ORANGE COUNTY GOVERNMENT FLORIDA

Interoffice Memorandum

AGENDA ITEM

DATE: November 4, 2022

TO: Mayor Jerry L. Demings
-AND-
County Commissioners

FROM: Jon V. Weiss, P.E., Director
Planning, Environmental, and Development Services Department

CONTACT PERSON: **Renzo Nastasi, AICP, Manager**
Transportation Planning
(407) 836-8072

SUBJECT: December 13, 2022 – Work Session
Innovation Way Preliminary Design Study (PDS)

The Orange County Transportation Planning Division has completed the Innovation Way Preliminary Design Study (PDS). The PDS was initiated pursuant to the Transportation Agreement for Innovation Way (From Moss Park Road to Sunbridge Parkway) approved by the Board on December 18, 2018.

The PDS objective was to analyze the suitability of an extension of Innovation Way from east of John Wycliffe Boulevard eastward to Sunbridge Parkway, a distance of approximately 2.4 miles. The PDS documents existing corridor characteristics, including wetland, floodplain, and habitat reviews, develops future traffic volumes and alternative alignments, proposes safety, access, and speed management standards, identifies stormwater capacity needs, and engages the public through a series of community meetings and newsletters.

At the December 13, 2022, Work Session, staff will present the Innovation Way PDS background, study analysis, and initial recommendations. A public hearing will be scheduled before the Board at a subsequent date.

This item is for informational purposes only; no action is required by the Board.

JVW/RN/bh/ep
Attachment

c: Joseph C. Kunkel, P.E., Director, Public Works Department
Diana Almodovar, P.E., Deputy Director, Public Works Department
Brian Sanders, Assistant Manager, Transportation Planning Division
Blanche Hardy, P.G., Assistant Project Manager, Transportation Planning Division

Innovation Way South

from Moss Park Road to Sunbridge Parkway

Preliminary Design Study

Orange County, Florida

Prepared For:

Camino Reale Investments

ORANGE COUNTY GOVERNMENT
FLORIDA

Date:
September 2022

POULOS & BENNETT

2602 E. Livingston Street | Orlando, Florida 32803 | Tel: 407.487.2594 | Fax: 407.487.2594 | www.poulosandbennett.com
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ES. EXECUTIVE SUMMARY

ES.1 Introduction

Orange County is conducting this Preliminary Design Study (PDS) for Innovation Way South from Moss Park Road to Sunbridge Parkway in Southeast Orange County. The project location is shown in **Figure ES 1.1 Project Study Area**. The objective of the PDS is to identify a preferred alternative alignment of the extension of Innovation Way South to address the current and future transportation needs. The preferred improvements identified in this report will serve as the basis for the design of the roadway improvements. Segment 3 is the only segment of Innovation Way that requires alternatives analysis. The alternative alignments reviewed for this segment are discussed in further detail in Chapter 10 of this report. This PDS report summarizes the essential components of the study, including public involvement, data collection, traffic analysis, roadway design, drainage design, and environmental impacts. The appendices include supporting documents such as the Design Traffic Technical Memo and Traffic Design Report, Geotechnical, Contamination Screening and Evaluation Report, Environmental Reports, Preliminary drainage design, Corridor Analysis Technical Memo and Concept Plans.

ES.2 Purpose and Need for Improvement

The purpose and need for the project are based on several factors. These factors are to provide traffic capacity, to meet social/economic demands, to be consistent with transportation plans, and to enhance safety.

ES.3 History, Background, and Status

This section of roadway has been planned as a 4-lane urban divided facility from Moss Park Road to Sunbridge Parkway. Currently, segments of this roadway are in various stages of planning or construction. The roadway segments are shown in Existing land use adjacent to the Innovation Way South corridor consists of undeveloped and developed properties and wetlands. Roadway improvements including drainage are needed to serve this rapidly growing area.

Segments 1, 2, 3 and a portion of segment 4 will be analyzed with this PDS. Segment 1 consists of 0.4 miles of roadway from Sunbridge Parkway to Camino Reale PD east boundary. Segment 2 consists of 0.8 miles roadway from Camino Reale PD east boundary to Camino Reale PD west boundary. Segment 3 consists of 1.2 miles of roadway from the Camino Reale PD west boundary to Yellow Jasmine Drive. Segment 4 consists of 0.7 miles of roadway from Yellow Jasmine Drive to John Wycliffe Boulevard. The portion of segment 4 from Magnolia Woods Boulevard is where this study will begin alignment analysis. The remaining segments of Innovation Way South will be considered in this study, and are described in detail below.

Segments already analyzed under previous transportation agreements include a portion of 3 and 4 through 7 described below:

Segments 6 and 7 were originally identified in the Innovation Way/Moss Park Road Extension – Phase 1 Transportation Agreement dated October 9, 2007 and amended on October 16, 2012. This agreement identified the general alignment, cross section and right-of-way conveyance from Moss Park Properties. Subsequent to the approval of this agreement, the parent parcel was annexed into

the City of Orlando to become known as "Storey Park". In accordance with the agreement, a Preliminary Engineers' Report was prepared, processed and eventually approved by Orange County for Segments 4 through 7 on August 28, 2014. This Preliminary Engineer's Report documented the need, alignment, typical section, shared stormwater pond locations and required right-of-way.

Segment 7 has been fully designed, constructed, conveyed and accepted by the City of Orlando and Orange County, as appropriate.

Construction plans for Segment 6, identified in the Phase 1 Transportation Agreement as the Railroad Section, were advanced to 30% completion to support the Orange County Utilities CIP utility construction. As previously mentioned, the Segment 6 right-of-way has not been conveyed to either the City of Orlando or Orange County at this time.

Segment 5 was additionally addressed in the Moss Park Transportation and Proportionate Share Agreement. This agreement addressed the design, engineering and right-of-way conveyance. Segment 5 construction plans were advanced to 60% completion to support the design and installation of the Orange County Utilities CIP transmission mains. A portion of the right-of-way has been conveyed to Orange County. However, the County has been in the eminent domain process to obtain the right-of-way and stormwater pond from the Enclave at Moss Park HOA. Orange County has recently engaged a design engineer to advance the design of this segment.

Segment 4 has been fully designed and right-of-way conveyed and accepted by Orange County. It is fully constructed to Magnolia Woods Boulevard with a taper to Yellow Jasmine Drive. Right-of-way was conveyed to Orange County via Document #20160115313.

Segment 3 alignment, located within the Moss Park PD, was established with the approval of the Moss Park Parcel N/O Preliminary Subdivision Plan. The right-of-way for this portion of the segment has been conveyed to Orange County via Plat Book 96 Pages 49-56. This segment has not been designed or constructed.

The construction of Innovation Way South from Moss Park Road to Sunbridge Parkway is included in the MetroPlan Orlando 2030 Long Range Transportation Plan. The project is consistent with the Orange County Comprehensive Plan.

Since the majority for the study corridor does not exist, and the existing portions of the study corridor were constructed in 2017 and 2018, the historical crash data was limited. Accordingly, historical crash data was obtained from Signal Four Analytics (S4A) for a five-year period from January 1, 2016 to December 31, 2020 along Innovation Way South (Storey Park Boulevard), from Moss Park Road and Storey Lake Boulevard, and along Innovation Way South, from John Wycliffe Boulevard to the Moss Park PD Entrance. Both crash reports showed no crashes in the past 5 years for both locations.

The following are recommendations that should be included in the proposed roadway widening project:

- Provide advanced warning signs for side streets.
- Provide high emphasis crosswalks at signalized intersections.

• Provide "Pedestrian Crossing" signs with supplemental arrow where appropriate.
• Provide intersection lighting.
• Provide consistent speed limit signs, avoiding segments where the speed limit is different in each direction.

Stormwater management will be provided with four new ponds and two existing ponds along the corridor that will provide water quality treatment and peak flow attenuation.

ES.4 Existing Conditions

Innovation Way South within the project limits where constructed, is a four-lane divided roadway and is a major collector. The corridor has been split up into 7 segments shown in Error! Reference source not found. . The existing sections from Moss Park Road to Story Time Drive has a posted speed limit of 40 miles per hour (mph). The existing section east of John Wycliffe Road has a posted speed limit of 35 mph.

Segment 7 from Moss Park Road to Story Time Drive is a four-lane divided roadway with bicycle lanes and Multipurpose Trails on both sides.

Segment 6 from Story Time Drive to Wewahootee Road has not currently been through the design process.

Segment 5 and a portion of segment 6 from Wewahootee Road to John Wycliffe Boulevard is currently under design and the typical section is expected to match the existing section from Moss Park Road to Story Time Drive.

Segment 4 from John Wycliffe Boulevard to Magnolia Woods Boulevard consists of a four-lane divided roadway in 125 feet of right-of -way. Section 4 has a posted speed of 35 mph and was designed with a design speed of 40 mph.

Segment 3 from Yellow Jasmine Road to the south east corner of the Lennar Homes owned property has 125' of right-of-way dedicated for the future roadway construction. The remainder of segment 3, segment 2, and segment 1 do not have right-of-way established for the roadway construction at this time.

The intersection at Moss Park Road and Story Time Drive and Story Park Boulevard in segment 7 are currently signalized.

The existing transportation network within the study corridor is comprised mainly of the current roadway system. LYNX does not have routes along Innovation Way. The LYNX Vision 2030 Plan does not include any future routes in the vicinity of Innovation Way.

Street lighting is limited along Innovation Way South. Thirteen Utility Agency/Owners (UAO) have been identified within the project area through a Sunshine 811 Design Ticket. Existing and Proposed utilities run along both sides of Innovation Way South.

The Innovation Way South project area is located in the jurisdiction of the South Florida Water Management District (SFWMD). Stormwater runoff from the existing roadway is collected in curb inlets and conveyed to ponds for treatment and attenuation.

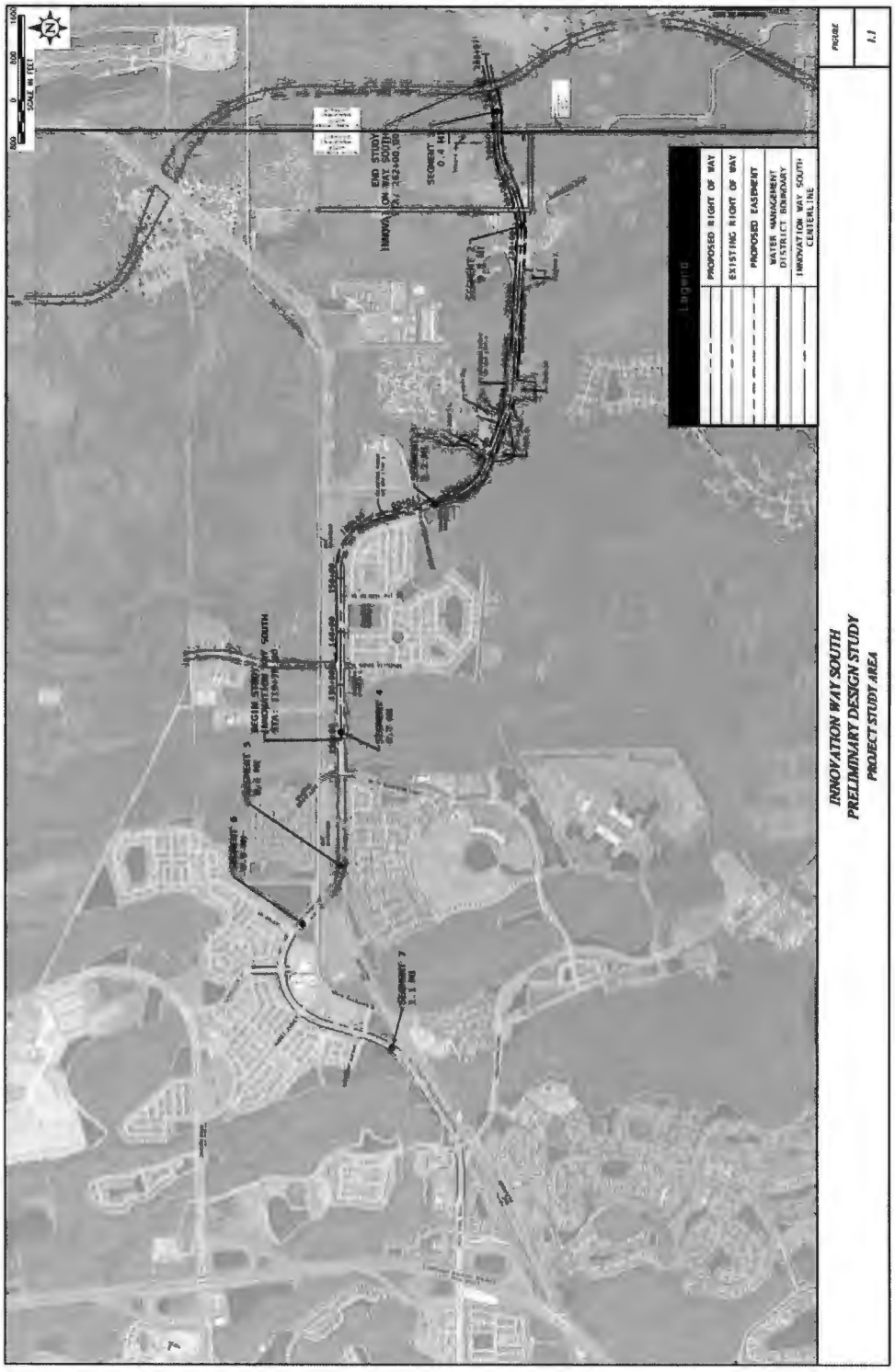


Figure ES 1.1 Project Study Area

ES.5 Traffic Analysis

Detailed project traffic analyses are provided in separate documents; the Design Traffic Technical Memorandum and the Design Traffic Engineering Report included in **Appendix H**. These documents provide the existing traffic conditions of the area as well as analysis of the improvement alternatives. A four-lane improvement to Innovation Way South will result in an acceptable level of service along the corridor. **Chapter 7** of this PDS summarizes a future year 2047 traffic evaluation of the roadway network. The future year evaluation models future traffic volumes, including potential impacts from anticipated areas yet to be constructed.

ES.6 Alternatives

An evaluation matrix was developed to compare the relative costs and benefits of the No-build alternative, TSM alternative and three Build alternatives. The matrix, shown in **Figure ES 1.1 Project Study Area**, considers the natural and physical impacts, and the costs of all of the alternatives.

The basic elements of the typical section (the preferred typical section, see **ES.7 Preferred AlternativeS.6 and Figure ES 1.1 Project Study Area)** include the full construction of Innovation Way South. Three alignment alternatives were considered. No Build and Transportation Systems Management and Operations (TSM) alternatives were also considered and incorporated into the build alternatives.

ES.7 Preferred Alternative

The preferred typical section for Innovation Way South is shown in **Figure 10.2 3D Proposed Typical Section** and contains the following roadway design elements:

- Four 12-foot travel lanes (two in each direction)
- A 10-foot multipurpose trail located on the north and south sides of the roadway
- Curb and gutter along the inside lanes
- Curb and gutter along the outside lanes
- A 44-foot raised, grassed median
- Variable width utility strips between the curb and gutter and the sidewalk or multipurpose trail
- A grass strip between the multiuse trail and the right-of-way line of varying width
- The proposed right-of-way is typically 125 feet.

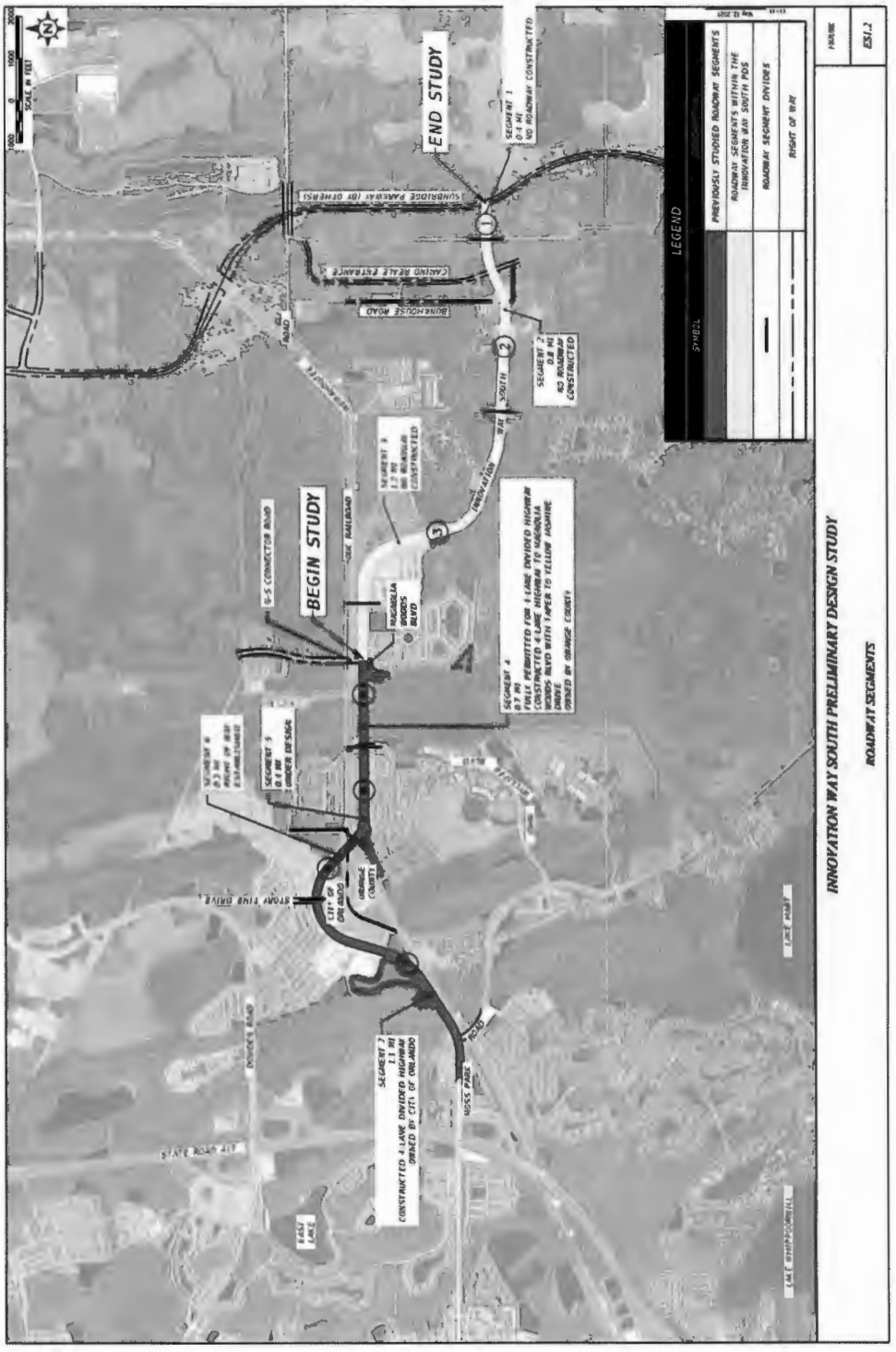


Figure ES-1.2 Roadway Segments

This section screens the No-Build and Build Alternatives using eight measures to indicate the extent of social, natural, and physical impacts. The preferred alignment should minimize the social, natural, and physical impacts to neighboring residents and businesses along Innovation Way South. Listed below are brief descriptions of each of the measures:

- **Social & Neighborhood** reflects anticipated social and neighborhood impacts on mobility, such as effects on parks, schools, or community resources.
- **Archaeological/Historic Sites** reflects anticipated impacts on archaeological/historic sites that are listed in the National Register of Historic Places.
- **Threatened/Endangered Species** reflects anticipated impacts to threatened/endangered species, such as wildlife habitat impact or species relocation.
- **Wetlands** reflects anticipated acreage of wetlands impacted by the proposed right-of-way.
- **Floodplains** reflects anticipated acreage of floodplains impacted by the proposed right-of-way.
- **Potential Contamination Sites** reflects how many potential contamination sites are anticipated to be impacted by the proposed right-of-way and how that contamination may affect construction.
- **County Level of Service Standard** reflects if the lane capacity is able to meet the County Level of Service current standard of LOS D or better.

Based on the matrix evaluation and public involvement activities, the preferred alternative is Alternative #1. The preferred alignment alternative minimizes right-of-way impacts, social impacts as measured by project costs. The Preferred Alternative is shown on the concept plans contained in **Appendix A** as well as described in more detail in Section 7 Preferred Alternative. The right-of-way identification maps are contained in **Appendix B**.

Alternative	No-Build Alternative	TSM	Alignment #1	Alignment #2	Alignment #3
Right of Way Impacts					
# of Residential Impacts[1]	None	None	0	0	0
Right-of-Way (ac)[2]	None	None	55.04	56.03	56.66
Number of Parcels impacted	None	None	5	5	5
Social, Natural & Physical Impacts					
Social & Neighborhood	None	Low	Low	Low	Low
Archaeological/Historic Sites	None	None	None	None	None
Threatened /Endangered Species	None	None	None	None	None
Area of Wetlands (ac)	None	None	8.76	11.65	10.51
Area of Floodplain (ac)	None	None	13.73	14.38	15.34
Potential Contamination Sites	None	None	None	None	None
Meets County LOS Standards	No	N/A	Yes	Yes	Yes
Estimated Present Day Costs					
Design (15% of Construction)	No Cost	None	$3,186,705	$3,186,705	$3,186,705
Right-of-Way Acquisition	No Cost	None	$2,066,387	$2,212,293	$2,165,991
Roadway Construction[3]	No Cost	None	$21,244,700	$21,244,700	$21,244,700
CEI (15% of Construction)	No Cost	None	$3,186,705	$3,186,705	$3,186,705
Total	No Cost	None	$29,684,497	$29,830,403	$29,784,101

Notes:

[1] R/W cost is $27,840.31/acre as per Transportation Agreement for Innovation Way, and does not include the cost of condemnation/eminent domain taking. Mitigation Costs are $56,000/acre.

[2] Construction Cost is based on FDOT LRE Project NDUAL-U-05-BB, July 2019 Prices of $7.545 Million/mile plus $75,000/mile landscape budget.

ES.8 Public Involvement

Critical to the success of this project is the feedback received from the local community.

All Public Involvement Information will be included once the meetings have been held.

ES.9 Conclusions and Recommendations

The objective of the Innovation Way South PDS is to develop and evaluate alternatives for improvement of Innovation Way South from Moss Park Road to Sunbridge Parkway. The alternatives sought to provide for the improvements to the roadway in order to balance the safety and mobility needs of all mode users in the corridor. There are no alternatives that include an initial widening with two lanes and then add two lanes later. All segments are intended to be improved with the full proposed four lane typical section with trails. The process incorporated the insights from planning, engineering, and the public to refine the alternatives, and ultimately advance a preferred alternative into the design phase. The preferred alignments for Innovation Way South are in conformance with the Comprehensive Plan. It is recommended that the preferred alternative detailed in Section 7 of this report be advanced by Orange County into the design phase.

1.0 INTRODUCTION

This Preliminary Design Study (PDS) is being conducted pursuant to the Transportation Agreement for Innovation Way (from Moss Park Road to Sunbridge Parkway) which is located partially within the Camino Reale development, and is anticipated to provide connectivity for the development from Moss Park Road to the proposed Sunbridge Parkway location (**Figure ES 1.1 Project Study Area**).

Provided below is a brief summary of each section of the report:

- **Project Need**: This chapter presents the purpose and need for the project.
- **Existing Conditions**: This chapter presents existing conditions, including roadway characteristics, crash data, public transportation, long-range transportation improvements, utilities, geotechnical and contamination findings, land use, cultural features, archaeological/historic features, hydrologic features, and wetlands/species.
- **Traffic Analysis:** This chapter presents existing and future traffic volumes and pedestrian/bicycle volumes in the study area.
- **Design Controls and Standards**: This chapter presents roadway design criteria and drainage design criteria applicable to the study area.
- **Preliminary Design Analysis**: This chapter presents an analysis of the No-Build Alternative and the four Build Alternatives as well as opportunities and constraints. This chapter presents the results of the preliminary design analysis, and details of the Preferred Alternative. This chapter presents a summary of the public involvement process through the project, including information distribution, community meetings, small group meetings, and Orange County meetings.

1.1 Study Purpose

The purpose of this PDS is to develop, document and summarize a recommended alignment and recommended pond locations for the roadway segments described in **Section 1.2**. The recommended alignment will be based on evaluation of safety, geometric requirements (typical section), traffic operations, community and environmental impacts, project cost, public involvement, conceptual drainage analysis, impacts to wetlands, floodplains, threatened and endangered species, wildlife corridors, critical and strategic habitat, archaeological and historic features, lighting, intersections, bicycle and pedestrian project elements.

This Preliminary Design Study is consistent with the approved scope of services.

1.2 Project Description Study Area

Innovation Way has been planned as a 4-lane urban divided facility from Moss Park Road to Sunbridge Parkway. Currently, segments of this roadway are in various stages of planning or construction. The roadway segments are shown in **Figure ES-1.2 Roadway Segments .**

For the purposes of this evaluation the extent of the Study is within 4 of the roadway segments. The segments in this study will include the portion of segment 4 from Magnolia Woods Boulevard to Yellow Jasmine Drive, segment 3, which runs through the Live Oak Estates property, segment 2, which crosses the Camino Reale development, and segment 1, which ties the new roadway into the proposed Sunbridge Parkway alignment. The preferred alignment is shown inFigure 1.2 **Preferred**

Alignment . Segments 4 through 7 were studied, and right-of way was recommended under a previously completed Preliminary Engineering Study.

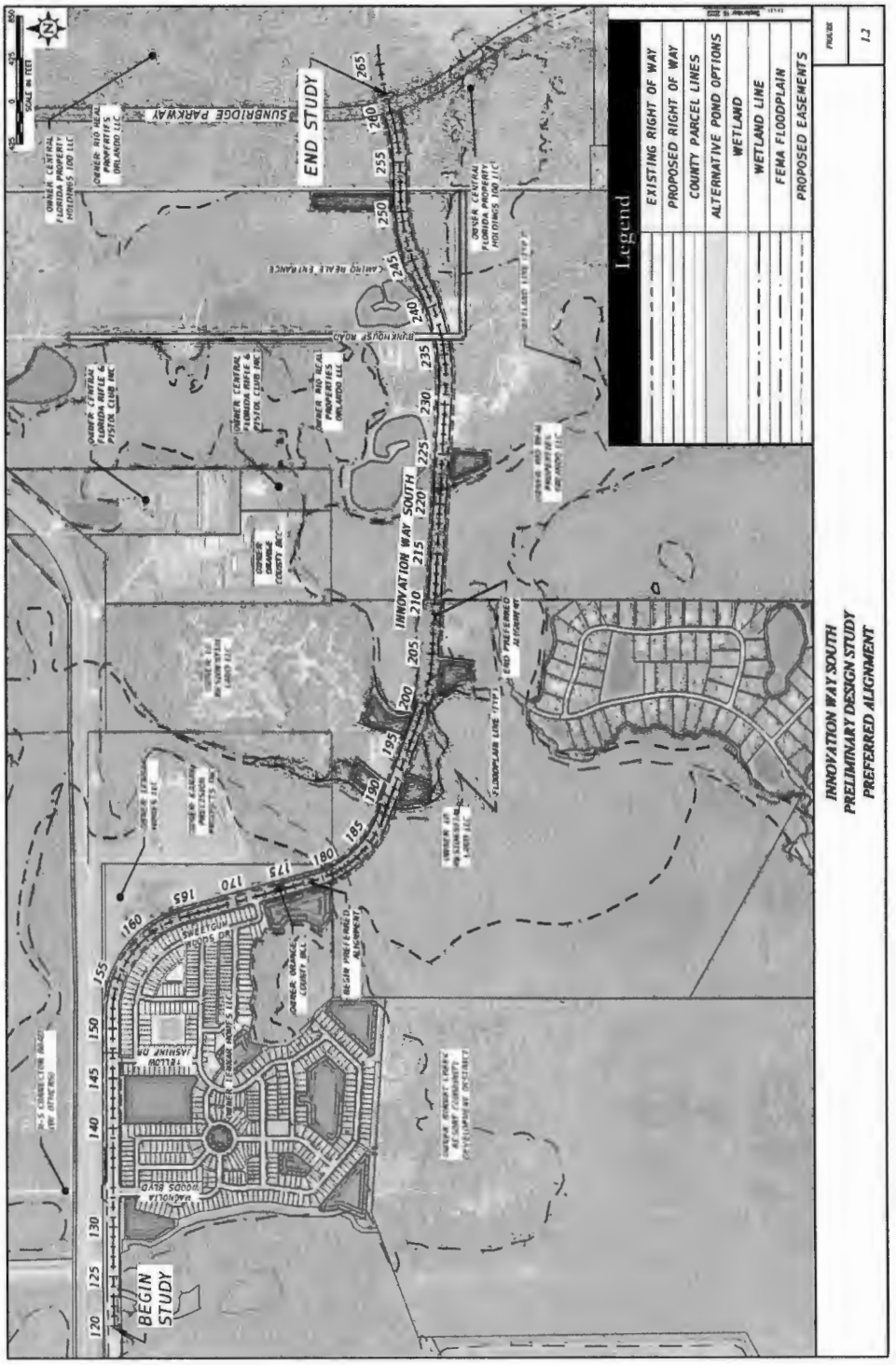


Figure 1.2 Preferred Alignment

2.0 PROJECT NEED

The need for improvements to the Project Roadway Network can be attributed to more than one cause:

1) Traffic:
   a. An expected deficiency in future traffic operations and capacity
   b. The ability to meet the future traffic demand of future development within the area
2) Safety:
   a. Pedestrians and Bicyclists
3) Policy and Plan:
   a. Providing consistency with the goals, objectives, and policies of the *Destination 2030, Orange County, FL Comprehensive Plan 2010-2030* (CP) and the METROPLAN ORLANDO Long Range Transportation Plan (LRTP).

2.1 Traffic Operations

The Orange County adopted minimum roadway operating condition is Level of Service (LOS) "E" for County and State maintained roads. The existing roadways currently operate at LOS "C" during the AM and PM peak periods. However, the current LOS is expected to decline if no improvements are made as traffic volumes continue to increase with the area development. Under the "no-build" condition, many of the roadways in the study are anticipated to operate at LOS "F" during design year 2045 AM and PM peak periods. See **Chapter 7** and **Appendix H** for additional information.

2.2 Crash Analysis

Since the majority for the study corridor does not exist, and the existing portions of the study corridor were constructed in 2017 and 2018, the historical crash data was limited. Accordingly, historical crash data was obtained from Signal Four Analytics (S4A) for a five-year period from January 1, 2016 to December 31, 2020 along Innovation Way South (Storey Park Boulevard), from Moss Park Road and Storey Lake Boulevard, and along Innovation Way South, from John Wycliffe Boulevard to the Moss Park PD Entrance. Both crash reports showed no crashes in the past 5 years for both locations.

The following are recommendations that should be included in the proposed roadway widening project:

- Provide advanced warning signs for side streets.
- Provide high emphasis crosswalks at signalized intersections.
- Provide "Pedestrian Crossing" signs with supplemental arrow where appropriate.
- Provide intersection lighting.
- Provide consistent speed limit signs, avoiding segments where the speed limit is different in each direction.

2.3 Conformance with Transportation and Long-Range Plans

2.3.1 Social/Economic Demand

Historically, the existing Roadway Network has been used to support the southeast Orange County agricultural community. Today it is located within a predominately rural setting, serving as the main route to Moss Park, Sunbridge Parkway and surrounding developments. The demand imposed on the Project Roadway Network will increase due to the Camino Reale development. The corridor must provide an acceptable level of service during this continued growth to serve the needs of emergency services, businesses, schools, construction, sales traffic for ongoing residential projects and other public needs. As a result, the Project Roadway Network provides a direct social and economic impact to the citizens of southeast Orange County.

2.3.2 METROPLAN ORLANDO Long Range Transportation Plan

METROPLAN ORLANDO, the Metropolitan Planning Organization (MPO) for Orange, Osceola and Seminole Counties adopted the 2030 LRTP on August 12, 2009. The following roadway corridors are specified in the LRTP to be widened to four lanes: Innovation Way South.

2.3.3 Orange County Comprehensive Plan (CP)

The Transportation Element of the CP shows Innovation Way South as a "Planned County Partnership" road. A Planned County Partnership is an agreement between private developers and the County that provides the County with a means for financing necessary transportation network improvements, and obtaining necessary right of way, in exchange for impact fee credits for the private developers.

The Transportation Element of the CP provides the goals, objectives, and policies for the future of the transportation system in Orange County. As a whole, Orange County is aimed at creating a multimodal transportation system which minimizes environmental impacts. The area in southeastern Orange County is currently rural and does not have multimodal facilities or transit access. However, there is adequate R/W should transit stops or bus shelters be needed in the future.

According to OBJ FLU5.1 in the CP, the Innovation Way development shall provide more sustainable and quality development in southwestern Orange County by replacing piecemeal planning that reacts to development on a project-by-project basis with a long range vision. Wherever possible, as many activities as feasible shall be located within an easy walking distance of an existing or designated transit stop. Local and collector streets, pedestrian trails and bike trails shall contribute to a system of fully connected and interesting routes from individual neighborhoods. Their design should encourage pedestrian and bicycle use by being spatially defined by buildings, trees, and lighting; and by discouraging high-speed traffic.

This project proposes a 10-foot multiuse trail on both sides of the roadway. These elements encourage non-motorized vehicle use along Innovation Way South.

2.4 Innovation Way South Roadway Network Agreement

The constructing property owners have entered into a Roadway Network Agreement with Orange County dated December 18, 2018. This agreement provides the mechanism for the participating property owners to perform multiple design and construction tasks for Innovation Way South in exchange for concurrency vesting and impact fee credits.

The Preliminary Design Study (PDS) is part of Section 2 as outlined in the Road Network Agreement.

2.5 Safety

Since the majority of the study corridor does not exist, and the existing portions of the study corridor were constructed in 2017 and 2018, the historical crash data was limited. Accordingly, historical crash data was obtained from Signal Four Analytics (S4A) for a five-year period from January 1, 2016 to December 31, 2020 along Innovation Way South *Storey Park Boulevard), from Moss Park Road and Storey Lake Boulevard, and along Innovation Way South, from John Wycliffe Boulevard to the Moss Park PD Entrance. Both crash reports showed no crashes in the past 5 years for both locations.

The following are recommendations that should be included in the proposed roadway widening project:

- Provide advanced warning signs for side streets.
- Provide high emphasis crosswalks at signalized intersections.
- Provide "Pedestrian Crossing" signs with supplemental arrow where appropriate.
- Provide intersection lighting.
- Provide consistent speed limit signs, avoiding segments where the speed limit is different in each direction.

3.0 Existing Conditions

The following sections document the existing conditions and characteristics of the Project Roadway Network as observed during site visits in October 2020 and information provided by Orange County.

3.1 Roadway Characteristics

The study limits for Innovation Way South begin at Magnolia Woods Boulevard and end at Sunbridge Parkway. The project study area includes approximately 12,743 feet (2.41 miles) of Innovation Way South.

The study corridor consists of Innovation Way South, which has a functional classification of **urban major collector**. The roadways consist of multiple vertical and horizontal curves.

3.2 Bridges and Structures

There are no existing bridges or structures within the limits of the extension of Innovation Way South.

3.3 Existing Multimodal Accommodations and Services including Pedestrian and Bicycle Facilities

There are currently no Lynx bus routes along Innovation Way. The existing sections of Innovation Way include bicycle lanes along both sides of the roadway. No sidewalks or multiuse trails are currently along the constructed portion of Innovation Way South

3.4 Traffic Data

Under the 2020 base year conditions, Innovation Way South is a four-lane divided roadway in Orange County. Innovation Way South is being extended with a four-lane divided roadway (125 ft of right-of-way). See **Figure 3.1 Base Year Intersection Geometry** and **Base Year 2020 Intersection Volumes.**

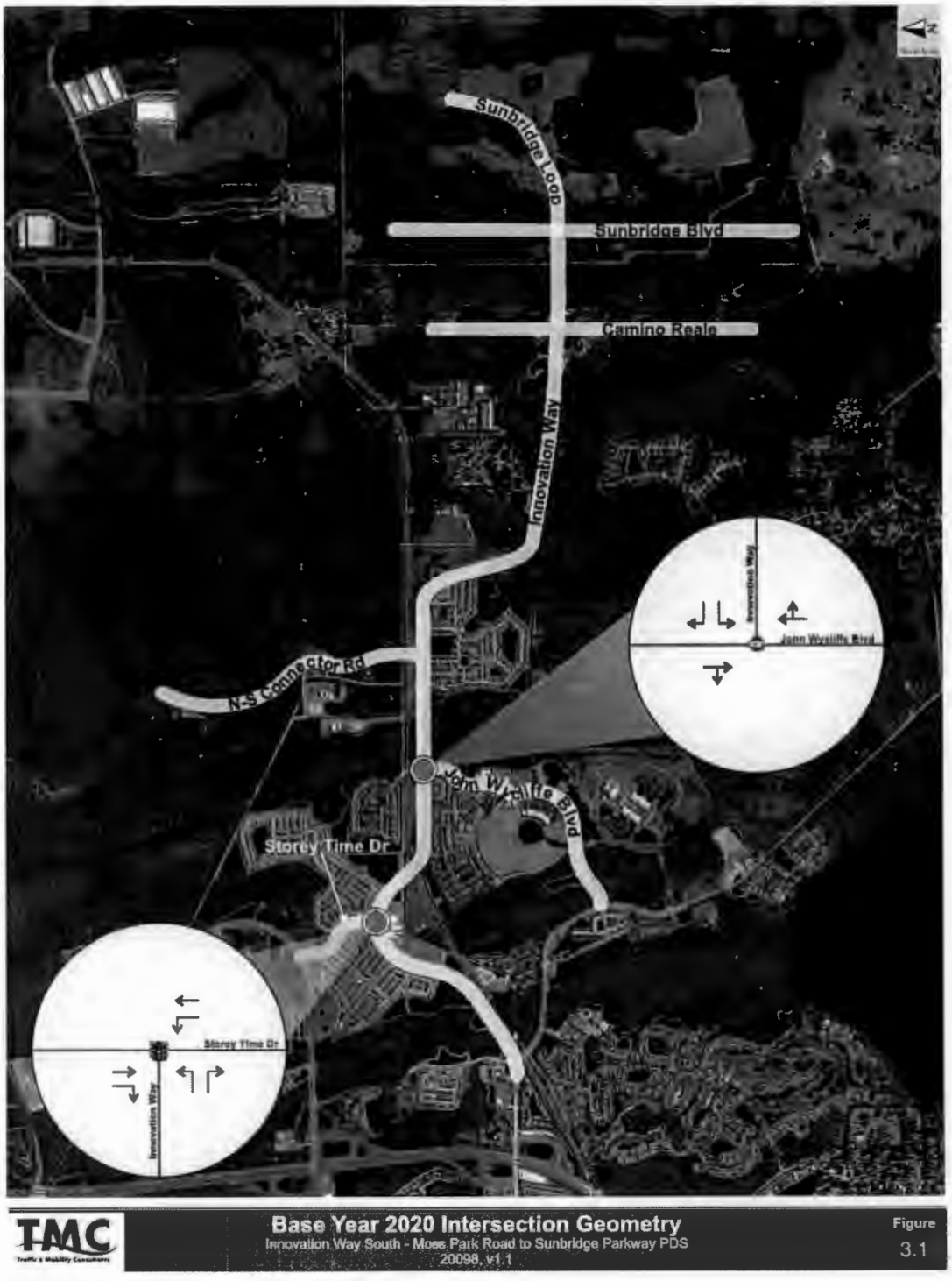
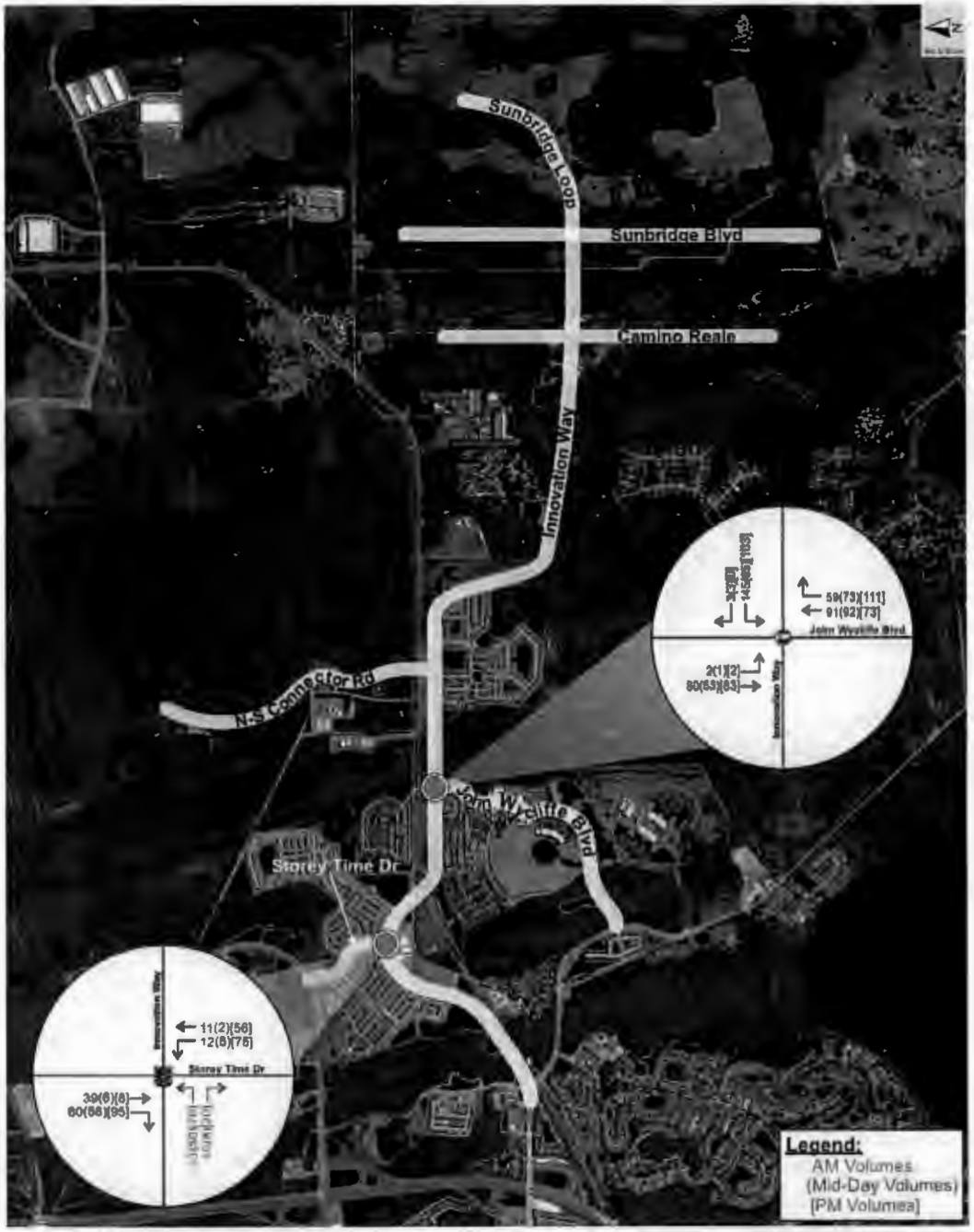


Figure 3.1 Base Year Intersection Geometry



3.2 Base Year 2020 Intersection Volumes

3.5 Existing Typical Section

The existing typical section for Innovation Way South is a paved, 4-lane, divided roadway with bicycle lanes and multi-purpose trails in each direction. (**Figure Figure 3.3 Existing Typical Section for Innovation Way** South).

3.6 Right of Way

Currently, the existing portion from John Wycliffe Boulevard to Yellow Jasmine Drive of Innovation Way South lies within an approximately 125-foot-wide right-of-way corridor owned and maintained by Orange County. See **Appendix A** for the right of way through this section.

3.7 Existing Roadway Alignment

This section describes the existing alignment along the Project Roadway, which is shown on **Figure 3.4 Existing Roadway Alignment**. Innovation Way South generally runs in a west to east direction with multiple horizontal and vertical curves. Proposed alignments will be discussed in section 10.

Innovation Way South within the project limits where constructed, is a four-lane divided roadway and is a major collector. The existing sections from Moss Park Road to Story Time Drive has a posted speed limit of 40 miles per hour (mph) and a design speed of 45 mph. The existing section east of John Wycliffe Road has a posted speed limit of 35 mph and a design speed of 40 mph. The section from Magnolia Woods Blvd. east has a posted speed limit of 35 miles per hour (mph) and a design speed of 40 mph. This section consists of a four-lane divided roadway in 125 feet of right of way.

Section 4 from John Wycliffe Boulevard to Magnolia Woods Boulevard consists of a four-lane divided roadway in 125 feet of right-of -way. Section 4 has a posted speed of 35 mph and was designed with a design speed of 40 mph.

Segment 3 from Yellow Jasmine Road to the south east corner of the Lennar Homes owned property has 125' of right-of-way dedicated for the future roadway construction. The remainder of segment 3, segment 2, and segment 1 do not have right-of-way established for the roadway construction at this time. The proposed typical section will consist of a four-lane divided roadway with a 44 ft wide median and Multipurpose Trails on both sides.

The existing transportation network within the study corridor is comprised mainly of the current roadway system. LYNX does not have routes along Innovation Way. The LYNX Vision 2030 Plan does not include any future routes in the vicinity of Innovation Way.

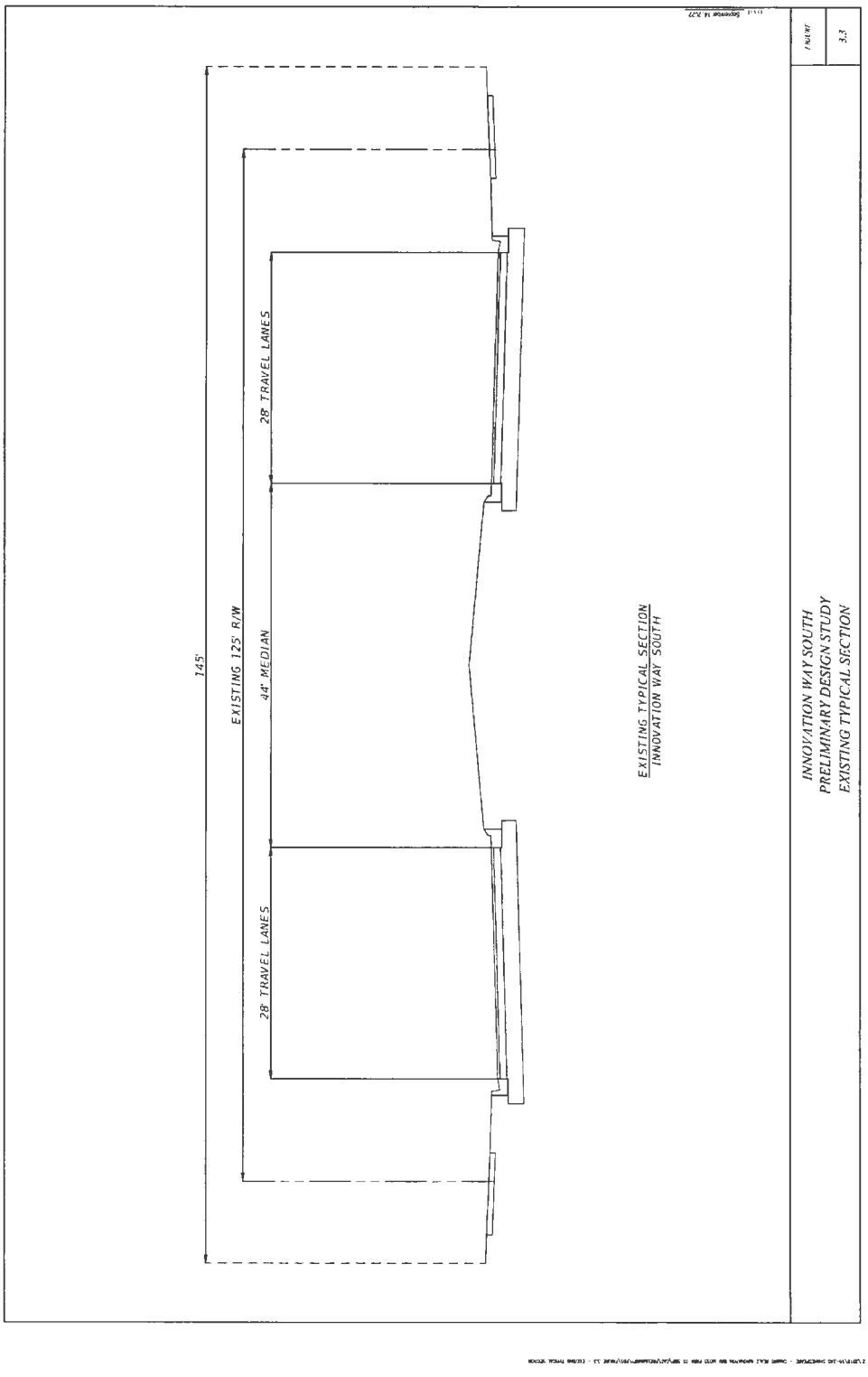


Figure 3.3 Existing Typical Section for Innovation Way South

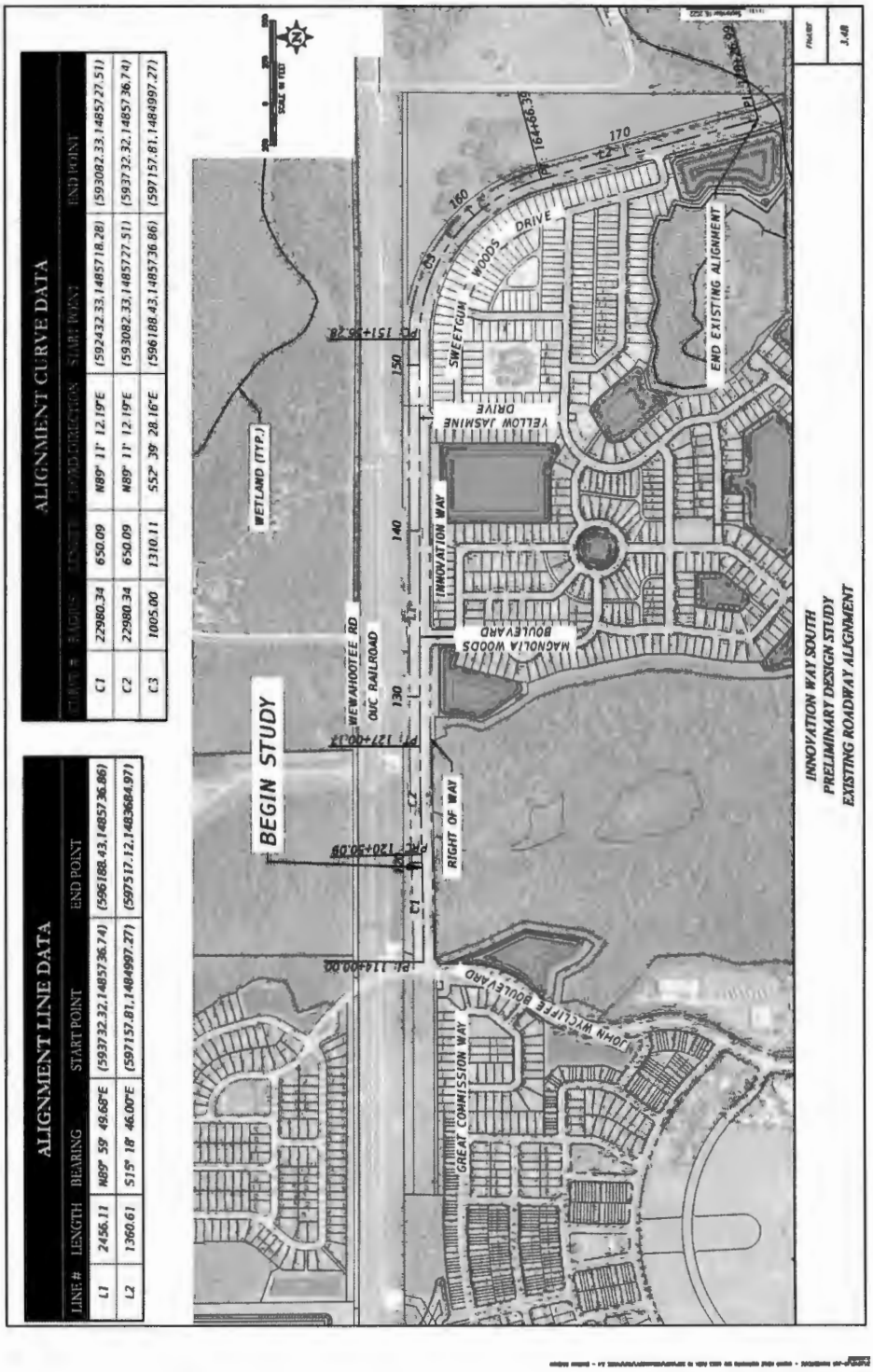


Figure 3.4 Existing Roadway Alignment

4.0 EXISTING INFRASTRUCTURE

4.1 Roadway Lighting

Currently, the only roadway lighting exists within Segment 4.

4.2 Utilities Analysis

Currently the only utilities existing are located in the constructed portion of the roadway corridor from Magnolia Woods Blvd. to Yellow Jasmine Rd. As-built plans were used to identify the location of these existing utilities. Utility coordination will be conducted during final design to determine ownership and location of all utilities.

4.2.1 Electrical Power

Duke Energy (aka, Progress Energy) has an overhead transmission line (69kV) located along the northern property boundary of the Innovation Place PD within a 60 ft wide easement.

Other electrical lines along the project corridor are owned and operated by OUC.

4.2.2 Potable Water & Sewer

Orange County Utilities currently provides potable water and sewer mains in the study area. There is a 24-inch water main running inside an existing 30-foot utility easement from Magnolia Woods Blvd. and continues east once the roadway corridor turns to the south. Inside the same 30-foot utility easement there is also a 16-inch force main that follows the same path as the water main and terminates east of the first curve on Innovation Way South.

4.2.3 Reclaimed Water

Orange County Utilities currently has a 16-inch reclaimed water main within a 30 foot utility easement running to the north of our alignment from Magnolia Blvd. east to Yellow Jasmine Drive.

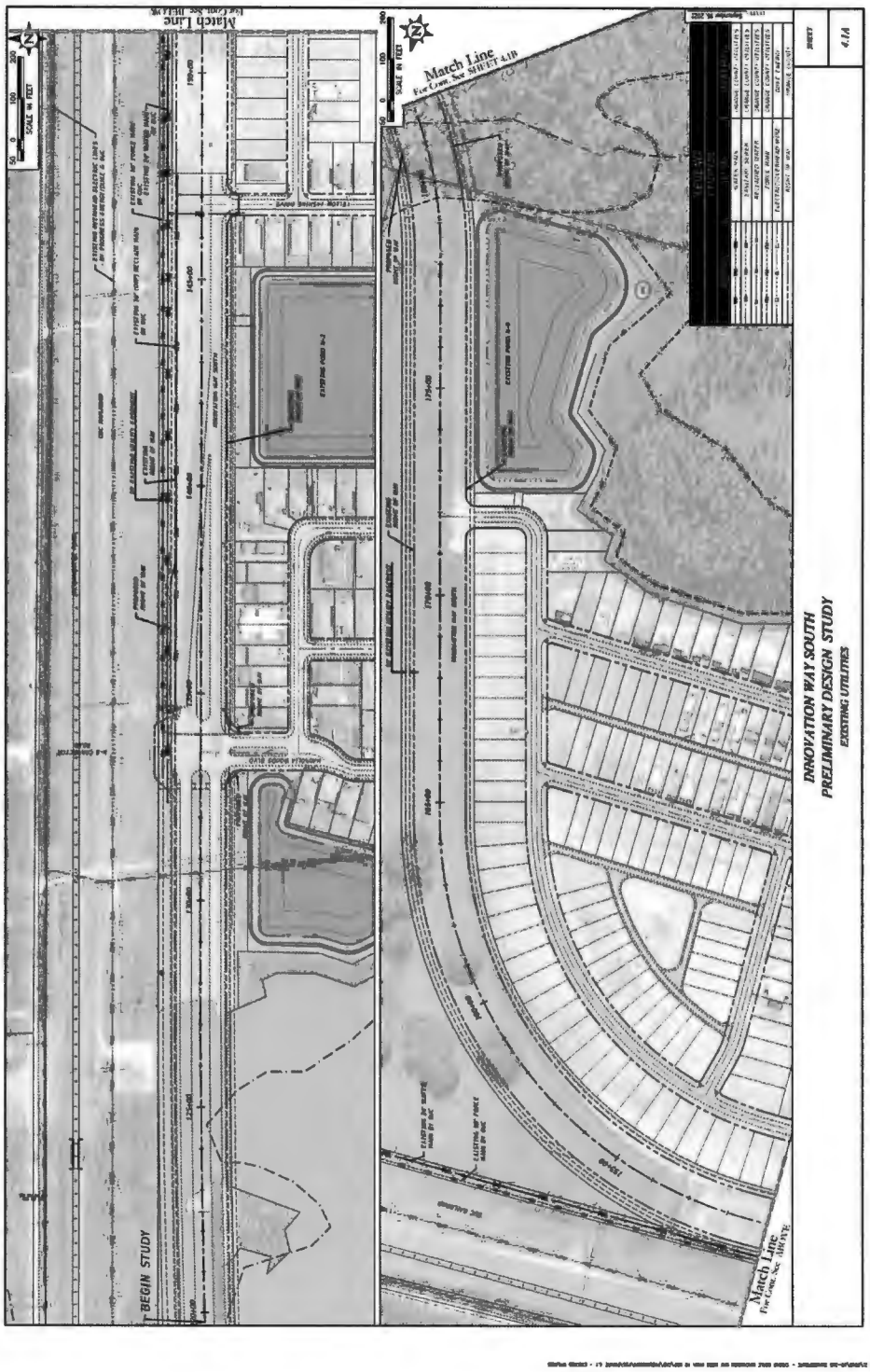


Figure 4.1A - Existing Utilities

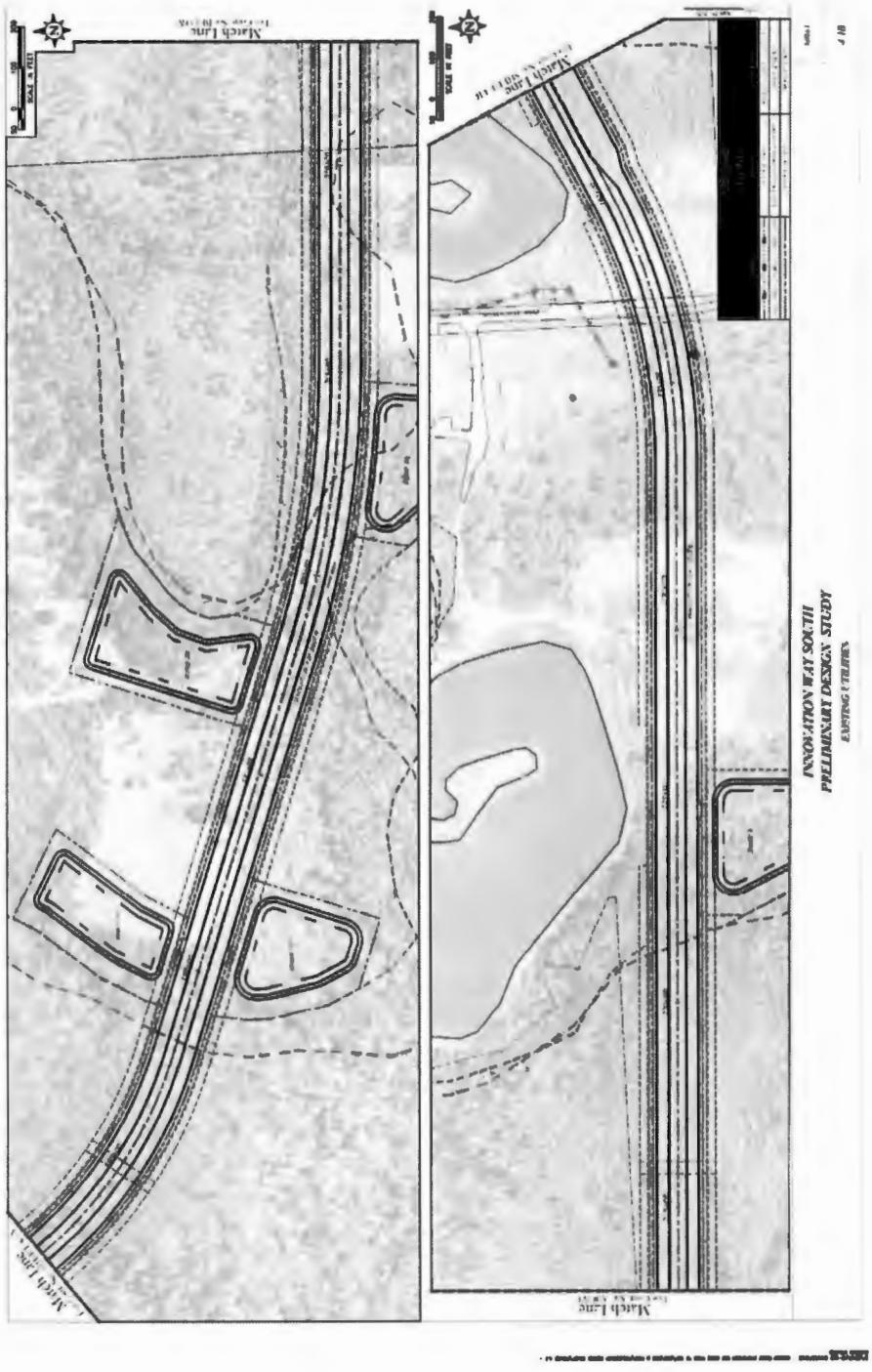


Figure 4.1B - Existing Utilities

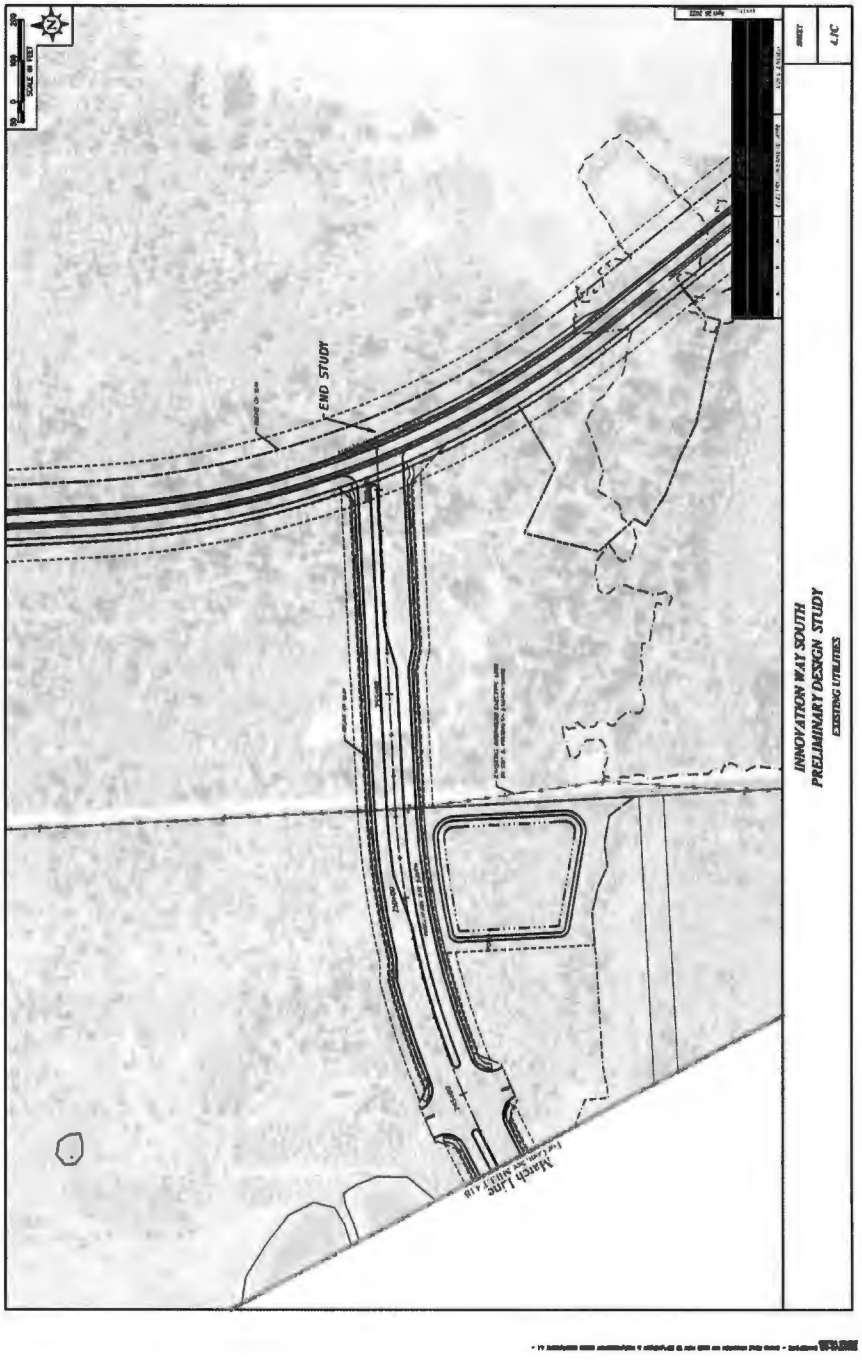


Figure 4.1C - Existing Utilities

4.3 Existing Transportation Network

4.3.1 Transit Concept

LYNX is the Regional Bus Service provider for Orange County. Based on the LYNX Vision 2030 Plan, no bus routes are planned for Innovation Way South and were not included in the future study typical.

Future bus stops can be accommodated within the proposed R/W. The proposed typical section includes area between the back of curb and the right-of-way lines on both sides of Innovation Way South with a minimum of 7 feet between the curb and the sidewalk/Trail. Bus stops can be accommodated by providing benches and shelters in these areas.

4.3.2 Multipurpose Trails

The Orange County Trails Master Plan does not list a trail along this section of Innovation Way. The Camino Regulating Plan includes Trail/Bike Lane along Innovation Way within the Camino Reale Development.

The proposed typical includes bicycle lanes on both sides of the roadway and 10' Multipurpose Trails on both sides of the roadway so bicyclists are accommodated along this section of Innovation Way.

5.0 EXISTING HYDROLOGY

5.1 Drainage Basins

The limits of the corridor analysis are located within the jurisdiction of South Florida Water Management District (SFWMD) and St. John's River Water Management District. The SJRWMD boundary begins at the regulating plan for Sunbridge Parkway the eastern most tie in of Innovation Way South for this study. The topography within the project area is relatively flat with some moderate slopes. Existing drainage patterns are generally in a southerly direction towards large wetland and lake systems downstream. This system of interconnected lakes and wetlands are located within the Lake Hart watershed and ultimately discharges to the Kissimmee Chain of Lakes.

The Orange County Comprehensive Plan include FLU 4.5.7 and FLU4.5.8. FLU 4.5.7 requires that an analysis be completed to ensure that appropriate water recharge of the Floridan Aquifer can be maintained. The analysis must demonstrate that the recharge characteristics of water entering the soil in the post development condition is comparable to that in the pre-development condition. FLU4.5.8 requires an evaluation of the development impacts on listed plants and wildlife and wildlife habitats. If there are impacts to these natural resources, an evaluation of the impacts will be completed and mitigation will be recommended (see Environmental Assessment in **Appendix E**.

5.2 Roadway Drainage

Portions with existing roadway are a four-lane urban roadway with a raised median and an enclosed conveyance system. The enclosed conveyance systems collect and discharge runoff to existing permitted ponds that then discharge to wetlands that are connected to Lake Hart and ultimately the Kissimmee Chain of Lakes (See **Figure 5.1 Existing Drainage Map**).

5.3 Existing Cross Drains

There are no existing cross drains along the study alignment.

5.4 Existing Permits

At the time of this report, the following stormwater permits exist within the proposed corridor. These include:

- Subbridge Parkway SJRWMD ERP 152040
- Correct Craft Borrow Pits ERP 4-095-71492-1
- Dayron Fuse Assembly & Warehouse Building on Weewahootee Road ERP 48-00484-S
- East 50 Lake #2 ERP 40-095-0162
- Innovation Way East at the end of TM Ranch Road ERP
- International Corporate Park Environmental Resource Permit (ERP) 4-095-0246M4, Conceptual Permit 4-095-0159C.
- Live Oak Estates, Phase IV ERP 48-00287-S to direct the discharge from the rear-yard swale behind the eastern lots of Phase IV to the adjacent wetland.

- Moss Park PD Parcel E Phase 2 ERP 48-00886-P.
- Moss Park PD Parcel N ERP 48-00886-P
- Moss Park Parcel C ERP ERP 48-00886-P
- TM Ranch Shooting Range ERP 48-01024-P for the construction and operation of 2.5 acres of wetland enhancement within a project known as T.M. Ranch Shooting Range. The proposed enhancement is associated with an Environmental Protection Agency (EPA) mandated/overseen remediation activity at the site relating to the past use of the property for a recreational gun club. The enhancement activity is mandated in EPA Consent Agreement and Final Order, Docket No. RCRA-04-2014-4012(b) dated September 18, 2014 and detailed in a Waste Pile and Stormwater Pond Remediation Work Plan (RWP), version 5.0, completed by Exp Services, Inc. and dated April 15, 2015.
- Wastewater Treatment Plant ERP 40-095-0120 for a 24.9-acre site for a wastewater treatment plant and force main to spray irrigation site known as ICP Wastewater Treatment Plant.

These systems should be accommodated to minimize any impacts in final design. All existing permits are included in **Appendix L.**

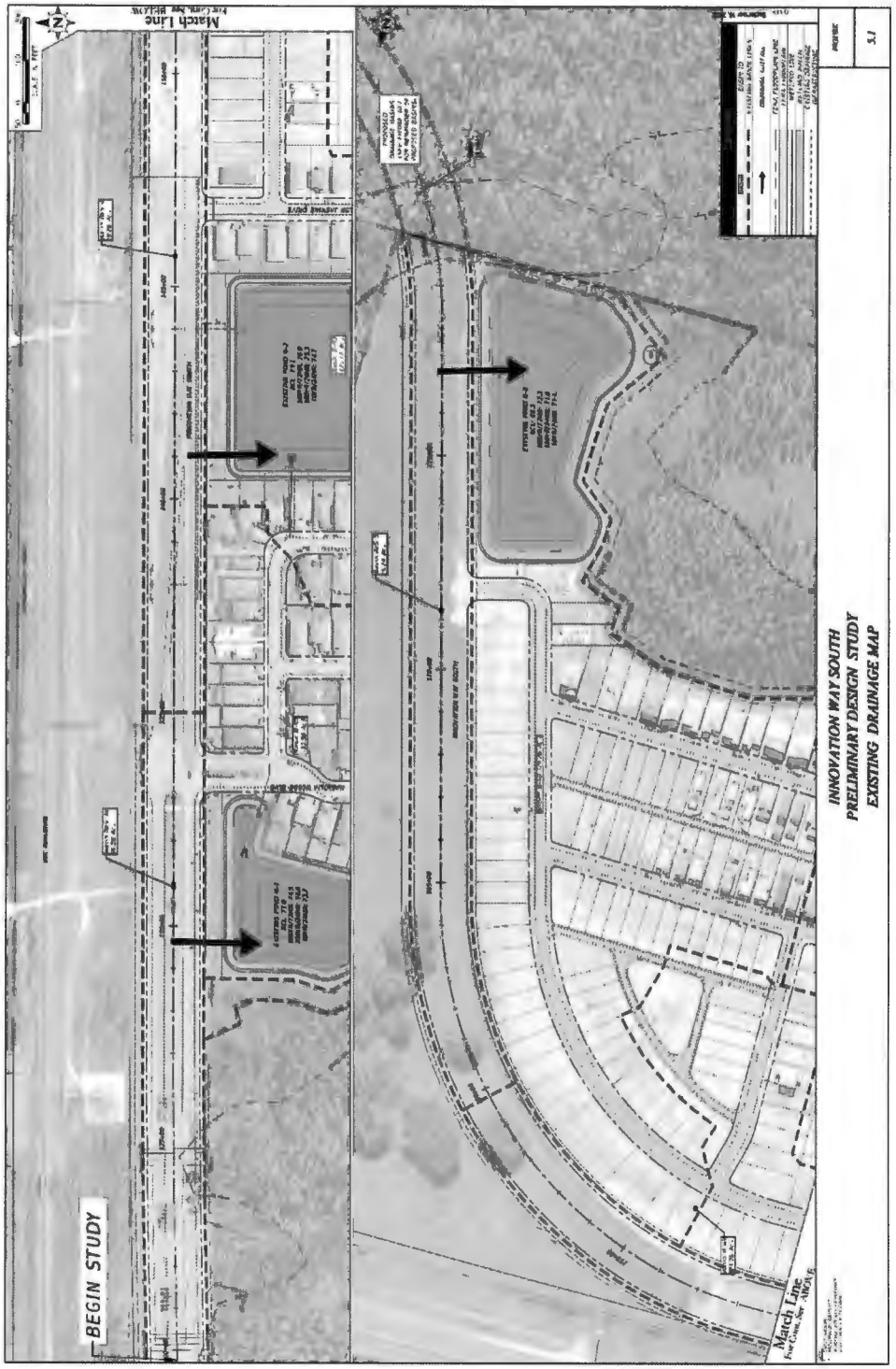


Figure 5.1 Existing Drainage Map

5.5 Floodplains

There are no floodways within the project corridor. As shown on, **5.2 FEMA FIRM Panels** there are several floodplain areas along the proposed corridor. Management of floodplain impacts is presented in **Section 10** of this study. The site lies within Zone A and Zone X as delineated on the FEMA/FIRM panel number **12095C0465G dated June 20, 2018 and 12095C0475F dated September 25. 2009**. All developments within a depressional flood hazard area must compensate for the impacts on an equal volume basis by providing compensating storage for all floodwater displaced by development below the elevation of the 100-year flood. Compensating storage is to be provided between the average wet season water table of the special flood hazard area and the estimated 100-year flood elevation. Floodplain impacts are anticipated along Innovation Way South. Compensating Storage for floodplain impacts is proposed within scrape down areas. Please refer to section 10 of this Study and Appendix I Pond Siting report for additional design information.

5.6 Geotechnical Explorations

Ardaman & Associates has completed preliminary geotechnical exploration for the project corridor. Please refer to **Appendix D** Geotechnical Report for additional information.

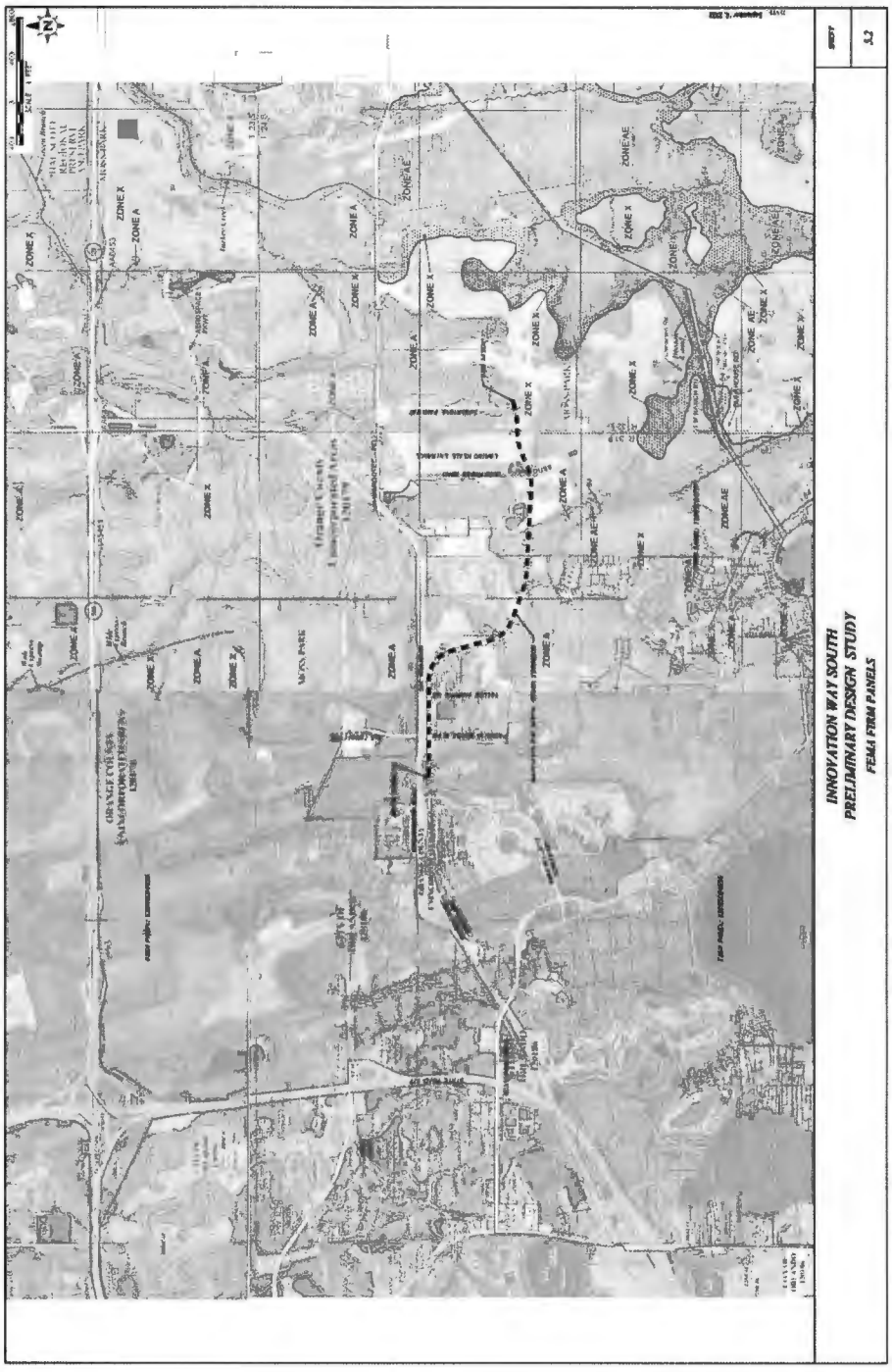


Figure 5.2 FEMA FIRM Panels

6.0 ENVIRONMENTAL SITE ASSESSMENT ISSUES

6.1 Land Use and Current Development Plans

6.1.1 Existing Development Permits

Research of the SFWMD permit webpage resulted in the following permits along the corridor:

Correct Craft Borrow Pits SJRWMD 4-095-71492-1
Dayron Fuse Assembly & Warehouse Building SFWMD 48-00484-S
East 50 Lake #2 SJRWMD 40-095-0162
International Corporate Park SJRWMD 4-095-0159C & 4-095-0246
Live Oak Estates SFWMD 48-00287-S
Moss Park Parcel C, E and N SFWMD 48-00886-P, 48-00886-P-03, & 48-0086-P-09
TM Ranch Shooting Range SFWMD 48-01024-P
Wastewater Treatment Plant SJRWMD 40-095-120
WDW Master Development SP Condition #5 SFWMD 48-0714-S

These plans can be found **Appendix L**

6.2 Existing and Proposed Land Uses

The current land uses within the study area of influence were identified through field reviews and aerial photography. Approved land uses and densities within the study area were collected from local agencies. Furthermore, comprehensive plans and future land use maps were verified and used in the design traffic analysis. The following development programs were included in the land use data in the socio-economic model:

- Camino Reale Development
- Sunbridge PD
- Innovation Place PD
- Starwood Property
- Moss Park PD
- Live Oak Estates

The majority of the approved PD's are moving forward into the Preliminary Subdivision Plan phase and the Live Oak Estates is under construction.

All of these projects were reviewed and used in developing the proposed improvements. Several of the adjacent developments have anticipated the improvements to Innovation Way South. The regulating plan for the Camino Reale Development will be redone at a later date and reflect the current alignment proposed with this project.

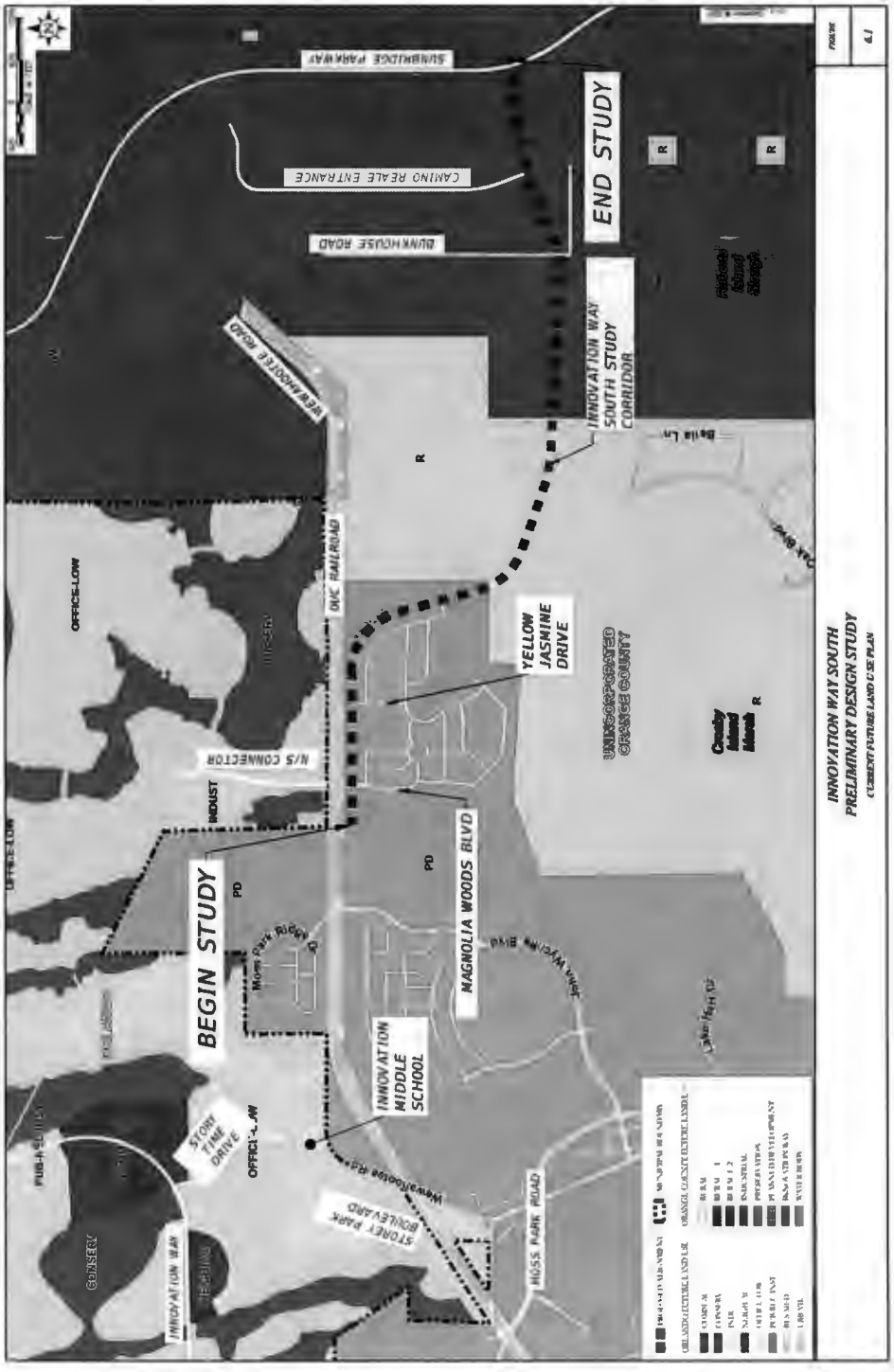


Figure 6.1 Current Land-Use Plan

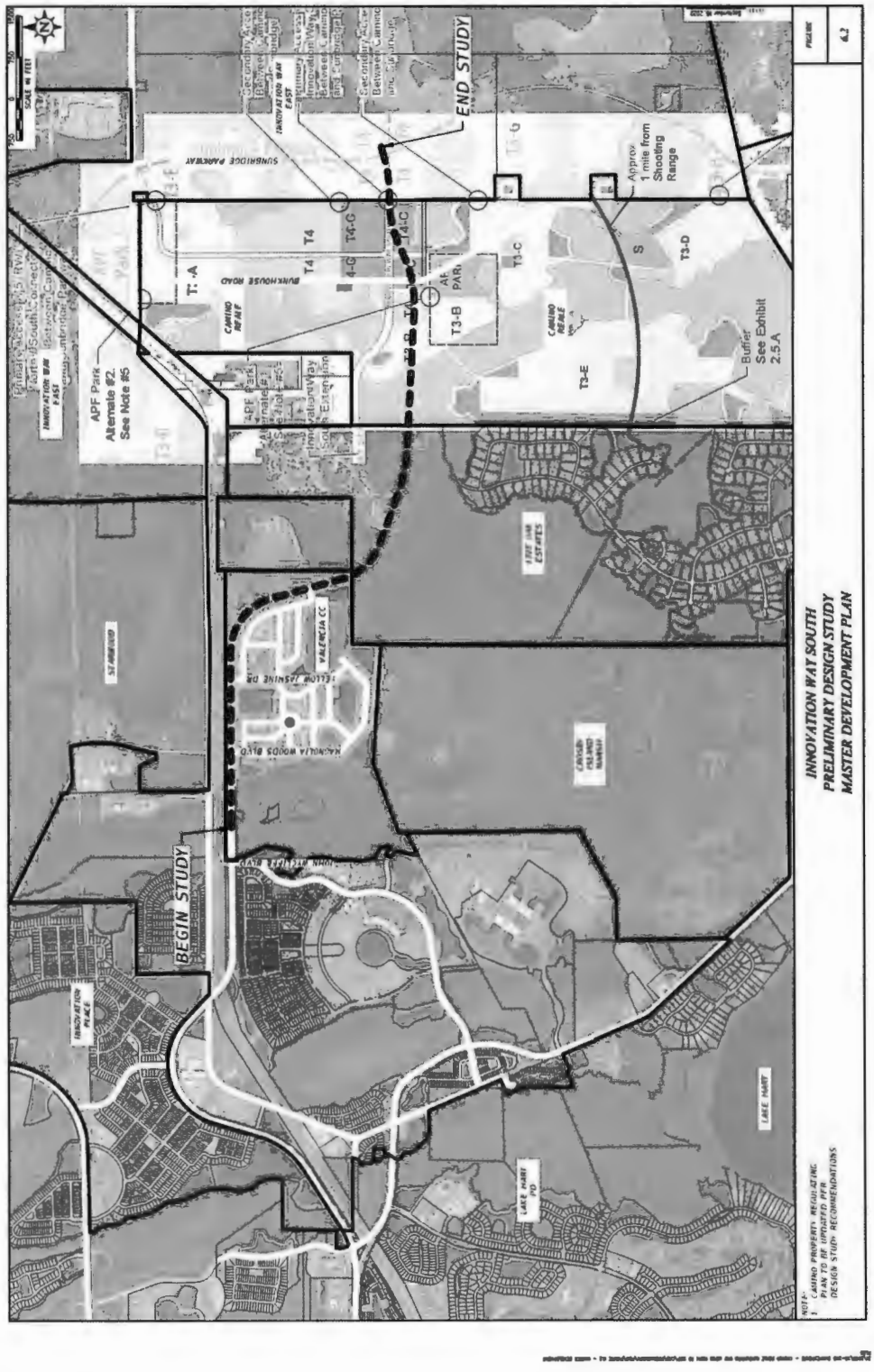


Figure 6.2 Master Development Plan

6.3 Soil Surveys and Geotechnical Data

The Preliminary Roadway Soil Survey Reports provided by Ardaman & Associates, and included in **Appendix D** of this report, describes the general subsurface conditions and preliminary geotechnical engineering recommendations for roadway design for Innovation Way.

The field investigation for this portion of Innovation Way consisted of performing fourteen (14) auger borings within the proposed roadway right-of-way along segments one through 3 and to depths varying from 3.0 to 20.0 feet below the existing ground surface. In general, the borings were performed along the center of the proposed alignment and at an approximate spacing of 600 feet.

6.3.1 Existing Physical Characteristics

Based on our review of the Soil Survey for Orange County, the proposed alignment traverses a variety of soil types. Of particular interest are soils described as containing organic muck such as the "Samsula-Hontoon-Basinger association, depressional" soil series which was encountered in two areas of the project. This type of soil is generally not suitable for providing roadway support and would need to be removed (i.e. demucked) as part of the roadway construction.

The Samsula soil is described as having a surficial layer of muck extending to a depth of approximately 34 inches. The Hontoon soil is described as having a surface layer of black muck approximately 16 inches thick underlain by a very dark brown layer of muck to a depth of 80 inches. The Basinger soil is described as having a surface layer of black fine sand approximately 6 inches thick. If actual muck depths are within this range, complete removal of the organic muck will likely be practical to prevent longterm settlement issues, albeit at additional cost compared to alignments that do not require extensive demucking.

In addition to soils identified as containing muck, numerous soil types within the proposed corridors are described as having relatively high seasonal high water tables. In many of these soils types, water is expected to be ponded through portions of the year. It will be important during design to accurately determine areas of high water tables in order to set grades and maintain proper base clearances.

6.3.2 USDA/NRCS Soil Survey

Review of the USDA/NRCS map for the study area (Error! Reference source not found.) indicates that the soils along the subject alignment are mapped as follows:

- Pomello fine sand, 0 to 5% slopes (34)-Nearly level to gently sloping, moderately well-drained sandy soil on low ridges and knolls on the flatwoods.
- St. Johns fine sand (37)-Nearly level, poorly drained sandy soil on broad flats on the flatwoods.

- Samsula-Hontoon-Basinger association, depressional (41)-Nearly level, very poorly drained soil in freshwater swamps, depressions, sloughs, and broad, poorly defined drainageways.
- Smyrna-Smyrna, wet, fine sand, 0 to 2% slopes (44)- Nearly level, poorly drained sandy soils on broad flatwoods
- Zolfo fine sand, 0 to 2 % slopes (54)-Nearly level, somewhat poorly drained sandy soil in broad, slightly higher positions adjacent to the flatwoods.

6.3.3 Geotechnical Consideration

The estimated seasonal highwater table each year is the level in the August-September period at the end of the rainy season during a year of normal (average) rainfall. The estimated highwater levels would more approximate the seasonal high water table elevations. The estimated seasonal highwater table is affected by a number of factors. The drainage characteristic of the soils, the land surface elevation, relief points such as lakes, rivers, swamp areas, etc., and distance to relief points are some of the more important factors influencing the seasonal high water table elevation (see Geotech Report in **Appendix D**). During final design a qualified wetland scientist will delineate the wetland estimated seasonal high water table elevation.

The Ardaman & Associates, Inc. Report describes the existing shallow subsurface soils encountered in the borings performed as capable of supporting the proposed typical pavement section after proper near surface soil preparation.

As an exception, portions of the Innovation Way right-of-way where plastic and/or organic soils are present. The plastic soil will be removed in accordance with FDOT criteria during final design. Organic content is considered muck and not suitable for use as fill material and should be removed in final design. Further study for contaminated soils will not be necessary as the only contaminated soils found, referenced in the CSER **Appendix G,** fall outside of the proposed walls shown on the concept plans from station 223+30 to station 226+70 and 239+50 to station 242+70.

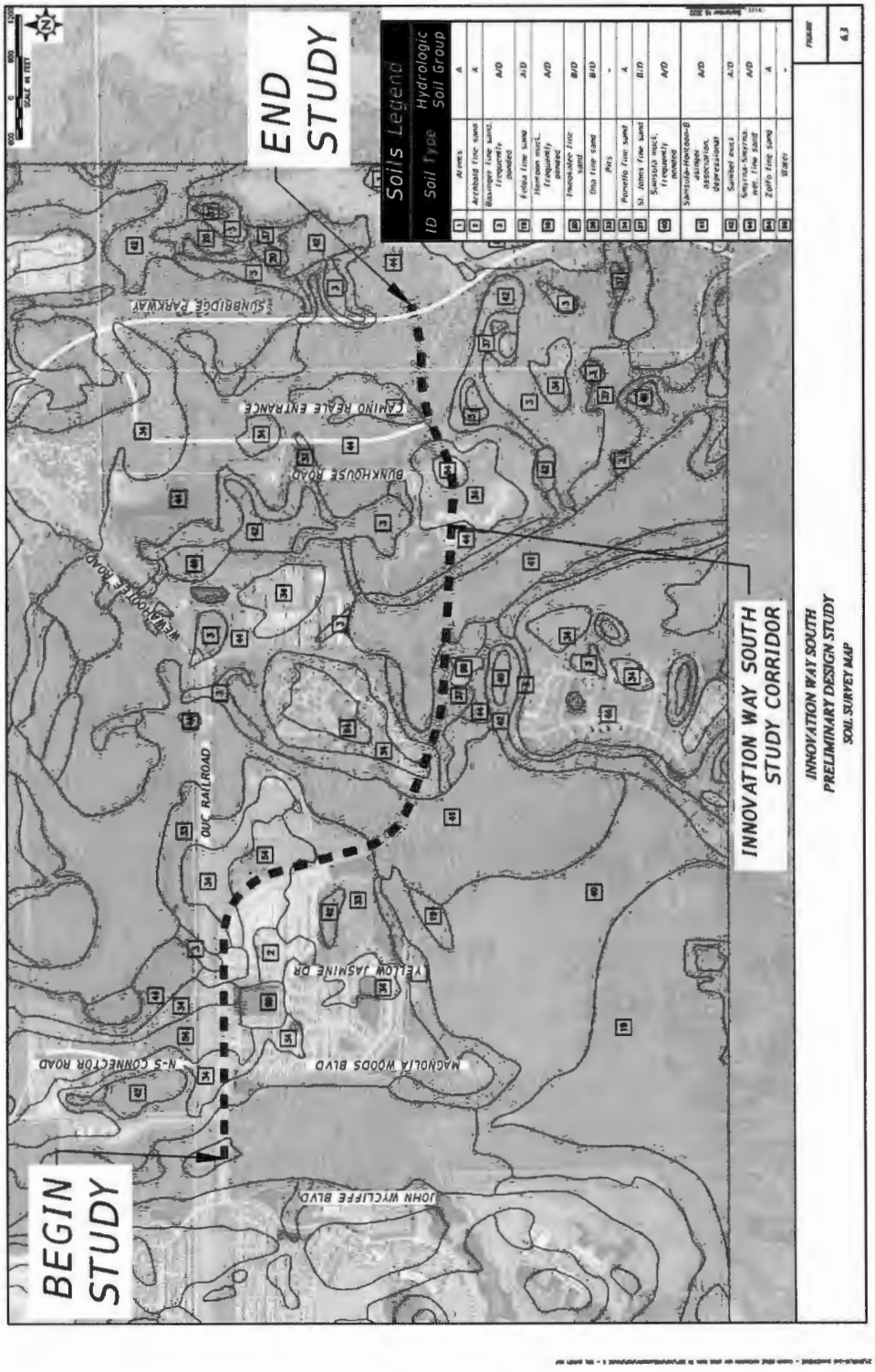


Figure 6.3 Soil Survey Map

6.4 Contamination

The **Contamination Screening Evaluation Report (CSER)** by Ardaman and Associates, Inc. is summarized below and included in **Appendix G**.

The proposed roadway corridor was designed not to impact contaminated stormwater ponds that are still under remediation efforts per the Ardaman report.

At the time of the field observation, the majority of the lands within the project corridor consisted of wooded wetlands and undeveloped land in use for cattle grazing. The project corridor passes through the former TM Ranch Shotgun Range on the Camino Reale property, which has a vacant clubhouse, storage barns and other structures, an asphalt-paved pad, two ponds and soil piles. The Camino Reale property is now used for cattle grazing only. The former shotgun range will be discussed further below.

Property adjacent and near the corridor is similar to those within the corridor. Wooded wetlands and unimproved pasture exist adjacent north and south of the corridor, as well as portions of the former shotgun range. Residential subdivisions are located to the west (Oaks at Moss Park) and south (Live Oak Estates). A pond, apparently a borrow pit for the southern residential subdivision, is located south of the corridor. North of the corridor are a commercial facility and two firearms ranges. A City of Cocoa water well facility is located to the south of the project corridor near its east end.

The TM Ranch Shotgun Range was in operation from 1999 until approximately 2004 when it was closed and remediation was initiated. Prior to the shotgun range, the land was used for cattle grazing, as the majority of the land within and adjacent to the corridor currently is and was for over a century.

Cross-referencing City Directory listings and Sanborn fire insurance maps were requested from Environmental Dara Resources, Inc. (EDR) for the project corridor. No City Directories or Sanborn fire insurance maps were available for the area. A No-Coverage letter from EDR is included in the CSER in **Appendix G**.

An EDR report summarizing the location of EPA Region IV, CERCLA, National Priorities List (NPL) (hazardous waste sites) and RCRA (hazardous waste generator) sites was completed. The report was compiled from the U.S. Environmental Protection Agency (EPA) and Florida Department of Environmental Protection (FDEP) databases was reviewed to determine whether sites within or near the subject corridor are included on these and other lists, which are described below. The full report is included in **Appendix G**.

National Priorities List (NPL)
The NPL is a list compiled by the EPA of properties with the highest priority for cleanup pursuant to EPAs Hazard Ranking Systems.

No NPL sites were identified within a one-mile radius of the project corridor.

Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS)

This is a list of sites compiled by EPA that have been investigated or are currently under investigation for potential hazardous substance contamination for possible inclusion on the National Priorities List. No CERCLIS sites were identified within a one-mile radius of the project corridor or proposed potential ponds.

Florida State Sites

There is one site on the Florida Department of Environmental Protection (FDEP) Site's list (Waste Cleanup sites) within ½ mile of the project corridor. The Camino Reale/Former TM Shotgun Range site is partially within the project corridor. The Waste Cleanup file was closed in 2013 and the US Environmental Protection Agency (USEPA) assumed regulatory management of the site's assessment and remediation. The EDR report does not reflect that USEPA has managed the site since 2013 (FLR000120139).

Based on our review of reports available from FDEP and USEPA, the subject property was developed as a recreational shotgun range in 1999 and closed in 2004. The facilities included a club house, storage sheds and barns, shelters and shotgun ranges including two ponds excavated for borrow and stormwater management. The buildings remain north of the corridor but are in disrepair.

In 2005, surface soils within the shot fall areas of the shotgun range were removed and treated with Shot Loc, a sulfur-based reagent that forms a relatively insoluble metal sulfur oxide when it reacts with lead. The treated soil was placed in seven piles and were left in place for future disposal or re-use as road base material.

In 2012, FDEP notified Camino Reale that the soil piles would need to be assessed. In 2013, Camino's consultant, exp, sampled the soil piles for lead, arsenic, antimony and polynuclear aromatic hydrocarbons (PAHs), as reported in the July 24, 2013 *Environmental Assessment Final Report.* The samples from the stock piles were sieved to remove shot. The soil fractions were not found to classify as a characteristic hazardous waste based on toxicity characteristic leaching procedure (TCLP) extraction and analysis. No PAHs were found in the stockpile samples. Soil assessment in the shot fall areas previously remediated by soil removal was conducted on a 100-foot grid. Within the project corridor, only one sample, B163, contained metals (lead, arsenic, antimony) over target levels. The sample only contained arsenic in excess of its standard. The ponds and pond sediments were also sampled and found to contain lead over target levels. Remedial action planning was recommended.

A Consent Agreement Final Order (CA/FO) was signed in 2014. The CAFO obligated Camino Reale LLC to assess and remediate the site.

exp Services, completed additional sampling for the stockpiles and ponds in January 2015 as documented in the *Initial Site Assessment Work Plan Final Report* dated February 23, 2015. The study found stockpiles AT3 and CT1, both located within the project corridor, contained lead and arsenic over FAC Chapter 62-777 residential direct exposure soil cleanup target levels (SCTL). The samples from stockpile CT1 also contained benzo(a)pyrene equivalents (BaP) over its residential SCTL. The pond surface water was found to contain lead, aluminum and hexavalent chromium in excess of surface water screening values. The sediments had lead, arsenic, antimony, hexavalent chromium and BaP over screening values. Subsequent sampling also identified soil contamination "hot spots" south of the west pond and surrounding stockpile AT3.

Groundwater assessment was conducted in 2015. Monitoring wells were installed at soil "hot spots" and sampled for lead, arsenic, antimony, hexavalent chromium and BaP. Groundwater impacts were limited to three locations, all more than 1500 feet from the project corridor. The groundwater concentrations for lead, arsenic and antimony are at relatively low levels that are being monitored for natural attenuation.

The soil "hot spots", soil stockpiles and ponds were remediated in 2015. The hot spot soils were removed and treated on the asphalt treatment pad using Ecobond, a phosphate based product that binds to lead forming an insoluble compound. The treated soil was hauled off-site for disposal. The seven original soil stockpiles were screened to remove lead shot, divided into sections of up to 200 cubic yards and tested for the contaminants of concern. Those with exceedances of the target levels were disposed of off-site. Those that met target levels were stored in three designated clean soil storage areas on-site, CT2, East and West. The East and West clean soil storage areas are partially within the project corridor. The East location is south of the east pond, east of the treatment pad. The West storage area is south of the west pond. The east and west ponds were dredged to remove sediments with shot, clay targets and lead. The sediments were similarly treated and tested. Sediment piles meeting target levels were stored on-site in the East and West soil storage areas, while those not meeting target levels were hauled off-site for landfilling. Subsequent sediment sampling found that the sediments met screening criteria.

Additional soil assessment and remediation was conducted in 2016 as reported in exp's *Sitewide Remediation Work Plan (RWP2) Final Report* dated September 14, 2016. Confirmatory sampling was conducted as required.

The USEPA reviewed the reports and was satisfied with the field work conducted. However, USEPA required Camino to continue quarterly monitoring of the East and West ponds and groundwater at wells MW-AT1-W, MA-AT2-W, and MW-CT2-S until all Remedial Action Levels (RALs) are achieved, and then for an additional three years per the CAFO.

Monitoring has been conducted since 2018. The contamination appeared to be naturally attenuating; however, Camino Reale planned to fill the two ponds with native soils after first treating the pond water with lime and alum to precipitate and bind the lead in the sediments. A Site Closure Plan was prepared and submitted to EPA to treat and then fill the East and West Ponds. This Plan is still under review by EPA.

The pond filling was initially planned to start on December 2, 2019, but was postponed until EPA approval was obtained. Unfortunately, the pond treatment contractor did not get notice to stand down and lime was applied to each pond on December 2, 2019 to raise the pH and precipitate the lead. The follow-up alum treatment was halted upon discovery of the lime addition. Subsequent pond sampling in March 2020 found that pond pH was relatively neutral and lead and aluminum concentrations were 4 to 8% of pre-treatment concentrations.

During a November 24, 2020 conference call, EPA expressed concern that the sediments were laden with precipitated lead and may be causing groundwater contamination outside of the pond boundaries. Further, EPA pointed out that during dewatering the ponds, groundwater flowing into the ponds could be contaminated with lead above RALs. Supplemental surface water, sediment and groundwater sampling was conducted in January 2021. The field and laboratory results indicate that

no lead-impacted groundwater is present around the ponds. Aluminum was present over target levels, but aluminum is naturally occurring. The pond sediments were found to have lead and aluminum over screening values. The east pond water did not have significant amounts of lead (2 of 3 samples were below detection limits), while the west pond had lead over the target level. The supplemental assessment report is under review by USEPA.

Treatment, Storage or Disposal Facilities (TSD)

No RCRA-TSD (treatment, storage, disposal) sites are located within 1 mile of the project corridor or proposed potential pond sites. No RCRA CORRACTS-TSD (Corrective Action TSD) sites are located within 1 mile of the project corridor or proposed potential ponds.

Resource Conservation and Recovery ACT (RCRA)

This is a list of persons or entities that generate hazardous wastes as defined and regulated by RCRA. There are no RCRA-listed hazardous waste generators located in or within 1/8-mile of the project corridor.

Emergency Response Notification System (ERNS)

ERNS records and stores information on reported releases of oil and hazardous substances. There are no ERNS incidents listed for the project corridor or proposed potential pond sites.

Stationary Tanks Inventory System (STCM)

The EDR report was reviewed for sites located within ⅛ mile of the project corridor or proposed potential ponds with registered storage tanks. Based on our review, there is one site within ⅛ mile of the project corridor with a registered storage tank. The City of Cocoa Well #22 facility has an 850-gallon, aboveground diesel tank for an emergency generator. The tank is about 300 feet south of the project.

Leaking Underground Storage Tank (LUST)

The EDR report was reviewed for instances of petroleum contamination within and near the project corridor or proposed potential ponds. Based on our review, there are no LUST sites within ¼ mile of the project corridor that have been reported to FDEP.

Drycleaners

Based on our review of the EDR report and DEP's latest Drycleaning Solvent Cleanup Program Sites list, no drycleaners or historic cleaners are located within ½ mile of the project corridor or proposed potential ponds.

Brownfields

Based on EDR's review of the Brownfield sites database, there is one designated Brownfield Area located within ½ mile of the project corridor. The western portion of the project is located within the Innovation Way ROCC Brownfield Area.

Solid Waste Facilities (SWF/LF)

The latest issue of DEP's Solid Waste Facility Directory and the EDR report were reviewed to determine the location of landfills, incinerators, transfer stations and other solid waste facilities. Based on the findings of the EDR report, no such facility is located within ½ mile of the project corridor.

Project Corridor

In all of the aerial photographs reviewed, the western portion of the project corridor is primarily wooded wetlands. The eastern portion is in use as cattle range land in the 1947 through 1995 aerial photographs, and in the 2020 aerial photograph. The TM Ranch Shotgun Range is under construction in the 1999 aerial photograph and is closed and under remediation in the 2005 aerial photograph. Further remediation is evident in the 2016 aerial photograph, with no further activities evident in the 2020 aerial photograph.

Property adjacent to the corridor is essentially the same as within the corridor in all the aerial photographs. A pond (borrow pit) has been excavated south of the corridor in the 1995 aerial photograph. Also, a potable well facility was installed south of the east end of the corridor in the 1980s.

In accordance with Chapter 22 of the Florida Department of Transportation's Project Development and Environmental Manual, each property within and adjacent to the proposed project corridor must have a conscious determination of the contamination potential. All properties should be assigned a rating of: 1) No, 2) Low, 3) Medium, or 4) High. These rating are explained below:

(1) **No**. After review of all available information, there is nothing to indicate contamination would be a problem. It is possible that contaminants could have been handled on the property; however, all information (DEP reports, monitoring wells, water and soil samples, etc.) indicates problems should not be expected. Examples of operations that may receive this rating are:
1) A gas station that has been closed and has a closure assessment or contamination assessment documenting that there is no contamination remaining.
2) A wholesale or resale outlet that handles hazardous materials in sealed containers which are never opened while at this facility, such as spray cans of paint at a "drug store".

(2) **Low.** The former or current operation has a hazardous waste generator identification (ID) number, or deals with hazardous materials; however, based on all available information, there is no reason to believe there would be any involvement with contamination. This is the lowest possible rating a gasoline station operating within current regulations could receive. This could also be applied to a retail hardware store which blends paint.

(3) **Medium.** After a review of all available information, indications are found (reports, Notice of Violations, consent orders, etc.) that identify known soil and/or water contamination and that the problem does not need remediation, is being remediated (i.e., air stripping of the ground water etc.), or that continued monitoring is required. The complete details of remediation

requirements are important to determine what the Department must do if the property were to be acquired. A recommendation should be made on each property falling into this category relative to its acceptability for use within the proposed project, what actions might be required if the property is acquired, and the possible alternatives if there is a need to avoid the property.

(4) **High**. After a review of all available information, there is a potential for contamination problems. Further assessment will be required after corridor selection to determine the actual presence and/or levels of contamination and the need for remedial action. A recommendation must be included for what further assessment is required. Conducting the actual Contamination Assessment is not expected to begin until corridor is defined; however, circumstances may require additional screening assessments (i.e., collecting soil or water samples for laboratory analysis that may be necessary to determine the presence and/or levels of contaminants) to begin earlier. Properties that were previously used as gasoline stations and have not been evaluated or assessed would probably receive this rating.

Based on our observations of the properties within and adjacent to the project corridor and review of regulatory records available at the time of our review, we have assigned ratings to properties within and adjacent to the project corridor and proposed potential ponds (also including CERCLA and Solid Waste sites within ½ mile of any currently proposed project corridor) based on the criteria set forth in Chapter 22 of FDOT's Project Development and Environmental Manual.

Map ID	Property Owner and Description and/or Property Usage	Address or Location (along project corridor unless otherwise specified)	Contamination Rating
1	The Oaks at Moss Park Subdivision	Innovation Way	NO
2	Valentec Dayton/Kaman	142246 Wewahootee Road	LOW
3	LO Residential Land LLC	Wewahootee Road	NO
4	Orange County Sheriff Shooting Range	14500 Wewahootee Road	LOW
5	Central Florida Rifle and Pistol Club	14646 Wewahootee Road	LOW
6	Live Oak Estates Subdivision	Rambling Oak Blvd.	NO
7	Former TM Ranch Shotgun Range/Camino Reale Properties	1550 TM Ranch Road	MEDIUM
8	Cocoa City Well #22	Wewahootee Road	LOW
9	Central Florida Property Holdings 100 LLC	Wewahootee Road	NO

The reasons that the properties were assigned the above ratings are summarized below.

Properties rated as "HIGH" Risk
- NONE

Properties rated as "MEDIUM" Risk
Map ID Site 7, the former TM Ranch Shotgun Range, was remediated to the satisfaction of the USEPA, except that monitored natural attenuation was ordered for the east and west ponds and three monitoring wells. The wells where the contamination remains are over 1500 feet from the project corridor and are not of concern. The east and west ponds are partially within the project corridor right of way. Surface water parameters being monitored consist of lead and aluminum.

Recent assessment stemming from an effort to fill the ponds found additional lead in the pond sediments, and further pond remediation is being planned to be completed in 2021. Soil within the project corridor was previously remediated to USEPA's satisfaction, and no groundwater contamination has been identified within or near the project corridor. Given the ongoing assessment and remediation, no Level II Assessment appears warranted at this time.

Properties rated as "LOW" Risk
Map ID sites 2, 4, 5 and 8 have been assigned a contamination risk potential rating of "LOW". The firearms ranges and Valentec Dayton are/were hazardous waste generators and the well installation has a diesel fuel tank. Contamination has not been reported at these facilities. No assessment is recommended for these sites.

Properties rated as "NO" Risk
Map ID sites 1,3 6 and 9 have been assigned a contamination risk potential of "NO". The sites are subdivisions, wooded land or range land with no apparent significant use of chemicals. Contamination has not been reported at these facilities. No assessment is recommended for these sites.

In final design any contamination will be dealt with in accordance with the RAC agreement.

6.5 Cultural Features including Trails

The existing Moss Park PD includes hotels, residential areas lodging housing, commercial, office, and RV campground/volunteer center. Innovation Middle School currently exists at the south side of the intersection with Story Time Drive and a proposed Valencia CC site is located south of Cyrils Woods Drive. Currently, there are no known plans for law enforcement offices, fire stations (the nearest fire station is Orange County Fire Station 77 on Moss Park Road approximately 1.7 miles south of Innovation Way), or a public library in the study area (see Future Land Use Map).

6.6 Archaeological and Historic Features

Storm L. Richards & Associates, Inc. performed the initial archeological survey of the 250-acre Camino Reale project area including the proposed road alignment in 1998. The arch survey was reviewed by the Division of Historical Resources and a concurrence letter was provided stating, "the proposed undertaking will have no effect on historic properties listed or eligible for listing in the National Register of Historic Places, or otherwise of historical or architectural value." The letter is included in the Cultural Recourses Review in **Appendix F.** In 2008, a second review was conducted by Southeastern Archaeological Research, Inc. An additional 500 acres was included in this review, and determined no archaeological sites or historic buildings were identified. Both previous surveys concluded that the proposed roadway work would have no effect on any historical or archaeological sites within the right-of-way.

6.7 Hydrologic and Natural Features

The limits of the corridor analysis are located within the jurisdiction of South Florida Water Management District (SFWMD). The topography within the project area is relatively flat with some moderate slopes. Existing drainage patterns are generally in a southerly direction towards large wetland and lake systems downstream.

A survey of the project boundaries was conducted on July 6th 2020 **(Appendix E)** to assess the potential occurrence of flora and fauna listed as threatened or endangered by the United States Fish and Wildlife Service (USFWS), Florida Fish and Wildlife Conservation Commission (FWC), and the Florida Department of Agriculture (FDA). The survey was conducted by means of pedestrian transects in the early morning to assure the potential of observing listed fauna as recommended by the FWC and the USFWS.

The following resources were used during the site assessment:

- Color aerial photographs (1" = 300), 2019, Google Earth, Orange County, Florida.
- National Wetlands Inventory – USFWS.
- United States Geological Survey (USGS) 7.5-minute quadrangle map, Orange County, Florida, (ArcGIS).
- Official Lists of Endangered and Potentially Endangered Fauna and Flora in Florida (USFWS and FWC).

Listed Flora and Fauna Species Survey
A survey was conducted using pedestrian transects throughout the site to assess the occurrence, or potential for occurrence, of flora and fauna listed as threatened, endangered, or as species of special concern (SSC) by the FWC, USFWS, and FDA.

Pedestrian and vehicular surveys of the project site were conducted in order to qualitatively document the existing vegetation and to assess the present land use patterns according to the Florida Land Use, Cover and Forms Classification System, Department of Transportation (FLUCFCS; DOT 1999). Six land use types are present (see Appendix E). A brief description of each FLUCFCS community is provided below.

189- Other Recreational
The central portion of the proposed road alignment is most consistent with the Other Recreational (189) classification. The area was historically utilized as a shooting range with associated buildings and amenities. This area is strongly dominated by bahia grass. Less common vegetative species include weed-type species, such as dog fennel, blackberry, soda apple, and Caesarweed. A few live oaks are present at the western and eastern perimeter areas.

241- Tree Nurseries
The eastern portion of the alignment is currently being used as a palm tree nursery. Other vegetative species observed within this area include scattered slash pine, broomsedge, saltbush, American beautyberry, blackberry, goldenrod, ceaserweed, American pokeweed, hairy indigo, dogfennel, Spanish needles, common ragweed, cogongrass, rose natalgrass, guineagrass, and bahiagrass.

411- Pine Flatwoods
The western-central and eastern portions of the alignment contain natural forested areas that include a canopy of pines and camphor trees. The understory was saw palmetto, wax myrtle, saltbush, bracken fern, and Virginia creeper

421- Xeric Oak
There is an area in the central and western portions of the alignment that is most consistent with the Xeric Oak (421) classification. These areas are dominated by live oak. The understory is relatively open. The vegetation in the understory includes beautyberry, soda apple, caesarweed, bahiagrass, pokeweed, dog fennel, and blackberry. A few longleaf pine trees are present near the southern boundary of this area.

742 Disturbed Lands
There are two (2) separate areas of disturbed land within the alignment that contain altered vegetation composition and man-made disturbances that are most consistent with the Disturbed Lands (742) classification. On is located within the western portion of the alignment and appears to have been cleared of vegetation and converted to pasture grasses. The second is located along the eastern extent of the alignment and appears to have been cleared in the past. Vegetation observed in these areas include a canopy of pines and camphor trees with an understory of wax myrtle, saw palmetto, saltbush, American beautyberry, blackberry, goldenrod, caesarweed, American pokeweed, hairy indigo, dogfennel, Spanish needles, common ragweed, cogongrass, rose natalgrass, guineagrass, Mexican clover, bracken fern and Virginia creeper.

814 – Roads and Highways
A berm road exists running north-south in the central portion of the alignment. This road is dominated by bahiagrass. Subdominant species includes soda apple, caesarweed, pokeweed, dog fennel, and blackberry, which occurs occasionally along the sides of the berm.

621- Cypress
The western and central portions of the alignment would be classified as Cypress (621), per the FLUCFCS. Vegetation observed within this system consists of a canopy of predominantly pond cypress with scattered blackgum, loblolly bay, sweet bay, red maple, dahoon holly, camphor tree and Chinese tallow; with a sparse understory of Mexican primrose, wax myrtle, soft rush, cinnamon fern, royal fern, blackberry, dog fennel, dotted smartweed, pickerel weed, caesar weed, tropical soda apple, sedge, mermaid weed, common dayflower, marsh pennywort, beak sedge, poison ivy, green brier, muscadine, water grass, and bahiagrass. Evidence of a routine hydroperiod was evident via elevated lichen lines existing approximately 6" above the surface elevation of the wetland. The vegetative components and hydrologic characteristics of the cypress system are functioning normally and the system is connected to a large wetland strand that extends north and south.

Listed Plants
There were no protected plant species found on the project site. Protected plants are not expected to occur on the project site since the area has been previously cleared and graded. Currently, there are no technical reports available by the state or federal agencies mentioned in this letter report for the survey of the nearly 400 protected plant species. None of the agencies require relocation or mitigation for protected plant species.

6.8 Threatened and Endangered Species

A listed species survey was conducted on July 6th 2020 for the Camino Reale project site. The survey included both indirect evidence, such as tracks, burrows, tree markings, and vocalizations that indicated the presence of species observed. The assessment focused on species that are "listed" by the FFWCC's Official Lists that have the potential to occur in Orange County. Of the 14 wildlife species observed on site, none are identified in the FFWCC's official lists.

Bald eagles nor their nests were observed on the site. Bald eagles are protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The USFWS has established a 660-foot protection zone around a bald eagle nest. A search of the FWC website as well as the Audubon Society Eagle Watch online nest map was completed to determine if any documented bald eagle nests are within 660 feet of the project site. **There are no bald eagle nests in close proximity to the project site**.

The USFWS has established "consultation areas" for certain listed species. Generally, these consultation areas only become an issue if USFWS consultation is required, which is usually associated with permitting through the U.S. Army Corps of Engineers. The reader should be aware that species presence and need for additional review are often determined to be unnecessary early in the permit review process due to lack of appropriate habitat or other conditions. However, the USFWS makes the final determination.

Listed below are the USFWS Consultation Areas associated with the project site, and a brief description of the respective species habitat and potential for additional review.

Audubon's Crested Caracara

The project site falls within the USFWS Consultation Areas for the species Audubon's Crested Caracara. No Audubon's Crested Caracaras were observed on-site during the wildlife surveys conducted by Bio-Tech Consulting. As there is minimal suitable habitat within the limits of the subject site, it is not anticipated that a formal survey would be required by the USFWS or another agency to determine if any Audubon's Crested Caracaras utilize any portions of the site.

Everglade Snail Kite

The project site falls within the USFWS Consultation Areas for the species Everglade Snail Kite. No Everglade Snail Kite were observed on-site and no habitat was identified to occur within the property limits during the wildlife surveys. As there is no suitable habitat within the limits of the subject site, it is not anticipated that a formal survey would be required by the USFWS or another agency to determine if any Everglade Snail Kite utilize any portions of the site.

Red Cockaded Woodpecker

The project site falls within the USFWS Consultation Areas for the species Red Cockaded Woodpecker. No Red Cockaded Woodpecker were observed on-site within the property limits during the wildlife surveys. As there is no suitable habitat within the limits of the subject site, it is

not anticipated that a formal survey would be required by the USFWS or another agency to determine if any Red Cockaded Woodpecker utilize any portions of the site.

Sand Skink

The project site falls within the USFWS Consultation Areas for the species Sand Skink. No sand skinks were observed on-site within the property limits during the wildlife surveys. Also, the subject property falls below the 80' elevation threshold for the Florida sand skinks, it is not anticipated that a formal survey would be required by the USFWS or another agency to determine if any Florida sand skinks utilize any portions of the site.

Florida Scrub-jay

The project site falls within the USFWS Consultation Areas for the species Florida Scrub-jay. No Florida Scrub-jays were observed on-site within the property limits during the wildlife surveys. As there is no suitable habitat within the limits of the subject site, it is not anticipated that a formal survey would be required by the USFWS or another agency to determine if any Florida Scrub-jays utilize any portions of the site.

6.9 Critical and Strategic Habitats and Wildlife Corridors

Wildlife Corridor

The project area was surveyed for the possibility of wildlife corridors (see Innovation Way Preliminary Design Study Listed Species and Wildlife Corridor Assessment Report in **Appendix G**). A wildlife corridor is defined as a route that permits the direct travel or spread of animals or plants from one area or region to another, either by the gradual spread of a population of a species along the route or by actual movement of animals, seeds, pollen, spores or microbes. Both upland and wetland habitats were inspected along the length of the proposed roadway improvements.

The Camino IWS Project Site contains a segment of forested wetlands which would provide a natural route for small to medium sized mammals to utilize. However, this wetland system is directly south of the Sheriff's shooting range. The shooting range's gunfire likely provides a significant detractor to wildlife decreasing the utility for the on-site forested system to provide a significant corridor. The project does not impact any regionally significant corridors and the proposed right-of-way is located within close proximity to active land uses which are highly avoided by medium to large-sized wildlife. Additionally, there are no large lakes directly along the proposed right-of-way which would attract a higher number of potential wildlife crossings. The surrounding landscape provides alternate routes for wildlife to avoid crossing the proposed roadway. Wildlife crossings will be added during final design at station 185+00 and 217+00 (see concept plans **Appendix A**). Areas to the west and east contain suitable community types for safe wildlife corridors running north to south. Therefore, the currently proposed road alignment is situated away from any specific corridors that may be used by medium to large wildlife species. The current design is located within close proximity to developed lands, which is not ideal for major wildlife usage. The proposed right of way is designed to minimize the impacts through the forested wetlands and primarily crosses through previously altered communities with a lack support for wildlife.

Wetlands

The Innovation Way South Corridor has a portion of wetlands along the western portion of the proposed alignment. Permitting for wetland impacts is required through SFWMD and the ACOE. Mitigation should be obtained in County when possible.

The quality of wetland within the road alignment would be considered high. This wetland hydroperiod appears to be normal with adequate hydrology and contributing basin. The vegetative structure is comprised of appropriate native species and typical age and size distribution. The surrounding land uses have minimal effect on the value of this wetland system.

The wetlands within the Camino Innovation Way South Project Site have an existing Conservation Easement recorded over them that is dedicated to the SFWMD. A conservation easement release request would be required to be submitted to the SFWMD for the roadway alignment and alternative mitigation would be necessary to offset the CE release. Mitigation bank credits from the TM-Econ Mitigation Bank would be acceptable to offset the loss of the conservation land. Conservation Easement release will require alternative mitigation strategies in final design as a part of permitting to release the mitigation bank credits.

There are three conservation easements that run along the proposed corridor for Innovation Way South as shown below and in the concept plans located in **Appendix A**. Our proposed alignment doesn't not encroach on any of these conservation easements. For the conservation plat information please see **Appendix E**.

Mitigation for any species found on site will be accounted for by placement of wildlife crossings as shown in Appendix A Concept Plans. Exact location and pipe size will be provided as part of permitting of the final design.

Figure 6.4- Conservation Easements

7.0 TRAFFIC ANALYSIS

On behalf of Orange County, a Design Traffic Technical Memorandum (DTTM) titled Innovation Way South – Moss Park to Sunbridge Parkway PDS was prepared to assess future traffic conditions within Innovation Way South (included in **Appendix H**). The memorandum summarizes years 2025, 2035 and 2045 traffic evaluation of the roadway network.

The existing roadways and intersections within the Project Roadway Network currently operate at an acceptable level of service (LOS). However, traffic volumes are expected to increase as the rapid development in western Orange County continues.

7.1 Traffic Forecast

The study limits for Innovation Way South extends from Moss Park Road to Sunbridge Parkway.

The study limits for Innovation Way South extends for approximately 4.5 miles from Moss Park Road to Sunbridge Parkway. Figure 1 illustrates the corridor study limits. Although the Preliminary Design Study is being prepared for Segments 1, 2 & 3 of Innovation Way South, the Design Traffic Study was prepared for the entire corridor (Segments 1 through 7). Innovation Way South is planned to be constructed as a 4-lane divided roadway. Portions of the corridor have already been constructed as shown in Error! Reference source not found..

7.1.1 Historical Trends Analysis

Based on the historical count information obtained from the FDOT 2019 Florida Traffic Online (FTO) website and the 2019 Orange County Annual Traffic Counts (See **Figure 7.0 Traffic Counts Location Map**), linear regression trends were performed for the roadway segments within the study area using historical AADT volumes. Based on the available historical traffic data at these locations, simple annual growth rates were calculated using least square linear regression for each location. The average historical annual growth rate was calculated to be 6.39%.

Figure 7.0 Traffic Counts Location Map

7.1.2 Population Estimates

Low, medium, and high population projections for Orange County were obtained from the most current population projections from Bureau of Economics and Business Research (BEBR) Volume 52, Bulletin 183, dated April 2019. The low, medium, and high population estimates for Orange County obtained from BEBR reported an annual growth rate of 0.62%, 1.42%, and 2.08% per year. The BEBR average annual growth rate of 1.37% was selected to be included in the final growth rate evaluation.

7.1.3 Model Growth Rates

Simple annual growth rates were calculated using the CFRPM model network 2045 AADT volumes at the same roadway segments for Build Scenario. An average annual growth rate of 15.98% was determined using the CFRPM model and it was used in the final growth rate evaluation.

7.1.4 Recommended Growth Rates

The growth rates obtained from trends analysis, FSUTMS model scenarios, and population estimates were compared to arrive at the recommended growth rate the Innovation Way South study corridor. An average growth rate of 7.91% was calculated using the historical, BEBR and the model growth rate. Accordingly, an annual growth rate of 8.00% was used to project the future years AADTs for the Innovation Way South study corridor.

7.1.5 Sub-Area Validation

Because the trends analysis is based solely on historical traffic data and does not accurately predict traffic diversion to other roadways associated with roadway capacity improvements and new roadway corridors, the traffic forecasts used for the DTTM analysis will rely primarily on the traffic volume projections obtained from the model runs compared to the growth rate analysis using the existing AADTs. The CFRPM model better reflected the development trends and future capacity increases, due to the major roadway improvements proposed along competing parallel corridors.

The CFRPM model has a 2017 base validated model, 2020, 2025, 2035 and 2045 future year model networks. Sub-area model validation for this study was performed for base year 2020 traffic conditions.

7.2 Future Traffic Conditions

The evaluation was based on roadway level of service, a method to indicate the operations of a roadway (travel time, congestion, etc.) Innovation Way South would need to be a four-lane divided section to operate at an acceptable level of service in a future year 2045 build-out condition.

7.2.1 Daily Traffic Projections

Since the majority of the study corridor does not exit, the design year 2045 projected AADTs were obtained from the 2045 Model Network developed for this project. Subsequently, the opening year 2025 and interim year 2035 projected AADTs were developed using the average annual growth rate of 8.0% for all study roadway segments. The projected AADTs for the years 2025, 2035, and 2045 Build Scenario are shown in **Figure 7.1**

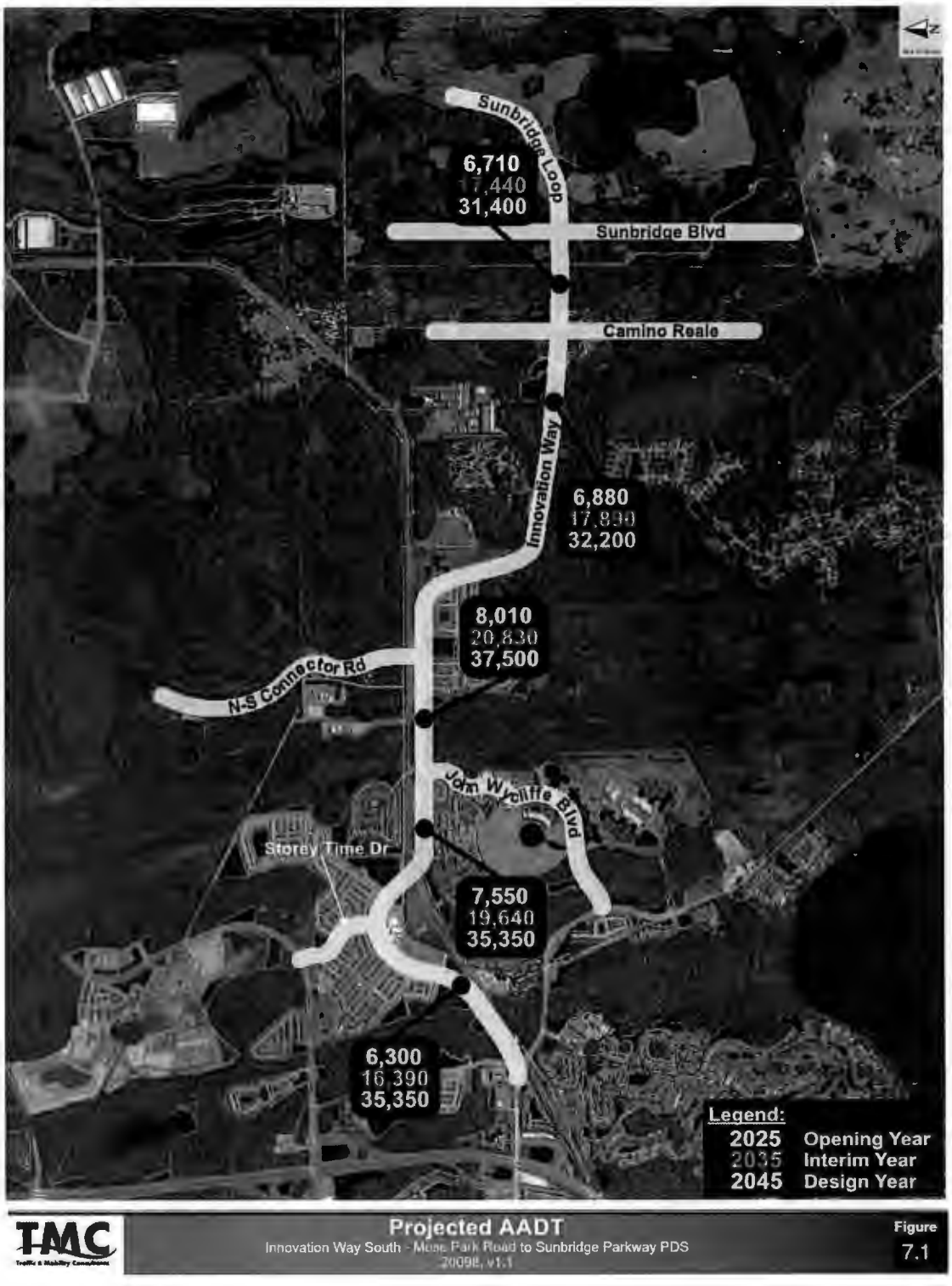


Figure 7.1 Projected AADT

7.2.2 Peak Hour Directional Traffic Projections

Based on the previous recommendations, a K Factor (PM peak hour) of 9.7% was used for Innovation Way South to calculate the Design Hour Volumes (DHV), and a D Factor of 54.0% on Innovation Way South was used to calculate the directional volumes.

Turning Movement Projections
TMC developed a spreadsheet for balancing future turning movement volumes, using the existing turning splits for all approaches, and adjusting those splits based on projected approach volumes for 2025, 2035, and 2045. Input data in the spreadsheet consists of existing turning movement counts (where available), base year 2020 AADTs, opening year 2025, interim year 2035, and design year 2045 projected AADTs, AM, MD and PM peak to daily (K), and directional distribution (D) factors. The printouts of the spreadsheets with the final calculated turning movement volumes are included in **Appendix H**.

The calculated AM K factor of 0.07, MD K factor of 0.06 and PM K factor of 0.097 and D factor of 0.52 were used to develop the spreadsheets for AM and MD, while 0.54 was used to develop PM peak-hour to obtain the first estimated turning movement volumes for the years 2025, 2035, and 2045 at each intersection approach. These turning movement volumes were adjusted to best meet the calculated peak hour approach volumes. The projected 2025, 2035, and 2045 turning volumes are shown in **7.2** 2025 Intersection Volumes (Build Scenario)**through** **7.4** 2045 Intersection Volumes (Build Scenario), respectively.

7.3 Future Conditions

The Build Scenario evaluates Innovation Way South as a 4-lane divided roadway within the study limits of this project. The following intersections were evaluated as part of the analysis:

- Storey Park Boulevard (Innovation Way) & Storey Lake Boulevard (Story Time Drive)
- Innovation Way & John Wycliffe Boulevard
- Innovation Way & Camino N-S Connector Road
- Innovation Way & Camino Reale Entrance
- Innovation Way & Sunbridge Parkway

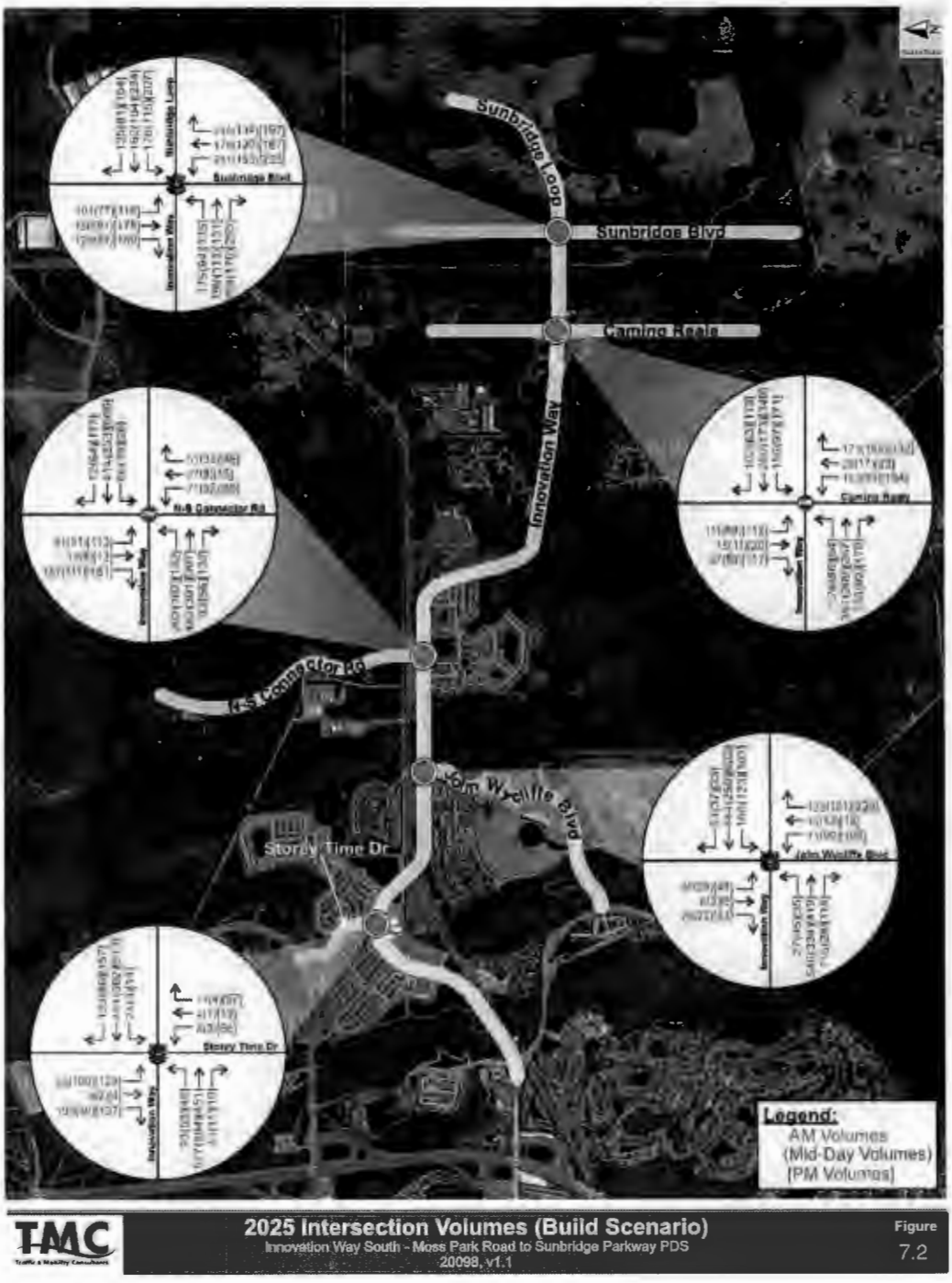


Figure 7.2 2025 Intersection Volumes (Build Scenario)

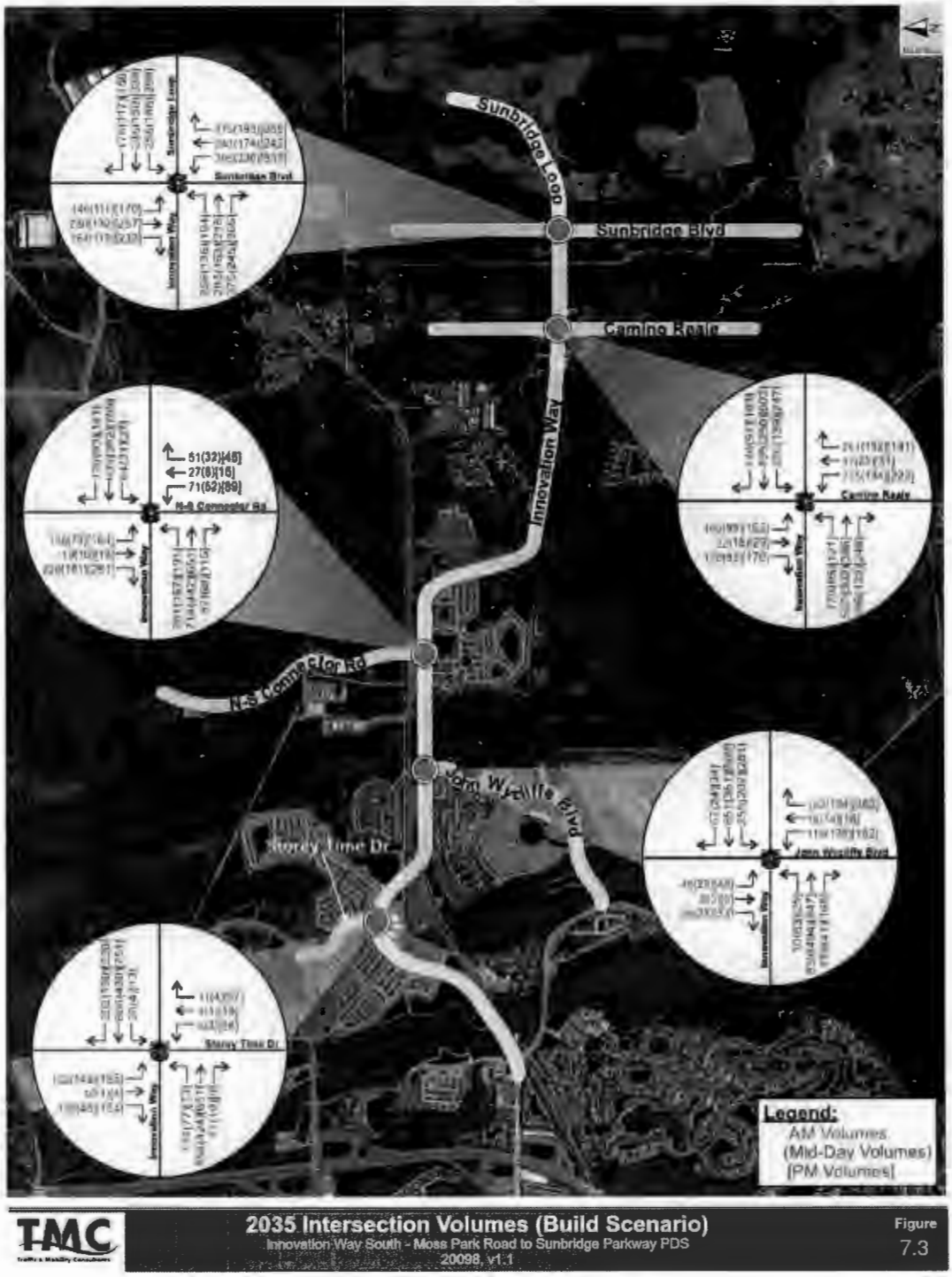


Figure 7.3 2035 Intersection Volumes (Build Scenario)

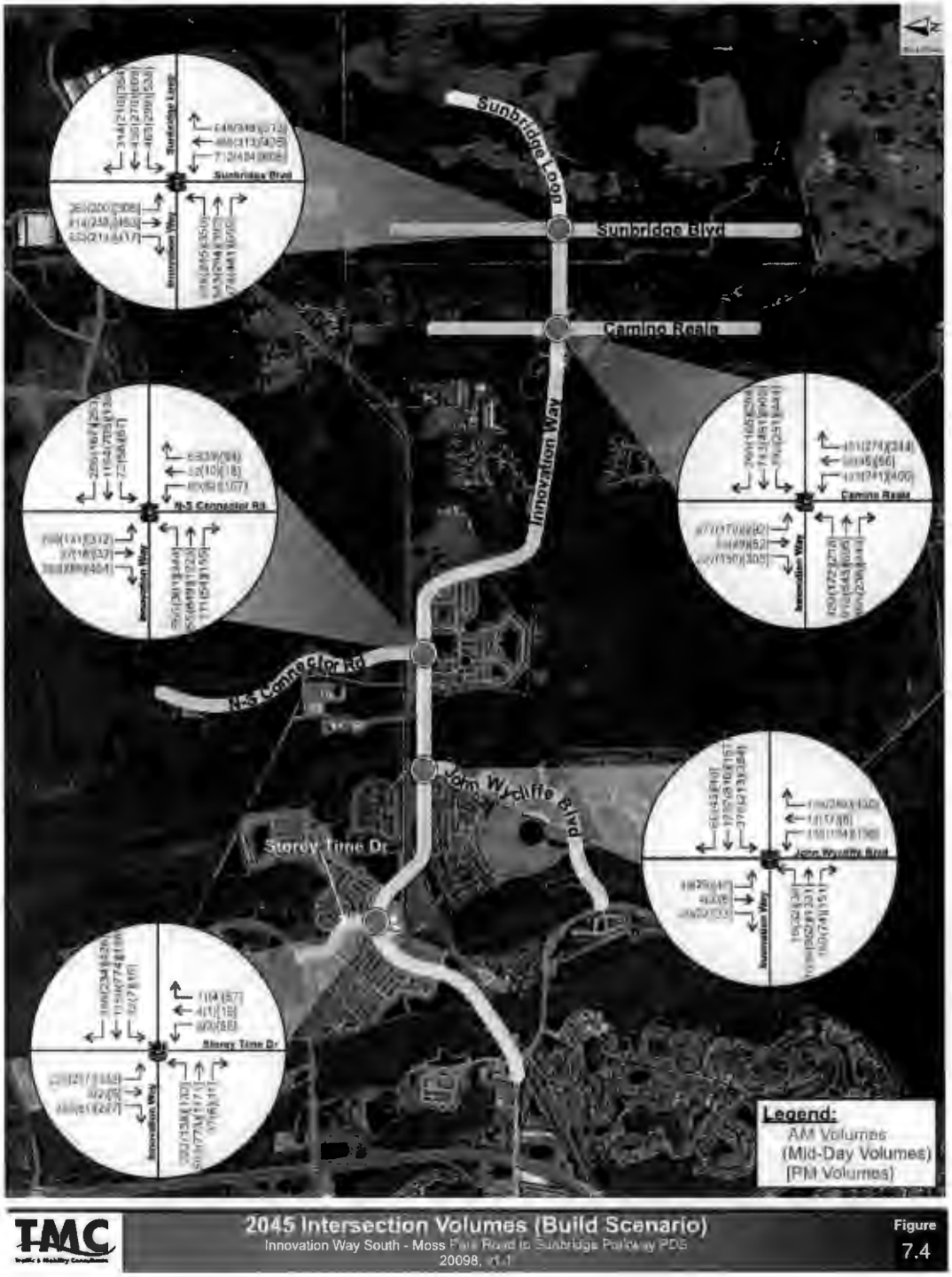


Figure 7.4 2045 Intersection Volumes (Build Scenario)

7.3.1 Future Conditions Analysis

The 2025, 2035, and 2045 roadway capacity analysis was performed for the peak hour directional volumes and the *2020 FDOT Q/LOS Generalized Tables*. The intersection traffic operations analyse for the AM, MD and PM peak hours were performed along the corridor using the *HCM 6th edition* methodologies, as represented in the software package *Synchro 10*. The analyses were based on the hourly turning movement volume projections shown in **7.2 2025 Intersection Volumes (Build Scenario)through 7.4 2045 Intersection Volumes (Build Scenario)**. A peak hour factor of 0.95 was assumed at all intersections, as recommended by FDOT. A truck percentage of 2.0% was used for all approaches. Signal timings were optimized for all intersections and analysis years.

7.3.2 Build Scenario

Table 7.1 below summarizes the results of the Build Scenario for 2025, 2035, and 2045 operational LOS for the Innovation Way South study segments.

Table 7.1: Road Segments Future Operational LOS – Build Scenario

2025 Build		# of Lanes	AT	LOS Std	2025 AADT	LOS Cap	LOS 2025	
Road Name	Segment						Peak Dir	LOS
Innovation Way South	Moss Park Road to Story Time Drive	4	U	E	6.300	2,000	330	C
	Story Time Drive to John Wycliffe Boulevard	4	U	E	7,550	2,000	400	C
	John Wycliffe Boulevard to N-S Connector Road	4	U	E	8,010	2,000	420	C
	N-S Connector Road to Camino Reale Entrance Road	4	U	E	6,860	2,000	360	C
	Camino Reale Entrance Road to Sunbridge Parkway	4	U	E	6,710	2,000	350	C
2035 Build		# of Lanes	AT	LOS Std	2035 AADT	LOS Cap	LOS 2035	
Road Name	Segment						Peak Dir	LOS
Innovation Way South	Moss Park Road to Story Time Drive	4	U	E	16,390	2,000	860	C
	Story Time Drive to John Wycliffe Boulevard	4	U	E	19,640	2,000	1,030	C
	John Wycliffe Boulevard to N-S Connector Road	4	U	E	20,830	2,000	1,090	C
	N-S Connector Road to Camino Reale Entrance Road	4	U	E	17,890	2,000	940	C
	Camino Reale Entrance Road to Sunbridge Parkway	4	U	E	17,440	2,000	910	C
2045 Build		# of Lanes	AT	LOS Std	2045 AADT	LOS Cap	LOS 2045	
Road Name	Segment						Peak Dir	LOS
Innovation Way South	Moss Park Road to Story Time Drive	4	U	E	29,500	2,000	1,550	C
	Story Time Drive to John Wycliffe Boulevard	4	U	E	35,350	2,000	1,850	C
	John Wycliffe Boulevard to N-S Connector Road	4	U	E	37,500	2,000	1,960	D
	N-S Connector Road to Camino Reale Entrance Road	4	U	E	32,200	2,000	1,690	C
	Camino Reale Entrance Road to Sunbridge Parkway	4	U	E	31,400	2,000	1,640	C

As shown in **1 Table 7.1: Road Segments Future Operational LOS – Build Scenario**, all segments of the Innovation Way South study corridor are expected to operate at an adequate LOS under the Build Scenario for all projected years.

2 Table 7.2 through **4 Table 7.4** summarize the intersection operational analysis results of the Build Scenario for 2025, 2035, and 2045, respectively. Signal Warrants were performed in a later section of this report, and the results show that a signal is not warranted at the intersection of Innovation Way and N-S Connector Road and Innovation Way and Camino Reale Entrance during the opening year 2025; therefore, the analysis for opening year 2025 reflects this. For interim year 2035 and

beyond, a traffic signal is warranted at all study intersections. The intersection analysis was performed using the proposed intersection controls and geometries provided in **Figure Figure 7.2 2025 Intersection Volumes (Build Scenario),Figure 7.3 2035 Intersection Volumes (Build Scenario), and 7.4 2045 Intersection Volumes (Build Scenario)**

Table 7.2 2027 Intersections Operational LOS – Build Scenario

Intersection	Traffic Control	Scenario	EB		WB		NB		SB		Overall	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Innovation Way & Story Time Drive	Signal	AM	10.4	B	9.9	A	27.2	C	33.8	C	13.5	B
		Mid	8.7	A	10.4	B	28.1	C	33.6	C	13.1	B
		PM	11.9	B	13.4	B	28.2	C	33.5	C	16.6	B
Innovation Way & John Wycliffe Blvd	Signal	AM	17.5	B	14.0	B	15.6	B	17.9	B	15.8	B
		Mid	16.8	B	14.8	B	14.9	B	17.2	B	15.7	B
		PM	15.9	B	16.2	B	17.4	B	19.1	B	16.4	B
Innovation Way N-S Connector	TWSC	AM	8.6	A	8.3	A	18.1	C	15.0	C	---	---
		Mid	8.2	A	8.2	A	15.3	C	12.1	B	---	---
		PM	9.6	A	8.7	A	27.7	D	20.7	C	---	---
Innovation Way & Camino Real Entrance	TWSC	AM	8.0	A	8.3	A	16.1	C	16.1	C	---	---
		Mid	7.9	A	8.1	A	13.5	B	13.7	B	---	---
		PM	8.6	A	8.9	A	45.1	E	27.0	D	---	---
Innovation Way & Sunbridge Parkway	Signal	AM	29.9	C	28.1	C	12.3	B	14.0	B	21.0	C
		Mid	30.5	C	28.1	C	11.4	B	12.3	B	20.5	C
		PM	31.6	C	27.6	C	15.6	B	18.2	B	23.2	C

As shown in **2 Table 7.2,** all study intersections are expected to operate at acceptable LOS using the recommended geometries provided in **Figure 7.2 2025 Intersection Volumes (Build Scenario)for the opening year 2025.**

Table 7.3 2035 Intersections Operational LOS – Build Scenario

Intersection	Traffic Control	Scenario	EB		WB		NB		SB		Overall	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Innovation Way & Story Time Drive	Signal	AM	11.2	B	11.2	B	29.1	C	29.9	C	13.8	B
		Mid	9.1	A	11.3	B	28.8	D	28.9	D	12.9	B
		PM	11.7	B	14.1	B	30.9	D	34.1	D	16.8	B
Innovation Way & John Wycliffe Blvd	Signal	AM	19.4	B	13.9	B	18.5	B	22.4	C	17.1	B
		Mid	18.8	C	14.6	B	17.5	C	21.3	C	17.0	B
		PM	20.4	C	15.5	C	20.6	C	23.9	C	18.2	B
Innovation Way N-S Connector	TWSC	AM	11.0	B	13.4	B	34.1	C	28.4	C	15.4	B
		Mid	10.2	B	12.3	B	29.5	D	26.5	D	14.1	B
		PM	13.1	B	17.1	C	34.9	D	30.0	D	18.4	B
Innovation Way & Camino Real Entrance	TWSC	AM	27.0	C	28.3	C	19.6	B	20.6	C	25.1	C
		Mid	23.8	C	26.2	D	21.8	C	22.5	C	24.1	C
		PM	27.1	D	28.4	D	21.4	C	23.3	C	26.2	C
Innovation Way & Sunbridge Parkway	Signal	Mid	28.0	C	28.7	C	22.2	C	23.0	C	25.4	C
		PM	28.7	D	29.3	C	22.0	C	23.2	C	25.7	C
		AM	29.2	D	29.5	C	26.0	D	25.9	D	27.7	C

As shown in **Table 7.3,** all study intersections are expected to operate at acceptable LOS using the recommended geometries provided in for years 2035 and 2045.

Table 7.4 2045 Intersections Operational LOS – Build Scenario

Intersection	Traffic Control	Scenario	EB		WB		NB		SB		Overall	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Innovation Way & Story Time Drive	Signal	AM	12.2	B	12.7	B	0.0	A	31.3	C	14.6	B
		Mid	8.9	A	11.7	B	0.0	A	41.0	E	13.6	B
		PM	16.9	C	23.6	C	31.8	D	35.0	E	22.9	C
Innovation Way & John Wycliffe Blvd	Signal	AM	21.7	C	17.2	B	29.0	C	29.8	C	20.4	C
		Mid	19.2	B	14.2	B	23.9	C	26.6	C	17.6	B
		PM	43.8	D	32.6	C	39.5	D	42.3	D	37.7	D
Innovation Way N-S Connector	TWSC	AM	22.0	C	26.4	C	38.7	D	30.4	C	25.1	C
		Mid	14.0	B	17.3	C	33.9	D	29.5	D	17.4	B
		PM	29.4	D	46.8	D	53.5	D	54.0	D	40.9	D
Innovation Way & Camino Real Entrance	TWSC	AM	32.6	C	35.2	D	22.4	C	23.7	C	30.5	D
		Mid	30.9	C	32.3	C	22.6	C	24.1	C	29.1	D
		PM	40.4	D	42.5	D	35.2	D	37.9	D	40.0	D
Innovation Way & Sunbridge Parkway	Signal	Mid	35.3	D	36.7	D	31.3	C	33.6	C	34.0	C
		PM	31.6	C	32.6	C	27.6	C	30.1	C	30.3	C
		AM	40.4	D	43.9	D	46.9	D	51.1	D	45.4	D

As shown in **Table 7.4,** all study intersections are expected to operate at acceptable LOS using the recommended geometries provided in **Figure 7.3 2035 Intersection Volumes (Build Scenario) 7.4 2045 Intersection Volumes (Build Scenario) for years 2035 and 2045.**

7.3.4 Signal Warrants

The results of the signal warrant analysis are summarized below (see **Appendix H** for full analysis):

- A traffic signal is warranted for the intersection of Innovation Way and John Wycliffe Boulevard.
- A traffic signal is warranted for the intersection of Innovation Way and N-S Connector.
- A traffic signal is warranted for the intersection of Innovation Way and Camino Reale Entrance Road.
- A traffic signal is warranted for the intersection of Innovation Way and Sunbridge Parkway.
- All signalized study intersections are expected to operate at acceptable LOS under all future Build scenarios.

7.3.5 Pedestrian Safety

Pedestrian safety is provided with the inclusion of the multipurpose trail along both sides of Innovation Way South. Additionally, cross walks will be established at locations that are protected for safe pedestrian use such as at signalized intersections that include pedestrian signals. If mid-block crosswalks are included, they will be appropriately protected per the MUTCD.

8.0 DESIGN CRITERIA

The design criteria for Segments 1-4 (this PDS) are shown in **Table 8.1.** The criteria are based on the 2018 Draft Florida Greenbook, the 2021 FDOT Design Manual and the FY 2020-21 FDOT Standard Plans. If the proposed design does not meet the Design Criteria then either a Design Exception or Design Variation may be needed.

Segments 4-7 of the roadway were previously analyzed under a Preliminary Engineers' Report (PER) that was approved by Orange County on August 28, 2014. The design criteria for these segments are included in the PER.

Table 8.1: Design Criteria for Segments 1-4

DESIGN ELEMENT		DESIGN CRITERIA	PROPOSED DESIGN	CRITERIA SOURCE	MEETS DESIGN CRITERIA (Y/N)
General Criteria	Functional Classification	Urban Collector	Urban Collector	Road Network Agree.	Y
	Access Management Class	5	5	Rule 14-97.003	Y
	New Construction or RRR	New Const.	New Const.	FDM Section 114	Y
	Design vehicle	WB-62FL	WB-62FL	---	Y
	Design Year	2047	2047	Orange County	Y
	Design Speed (mph)	30-50	45	GB Table 3-1	Y
	Posted Speed (mph)	25-45	40	GB Chapter 3 Section C.1	Y
Typical Section	Number of Lanes	4	4	Traffic Projections	Y
	Lane Width (feet)	11	12	GB Table 3-20	Y
	Turning Lane Width (feet)	11	11	GB Table 3-20	Y
	Parking Lane Width (ft)	N/A	N/A	Std Plans 711-001	Y
	Bicycle Lane Width (ft)	4	4	GB Chapter 9	Y
	Multipurpose Trail Width (feet)	10	10	GB Chapter 9: C.1	Y
	Sidewalk Width (feet)	N/A	N/A	GB Chapter 8: B.1	Y

DESIGN ELEMENT		DESIGN CRITERIA	PROPOSED DESIGN	CRITERIA SOURCE	MEETS DESIGN CRITERIA (Y/N)
	Min. Median width (feet)	22	44	GB Table 3-23	Y
	Typical Section cross slopes	0.02 ft/ft	0.02 ft/ft	GB Ch 3: C.7.b.2	Y
	Parking Lane Cross Slope	N/A	N/A	GB Ch 3: C.7.b.2	Y
	Clear zone Width (feet)	4	4	GB Table 4-1	Y
	Roadside slopes	1:4	1:4	GB Chapter 4: B.1	Y
Horizontal alignment	Max. deflection w/o a curve	1° 00'	1° 00'	FDM Section 210.8.1	Y
	Minimum radius w/o super	2,083	2,083	GB Table 3-11; FDM Table 210.9.2	Y
	Max Degree of Curvature	8° 15'	8° 15'	GB Table 3-11; FDM Table 210.9.2	Y
	Minimum length of curve	675	675	FDM Table 210.8.1	Y
	Maximum SE	0.05	0.05		Y
	SE Transition Ratio	1:150	1:150	FDM Table 210.9.3	Y
	Min. stopping sight distance	360 feet	360 feet	Greenbook Table 3-4	Y
	Connection Spacing	245' connection 660' dir. median 1,320' full median 1,320' Signal	245' connection 660' dir. median 1,320' full median 1,320' Signal	Rule 14-97.003	Y
	Intersection Control Radius	130	130	FDM Table 212.9.2	Y
Vertical Geometry	Minimum SSD (feet)	360	360	GB Table 3-4	Y
	Min K crest vertical curve	61	61	GB Table 3-18	Y
	Min K sag vertical curve	79	79	GB Table 3-18	Y
	Maximum profile grade %	8.0	8.0	GB Table 3-16	Y

DESIGN ELEMENT		DESIGN CRITERIA	PROPOSED DESIGN	CRITERIA SOURCE	MEETS DESIGN CRITERIA (Y/N)
	Minimum profile grade %	0.30	0.30	GB Chapter 3: C.5.b	Y
	Min. length VC (feet)	135	135	GB Table 3-18	Y
	Max. grade change no VC %	0.70	0.70	GB Table 3-17	Y

GB = Greenbook
FDM = FDOT Design Manual
Std Plans = FDOT Standard Plans

9.0 CORRIDOR ANALYSIS

As stated in the Introduction of this report, the purpose of this PDS is to develop a recommended roadway alignment and recommended pond locations. The recommendations will be based on the evaluation of project costs, cooperation with major land owners for right-of-way location, conceptual drainage analysis, community (socio-economic) impact and environmental impact analysis. The following sections describe how the preliminary roadway alignments and right-of-way widths were determined.

9.1 Roadway Alignment Determination

The roadway study segments were previously identified in Section 1.2 and shown in **Figure 1.2 Preferred Alignment** The proposed alignment for the Project Roadway Network generally avoids wetland and floodplain impacts to the greatest extent feasible. The alignment for all Segments was suggested in The Roadway Network Agreement.

9.2 Right-of-Way Width Determination

Based on the anticipated future traffic demand in the study area, all four Segments of Innovation Way South are proposed to be a four-lane divided typical section with 12-feet wide travel lanes, a 44-foot wide median (edge of pavement to edge of pavement) and 125 feet of right-of-way. The section includes a 10-feet wide multi-purpose trail on the north and south sides that is partially within the proposed right-of-way and partially in a 10-foot multipurpose easement area. Additional typical section details are presented in Section 10 of this report.

9.3 Design Speed Determination

As previously stated in Section 3.1, existing posted speed limit signs include 45 mph up to Story Time Drive and 35 mph at Yellow Jasmine Road. The proposed typical section is designed as a curb and gutter typical section. The Florida Greenbook allows a Design Speed for Urban Collectors of 30-50 mph. The recommended design speed is 45 mph (FDOT Greenbook prohibits design speeds of >45 mph on facilities with curb and gutter). The recommended design speed is 45 mph. These recommended Design Speeds are within the Greenbook range.

9.4 Community Needs and Preferences

This section will be completed once the Public Involvement activities have been completed.

10.0 PRELIMINARY DESIGN ANALYSIS

10.1 "No-Build" Concepts

The "No-Build" Alternative assumes no improvements will be made to the existing roadways of the Project Roadway Network. Alternatively, Transportation System Management (TSM) improvements will be considered. The TSM approach is to mitigate congestion by identifying improvements of an operational nature to enhance the existing system such as signal improvements, roundabouts, lighting and signing. The "No-Build" alternative using TSM improvements will result in decreased safety and roadway levels of service (LOS) and increased traffic congestion. This deterioration of operating conditions can be attributed primarily to rapid development throughout the area as previously stated in Section 2. Currently, the majority of the land in the vicinity of the study roadway is undeveloped or beginning to be developed.

Advantages to the "No-Build" Alternative include:

- No final design, right-of-way acquisition, permitting, or construction costs.
- No environmental impacts related to roadway construction.
- No utility relocation costs related to roadway construction.
- No impacts to local residents related to roadway construction.
- No disruption to existing traffic related to roadway construction.

Disadvantages of the "No-Build" Alternative are:

- LOS and user safety will decrease.
- Congestion and travel time delays will increase.
- Inconsistent with the METROPLAN ORLANDO LRTP.
- Inconsistent with the Regulating Plan.
- Air quality will decrease.
- Emergency vehicle response time will increase.

10.2 Improvements Alternatives Developed

In addition to the "No-Build" Alternative, the improvement concepts considered for the Project Roadway Network include extension of the existing roadway. Within this concept details include four-lane typical sections, raised landscaped medians, lighting, a closed stormwater management system, curb and gutter, 10-foot wide multipurpose trails on both sides of the roadway and any other improvements considered. Consideration will also be given to providing for crossings for bicyclists and pedestrians.

Per FDOT, an Intersection Control Evaluation (ICE) is required when new signalization is proposed. The ICE activities consist of three stages: Stage 1 Screening, Stage 2 Preliminary Control Strategy Assessment and Stage 3 Detailed Control Strategy Assessment.

Stage 1 uses FHWA's Capacity Analysis for Planning of Junctions to evaluate selected types of innovative intersection designs. The purpose is to establish a list of viable traffic control strategies.

The screening considers and evaluates many potential intersection control strategies. These strategies include Roundabouts.

Stage 2 is an operational analysis that is completed when more detailed information is available.

Stage 3 requires a more in-depth analysis and/or public vetting of control strategy options. This may involve traffic analysis, cost estimating, right-of-way need determination, environmental impacts, public engagement and any other activities necessary to identify the preferred control strategy.

10.3 Alternative Typical Sections

Per the approved Roadway Network Agreement, a typical section for Innovation Way South was approved and utilized for this PDS. No other typical section is applicable.

10.4 Proposed Typical Section

The proposed urban typical section for **Innovation Way South** consists of the following characteristics:

- Four 12-foot travel lanes (2 in each direction),
- 44-foot (edge of pavement to edge of pavement) raised grassed median, Type E curb and gutter
- Type F curb and gutter on outside edge of roadway
- 4' bike lane both directions
- 10-foot asphalt multipurpose trail east and west side of roadway (2% maximum cross slope)
- 125-foot-wide right-of-way

The proposed typical section is shown in **Figure 10.1 Proposed Typical Section.** A 3D version of the proposed typical is shown in**Figure 10.2 3D Proposed Typical** Section.

A critical component of the proposed typical section is the number of lanes. The Orange County Comprehensive Plan requires that all Adequate Public Facilities (APF) must be designed to accommodate future traffic impacts. The Design Traffic Technical Memorandum evaluated the future year scenario and determined that a four-lane roadway typical section would be required for Innovation Way South.

A unique design aspect for Innovation Way South is the integration of pedestrian trails as found in the comprehensive plan requirements. The proposed typical sections reflect the goal of providing such multimodal connectivity. As detailed in **Figure 10.1 Proposed Typical Section**, 10-foot multipurpose trails are proposed along both sides of Innovation Way South. Additionally, Speed Management measures such as the lighting and Dynamic Speed Feedback Signs will be considered to control speeds in the areas of parks, schools and the higher density residential and commercial areas to increase safety for pedestrians traveling between these locations.

10.5 Recommended Alternative Improvement Concept and Map

Three roadway alignment alternatives were considered for the Project Roadway within the Camino Reale area. The alignment alternatives were evaluated based on increased safety for vehicular,

pedestrian, and bicycle traffic; improved access management and aesthetics; and minimizing environmental impacts, utility impacts, overall project cost, and community disruption during construction.

10.5.1 Alignment Alternative #1

The alignment alternative #1, preferred alignment, involves maintaining the existing centerline 1005' radius curve at the end of the existing right-of-way to a tangent with a length of 1,049.28' and then a second curve with a radius of 2,250.00'. From there a second tangent with a length of 2,813.91 feet where it then curves to the north with a radius of 1,382.0 feet. It then continues along a tangent of 553.75 and then turn to the east with a curve radius of 2,802.0 feet and then another tangent where it intersects with Sunbridge Parkway. The total length of the alignment is 8,083.30 feet (1.53 miles). The total proposed right-of-way is 125 feet (see **Figure 10.3 Alternative Alignment** 1).

10.5.2 Alternative Alignment #2

The alignment alternative #2 includes providing a single curve (1,525' radius) instead of the first two curves of Alignment #1 at the end of the existing right-of-way (see **10.4 Alternative Alignment 2**). From the end of this curve the alignment is the same as Alternative #1. The total length of the alignment is 8,361.96 feet (1.58 miles). The total right-of-way proposed is 125 feet.

10.5.3 Alignment Alternative #3

The alignment alternative #3 includes providing a single curve (1,005' radius) similar to Alternative #2 but shifts the alignment to the south to minimize the developable area to the north. The alignment continues with a tangent to the east and then the alignment is the same as Alignment #1. The total length of the alignment is 8,502.09 feet (1.61 miles). The total right-of-way proposed is 125 feet. (See**Figure 10.5 Alternative** Alignment 3).

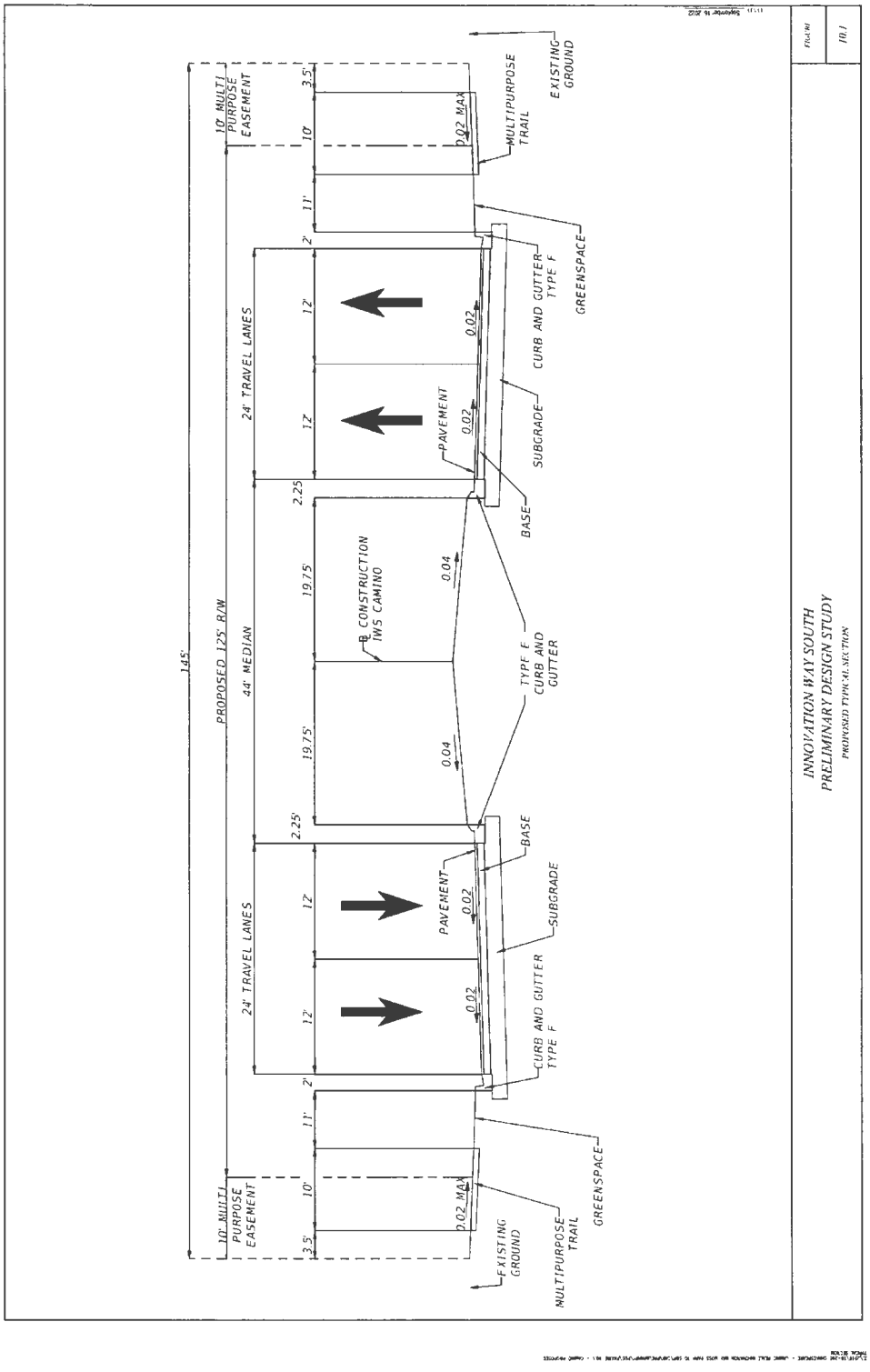


Figure 10.1 Proposed Typical Section

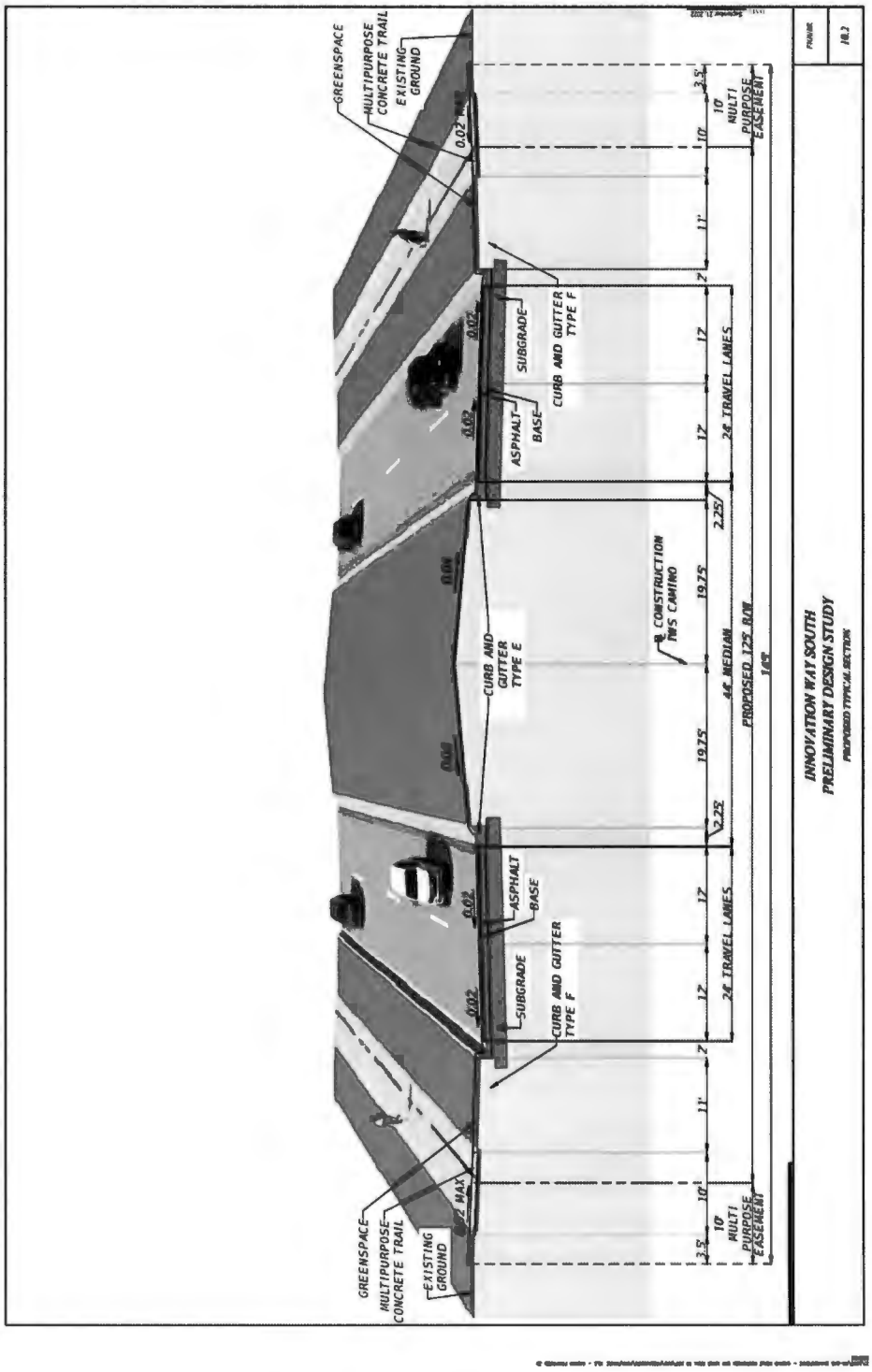


Figure 10.2 3D Proposed Typical Section

Other factors considered for impact evaluation included: No. of Residences Impacted, No. of Businesses Impacted, Critical and Strategic Habitat, Wildlife Corridors, Threatened and Endangered Species, Archaeological and Historic Features and Contaminated Sites. See**Error! Reference source not found.** for a full summary.

10.6 Right-of-Way Identification

The proposed typical sections and corresponding right-of-way width is based on the Design Traffic Technical Memorandum and Corridor Analysis Technical Memorandum, drainage considerations, transit and multimodal needs.

Figure 10.3 Alternative Alignment 1

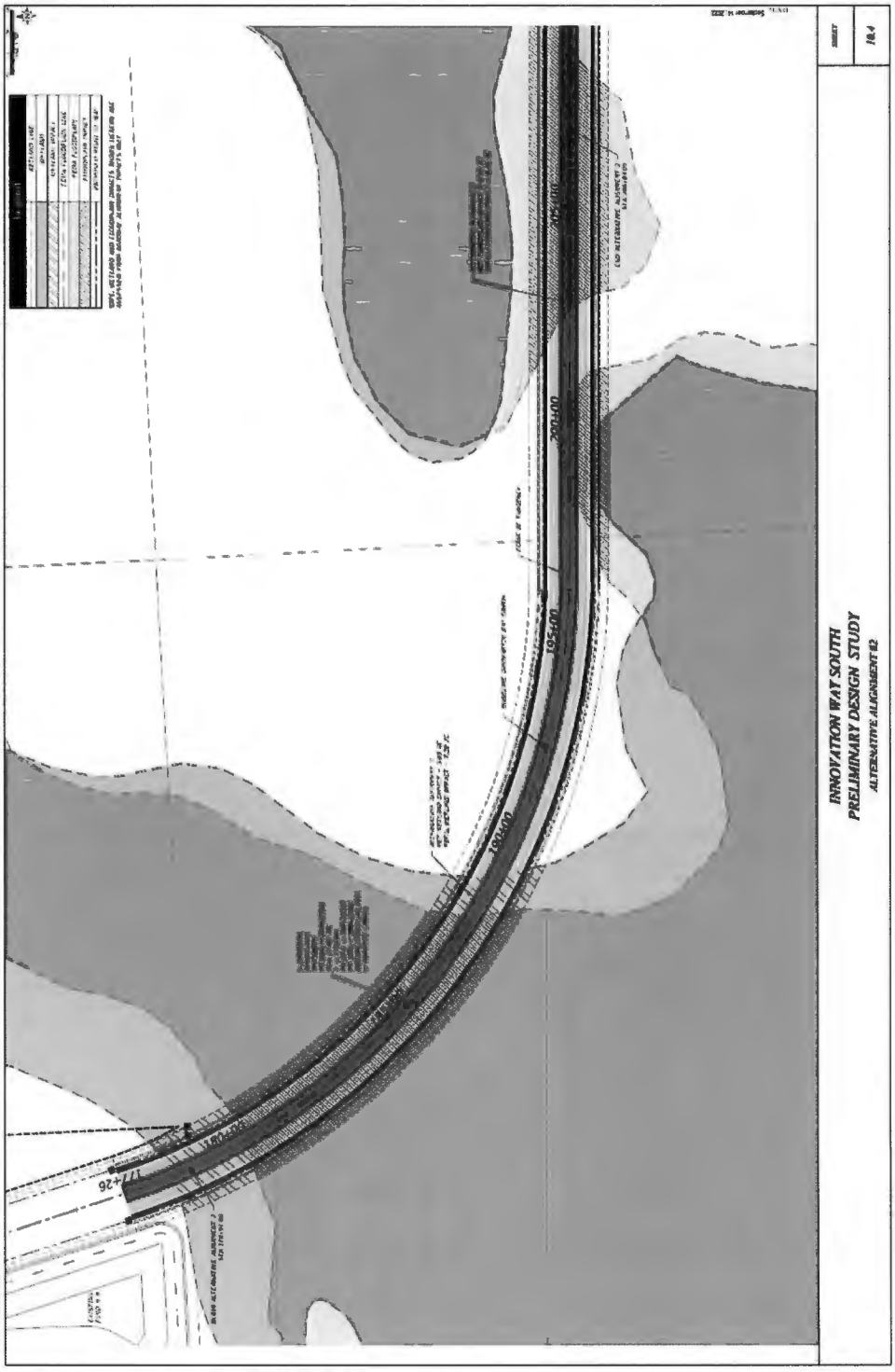


Figure 10.4 Alternative Alignment 2

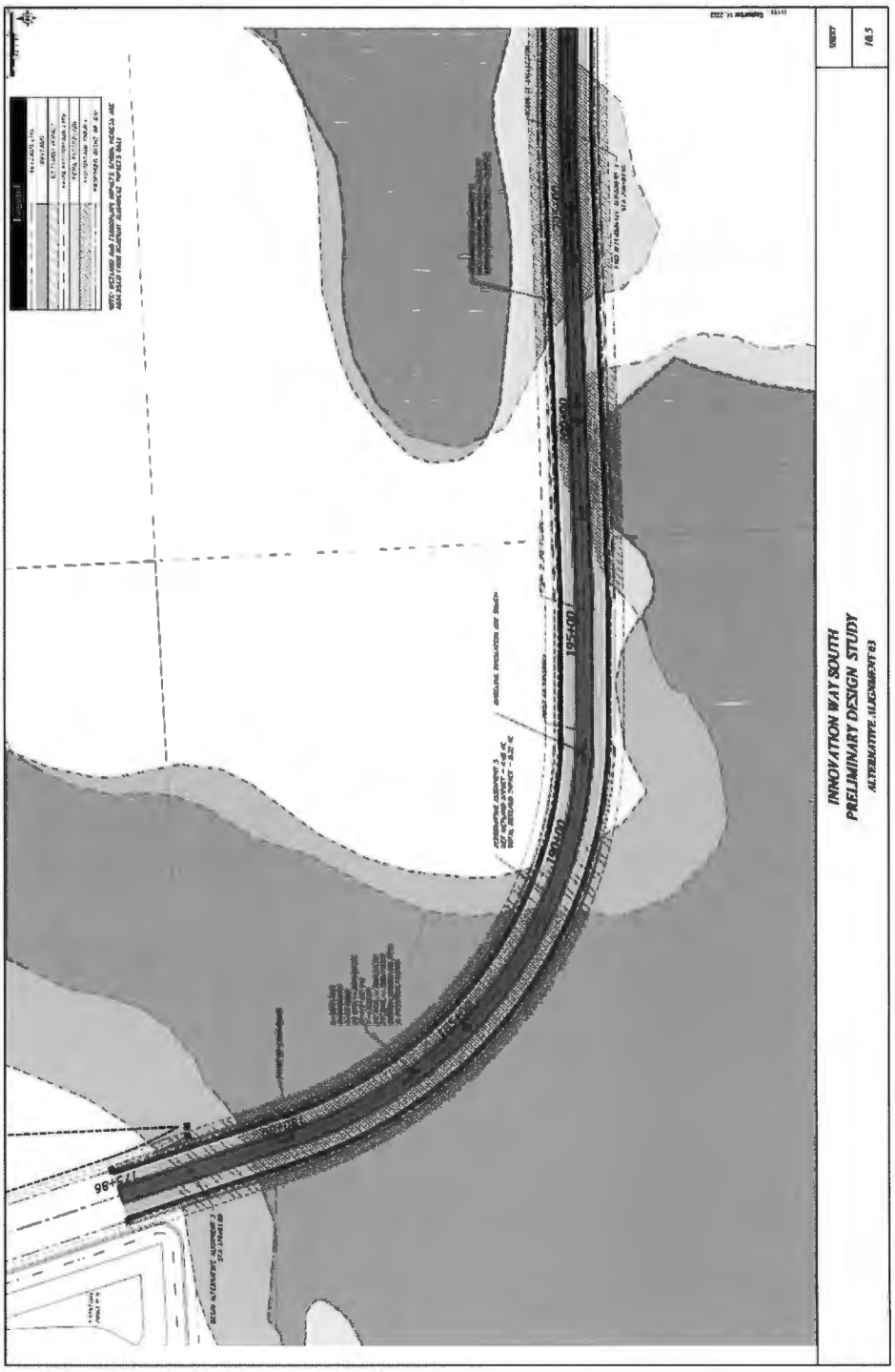


Figure 10.5 Alternative Alignment 3

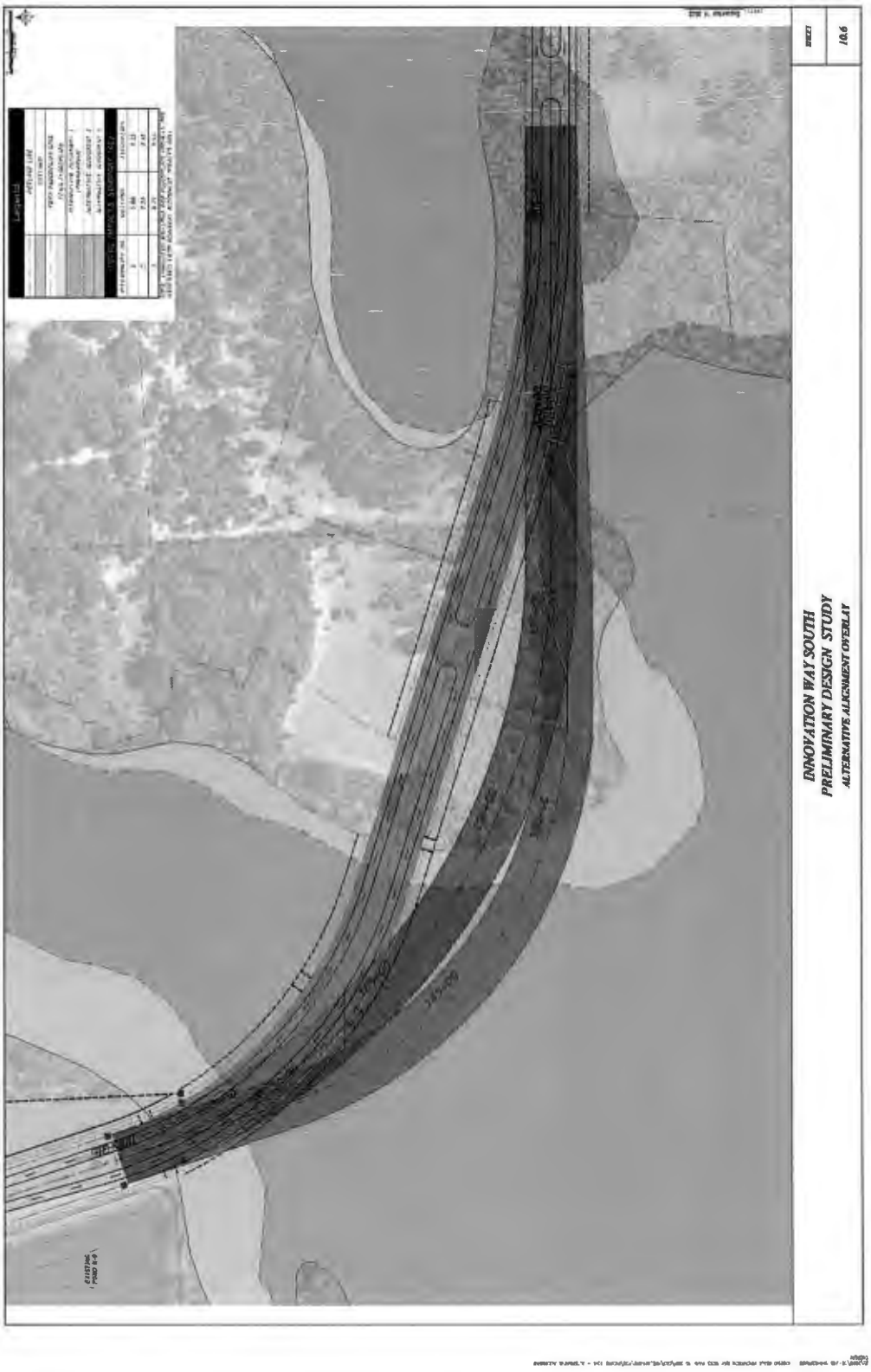


Figure 10.6 Alternative Alignment Overlay

10.7 Access Management Alternatives

Innovation Way South extension is proposed to be an **Access Management Class 5** Roadway except near the intersection of Sunbridge Parkway where it is proposed to be an **Access Management Class 7**. This is based on the definitions included in Chapter 14-97. The Class 5 limits the spacing between connections (driveways) to a minimum of **245 feet**, the spacing between directional median openings to a minimum of **660 feet**, and the spacing between full access median openings to a minimum of **1,320 feet**. The Class 7 limits the spacing between connections (driveways) to a minimum of **125 feet**, the spacing between directional median openings to a minimum of **330 feet** and the spacing between full access median openings to a minimum of **660 feet**.

The existing section of Innovation Way South was designed and built with spacing consistent with an **Access Management Class 7.**

The following **Table 10.1** summarizes the proposed access locations and spacing along the extension of Innovation Way South. Parcel specific connections will be determined and evaluated at the time of Preliminary Subdivision Plans and/or Development Plans based on the approved spacing requirements. The proposed access management was also analyzed in terms of traffic demand to ensure the connectivity required and allow for proposed travel demand.

Each of these openings will provide the required sight distance at final design.

Table 10.1: Proposed Access Management

Side Road	Location Sta/Side	Distance Between (feet)	Proposed Median Access Type
Innovation Way South Proposed Alignment			
N/S Connector/Magnolia Woods Boulevard	138+25/Both		Full (Signal)
		1,335	
Yellow Jasmine Drive	151+60/RT		Closed
		2,540	
Sweet Gum Wood Drive	177+00/RT		Closed
		6,900	
Camino Reale Entrance	246+00/Both		Full (Signal)
		1,600	
Sunbridge Parkway	262+00/Both		Full (Signal)

10.8 Analysis and Comparison of Alternatives

The roadway study segments were previously identified in Section 1.2 and shown in Error! Reference source not found.. The proposed alignment for the Project Roadway Network generally minimizes wetland impacts. The proposed alignment including curve and tangent length data is included in **Figure 10.3 Alternative Alignment 1,Figure 10.4 Alternative Alignment 2, andFigure 10.5 Alternative Alignment 3**

Segment 4: John Wycliffe Boulevard to Yellow Jasmine Drive for a total length of 3,696 feet. This segment has been designed and constructed with a taper to 2 lanes at the east end.

Segment 3: Yellow Jasmine Drive to Camino Reale West Boundary for a total length of 6,336 feet. The right-of-way has been established but not dedicated (there is an obligation to dedicate the right-of-way in the future).

Segment 2: Camino Reale West Boundary to Camino Reale East Boundary for a total length of 4,224 feet.

Segment 1: Camino Reale East Boundary to Sunbridge Parkway for a total length of 2,112 feet.

The proposed alignment meets the requirements of the design standards established for the roadway. The horizontal alignment has been designed using a design speed of 45 mph for Innovation Way South. The curves are normal crown and reverse crown.

The recommended improvement shows preliminary intersections with the proposed APF roads within Innovation Way South. The final location of the intersections shown and additional future intersections will be provided with final construction plans and in accordance with the established design criteria.

5Table 10.2 lists the impacts for the alignment alternatives for Innovation Way South

Table 10.2 Summary of Alignment Alternatives Impacts

Impact	Alignment #1	Alignment #2	Alignment #3
Right-of-Way (ac)	49.18	51.43	52.05
Wetland (ac)	8.72	9.50	10.51
Floodplain (ac)	11.16	11.65	12.61

10.9 Preliminary Stormwater Analysis

10.9.1 Design Criteria

As discussed in Section 5, the project area is located within the SFWMD with a small portion on the east end within SJRWMD boundaries. The project corridor is located within the Lake Hart Drainage Basin.

Stormwater runoff generated by the proposed roadway improvements will be conveyed, via a closed system, to four new stormwater management ponds and three existing stormwater management ponds. Please see **Figure 10.7** for the proposed drainage patterns. All stormwater ponds are wet detention. These ponds will be designed to provide water quality treatment and attenuate runoff prior to discharging downstream in accordance with SFMWD criteria. Additional information on specific design criteria is provided within **Appendix I Pond Siting Report**. The preliminary pond sizing, based on the future four-lane of Innovation Way South, provided the basis of determining pond right-of-way requirements. The preliminary pond locations are included in the **Drainage Maps Figures 10.7A-C.**

10.9.2 Alternative Drainage and Pond Concepts

The proposed ponds were sized for the areas within the right of way that will drain to each pond. The corridor is located in the Lake Hart drainage basin. Based on the criteria set forth by SFWMD, treatment volumes, runoff volumes, and limiting discharges were established for each pond and corresponding contributory basins. Calculations and criteria are included in the Pond Siting Report in **Appendix I**.

A preliminary hydrologic/hydraulic model was developed using Advanced Interconnected Pond Routing (AdICPR). Control elevations for the proposed ponds were estimated based upon the best available data which includes the soil borings conducted along Innovation Way South and the NRCS Soil Survey for Orange County. Ardaman's Geotechnical Engineering Report is included in **Appendix D.**

The pond sites were selected based upon topography to make the ponds more natural amenities in line with the Comprehensive Plan policy, minimizing wetland and floodplain impacts. Vacant sites were used as potential proposed pond locations. The potential locations of the ponds are depicted on the **Drainage Maps Figures 10.7A-C**. Topography was reviewed to provide sufficient elevation change for conveyance of the run-off from the roadway to the pond sites. Offsite runoff was not considered in the pond sizing, as it will be diverted to a bypass system. The bypass system will be designed during final design, culverts will be sized and placed to convey water under the proposed roadway corridor where the wetlands currently just sheet flow naturally. See the Pond Siting Report included in **Appendix I** for a detailed analysis of all alternative pond sites. The following summarizes the approach to selecting the pond locations.

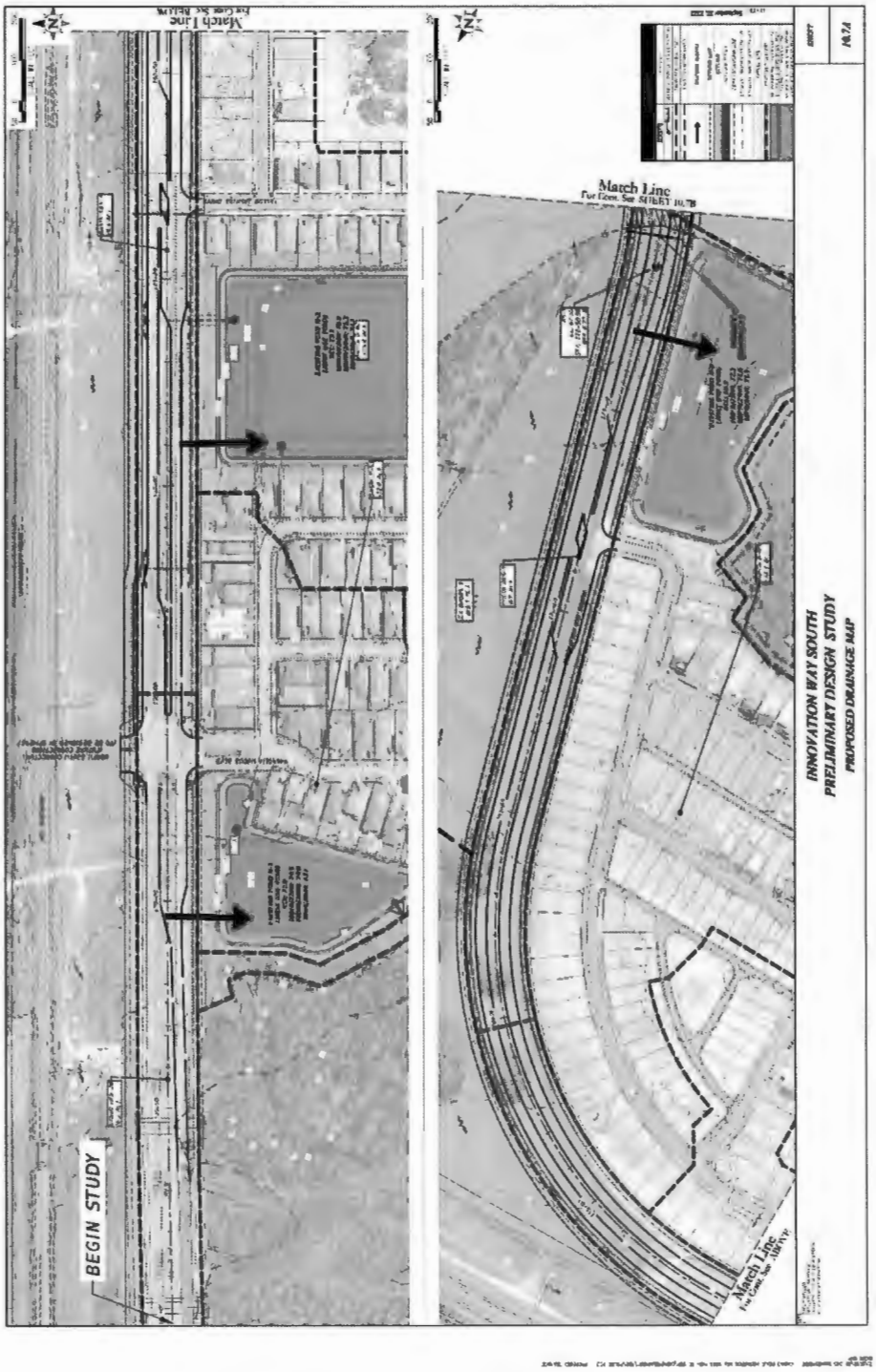


Figure 10.7A Proposed Drainage Map

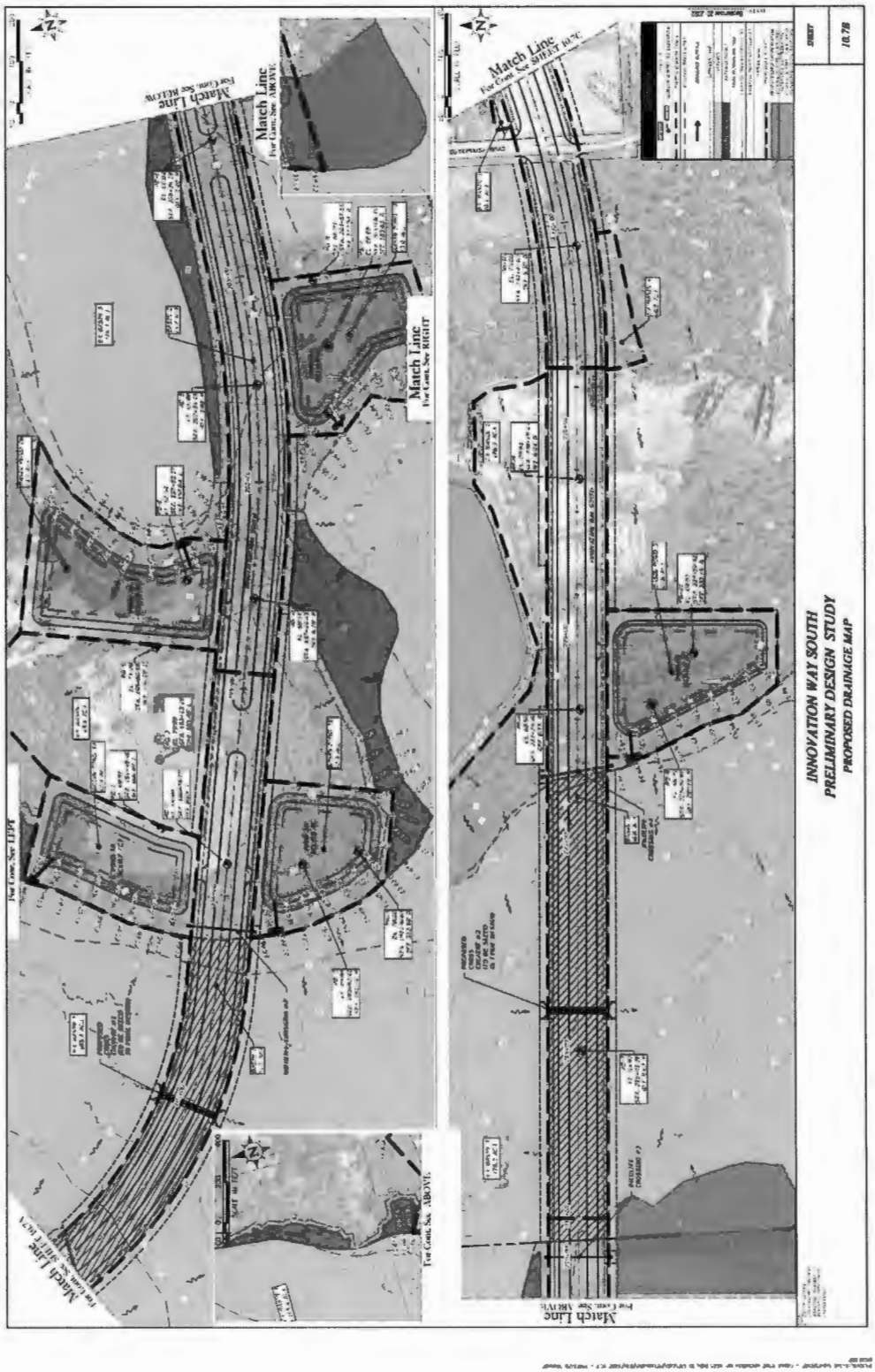


Figure 10.7B Proposed Drainage Map

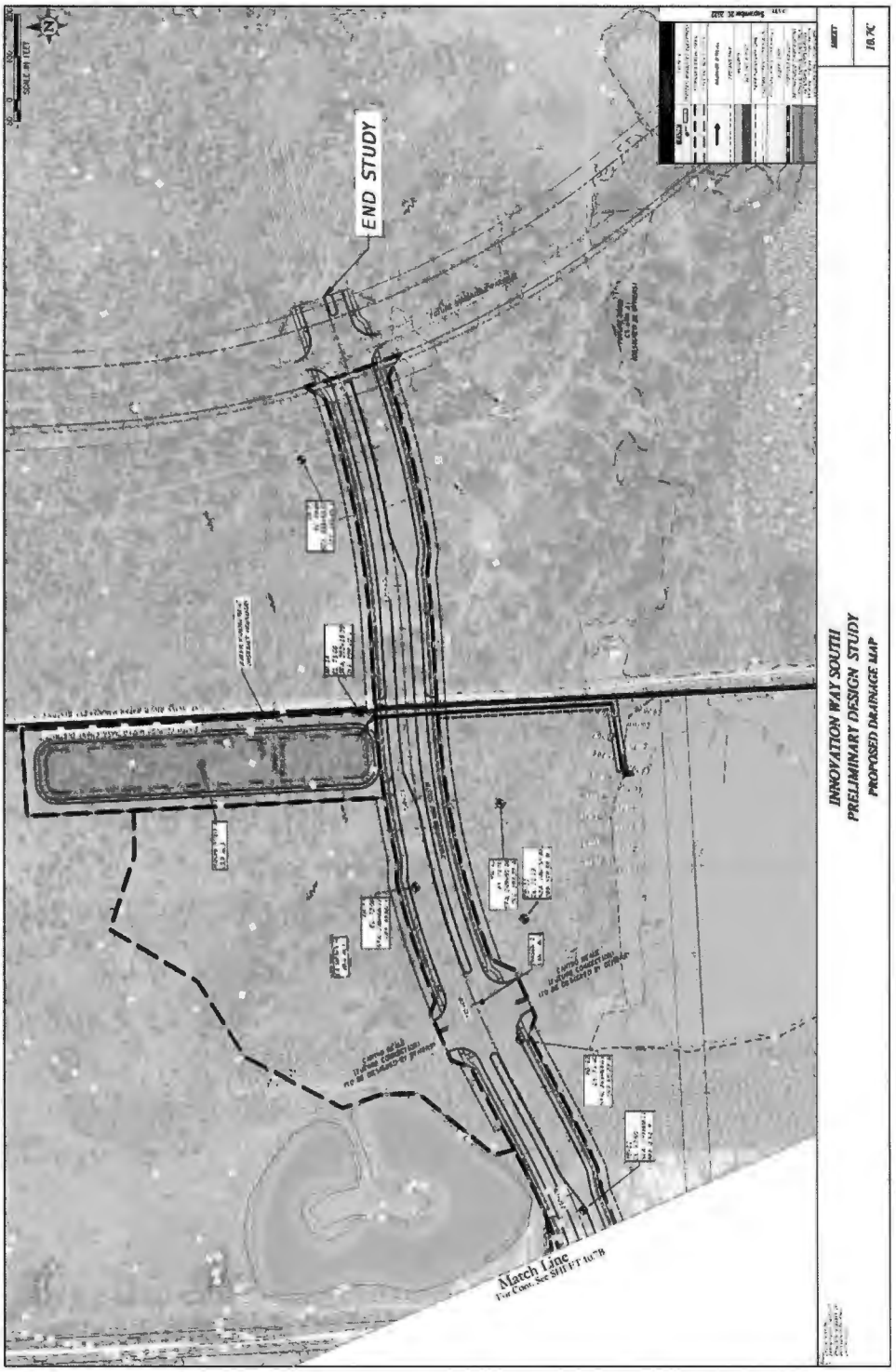


Figure 10.7C Proposed Drainage Map

Existing Pond N-9 was designed, permitted (SFWMD #48-00886-P) and constructed for Moss Park and includes water quality and quantity volumes for the full buildout section of the future Innovation Way South corridor from Yellow Jasmine Road to the corner of the Lennar Homes owned property. The pond discharges to Lake Hart which ultimately drains to the Kissimmee Chain of Lakes.

Innovation Way South Pond 1A – Lake Hart Outfall (Segment 3: Sta. 192+50 RT) (Wet Detention Pond)
Pond 1A will provide water quality and attenuation and is located on the north side of Innovation Way. See **Drainage Maps Figures 10.7A-C**. The pond location is based on proposed profile of the roadway (i.e., topography) and available land. The pond is adjacent and discharges to the wetlands upstream of Lake Hart which ultimately drains to the Kissimmee Chain of Lakes. This pond is located adjacent to the proposed right-of-way for the road for access and maintenance purposes.

Innovation Way South Pond 1B – Lake Hart Outfall (Segment 3: Sta. 192+50 LT) (Wet Detention Pond)
Pond 1B will provide water quality and attenuation and is located on the south side of Innovation Way. See **Drainage Maps Figures 10.7A-C**. The pond location is based on proposed profile of the roadway (i.e. topography) and available land. The pond is adjacent and discharges to wetlands upstream of Lake Hart which ultimately drains to the Kissimmee Chain of Lakes. This pond is located adjacent to the proposed right-of-way for the road for access and maintenance purposes.

Innovation Way South Pond 2A – Lake Hart Outfall (Segment 3: Sta. 204+00 RT) (Wet Detention Pond)
Pond 2A will provide water quality and attenuation and is located on the south side of Innovation Way. See **Drainage Maps Figures 10.7A-C**. The pond location is based on proposed profile of the roadway (i.e. topography) and available land. The pond is adjacent and discharges to wetlands upstream of Lake Hart which ultimately drains to the Kissimmee Chain of Lakes. This pond is located adjacent to the proposed right-of-way for the road for access and maintenance purposes.

Innovation Way South Pond 2B – Lake Hart Outfall (Segment 3: Sta. 204+00 RT) (Wet Detention Pond)
Pond 2B will provide water quality and attenuation and is located on the north side of Innovation Way. See **Drainage Maps Figures 10.7A-C**. The pond location is based on proposed profile of the roadway (i.e. topography) and available land. The pond is adjacent and discharges to wetlands upstream of Lake Hart which ultimately drains to the Kissimmee Chain of Lakes. This pond is located adjacent to the proposed right-of-way for the road for access and maintenance purposes.

Innovation Way South Pond 3 – Lake Hart Outfall (Segment 2: Sta. 224+00 RT) (Wet Detention Pond)
Pond 3 is a Joint Use Pond and will provide water quality and attenuation and is located along the south side of Innovation Way. See **Drainage Maps Figures 10.7A-C**. The pond location is based on proposed profile of the roadway (i.e. topography) and available land. The pond is adjacent and discharges to wetlands upstream of Lake Mary Jane which ultimately drains to the Kissimmee Chain of Lakes. This pond is located adjacent to the proposed right-of-way for the road for access and maintenance purposes.

Innovation Way South Pond 4 – Lake Hart Outfall (Segment 2: Sta. 249+00 LT) (Wet Detention Pond)

Pond 4 is a Joint Use pond and will provide water quality and attenuation and is located along the north side of Innovation Way. See **Drainage Maps Figures 10.7A-C**. The pond location is based on proposed profile of the roadway (i.e. topography) and available land. The pond is adjacent and discharges to wetlands upstream of Lake Mary Jane which ultimately drains to the Kissimmee Chain of Lakes. This pond is located adjacent to the proposed right-of-way for the road for access and maintenance purposes.

Table 10.4: Recommended Pond Sites

Pond Name	Basin Limits (Sta)		Total Basin Area[1]	WQ Volume Required	Pond Area[2]
	Begin	End	ac.	ac-ft	ac
Existing Pond N-9	Existing Pond: SFWMD permit #48-00886-P				
Pond 1A	178+05	195+38	7.4	0.93	2.3[3]
Pond 2A	195+38	210+95	8.2	1.03	3.0[3]
Pond 3	210+95	338+00	9.6	1.24	2.8[3]
Pond 4	299+50	323+70	14.1	1.76	3.9[3]

1. Basin area includes pond
2. Pond Tract Area
3. Pond is shared with adjacent development
4. See Appendix I Pond Siting Report for detailed Calculations

10.9.3 Existing Cross Drain Modifications

There are no existing cross drains in the study alignment.

10.10 Landscaping and Aesthetics

Landscaping and aesthetic improvements along the Project Roadway is proposed to conform to Orange County standards. Landscaping will typically be provided in the grassed median areas. All landscaping improvements are recommended to conform to FDOT clear zone and sight distance criteria. A landscape budget of $75,000/mile is anticipated, and is included in **Table 10.2**.

10.11 Public Involvement

Preliminary contact with Stakeholders was conducted in March of 2021. The following agencies were contacted with replies received:

US Army Corp of Engineers
Florida Department of Environmental Protection
Florida Department of Transportation
Orange County Public Schools
Orange County Utilities Department

Orange County Sheriff's Office (FL)

The following agencies were contacted with no replies received:

US Fish and Wildlife Service
US Army Corps of Engineers
Florida Department of Environmental Protection
Florida Fish & Wildlife Conservation Commission
South Florida Water Management District
Environmental Protection Division
City of Orlando Public Works
Central Florida Expressway Authority
LYNX
City of Orlando Transportation Bureau
Orlando Utilities Commission
Orange County Fire Rescue
Metro Plan Orlando
Duke Energy Corp.
Transportation Planning
Orange County Sheriff's Office

The following summarizes the responses received:

1. US Army Corps of Engineers

Alice Brantley

From: Perryman, Jason D CIV USARMY CESAJ (USA) <Jason.D.Perryman@usace.army.mil>
Sent: Monday, April 19, 2021 10:42 AM
To: Richard Bobletz
Cc: Palmer, John C CIV USARMY CESAJ (USA)
Subject: Innovation Way (Moss Park Rd to Sunbridge Pkwy)_Prelim. Design Study_Corps Comments

Richard,

The Corps is in receipt of your letter dated 16 March 2021, requesting Corps review and comments concerning the subject Preliminary Design Study (PDS).

Review of the provided letter and attached information indicates the subject project, as depicted on the submitted information, would not be subject to review/permitting by the Corps as it is not currently within Corps jurisdiction due to the following reasons:

1. The project does not appear to occur within, over, or under RHA Section 10 waters;
2. The project does not appear to occur within the 300-foot administrative buffer/boundary of any RHA Section 10 waters, nor otherwise Corps "retained" waters.

To clarify, the subject project may occur within federally-jurisdictional CWA Section 404 waters/wetlands, but regulatory authority of such waters was "assumed" by the State (FDEP) on December 22, 2020. Accordingly, the Corps does not currently "retain" regulatory jurisdiction of such waters or the project as described. However, this does not absolve the project from potentially requiring a State Section 404 permit for impacts to federally-jurisdictional waters. Based on current MOA regarding State Assumption, the FDEP would be the appropriate agency to contact regarding permitting obligations for impacts to potentially federally-jurisdictional waters (specifically CWA Section 404 waters) for the subject project.

At this time, Corps will not be making any comments since the project is not within our jurisdiction. If circumstances regarding State Assumption or the subject MOA changes in the future, the Corps may need to review and comment on the project.

Very Respectfully,

Jason D. Perryman
Project Manager
Cocoa Section
U.S. Army Corps of Engineers
400 High Point Drive, Suite 600
Cocoa, FL 32926
321-504-3771 extension 10
321-504-3803 (fax)
jason.d.perryman@usace.army.mil

2. Florida Department of Environmental Protection

    1. EP&C:

        - Section 6 runs through platted wetland and buffer tracts (PB62 Pg105); an impact permit will be needed
        - Section 4 is labeled 'existing' and appears complete; but be aware that the western half of Section 4 runs along a Conservation Easement (doc# 20160178221) and additional development (if needed) may be limited
        - Section 3 partially runs through wetlands with an expired Conservation Area Determination (CAD- 02-010); a new CAD will be needed and impact permit
        - Section 2 runs through wetlands with a current CAD (CAD-13-10-055) that expires in November 2023; If needed the CAD could potentially be extended but must be done prior to its expiration; an impact permit would also be needed
        - Section 1 runs through wetlands with an expired CAD (CAD-11-10-049); a new CAD will be needed and impact permit

    2. Solid waste – no comments

3. Florida Department of Transportation

Alice Brantley

From: Smith, Kellie <Kellie.Smith@dot.state.fl.us>
Sent: Tuesday, April 6, 2021 2:54 PM
To: Richard Bobletz
Cc: Brian.Sanders@ocfl.net; blanche.hardy@ocfl.net; Snyder, Karen; rbennett@poulosandbennett.com; David Kelly
Subject: Innovation Way (Moss Park Road to Sunbridge Parkway) – Preliminary Design Study
Attachments: 3.23.21 - Ltr frm Poulos&Bennett_PDS Innovation Way.pdf; Innovation Way Review.pdf

Mr. Bobletz,
Please see the attached response from the District in reference to the Innovation Way Preliminary Design Study. Please let me know if you have any questions.
Thank you,
Kellie

Kellie Smith
Planning & Environmental Management Administrator
Florida Department of Transportation
719 South Woodland Boulevard
DeLand, FL 32720
Telephone: 386-943-5427
Cell Phone: 386-956-1596
kellie.smith@dot.state.fl.us

FDOT

Florida Department of Transportation

RON DESANTIS
GOVERNOR

719 South Woodland Boulevard
DeLand, Florida 32720-6834

KEVIN J. THIBAULT, P.E.
SECRETARY

April 6, 2021

Richard Bobletz, P.E.
Poulos & Bennett, LLC
2602 E. Livingston Street
Orlando, FL 32803

Subject: Innovation Way (Moss Park Road to Sunbridge Parkway) – Preliminary Design Study
Orange County, FL

Dear Mr. Bobletz:

Thank you for providing the Florida Department of Transportation (FDOT) the opportunity to review the Innovation Way proposed typical section and preliminary study data.

FDOT offers the following comments for your consideration for the typical section:

- Reviewing the potential to reduce travel lanes to 11 feet to provide for wider bicycle lanes.

And/or

- Expand the multiuse trails from 10 feet to 12 – 14 feet in width or implementation of cycle track.

- Recommend incorporation of horizontal chicanes and curves for speed management purposes.

Again, we appreciate the opportunity to comment. If you have any questions or need further information, please contact, Karen Snyder, Project Development Manager at karen.snyder@dot.state.fl.us or 386-943-5404.

Sincerely,

Kellie Smith
Planning and Environmental Management Administrator

cc: Brian Sanders, Orange County Planning
Blanche Hardy, Orange County Transportation
Paul Shakespeare, Camino Reale Properties, LLC

R. Lance Bennett, P.E., Partner, Poulos & Bennett, LLC
Dave Kelly, P.E., Director of Engineering, Poulos & Bennett, LLC
Karen Snyder, P.E., FDOT

4. Orange County Public Schools

Alice Brantley

From: Thorp, Steven T. <Steven.Thorp@ocps.net>
Sent: Tuesday, March 23, 2021 2:43 PM
To: Richard Bobletz
Subject: Innovation Way PDS - Timeline Question

HI Richard,

Hope all is well. Just received the notice for comment for the Innovation Way PDS.

Are you able to provide any timelines as to when the PDS will be completed and reviewed/accepted by the County?

Also, I know this is super early, but do you have any timelines on the design and construction of each segment shown that you can share?

Thank you,

Steven Thorp, AICP
Sr. Administrator, Facilities Planning
Orange County Public Schools
6501 Magic Way, Building 200
Orlando, FL 32809
Tel: 407-317-3700 ext. 2022139
planning.ocps.net

5. Orange County Utilities Department

Alice Brantley

From: Kelly.Nowell@ocfl.net
Sent: Monday, March 29, 2021 12:53 PM
To: Richard Bobletz
Cc: Laura.Tatro@ocfl.net; Brian.Sanders@ocfl.net; Blanche.Hardy@ocfl.net; R. Lance Bennett; David Kelly
Subject: RE: Innovation Way (MPR to Sunbridge Pkwy) PDS
Attachments: DOC032921.pdf

Good morning, Richard,

We are in receipt of your request and will respond as soon as we are able to, either by this Friday or early next week.

In the future, for a quicker turnaround, would you kindly send me your PDS request by email? We are working remotely. I would be happy to confirm receipt of your request as well.

If you have any follow up questions, please let me know.

Thanks,

Kelly Nowell, P.E., CFM, LEED AP
Senior Engineer
Orange County Utilities Department
Engineering Division
9150 Curry Ford Road
Orlando, Florida 32825
Phone: (407) 254-9920
Fax: (407) 254-9999
Kelly.Nowell@ocfl.net
http://www.orangecountyfl.net

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6. Orange County Sheriff's Office (FL)

Alice Brantley

From: Michael.Crabb@ocfl.net
Sent: Monday, April 12, 2021 9:34 AM
To: Richard Bobletz
Subject: Innovation Way Study

Mr. Bobletz,

Thank you for taking my call on Friday and the insight you provided. I see no issues with the plan submitted other than some traffic issues where you are crossing Wewahootee Road. Our training range is on Wewahootee Road in front of Segment 2. We use Wewahootee Road as the access point and I see some interaction in Segment's 4, 5 and 6, but that would be traffic management only.

Thanks,

Mike

Michael Crabb
A/Captain
Orange County Sheriff's Office (FL)
Special Operations Division
Traffic Enforcement Section
Government / Legislative Affairs Unit

10.12 Estimated Opinion of Probable Cost

The estimates for each alternative and for the preferred alignment are provided in **Table 10.2**.

Table 10.5: Total Cost Analysis for All Alignment Alternatives

Alternative	R/W Cost*		Design***	Construction Cost**	Total Project Cost
	Acres	Cost			
1	55.04	$2,066,387	$3,186,705	$3,186,705	$29,684,497
2	56.03	$2,212,293	$3,186,705	$3,186,705	$29,830,403
3	56.66	$2,165,991	$3,186,705	$3,186,705	$29,784,101

Notes:

* R/W cost is $27,840.31/acre for Camino Reale property. R/W cost is $181,290/acre for all other properties. Mitigation Costs are $56,000/acre.

** Construction Cost is based on FDOT LRE Project NDUAL-U-05-BB, July 2019 Prices of $7.545 Million/mile plus $75,000 landscape budget.

*** Design is estimated to be 15% of the construction cost

7Table 10.5 shows that Alignment #1 is the lowest cost and the preferred alignment.

10.13 Design and Construction Schedules

To be provided at final submittal