Contamination - Information regarding eleven potential petroleum contamination sites will be updated, including site evaluations and organic vapor analyzer (OVA) screening/monitoring if necessary, during the final design phase and prior to construction or right-of-way acquisition. Estimated areas of contamination will be marked on the design drawings and any necessary clean-up will take place during construction if deemed feasible. Special provisions for handling expected and unexpected contamination during construction will be included in the construction plans package.

3. Salvaging of materials (i.e., signs, traffic signals, roadway lighting, lime rock and asphalt) will be given consideration along all of the sections of roadways being displaced by construction activities.
4. Noise - Two potential noise barriers were determined to be reasonable and feasible based on the results of the STAMINA 2.1 barrier analysis, as follows:
 - Paradise RV Park, in Osceola County near C.R. 545 - 300 meters (984 feet) in length and 4.9 meters (16 feet) in height, and
 - Monterey Lake Apartments, in Orange County near the Bee-Line Expressway (S.R. 528) - 145 meters (476 feet) in length and 5.0 meters (16 feet) in height

The FDOT is committed to the construction of these noise barriers, contingent upon the following conditions:

- Detailed noise analyses during the final design phase supports the need for abatement.
- Reasonable cost analyses indicate that the economic cost of the barrier(s) will not exceed the FDOT guidelines.
- Community input regarding the barrier(s), solicited by the FDOT District Five office during the final design phase, is positive.
- Safety and engineering aspects as related to the roadway user and the adjacent property owner(s) are acceptable.
- Any other mitigating circumstances have been resolved.

If, during the final design phase of the project, any of the contingency conditions listed above cause abatement to no longer be considered reasonable or feasible for a given location or locations, such determination will be made prior to requesting approval for construction advertisement. In addition, during final design and prior to construction, those sites which may be affected through any final design alignment changes including those sites now considered borderline will be revised insofar as a noise analysis.

5. Water Quality - Stormwater pond sizes have been developed for the purpose of estimating right-of-way requirements only. The actual physical size and configuration of all required water management facilities will be determined during the final design phase of the project. All stormwater facility design will be in accordance with the most stringent regulations of the various permitting agencies, including the South Florida Water Management District and Orange County.
6. Drainage Structures To Enhance Wildlife Connectivity - With respect to providing

habitat and cover for wildlife, the existing I-4 crossing locations provide essential aquatic and terrestrial connectivity between portions of both Reedy and Davenport Creeks. The Davenport Creek system is currently crossed via a series of concrete box culverts. The largest of these crossings consists of a multiple-opening (4) box arrangement at the main stream channel. The culvert structures within the Davenport Creek system provide aquatic connectivity and allow terrestrial animal access only during low water stages. The project design must include drainage structures which preserve the existing hydrologic openings to meet drainage requirements. As part of the drainage final design, FDOT is committed to the evaluation and consideration of cross drain culvert configurations which also serve to enhance the opportunity for wildlife to utilize these structures as crossing locations.

7. Access Management - A break in access along Lake Avenue will be provided to the Embassy Suites Hotel, which is located in the southwest quadrant of the proposed I-4/Lake Avenue interchange. The Department believes the design concept as shown is a reasonable compromise, balancing traffic operations and cost issues.
8. Special Features - Barrier separated special use/HOV lanes will be used throughout Section 1. A park and ride lot will be located adjacent to the I-4/Lake Avenue interchange.
9. Transportation Systems Management (TSM) - TSM measures have been considered extensively in the development of, and are an integral part of, this project. The TSM measures which are incorporated into this project include High Occupancy Vehicle (HOV) lanes, an additional median transit envelope for future transit facilities, Intelligent Transportation Systems (ITS) features, interchange improvements, and ramp-to-ramp auxiliary lanes. Further, LYNX is committed to providing light rail transit (LRT) service adjacent to the corridor to further enhance mobility and provide modal options for commuters and visitors.
10. Noise, Landscaping, and Retention Pond Issues at Lake Willis - The Department is committed to re-evaluating the need for noise abatement, landscaping treatments, and the location of retention ponds in the vicinity of Lake Willis during final design.

Recommendations

The FDOT recommends the improvements to the 22.0 km (13.7 mi.) section of I-4, from the Polk/Osceola County line to west of the BeeLine Expressway (S.R. 528). This recommendation is based on input from the community, coordination with local governments and other agencies, and engineering and environmental analyses conducted as part of the Project Development and Environment (PD&E) Study. The proposed improvement is anticipated to provide additional mobility options, enhance traffic safety, and enhance general use lane operations.

The Recommended Preferred Alternative is shown on the Conceptual Design Plans and Profiles in the Appendix and described in Sections 8 and 9 of the Preliminary Engineering

Report. Subsequent to the Public Hearing, several minor design refinements and modifications have been made to the Preferred Alternative. These refinements and modifications represent no significant change to the construction cost, right-of-way requirements, or environmental impacts previously estimated for the Preferred Alternative. These modifications are shown on the Conceptual Design Plans in the Appendix. As a result of the public hearing, environmental studies, and interagency coordination, the Preferred Alternative is recommended for Location/Design Concept Approval.

The recommended improvement provides for six general use lanes and two or four special use/high occupancy vehicle (HOV) lanes, ramp-to-ramp auxiliary lanes, collector-distributor (CD) roadways, grade-separated ramps, interchange modifications, and new interchanges.

Typical Sections

Two mainline typical sections have been identified for I-4 Section 1. These typical sections provide for six general use lanes and two or four special use/HOV lanes. These typical sections are described as follows:

Typical Section #1: This mainline typical section will provide six general use lanes and four special use/HOV lanes within a minimum of 129.2 m (424 ft.) of right-of-way with open drainage or a minimum of 88.0 m (290 ft.) with closed drainage. This typical section will be used from the Polk/Osceola County line to west of World Drive. The special use lanes along this segment continue the treatment proposed in District One which allows long distance through trips. This typical section is also used from east of Lake Avenue to the BeeLine Expressway (S.R. 528). Along that segment, the four HOV lanes are restricted to HOV3+ (vehicles with three or more occupants) in the design year.

Typical Section #2: This mainline typical section will provide six general use lanes and two HOV lanes within a minimum of 122.0 m (400 ft.) of right-of-way with open drainage or a minimum of 81.0 m (266 ft.) with closed drainage. This typical section will be used from west of World Drive to east of Lake Avenue.

Both typical sections provide a design speed of 110 km/hr (70 mph).

Interchanges

Grade separations and interchanges are planned at 13 locations, which are:

- C.R. 532 (interchange);
- Western Beltway (new interchange);
- C.R. 545 (overpass);
- World Drive (interchange);
- Road B (new HOV-only interchange, to/from the northeast along I-4);
- Southern Connector (S.R. 417) (interchange);

- U.S. 192 (S.R. 530) (interchange);
- Osceola Parkway (interchange currently under construction);
- S.R. 536 (interchange);
- S.R. 535 (interchange);
- Lake Avenue (new interchange)
- Central Florida Parkway (interchange); and
- BeeLine Expressway (interchange).

Further, HOV flyover ramps are planned at the World Drive CD road (eastbound HOV exit), S.R. 536 (eastbound HOV entrance and westbound HOV exit), Lake Avenue (eastbound HOV entrance and westbound HOV exit), and the BeeLine Expressway (all directions/movements).

Preliminary bridge concepts have been developed for each location, including bridge sections, plans, and elevations (shown in Section 9.20 of the Preliminary Engineering Report). Additional structures to be provided along the project include cross drains necessary for the conveyance of significant offsite runoff under the proposed roadway.

Drainage

Stormwater management will involve the collection of runoff in open swales or a closed drainage system and conveyance to nearby stormwater management facilities prior to discharge into the natural system. Preliminary pond sizes and locations will be reevaluated during the final design phase.

As displayed during the Public Hearing, Ponds 70.1a ALT and 70.5 ALT are adjacent to Lake Willis. Several residents living adjacent to Lake Willis had concerns about water quality, water quantity, aesthetics, and noise resulting from the construction of the Preferred Alternative and the proposed ponds. They requested alternative locations be investigated to avoid potential impacts to the lake and to their neighborhood. Additionally, there was some concern about Pond 70.8, which is located at the intersection of Central Florida Parkway and Turkey Lake Road. This location is a prime commercial site. As a result, the drainage basin limits were reviewed. Two alternative ponds have been located on the west side of I-4 near the outfall ditch from Lake Willis to Big Sand Lake, and Pond 70.8 was moved to the south and reduced in size. It should be noted that these alternative ponds and the adjustments to Pond 70.8 are alternatives to the ponds shown in the Preferred Alternative preliminary plans.

Post-Hearing Design Refinements

The minor design refinements and modifications which have been made following the Public Hearing are described below. As previously stated, these refinements and modifications represent no substantive change to the construction cost, right-of-way requirements, or environmental impacts previously estimated for the Preferred Alternative. Some of these refinements were developed as a result of the findings in the Systems Access Modification Report (SAMR), prepared for Federal Highway Administration (FHWA) review.

The eastbound HOV slip ramp east of World Drive has been relocated to the west, between the special use lane flyover exit ramp to the World Drive C-D road and the World Drive overpass structures. In conjunction with this modification, the special use lanes have been extended eastward from the flyover ramp to this slip ramp. The designation of the slip ramp has changed as it will serve as the end of the special use lanes, as well as the HOV exit to U.S. 192, Osceola Parkway, and S.R. 536. The one-lane slip ramp will be a lane drop; however, a recovery lane of sufficient length has been provided along the HOV facility, which continues eastward. To enhance the merge between the slip ramp and the general use lanes, a 625.0 m (2,050 ft.) parallel acceleration lane has been provided.

These modifications enhance operations along the special use lane flyover exit ramp and the weave along the World Drive C-D road, by removing the traffic which desires to continue east on I-4, but is not eligible for using the HOV lanes. The World Drive C-D road would then primarily serve as the means of collecting and distributing I-4 traffic to/from World Drive and to/from the Southern Connector (S.R. 417). Also, minor modifications have been made to a few other ramps depicted in the Preferred Alternative. These primarily include the length of parallel acceleration lanes from entrance ramps.