Project Development & Environment (PD&E) Study
Preliminary Engineering Report

SR 426/CR 419 (Broadway Street)
From Pine Avenue to Lockwood Boulevard

Prepared For
City of Oviedo

Prepared By
DRMP
ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS

May 2007

PROFESSIONAL ENGINEER CERTIFICATE

I hereby certify that I am a Registered Professional Engineer in the State of Florida practicing with DRMP, Inc. and that I have supervised the preparation and approve the evaluation, findings, opinions, conclusions, and technical advice hereby reported for:

FINANCIAL PROJECT ID No.:	**415030**
PROJECT:	**SR 426 / CR 419 (Broadway Street)** **Pine Avenue to West of Lockwood Boulevard** **Seminole County, Florida**

This report includes a summary of data collection efforts, corridor analyses, and conceptual design analyses for the SR 426/CR 419 (Broadway Street) PD&E Study. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering and planning as applied through professional judgment and experience.

Signature: _____

Name: **Gregory A. Moore, P.E.**

Florida P.E. No.: **59429**

Date: _____

PD & E / DESIGN Coordination Checklist

CRITICAL ELEMENT (Needed for Design Phase)	STATUS (Complete or Needs Resolution)	RESOLUTION RQMNTS. (i.e. - Flag in WP, Mini-PD&E prior to Design, etc.)	LOCATION in PD&E (i.e. - Pg. #'s, Commitments Section; Appendix; Etc.)
1. Preferred Alignment with Concept Maps	Complete		Appendix D, Preferred Project Alternative
2. Intersection R/W Impacts (R/W for turn lanes, corner clips)	Complete		Appendix D, Preferred Project Alternative
3. Local Agency Commitments	Complete		Section 1.0, Commitments and Recommendations
4. Agreements for Local Agency/Other Commitments	***List Agreements & Status on Next Page	Confirm in subsequent project development phases.	
5. Identification of Funding Sources for Commitments	Needs Resolution	Confirm in subsequent project development phases.	
6. Environmental & Permitting Commitments/Requirements	Complete		Section 1.0, Section 9.12 (Page 9-14), Section 9.16 (Page 9-27) and Appendix A
7. Approved Typical Sections	Complete		Section 1.0, Figures 1-1 through 1-7
8. Bridge Recommendation (Widen / Replace / Remove)	Not Applicable		Not Applicable
9. Recommended Pond Sites (on aerials/concept plans)	Complete		Figure 9-9 (3 sheets following Page 9-27)
10. Location Hydraulics Report (structures, flood plain impacts)	Complete		In project file under separate cover
11. Notable Soil Conditions Identified (sinkhole areas, muck, etc.)	Complete		Figure 4-7, Page 4-12
12. Access Management Plan	Complete/Needs Resolution	Conduct Access Management Re-classification Public Hearing in Design Phase	Section 9.19, Page 9-35 and Appendix D
13. MOT Concept (constructible at estimated cost)	Complete		Section 9.14, Page 9-24
14. Bicycle/ Pedestrian Requirements	Complete		Appendix D
15. Public Involvement Plan (state/local/public consensus)	Complete		Section 9.15, Page 9-24
16. Major Utilities - Preliminary Impacts Identified	Complete/Needs Resolution	Utility Coordination during Design Phase	Section 9.13, Page 9-23
17. Construction & R/W Estimates (Enough detail to secure in WP)	Complete		Section 9.6, Page 9-12 and Table 9-2, Page 9-36
18. Development Coordination (DRI's, PUD's, etc.)	Not Applicable		Not Applicable
19. Railroad Coordination	Not Applicable		Not Applicable

*** Agreements required with local agencies or other entities are as follows:

Agreements for Local Agencies or Other Commitments

Type of Agreement (JPA, LFA, Maint., Other)	**Agency or Entity Agreement is With**	**Agency/Entity Contact** (Name, Phone #, Email)	**Status** (Complete/ Needs Resolution)	**Funding Considerations of Agreement**
Local Agency Program (LAP)	FDOT and Seminole County (for Design)	**FDOT:** Thomas Moscoso 386-943-5466 thomas.moscoso@dot.state.fl.us	Complete upon approval of PD&E Study	FDOT encumbers Design Funding from federal earmark

PRELIMINARY ENGINEERING REPORT

Financial Project No.: 415030

SR 426 / CR 419 (Broadway Street) PD&E Study

From Pine Avenue to West of Lockwood Boulevard

Seminole County, Florida

This document presents the evaluation of the proposed transportation improvements to SR 426/CR 419 (Broadway Street) from Pine Avenue to west of Lockwood Boulevard in Seminole County, Florida. The proposed action addressed herein involves the reconstruction of SR 426/CR 419 from a two-lane undivided roadway to a four-lane divided roadway. The project consists of improved travel lanes, median separation, closed drainage system, and multi-modal improvements including continuous bicycle lanes adjacent to the roadway and continuous sidewalks that also provide connectivity to adjacent recreational trails.

Prepared for

City of Oviedo
400 Alexandria Boulevard
Oviedo, Florida 32765

Prepared by

DRMP

May 2007

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APPENDICES

1.0 SUMMARY

1.1 Commitments

The following represents the commitments made during the SR 426/CR 419 PD&E Study addressed in this document:

During the design phase, the designing agency will re-evaluate reasonable and feasible noise abatement measures at the impacted locations. The proposed improvement includes the recommendation of noise abatement measures (noise walls) in the vicinity of the Kingsbridge East and Waverlee Woods subdivisions. The construction of noise abatement measures will be contingent upon the detailed noise analysis to be conducted during the final design process supporting the need for abatement.

The detailed noise analysis shall determine:

1. Reasonable cost analyses show that the economic cost of the barrier(s) will not exceed the guidelines;

2. Community input regarding desires, types, heights and locations of barrier has been solicited;

3. Preferences regarding compatibility with adjacent land uses, particularly as addressed by officials having jurisdiction over such land uses has been noted;

4. Safety and engineering aspects, as related to the roadway user and the adjacent property owner have been reviewed; and

5. Any other mitigating circumstances found in Section 17-4.6.1 of the PD&E Manual have been analyzed.

During the design phase, the designing agency shall evaluate enhancements as necessary related to recreational trail connectivity (tie-ins to the Cross Seminole Trail and other state and/or local trail facilities).

The designing agency shall consider aesthetic enhancements including the use of stamped asphalt pavement at key intersections (Pine Avenue, North Lake Jessup Avenue, Central Avenue (SR 434), and Oviedo Boulevard) and evaluating landscaping opportunities throughout the corridor. Design and construction of enhancements may require local funding and maintenance. The design agency will include mitigation for impacts to the oak trees in front of the Lawton House, which is an historic property eligible for listing in the National Register of Historic Places. This involves the replacement of the acquired oak trees in front of the Lawton House with live oak trees of approximately 100 gallons at the time of construction.

FDOT's Environmental Management Office will be given notice of the Pre-Construction Conference in order to implement the United States Fish and Wildlife Service's (USFWS) Standard Protection Measures for the eastern indigo snake during the construction phase of this project (Appendix A).

If a portion of the Nelson & Company Property is planned to be acquired, or if the project is near the property and excavation and/or de watering for construction is planned, then the designer shall determine if additional contamination assessment and possible remedial action may be needed.

During Design, an Access Management Reclassification Public Hearing will be held for the change to Access Management Class 5.

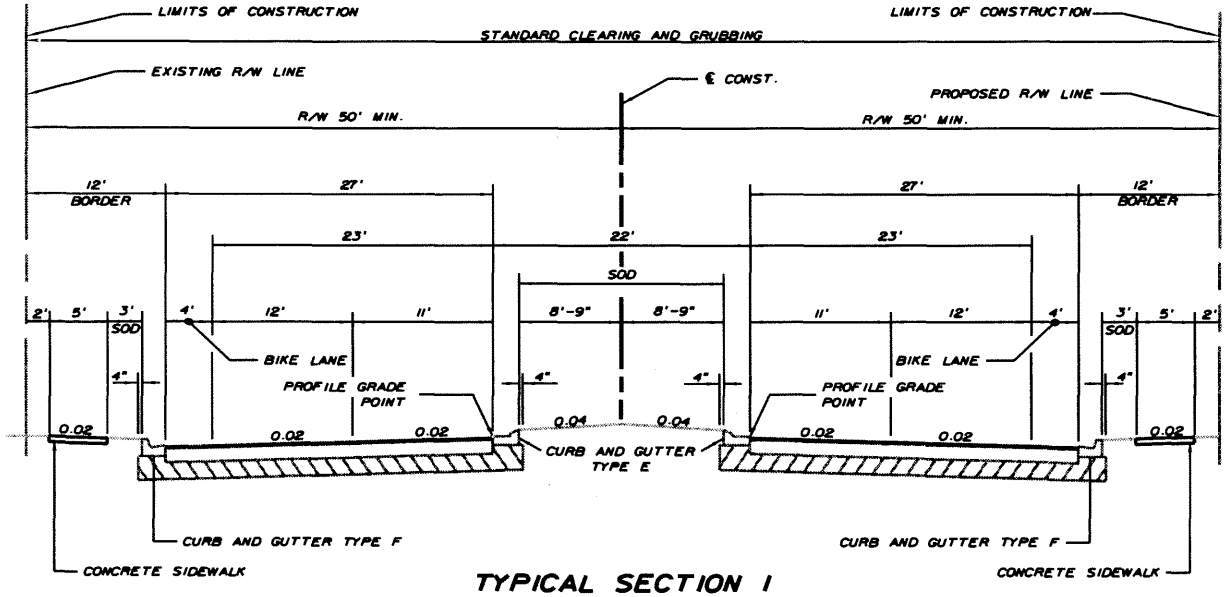
1.2 Recommendations

The City of Oviedo in association with Seminole County and the Florida Department of Transportation (FDOT) recommends that the preferred project alternative, as shown in Figure 1-1 through Figure 1-4, be implemented as the proposed action for providing capacity and multi-modal transportation improvements along SR 426/CR 419 from Pine Avenue to west of Lockwood Boulevard, in the City of Oviedo, Seminole County, Florida. The proposed action also includes improvements to SR 434 in the vicinity of SR 426 and the re-alignment of CR 426 at CR 419. The recommended SR 434 improvement is shown in Figures 1-5 and 1-6 and the recommended improvement for the re-alignment of CR 426 is shown in Figure 1-7. The proposed improvement to SR 426/CR 419 generally consists of a four-lane divided arterial with continuous sidewalks, bicycle lanes, and median separation. The preferred project alternative varies slightly in travel lane width and sidewalk width depending on location (specified on the approved Typical Section Package and shown on Figures 1-1 through 1-7). Appendix C contains the Approved Typical Section Package while Appendix D contains the conceptual design plans for the final Preferred Project Alternative.

PROJECT IDENTIFICATION

FINANCIAL PROJECT ID	415030-1			FEDERAL AID PROJECT NO.	N/A
COUNTY NAME	SEMINOLE (77060)	ROAD DESIGNATION	SR 426 / CR 419	LIMITS/MILEPOST	MP 6.230 TO MP 9.230
PROJECT DESCRIPTION	RECONSTRUCTING SR 426 /CR 419 FROM PINE AVENUE TO LOCKWOOD BOULEVARD				
	(MP 6.230 TO MP 6.992 STATE ROAD ONLY)				

PROPOSED ROADWAY TYPICAL SECTION



TYPICAL SECTION 1

SR 426 /CR 419 (Broadway Street) STA. 7+00 TO STA. 34+00

DESIGN SPEED 45 MPH (Posted Speed 40 MPH)

APPROVED BY	FDOT CONCURRENCE	SEMINOLE COUNTY CONCURRENCE
Gregory A. Moore 3/09/2007	Annette K. Brennan 4/25/07	5/1/07
GREGORY A. MOORE, P.E. Date	ANNETTE K. BRENNAN Date	JERRY MCCOLLUM Date
Engineer Of Record (#59429)	FDOT District Design Engineer	Seminole County Engineer

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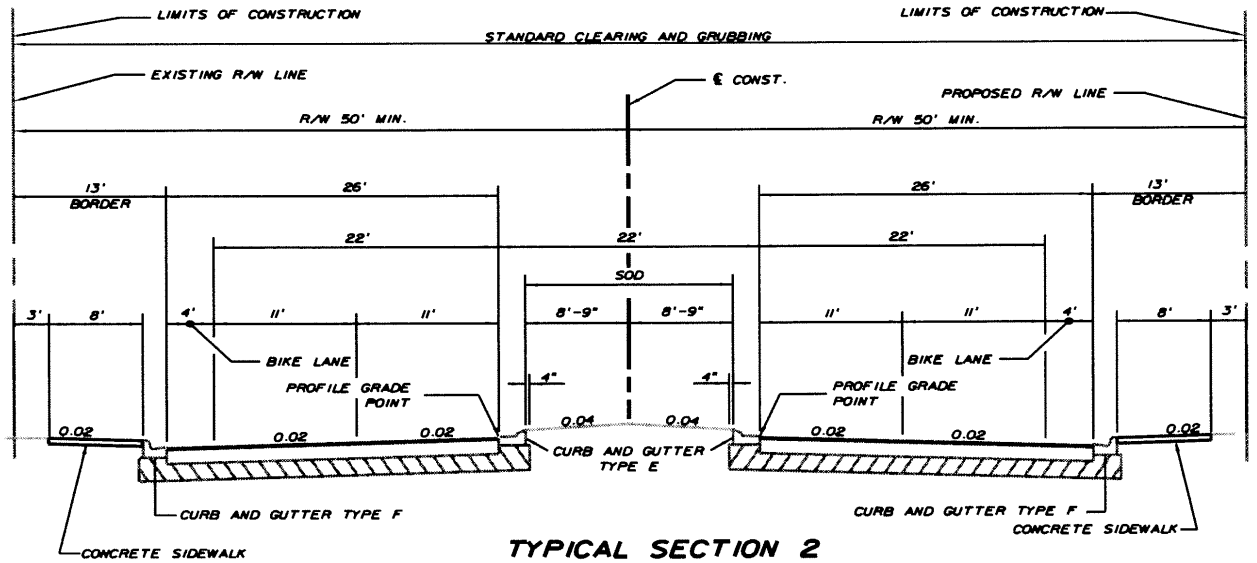
PROJECT IDENTIFICATION

FINANCIAL PROJECT ID	415030-1			FEDERAL AID PROJECT NO.	N/A
COUNTY NAME	SEMINOLE (77060)	ROAD DESIGNATION	SR 426 / CR 419	LIMITS/MILEPOST	MP 6.230 TO MP 9.230
PROJECT DESCRIPTION	RECONSTRUCTING SR 426 /CR 419 FROM PINE AVENUE TO LOCKWOOD BOULEVARD				
	(MP 6.230 TO MP 6.992 STATE ROAD ONLY)				

PROPOSED ROADWAY TYPICAL SECTION



TYPICAL SECTION 2

SR 426 /CR 419 (Broadway Street) (Downtown Oviedo)

STA. 34+00 TO STA. 67+00

DESIGN SPEED 40 MPH (Posted Speed 35 MPH)

APPROVED BY	FDOT CONCURRENCE	SEMINOLE COUNTY CONCURRENCE
Gregory A. Moore 3/09/2007	Annette K Brennan 4/25/07	5/1/07
GREGORY A. MOORE, P.E. Date Engineer Of Record (#59429)	ANNETTE K. BRENNAN Date FDOT District Design Engineer	JERRY MCCOLLUM Date Seminole County Engineer

1-4

Figure 1-2

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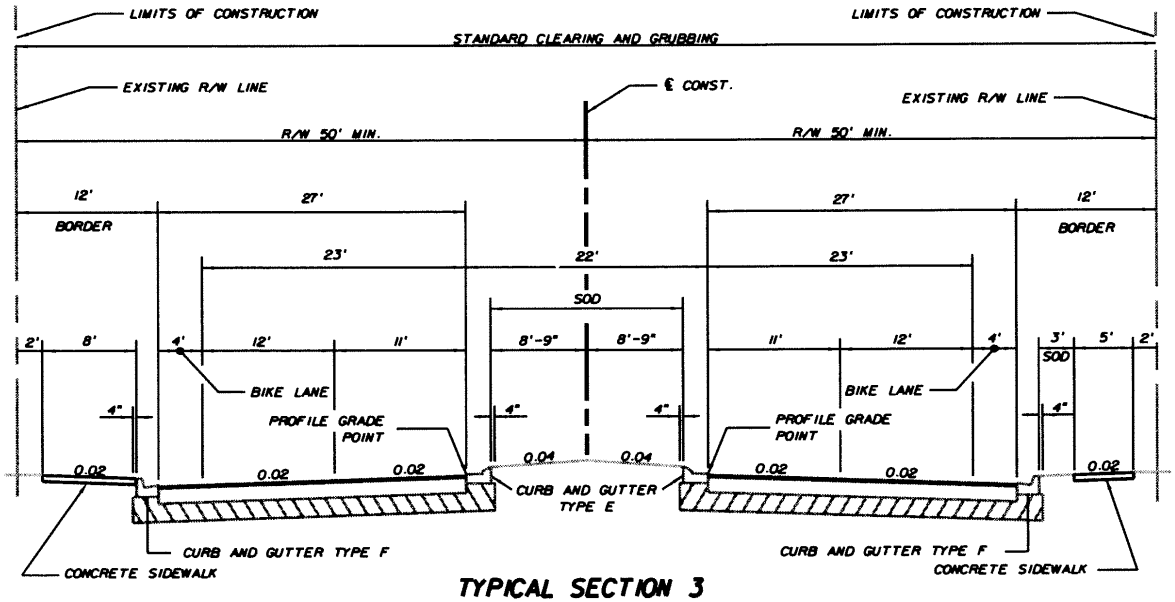
PROJECT IDENTIFICATION

FINANCIAL PROJECT ID	415030-1			FEDERAL AID PROJECT NO.	N/A
COUNTY NAME	SEMINOLE (77060)	ROAD DESIGNATION	SR 426/ CR 419	LIMITS/MILEPOST	MP 6.230 TO MP 9.230
PROJECT DESCRIPTION	RECONSTRUCTING SR 426 / CR 419 FROM PINE AVENUE TO LOCKWOOD BOULEVARD				
	(MP 6.230 TO MP 6.9920 STATE ROAD ONLY)				

PROPOSED ROADWAY TYPICAL SECTION



TYPICAL SECTION 3

SR 426 / CR 419 (Broadway Street)

STA. 67+00 TO STA. 127+00

DESIGN SPEED 45 MPH (Posted Speed 40 mph)

APPROVED BY	FDOT CONCURRENCE	SEMINOLE COUNTY CONCURRENCE
Gregory A. Moore — 3/09/2007	Annette K Brennan — 4/25/07	J Lee — 5/1/07
GREGORY A. MOORE, P.E. — Date	ANNETTE K. BRENNAN — Date	JERRY MCCOLLUM — Date
Engineer Of Record (#59429)	FDOT District Design Engineer	Seminole County Engineer

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Figure 1-3

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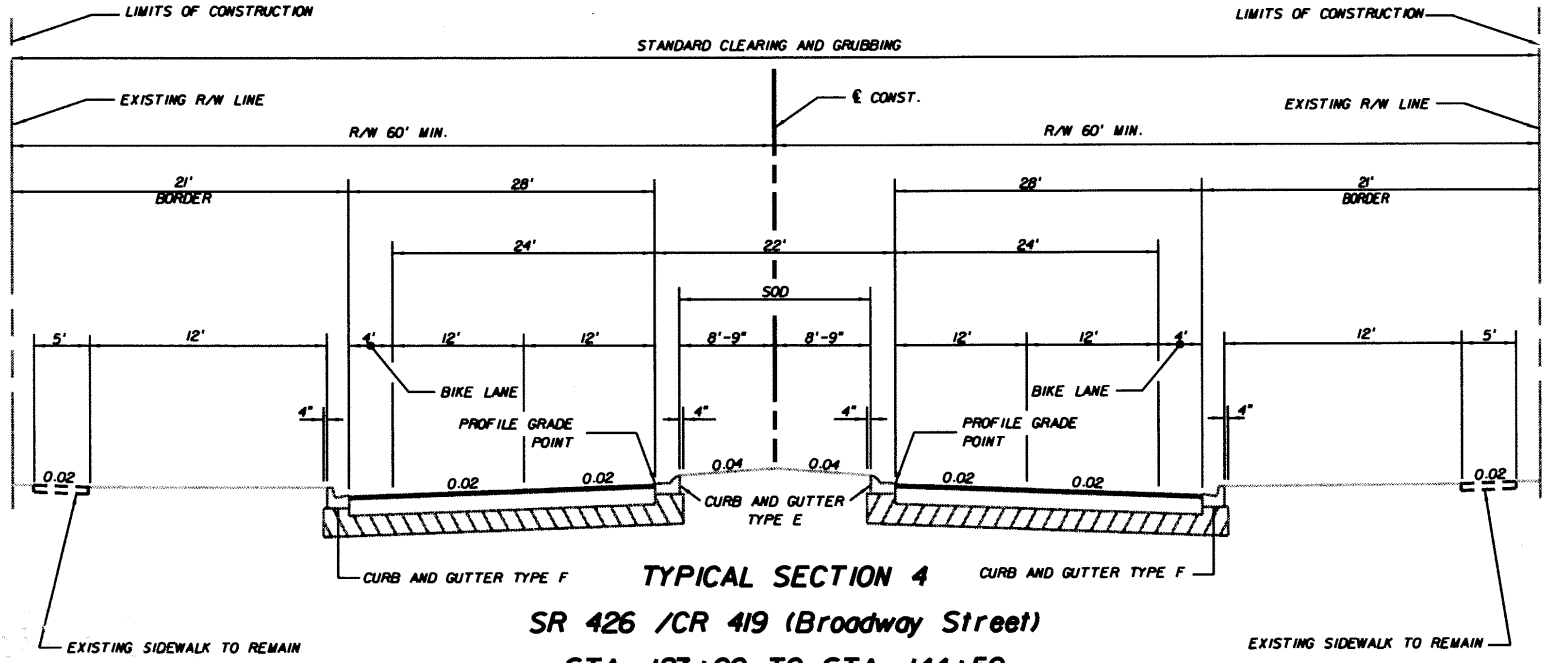
PROJECT IDENTIFICATION

FINANCIAL PROJECT ID	415030			FEDERAL AID PROJECT NO.	N/A
COUNTY NAME	SEMINOLE (77060)	ROAD DESIGNATION	SR 426/ CR 419	LIMITS/MILEPOST	MP 6.230 TO MP 9.230
PROJECT DESCRIPTION	RECONSTRUCTING SR 426 / CR 419 FROM PINE AVENUE TO LOCKWOOD BOULEVARD				
	(MP 6.230 TO MP 6.9920 STATE ROAD ONLY)				

PROPOSED ROADWAY TYPICAL SECTION



TYPICAL SECTION 4

SR 426 /CR 419 (Broadway Street)

STA. 127+00 TO STA. 144+50

DESIGN SPEED 45 MPH (Posted Speed 45 mph)

APPROVED BY	FDOT CONCURRENCE	SEMINOLE COUNTY CONCURRENCE
Gregory A. Moore 3/09/2007	Annette K Brennan 4/25/07	5/1/07
GREGORY A. MOORE, P.E. Date	ANNETTE K. BRENNAN Date	JERRY MCCOLLUM Date
Engineer Of Record (#59429)	FDOT District Design Engineer	Seminole County Engineer

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Figure 1-4

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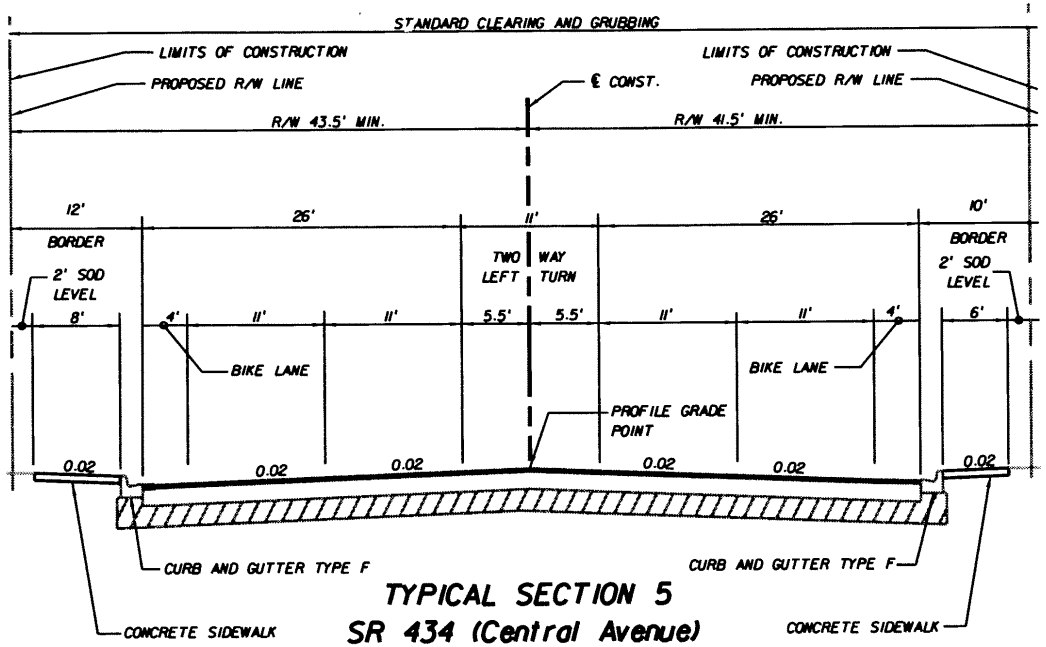
PROJECT IDENTIFICATION

FINANCIAL PROJECT ID	415030-1			FEDERAL AID PROJECT NO.	N/A
COUNTY NAME	SEMINOLE (77060)	ROAD DESIGNATION	SR 426/ CR 419	LIMITS/MILEPOST	MP 3.880 TO MP 4.026 MP 9.326 TO MP 9.465
PROJECT DESCRIPTION	RECONSTRUCTING SR 434 FROM SMITH STREET TO OVIEDO SHOPPING CENTER				
	(MP 3.901 TO MP 4.026 AND MP 9.373 TO MP 9.465				

PROPOSED ROADWAY TYPICAL SECTION



TYPICAL SECTION 5
SR 434 (Central Avenue)
STA. 3+00 TO STA. 11+00
DESIGN SPEED 30 MPH (Posted Speed 30 mph)

APPROVED BY	FDOT CONCURRENCE	SEMINOLE COUNTY CONCURRENCE
Gregory A. Moore 3/09/2007	Annette K Brennan 4/25/07	5/1/07
GREGORY A. MOORE, P.E. Engineer Of Record (#59429) Date	ANNETTE K. BRENNAN FDOT District Design Engineer Date	JERRY MCCOLLUM Seminole County Engineer Date

1-7

Figure 1-5

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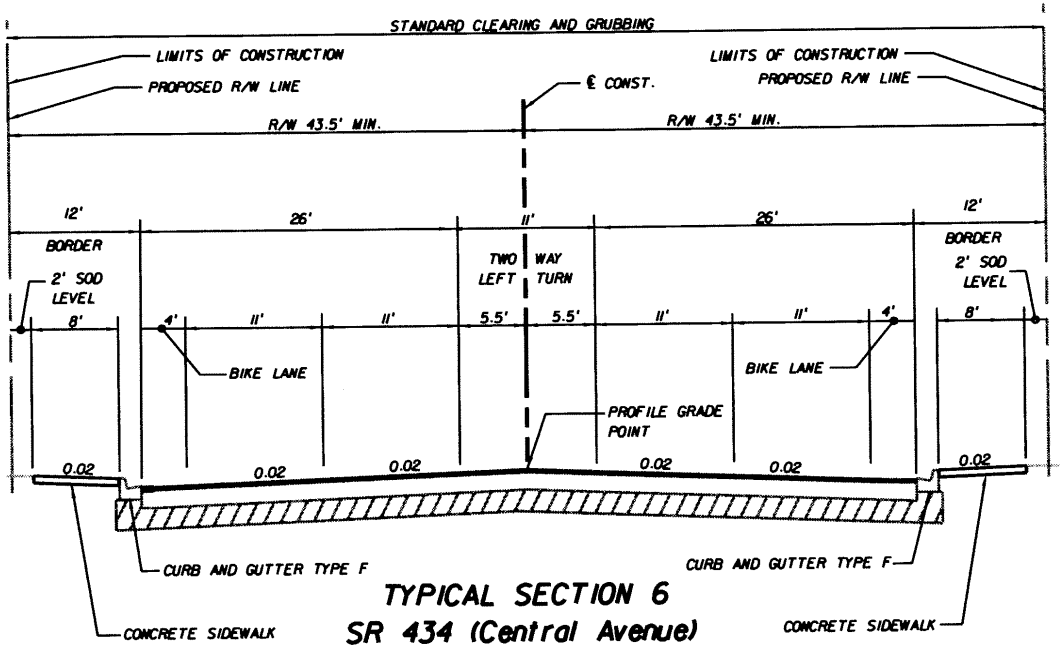
PROJECT IDENTIFICATION

FINANCIAL PROJECT ID	415030-1			FEDERAL AID PROJECT NO.	N/A
COUNTY NAME	SEMINOLE (77060)	ROAD DESIGNATION	SR 426/ CR 419	LIMITS/MILEPOST	MP 3.880 TO MP 4.026 MP 9.326 TO MP 9.465
PROJECT DESCRIPTION	RECONSTRUCTING SR 434 FROM SMITH STREET TO OVIEDO SHOPPING CENTER				
	(MP 3.901 TO MP 4.026 AND MP 9.373 TO MP 9.465				

PROPOSED ROADWAY TYPICAL SECTION



TYPICAL SECTION 6
SR 434 (Central Avenue)
STA. 11+00 TO STA. 21+00
DESIGN SPEED 30 MPH (Posted Speed 30 mph)

APPROVED BY	FDOT CONCURRENCE	SEMINOLE COUNTY CONCURRENCE
Gregory A. Moore 3/09/2007	Annette K Brennan 4/25/07	J Lee 5/1/07
GREGORY A. MOORE, P.E. Engineer Of Record (#59429) Date	ANNETTE K. BRENNAN FDOT District Design Engineer Date	JERRY MCCOLLUM Seminole County Engineer Date

Figure 1-6

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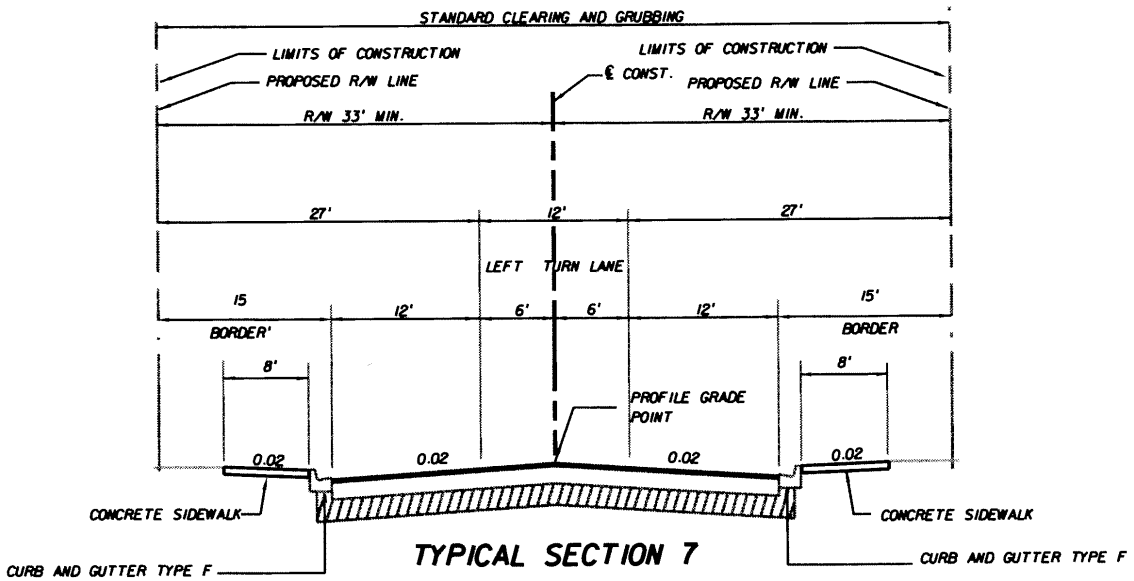
PROJECT IDENTIFICATION

FINANCIAL PROJECT ID	415030-1			FEDERAL AID PROJECT NO.	N/A
COUNTY NAME	SEMINOLE (77060)	ROAD DESIGNATION	CR 426 (GENEVA DRIVE)	LIMITS/MILEPOST	
PROJECT DESCRIPTION	RECONSTRUCTING CR 426 FROM CR 419 TO CITIZENS BANK OF OVIEDO				

PROPOSED ROADWAY TYPICAL SECTION



TYPICAL SECTION 7

CR 426 (GENEVA DRIVE)

FROM CR 419 TO CITIZENS BANK OF OVIEDO

DESIGN SPEED 30 MPH (Posted Speed 30 mph)

APPROVED BY	FDOT CONCURRENCE	SEMINOLE COUNTY CONCURRENCE
GREGORY A. MOORE, P.E. Engineer Of Record (#59429) 3/09/2007 Date	ANNETTE K. BRENNAN FDOT District Design Engineer 4/25/07 Date	JERRY MCCOLLUM Seminole County Engineer 5/1/07 Date

1-9

Figure 1-7

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2.0 INTRODUCTION

2.1 Purpose

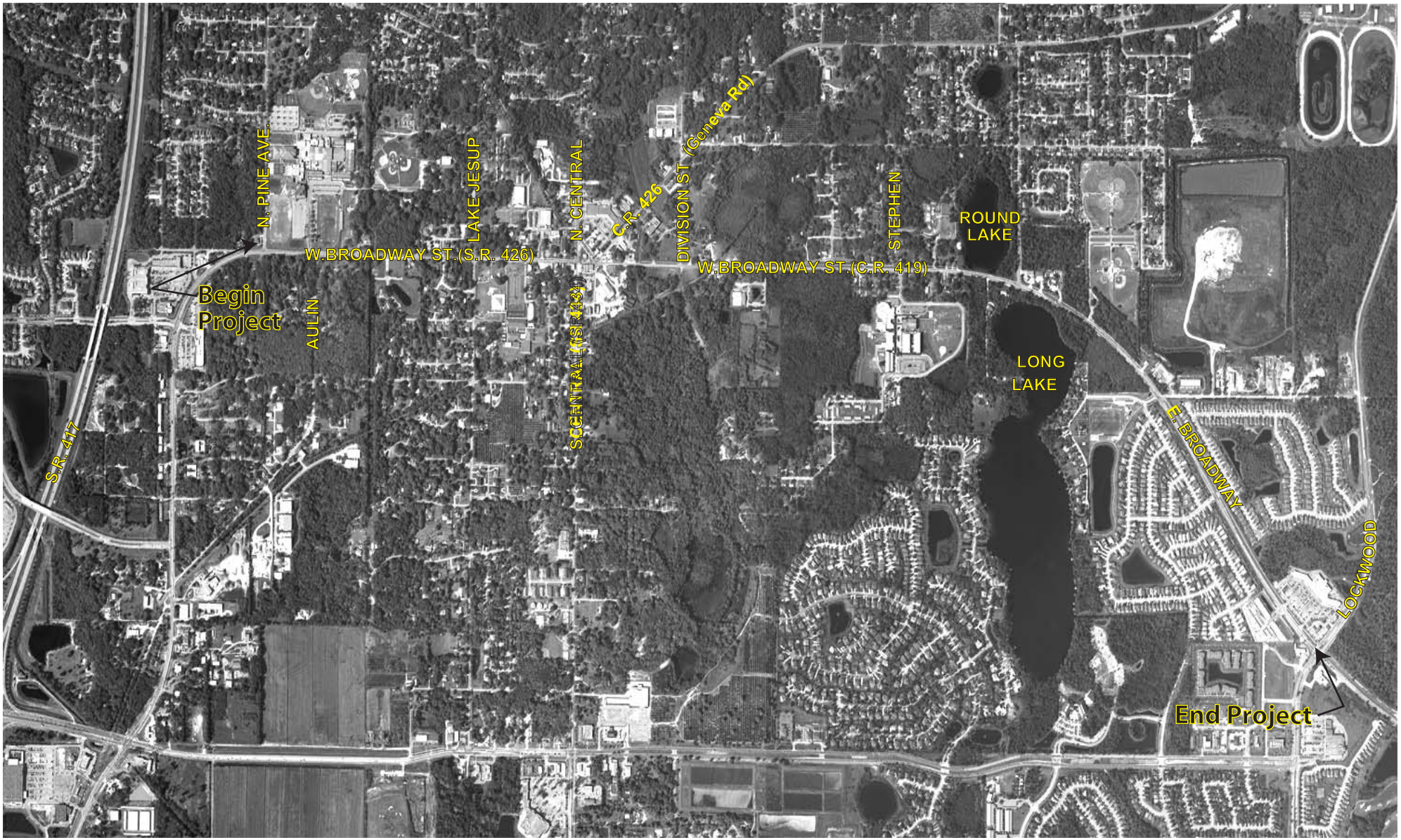
This Preliminary Engineering Report (PER) has been prepared as part of a Project Development and Environment (PD&E) Study conducted by the City of Oviedo on behalf of Seminole County and the Florida Department of Transportation (FDOT) for SR 426/CR 419 (Broadway Street) from Pine Avenue to west of Lockwood Boulevard a distance of approximately 3.0 miles. The limits of the study are shown on Figure 2-1, Project Location Map.

The City has coordinated this study with the Seminole County Board of County Commissioners and FDOT in order to advance production of proposed improvements along this corridor. In addition, the City has coordinated with METROPLAN ORLANDO (MPO) to include the proposed improvements in the current adopted Orlando Urban Area Long Range Transportation Plan (LRTP). The study was funded by the City utilizing Second Generation Sales Tax Revenue collected by Seminole County and allocated to the City of Oviedo for roadway improvements.

The study was also coordinated with the consulting team that prepared the proposed Downtown Master Plan for the City of Oviedo. In addition, other planned and programmed improvements within the general study area were also considered, including the Cross Seminole Trail recreational facility, improvements to SR 434, and interim traffic operational improvements within the central business district.

The SR 426/CR 419 PD&E Study was conducted to identify the most appropriate transportation improvements which would be needed to accommodate projected travel demand along the corridor consistent with area-wide transportation plans and with minimal socio-economic and environmental impact. A series of environmental documents and engineering reports have been prepared to document the evaluation of potential social, economic and environmental impacts associated with providing basic roadway capacity improvements (i.e.: four lanes).

This PER will assist the City of Oviedo, Seminole County, FDOT and the Federal Highway Administration (FHWA) in identifying and selecting a “recommended alternative” and will serve as the document of record in support of subsequent engineering decisions as the project advances through design and construction.



Project Location Map

SR 426/ CR 419 Broadway Street
Project Development & Environment (PD&E) Study
From Pine Avenue to Lockwood Boulevard

Figure 2-1

2.2 Project Description

SR 426 is classified as an urban principal arterial and links the cities of Winter Park and Oviedo in Orange and Seminole Counties. The portion of SR 426/CR 419 (Broadway Street) included in this PD&E Study has limits from Pine Avenue to west of Lockwood Boulevard within the Oviedo city limits and unincorporated Seminole County.

The lane configurations, median treatments, and right-of-way widths vary within the study area. From Pine Avenue to just east of Station Street, the existing roadway is a three-lane section with one travel lane in each direction separated by a paved center lane. From just east of Station Street to Boston Avenue, Broadway Street exists strictly as a two-lane facility, from Boston Avenue to just east of Louise Street as a three-lane facility and from just east of Louise Street to Lockwood Boulevard as a two-lane facility. Access to adjacent properties is unrestricted and there are numerous driveways and side streets that connect directly to the mainline. A number of businesses, residential communities and community facilities depend on SR 426/CR 419 for access. The existing speed limits vary between 35 mph and 45 mph along the SR 426/CR 419 corridor.

From Pine Avenue to Central Avenue (SR 434), SR 426 is a two-lane roadway with rural design (open stormwater management system) and a paved median. The existing travel lanes are 12 feet wide, the paved median is also 12 feet wide, and some sections of SR 426 have curb and gutter while others have a 4 foot outside paved shoulder. Sidewalks exist but are limited to the section between Lake Jessup Avenue and Central Avenue (SR 434). Signalized intersections in this section are located at Pine Avenue, Lake Jessup Avenue and Central Avenue (SR 434). This section of SR 426 is moderately developed with single family residential, professional offices and individual businesses. Major land uses along this corridor include Oviedo High School, Oviedo Cemetery, Oviedo Friendship Park, T.W. Lawton Elementary School, First Baptist Church, portions of the downtown central business district and the Shoppes of Broadway East. There are restaurants, banks, medical and professional offices and other commercial establishments within this section of the corridor. The existing right-of-way for SR 426 varies from 100 feet through Pine Avenue to 60 feet around Lake Jessup Avenue and to 50 feet through Central Avenue.

CR 419 from Central Avenue (SR 434) to east of Division Street is a two-lane roadway with rural design (open storm water management system) and no median. From Division Street to Lockwood Boulevard, CR 419 is a two-lane roadway with a paved median. The existing travel lanes are 12-feet wide with a 4-foot wide outside paved shoulder. Sidewalks exist on CR 419 mostly on the north side of the road but it is limited to the area between Academy Avenue and Lockwood Boulevard on the south side. Signalized intersections are located at

Station Street/CR426, at Stephen Street/Academy Avenue and at Lockwood Boulevard. The existing right-of-way for CR 419 varies from 50 feet to 100 feet between Central Avenue and Evans Street and widens to 120 feet to Lockwood Boulevard. Major land use in this section include portions of the downtown central business district, the Nelson Property Historic District, Antioch Missionary Baptist Church, Oviedo Bowling Center, Jackson Heights Middle School, Florida Power's electrical substation, Kingsbridge East subdivision, Waverlee Woods subdivision, and Riverside Landings shopping center. The section of CR 419 from Waverlee Woods Boulevard to Lockwood Boulevard was recently re-constructed to a four lane divided section, with a 22-foot median, bike lanes and sidewalks.

The proposed improvements addressed in this Preliminary Engineering Report consist of widening the existing two-lane undivided rural roadway to a four-lane divided urban facility with continuous sidewalks and bike lanes. The width of the travel lanes, median and sidewalks may vary within the limits of the project but will be constructed within 100 feet of right-of-way.

The proposed SR 426/CR 419 improvements will accommodate projected increases in travel demand and facilitate corridor mobility. It is anticipated that operating levels of service and overall safety will be improved. The proposed improvements are consistent with the City of Oviedo Comprehensive Plan 2002 Update. During the SR 426/CR 419 PD&E Study, the MPO updated its Year 2025 Long Range Transportation Plan and has included the proposed improvement in its transportation improvement plan.

3.0 NEED FOR IMPROVEMENT

The factors that constitute the need for the proposed improvements include current and projected travel demand including deficiencies in traffic capacity along with congestion at major intersections, safety concerns, consistency with adopted local, state and regional long range transportation plans and systems continuity. These factors are discussed below in more detail.

3.1 Deficiencies

Existing and future year travel demand characteristics were developed for the SR 426/CR 419 (Broadway Street) PD&E Study including an analysis of traffic flow conditions at major intersections and roadway segments along the corridor. In analyzing the existing conditions along SR 426/CR 419 (Broadway Street), traffic counts were collected and recommended traffic characteristics were established. The analyses of existing conditions along the mainline and major intersections within the corridor were performed based on existing roadway and intersection geometry. The results of the existing and future year travel demand analyses are fully documented in the *Design Traffic Technical Memorandum* prepared in April 2004, a copy of which is located at the FDOT District Five office. A majority of the information provided in this section of the Preliminary Engineering Report, as well as Section 6.0, Traffic, has been generated from the Design Traffic Technical Memorandum.

Existing year (2002) average annual daily traffic (AADT) volumes range from 7,407 vehicles per day (vpd) to 16,399 vpd. By the year 2025, the traffic volumes along SR 426/CR 419 (Broadway Street) are expected to range from 12,200 vpd to 26,800 vpd. The future conditions traffic analysis was based primarily on existing mainline geometry.

Existing and future year traffic operational conditions were evaluated at thirteen (13) locations within the SR 426/CR 419 (Broadway Street) study area. These are:

- SR 426 at Pine Avenue (signalized)
- SR 426 at Aulin Avenue
- SR 426 at Lake Jessup Avenue (signalized)
- SR 426 at Central Avenue (signalized)
- SR 426 at Station Street (signalized)
- SR 426 at CR 426 (Geneva Drive)
- CR 419 at Division Street (signalized)
- CR 419 at Avenue B
- CR 419 at Academy Avenue/Stephan Street (signalized)
- CR 419 at Reed Road
- CR 419at Carolyn Drive/Evans Street
- CR 419 at Bishop Avenue/Waverlee Woods Boulevard
- CR 419 at Lockwood Boulevard (signalized)

Existing P.M. peak hour turning movement volumes were used for the intersection analysis using standard HCM procedures. Based on this analysis, the following intersections currently operate at LOS F:

- SR 426 at Aulin Avenue
- CR 419 at Bishop Avenue/Waverlee Woods Boulevard
- CR 419 at Lockwood Boulevard (signalized)

The roadway operational level of service analysis was performed by comparing the existing P.M. peak hour/peak direction volumes for individual roadway segments against the peak-hour peak-direction capacities.

Based on this comparison the following roadway segments operate below their adopted LOS standard:

- Pine Avenue to Aulin Avenue
- Aulin Avenue to Lake Jessup Avenue

By the year 2030, if no improvement is made to increase capacity, the following intersections are expected to operate at LOS F:

- SR 426 at Aulin Avenue
- SR 426 at Lake Jessup Avenue (signalized)
- SR 426 at Central Avenue (signalized)
- SR 426 at Station Street (signalized)
- SR 426 at CR 426 (Geneva Drive)
- CR 419 at Avenue B
- CR 419 at Reed Road
- CR 419at Carolyn Drive/Evans Street
- CR 419 at Bishop Avenue/Waverlee Woods Boulevard
- CR 419 at Lockwood Boulevard (signalized)

3.2 Safety

A high crash location or segment is defined by the Florida Department of Transportation as a location where the safety ratio is in excess of 1.0. The safety ratio is the actual crash rate of a state roadway (such as SR 426) to the critical crash rate calculated for similar facilities in Florida. Crash rates are calculated per one hundred million vehicle miles. A ratio greater than 1.0 indicates that the crash rate is higher than the statewide average for similar facilities. Available safety ratio data for the years from 2000 to 2002 for the SR 426/CR 419 corridor was documented as follows: 1.086 in 2000; 1.782 in 2001; and, 0.922 in 2002. In the year 2001, the intersections of SR 426 and Lake Jessup Avenue and CR 419 and Division Street experienced an abnormally high crash ratio.

Historical crash data was obtained for the three-year period of 2000 to 2002. During this time, a total of 114 collisions occurred on SR 426/CR 419 (Broadway Street) from Pine Avenue to Lockwood Boulevard. It was determined from the analysis of the collision summaries that the installation of a median on SR 426/CR 419 (Broadway Street) would potentially increase the safety of the roadway by minimizing the potential for angle and left turn collisions. These collisions accounted for approximately 36 percent of the total for the three-year period. The trend of these collisions shows the driver at fault failed to yield the right of way. If a median were to be installed, drivers would have limited access to turning lanes therefore minimizing conflict points where head-on, angle and left turn collisions occur.

Table 3-1 shows the crash totals between signalized intersections for the years 2000 through 2002.

3.3 Consistency with Local, Regional, and State Transportation Plans

The City of Oviedo documented the need to improve SR 426/CR 419 within its jurisdictional boundaries in its Comprehensive Land Use Plan adopted in January 2002. In addition, the Oviedo Downtown Master Plan adopted in October 2002 and amended in July 2003, also identifies the need to provide capacity improvements (add lanes) to this section of SR 426/CR 419.

In November 2001, Seminole County residents voted to extend the Local Option Sales Tax which was originally enacted in 1991 to help fund a series of transportation improvements. In the Second Generation Sales Tax Referendum, Seminole County identified the need for the multi-lane improvement along SR 426 and CR 419 in Oviedo.

The project is also currently in the METROPLAN ORLANDO (MPO) 2025 Long Range Transportation Plan. It was added to the LRTP as the Number 16 priority within the ten-year planned improvement list of projects (2010 to 2020). The City of Oviedo and Seminole County continue to coordinate with the MPO to accelerate the prioritization of the proposed action. As a result of this increased coordination, the proposed improvement was awarded federal funding through the federal reauthorization of the national transportation bill (SAFE-T-LU). The federal earmark allocates approximately $1.6 million dollars to subsequent project development along this corridor.

Table 3-1 Crash Types for Crash Locations - SR 426/CR 419 Intersections

2000								
Location	**TOTAL**	**Angle**	**Left Turn**	**Rear End**	**Bike/ Ped**	**Night**	**Injury**	**Fatal**
Pine Avenue	3	0	0	3	0	0	0	0
Aulin Drive	4	1	0	2	0	1	0	0
Tomoka Drive	0	0	0	0	0	0	0	0
Lake Jessup Avenue	1	1	0	0	0	0	2	0
Lawton Avenue	0	0	0	0	0	0	0	0
Graham Avenue	1	0	0	1	0	1	0	0
Central Avenue	1	0	0	1	0	1	0	0
Geneva Drive	15	6	5	4	0	1	5	0
Division Street	4	0	0	3	0	0	2	0
Avenue B	0	0	0	0	0	0	0	0
Boston Alley	1	0	0	1	0	0	1	0
Stephan Street/Academy Ave.	1	0	0	1	0	1	0	0
Reed Road	1	0	0	0	0	1	0	0
Carolyn Dr./Evans St.	0	0	0	0	0	0	0	0
Bishop Ave./Waverlee Woods Boulevard	0	0	0	0	0	0	0	0
Lockwood Boulevard	7	0	1	1	0	2	1	0
2001								
Location	**TOTAL**	**Angle**	**Left Turn**	**Rear End**	**Bike/ Ped**	**Night**	**Injury**	**Fatal**
Pine Avenue	2	0	1	1	0	0	0	0
Aulin Drive	5	0	0	4	0	1	1	0
Tomoka Drive	2	0	1	1	0	0	1	0
Lake Jessup Avenue	9	1	0	6	0	2	3	0
Lawton Avenue	2	0	0	2	0	0	0	0
Graham Avenue	1	0	0	1	0	0	0	0
Central Avenue	1	0	0	1	0	0	0	0
Geneva Drive	6	3	0	3	0	0	3	0
Division Street	8	3	0	5	0	0	3	0
Avenue B	1	0	0	1	0	0	1	0
Boston Alley	0	0	0	0	0	0	0	0
Stephan Street/Academy Ave.	3	1	0	2	0	0	0	0
Reed Road	1	0	1	0	0	0	0	0
Carolyn Dr./Evans St.	2	1	1	0	0	0	1	0
Bishop Ave./Waverlee Woods Boulevard	0	0	0	0	0	0	0	0
Lockwood Boulevard	9	2	4	2	0	1	3	0

Table 3-1 Crash Types for Crash Locations - SR 426/CR 419 Intersections - Cont.

2002								
Location	**TOTAL**	**Angle**	**Left Turn**	**Rear End**	**Bike/ Ped**	**Night**	**Injury**	**Fatal**
Pine Avenue	2	0	0	2	0	0	0	0
Aulin Drive	0	0	0	0	0	0	0	0
Tomoka Drive	0	0	0	0	0	0	0	0
Lake Jessup Avenue	1	0	0	1	0	0	1	0
Lawton Avenue	0	0	0	0	0	0	0	0
Graham Avenue	1	0	0	1	0	0	0	0
Central Avenue	2	0	0	2	0	0	3	0
Geneva Drive	9	4	2	2	0	1	3	0
Division Street	1	1	0	0	0	0	0	0
Avenue B	0	0	0	0	0	0	0	0
Boston Alley	0	0	0	0	0	0	0	0
Stephan St./Academy Avenue	2	0	0	2	0	0	1	0
Reed Road	0	0	0	0	0	0	0	0
Carolyn Dr./Evans St.	0	0	0	0	0	0	0	0
Bishop Ave./Waverlee Woods Boulevard	0	0	0	0	0	0	0	0
Lockwood Boulevard	5	0	1	4	0	0	4	0
TOTAL 3 YEARS	**114**	**24**	**17**	**60**	**0**	**13**	**38**	**0**

3.4 Systems Continuity

The section of SR 426/CR 419 from Pine Avenue to west of Lockwood Boulevard represents a "missing link" in terms of systems continuity. The existing two-lane roadway from Pine Avenue to west of Lockwood Boulevard is located in between multi-lane capacity improvements (either planned, programmed or recently completed) along the adjacent sections of SR 426 to the west of Pine Avenue and CR 419 to the east of Lockwood Boulevard. This contributes to the operational deficiencies identified during the study as this section of SR 426/CR 419 creates a bottleneck along the existing and planned four-lane section of this regional facility.

4.0 EXISTING CONDITIONS

4.1 Roadway Characteristics

The study area for the SR 426/CR 419 PD&E Study is generally bounded by Pine Avenue to the west and Lockwood Boulevard to the east. Figure 4-1 illustrates the study limits and associated roadway network. The following is a description of existing roadway characteristics for SR 426/CR 419. Figure 4-2 is a reproduction of the FDOT Straight Line Diagram for this segment of SR 426/CR419 and was used to document portions of the following information.

Functional Classification

The functional classifications for the major roadway facilities located in the study area are listed below in Table 4-1. These were obtained from the report "Federal Functional Classification – District Five," prepared by FDOT District Five Planning Office which was based on the 1990 census data.

Table 4-1 Functional Classifications

Facility	Classification and Description
SR 426/CR 419 (Broadway Street)	Urban principal arterial
SR 434 (Central Avenue)	Urban principal arterial other

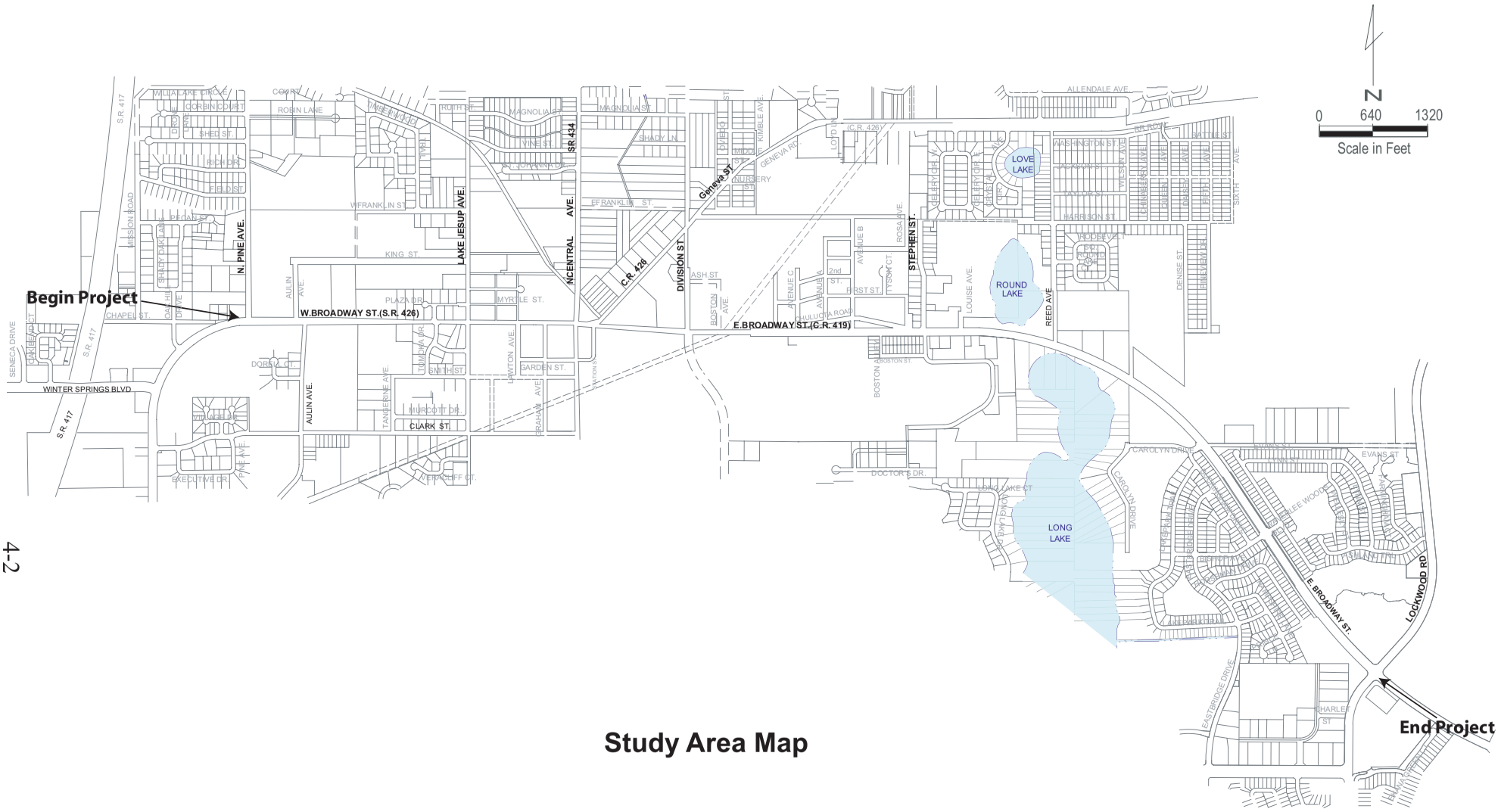
Typical Sections

The existing typical section varies along SR 426/CR 419 within the study limits. From Pine Avenue to east of Lake Jessup Avenue, SR 426 is a two-lane roadway with rural design (open storm water management system) and a paved median, four foot shoulders and a (non-continuous) five-foot sidewalk (Figure 4-3). From east of Lake Jessup Avenue to Station Street, the existing roadway is a three-lane section with one travel lane in each direction separated by a paved center lane with curb and gutter and a continuous four-foot sidewalk. The existing travel lanes are 12 feet wide, the paved median is also 12 feet wide (Figure 4-4.).

In the vicinity of Central Avenue (SR 434) the roadway is designated as CR 419. From this point to east of Division Street, CR 419 is a two-lane roadway with rural design and no median. From Division Street to Lockwood Boulevard, CR 419 is a two-lane roadway with a paved median. The existing travel lanes are 12-feet wide with a 4-foot outside paved shoulder. Sidewalks exist on CR 419 mostly on the north side of the road but it is limited to the area of Academy Avenue to Lockwood Boulevard on the south side (Figure 4-3).

Access Management

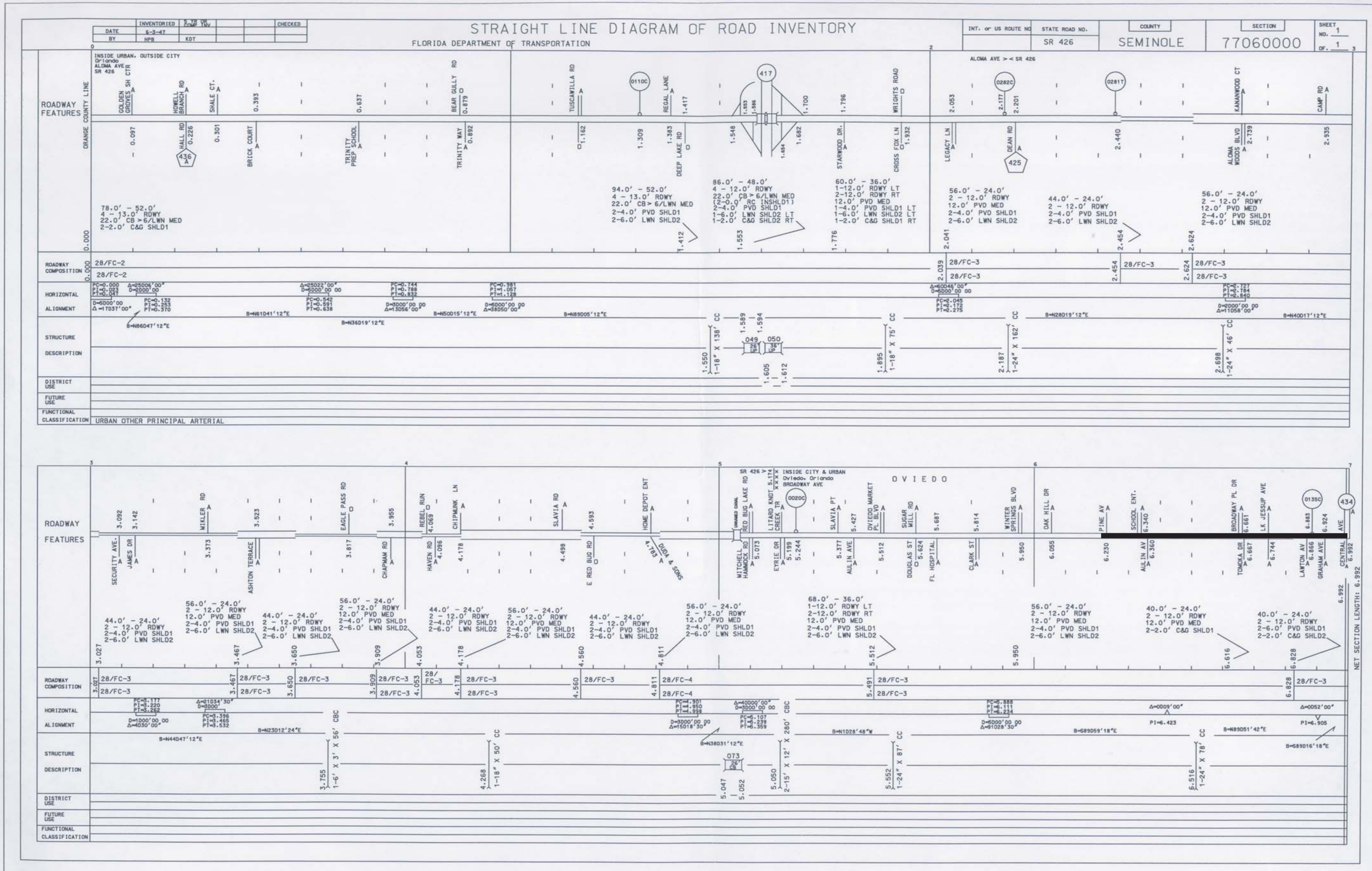
The existing classification for SR 426/CR 419 is Class 3 based on FDOT's Access Management Classification System. These facilities are controlled access facilities where direct access to abutting land will be controlled to maximize the operation of the through traffic movement. This class will be used where existing land use and roadway sections have not completely built out to the maximum land use or roadway capacity or where the



Study Area Map

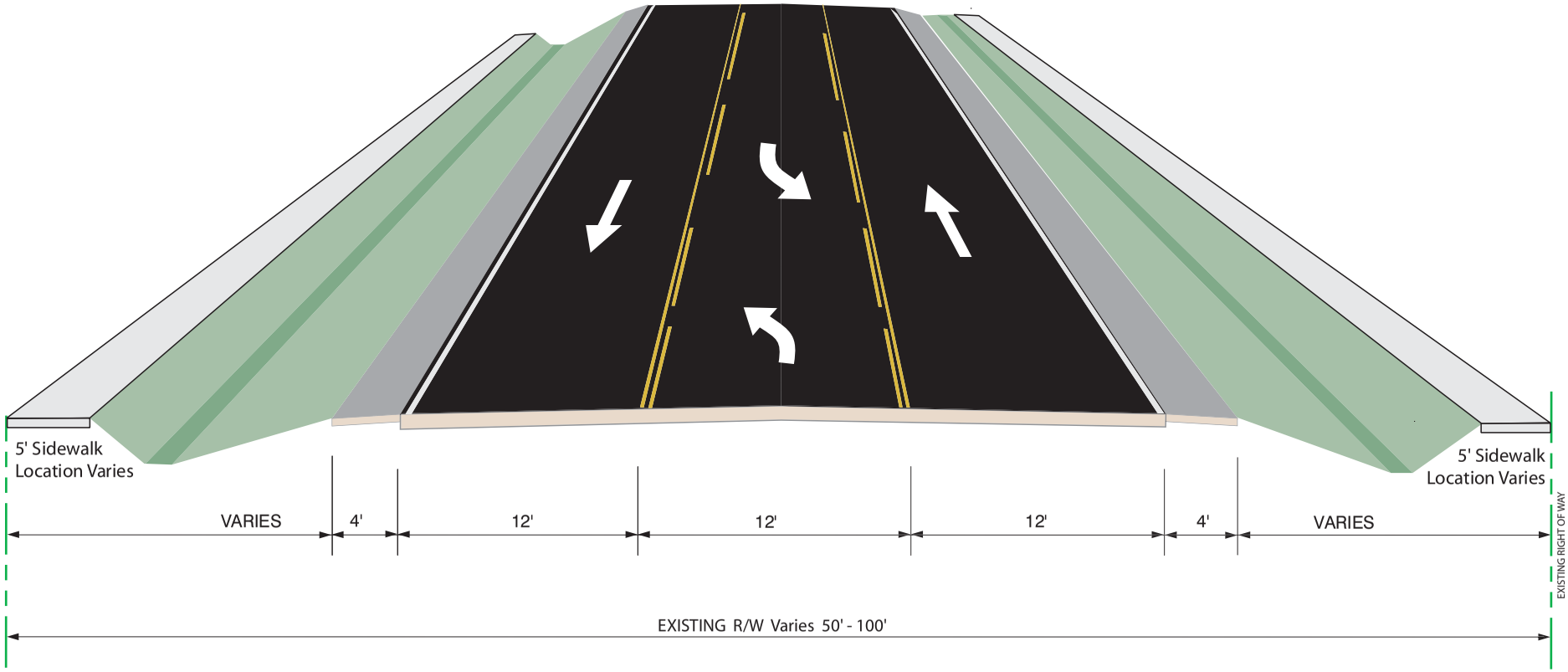
SR 426/ CR 419 Broadway Street
Project Development & Environment (PD&E) Study
From Pine Avenue to Lockwood Boulevard

Figure 4-1


STRAIGHT LINE DIAGRAM OF ROAD INVENTORY
FLORIDA DEPARTMENT OF TRANSPORTATION
INVENTORIED
CHECKED
DATE
BY
STATE ROAD NO.
SR 426
COUNTY
SEMINOLE
SECTION
77060000
SHEET NO. 1 OF. 1
ROADWAY FEATURES
ROADWAY COMPOSITION
HORIZONTAL ALIGNMENT
STRUCTURE DESCRIPTION
DISTRICT USE
FUTURE USE
FUNCTIONAL CLASSIFICATION
URBAN OTHER PRINCIPAL ARTERIAL
ORANGE COUNTY LINE
GOLDEN GROVES SH CTR
HOWELL BRANCH RD
HALL RD
SHALE CT.
BRICK COURT
TRINITY PREP SCHOOL
BEAR GULLY RD
TRINITY WAY
TUSCAWILLA RD
REGAL LANE
DEEP LAKE RD
STARWOOD DR.
WRIGHTS ROAD
CROSS COX LN
LEGACY LN
DEAN RD
KANANWOOD CT
ALOMA WOODS BLVD
CAMP RD
SECURITY AVE.
JAMES DR
MIKLER RD
ASHTON TERRACE
EAGLE PASS RD
CHAPMAN RD
REBEL RUN
HAVEN RD
CHIPMUNK LN
SLAVIA RD
E RED BUG RD
HOME DEPOT ENT
DUDA & SONS
MITCHELL HAMMOCK RD
RED BUG LAKE RD
LITARD KNOT CREEK TR
EYRIE DR
SLAVIA PT
AULIN AVE
OVIEDO MARKET PL BLVD
SUGAR MILL RD
DOUGLAS ST
FL HOSPITAL
CLARK ST
WINTER SPRINGS BLVD
OAK HILL DR
PINE AV
SCHOOL ENT.
AULIN AV
BROADWAY PL DR
TOMOKA DR
LK JESSUP AVE
LAWTON AV
GRAHAM AVE
CENTRAL AVE
OVIEDO
NET SECTION LENGTH: 6.992

SR 426/ CR 419 Broadway Street
Project Development & Environment (PD&E) Study
From Pine Avenue to Lockwood Boulevard

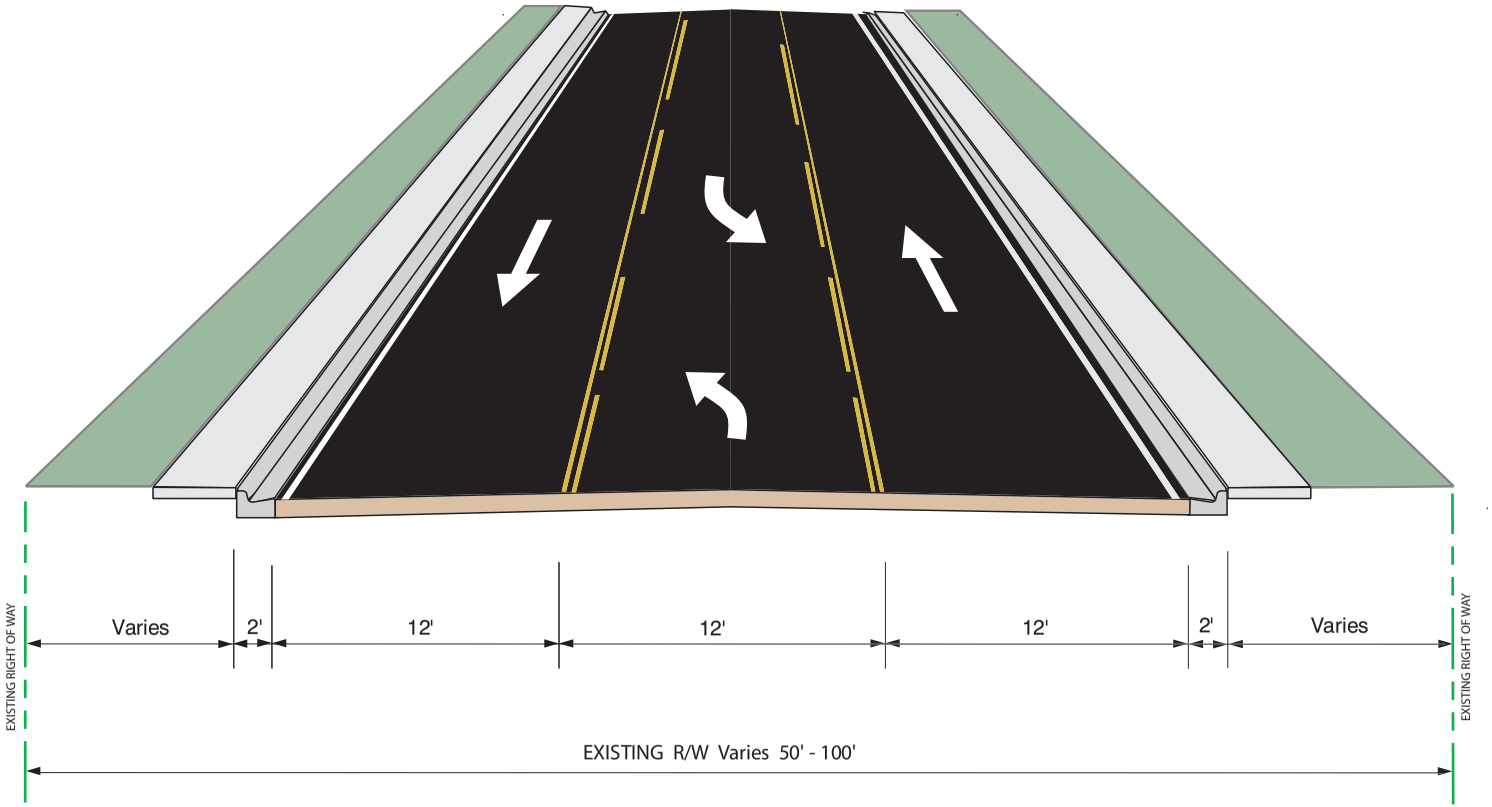
Figure 4-2



Existing Typical Section
From Pine Avenue to West of Lake Jessup Avenue and
From East of Division Street to Lockwood Boulevard

SR 426/ CR 419 Broadway Street
Project Development & Environment (PD&E) Study
From Pine Avenue to Lockwood Boulevard

Figure 4-3



Existing Typical Section
(From Lake Jessup Avenue to Station Street)

SR 426/ CR 419 Broadway Street
Project Development & Environment (PD&E) Study
From Pine Avenue to Lockwood Boulevard

Figure 4-4

probability of significant land use change in the near future is high. These highways will be distinguished by existing or planned restrictive medians and maximum distance between traffic signals and driveway connections. Local land use planning, zoning and subdivision regulations should be such to support the restrictive spacing of this designation.

Access Class	Facility Design Features	Minimum Connection Spacing (ft)	Minimum Median Open Spacing (ft)	Minimum Median Open Spacing (mile)	Minimum Signal Spacing (mile)
	Median Treatment and Access (Roads)		*Directional*	*Full*	
3	Restrictive	660/440	1320’	0.5	0.5

Multi-Modal Facilities (Pedestrian, Bicycle and Transit Facilities)

Below is a summary of existing pedestrian, bicycle and surface transit facilities located within the SR 426/CR 419 (Broadway Street) study area.

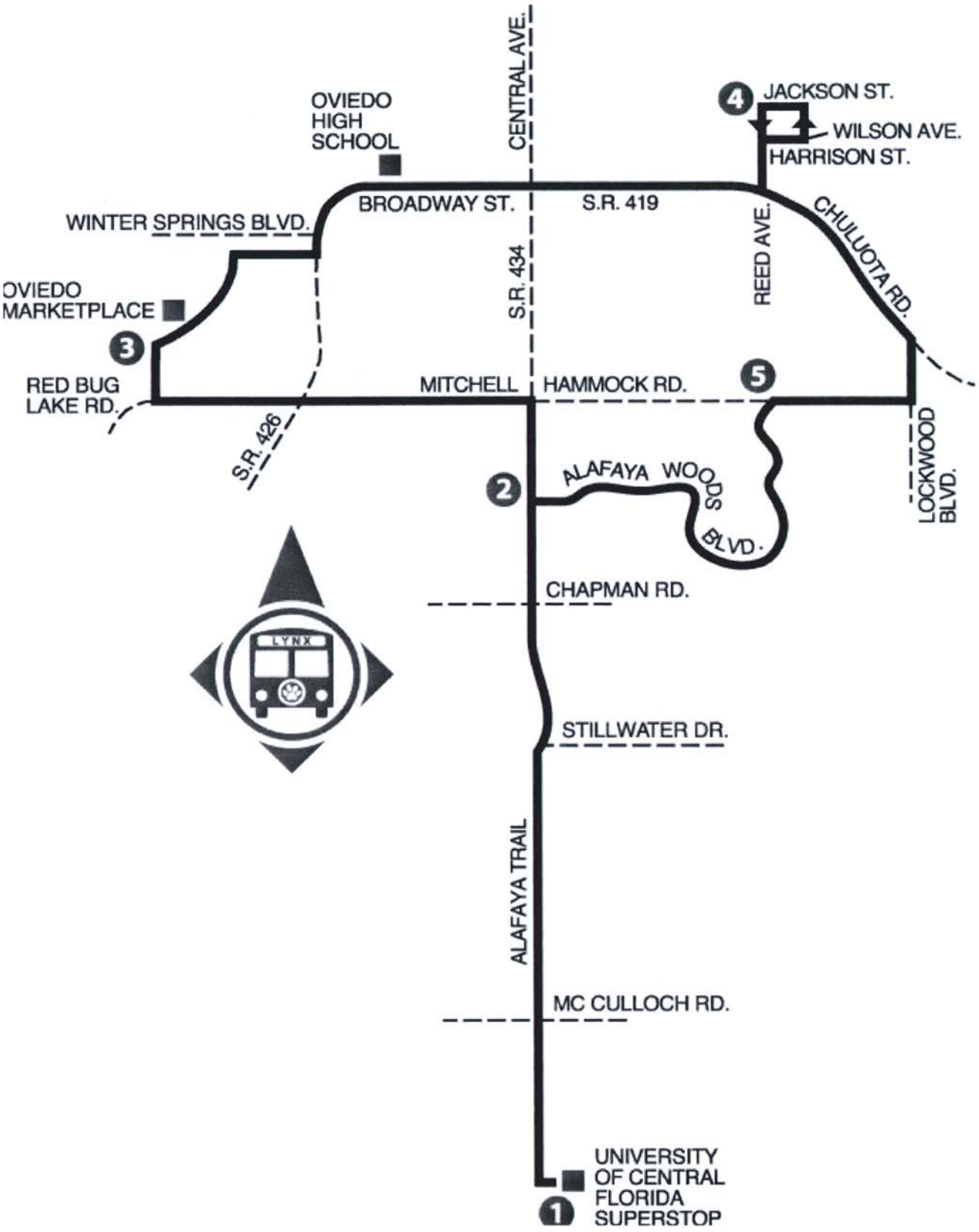
Pedestrian Facilities
Concrete sidewalks are intermittently located along both sides of the existing SR 426/CR 419 (Broadway Street) roadway.

Bicycle Facilities
There are no designated bicycle facilities along SR 426/CR 419 (Broadway Street) within the study limits.

Transit
The Central Florida Regional Transportation Authority, also known as Lynx, has one bus route that operates within the study area. Link 47 travels from UCF to Oviedo. Figure 4-5 shows the Lynx route within the study area and general vicinity.

Right of Way

The existing right-of-way for SR 426 from Pine Avenue to Central Avenue varies from 50 to 100 feet. In the vicinity of Pine Avenue, the existing right-of-way is documented as 100 feet. This is reduced to 60 feet near the Lake Jessup Avenue intersection and reduced to 50 feet through the Central Avenue intersection. The existing right-of-way along CR 419 from Central Avenue to Lockwood Boulevard varies from 50 feet to 120 feet. Between Central Avenue and Evans Street, the existing right-of-way varies from 50 to 100 feet and then widens to 120 feet in the vicinity of Lockwood Boulevard. The existing right-of-way was obtained from existing FDOT construction plans and right-of-way maps which are located in the District Office in DeLand, Florida.



Lynx Bus Routes

SR 426/ CR 419 Broadway Street
Project Development & Environment (PD&E) Study
From Pine Avenue to Lockwood Boulevard

Figure 4-5

Horizontal Alignment

The existing SR 426/CR 419 (Broadway Street) horizontal alignment from Pine Avenue to Lockwood Boulevard traverses approximately 3 miles and is basically a straight tangent with horizontal curves in the vicinity of Lockwood Boulevard. At its beginning point, Pine Avenue, the SR 426/CR 419 horizontal centerline is N89°50'42"E varying slightly to N 89°54'11"E at Lake Jessup Avenue. The alignment continues on that same tangent for approximately 830 feet to just west of Graham Avenue where it changes to S 89°13'49"E, changing again when the alignment reaches SR 434 to N 89°53'30"E . The horizontal alignment stays at this bearing for approximately 4655 feet to a point just east of Round Lake where a 1°30" horizontal curve begins and continues for 3718 feet to a point just southeast of Evans Street and CR 419. The alignment continues S 34° 20' 30" for 1580 feet. At this point, a 1°00' horizontal curve begins continuing until it meets the Lockwood Boulevard centerline.

Vertical Alignment

The exiting vertical alignment (Profile Grade) is moderately flat with longitudinal grades varying from 0.34% to the maximum of 2.0%. Since most of the vertical profile is relatively flat, vertical curves are not often required. In areas that they are used, they vary in length from 200' to 300'.

Drainage

SR 426/CR 419 (Broadway Street) through the study area is a rural roadway section which utilizes an open storm water management system. SR 426/CR 419 is drained by roadside swales that flow westward from the west end of the project area to a drainage divide at approximately Station 15+70. The majority of the Oviedo High School property drains to the SR 426 swales via the North Pine Avenue swales and stormwater retention pond outfalls. The southeastern portion of the Oviedo High School property drains to the north side of SR 426 and is collected along with roadway runoff by a series of ditch bottom inlets and piped under the roadway in a 24-inch culvert at approximately Station 21+50. This culvert discharges on the south side of SR 426 into an outfall ditch, which also collects swale drainage from the south side of SR 426, and travels southward away from the road.

A land-locked basin exists adjacent to and on the north side of the roadway from approximately Station 22+00 to Station 26+70. The next basin eastward along the roadway alignment from Station 26+70 to 42+30 is also a land-locked basin. The roadway bisects an area of depression and the two lobes are connected by a 24-inch equalizer pipe. From approximately Station 30+50 eastward to Station 42+10, the roadway section is curb and gutter with curb inlets draining to the land-locked depression at approximately Station 33+50. For this sub-basin, most of the off-site residential and commercial areas drain to the roadway collection system.

From this basin divide eastward through the downtown section, the roadway is drained by disjointed sections of concrete curb and gutter and asphalt gutter with grate inlets which

discharge into Sweetwater Creek. Commercial areas along the roadway drain into the roadway collection system, however, most of the off-site commercial areas drain away from the roadway.

From the crossing of Sweetwater Creek eastward, the existing roadway is drained by roadside swales and ditches. From the creek crossing to approximately Station 126+40, the roadway is elevated and offsite areas on the north side are collected by the roadside swales and ditches and discharged southward under cross-culverts C-1 to C-4.

From approximately Station 126+40 to Station 142+04, the roadway drains to swales which discharge through cross-culvert C-4 and eastward through the Waverlee Woods subdivision and then to the Econlockhatchee River. The off-site residential and commercial areas through this area and extending to the east end of the study area have separate collection systems which drain away from the roadway. CR 419 was recently re-constructed from the cross-culvert C-4 to the intersection of Lockwood Boulevard. This section of roadway was recently widened. The typical section was converted from an open drainage system with swales, to a closed drainage system with curb and gutters and curb inlets. The new drainage system drains eastward to the Econ River.

A documented flooding problem exists at the intersection of North Pine Avenue and SR 426. There is evidence of high water conditions on the north side of SR 426 and a recommendation within the Oviedo Stormwater Master Plan Report, developed by Inwood Consulting Engineers, includes construction of a cross-drain under SR 426 at this location to relieve this localized flooding concern.

Another chronic flooding problem exists at the depressed area at the intersection of south Lake Jessup Avenue and SR 426, approximately Station 33+50. High water levels have persisted in both of the connected depressions on the north and south side of the roadway. The FDOT routinely conducts emergency pumping of stormwater out of the depressions to the next basin westward along the roadway.

The existing storm sewer system along Broadway Street, from approximately Central Avenue to Sweetwater Creek, through downtown has been identified in the Oviedo Stormwater Master Plan Report as in need of maintenance and repair or replacement. The system is described as having structures that are not in service and pipes that are filled with silt. Additionally, the report explains that pipe slopes are too gradual to sustain self-cleaning stormwater velocities.

The Federal Emergency Management Agency (FEMA) has developed a Flood Insurance Rate Map (FIRM) for the study area within the City of Oviedo. The relevant FIRM panel number is 120293 0005 B, printed in 1979. The flood zones and flood way information from the FIRM has been superimposed on the Existing Drainage Features Map, (Figure 4-6). From a review of the flood zones depicted on the Drainage Map, the project corridor is in close proximity to flood zones at two locations.

One location is at the crossing with Sweetwater Creek at approximately Station 55+50. The floodway is transported under the roadway through a 4’ x 10’ concrete box culvert (cross-culvert C-1) and the flood zone is depicted as crossing the roadway. However,

Existing Drainage Features Map

LEGEND
MAJOR BASIN DIVIDE
SUB-BASIN DIVIDE
LANDLOCKED BASIN DIVIDE
100-YR FLOODPLAIN

N
1"=200'

ZONE AE
SWEETWATER CREEK
FLOODPLAIN ZONE AE
N Pine Avenue
Broadway Street (SR 426)
Broadway Street (CR 419)
24" RCP (C-1)
24" RCP (C-2)
10'x4' CBC (C-3)
2-24" RCP (C-4)
24" RCP (C-5)
FLOODPLAIN ZONE AE (EL. 48)
(C-6) 30" RCP
ECONLOCKHATCHEE RIVER BASIN
BEAR CREEK BASIN
SWEETWATER CREEK BASIN
FLOODPLAIN ZONE AH (EL. 42)
LITTLE ECONLOCKHATCHEE RIVER BASIN
FLOODPLAIN ZONE AE (EL. 47)
24" RCP (C-7)
24"
Lockwood Boulevard

Figure 4-6

upon comparing the peak upstream flood stage of approximately 39.3 feet, NGVD with an existing roadway overtopping elevation of 41.3 feet, NGVD, it appears that no roadway overtopping presently occurs for the 100 year flood. For comparison, a separate hydraulic analysis of C-1 was conducted for this study which resulted in a calculated peak upstream peak stage of 39.90 feet, NGVD, for the 100 year storm.

The other location of nearby flood zones is from approximately Station 98+00 to Station 110+00 where the roadway passes between Round Lake to the north and Long Lake to the south. The flood elevations for these water bodies are elevation 48 feet, NGVD, for Round Lake and 47 feet, NGVD, for Long Lake. These peak stages compare to elevation 48.9 feet for Round Lake and 46.4 feet for Long Lake as determined in surface water modeling conducted by Singhofen and Associates for the Little Econ River Basin Study completed in May 2001. Incidentally, the results of this study reported peak flow from Round Lake to Long Lake for the mean annual storm event of 10 cubic feet per second (cfs) indicating that these basins are connected. The existing overtopping elevations of the roadway are approximately 50.2 feet, NGVD, at Round Lake and 50.6 feet, NGVD, at Long Lake

Geotechnical /Soils Data

According to the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Soil Survey of Seminole County, Florida, there are primarily eight (8) different soil types located in the project area. The USDA Seminole County Area Soil Survey of the project location is shown on Figure 4-7. Table 4-2 lists these soils types, their corresponding map unit and their hydric properties.

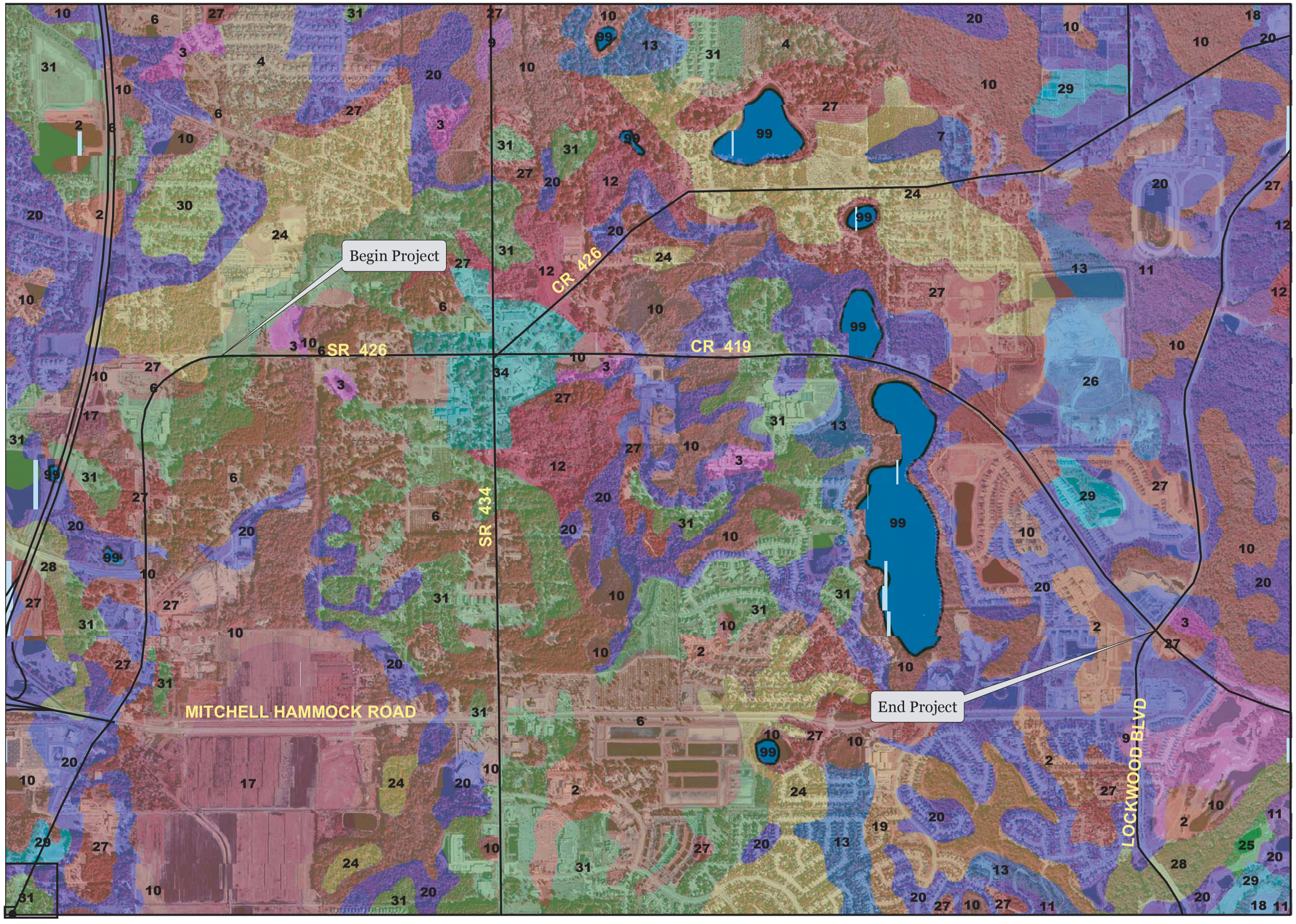
Table 4-2 Soil Types

Soil Name	**Map Unit ID**	**Hydric (Yes or No)**
Arents	3	N
Astatula-Apopka fine sands	6	N
Samsula	10	**Y**
Canova Muck	12	**Y**
Myakka	20	N
Pomello	27	N
Tavares-Milhopper fine sands	31	N
Urban Land	34	N

The SCS defines this soil map unit as follows:

Arents, 0 to 5 percent slopes – This soil consists of material dug from several areas that have different kinds of soil. This fill material is the result of earthmoving operations. This material is used to fill such areas as sloughs, marshes, shallow depressions, swamps, and other low-lying areas above their natural ground levels, for use in land leveling operations, or as a final cover for sanitary landfills.

Soils Map



Legend

soils

MUID, NAME

- 2, ADAMSVILLE-SPARR FINE SANDS
- 3, ARENTS 0-5% SLOPES
- 4, ASTATULA FINE SAND 0-5% SLOPES
- 6, ASTATULA-APOPKA FINE SANDS 5-8% SLOPES
- 7, ASTATULA-APOPKA FINE SANDS 5-8% SLOPES
- 9, BASINGER & DELRAY FINE SANDS
- 10, BASINGER SAMSULA & HONTOON SOILS - DEPRESSIONAL
- 11, BASINGER & SMYRNA FINE SANDS - DEPRESSIONAL
- 12, CANOVA & TERRACEIA MUCKS
- 13, EAUGALLIE & IMMOKALEE FINE SANDS
- 15, FELDA & MANATEE MUCKY FINE SANDS - DEPRESSIONAL
- 17, BRIGHTON-SAMSULA & SANIBEL MUCKS
- 18, MALABAR FINE SAND
- 19, MANATEE-FLORIDIANA & HOLOPAW SOILS - FREQUENTLY FLOODED
- 20, MYAKKA & EAUGALLIE FINE SANDS
- 21, NITTAW MUCKY FINE SAND - DEPRESSIONAL
- 22, NITTAW MUCK - OCCASIONALLY FLOODED
- 24, PAOLA-ST. LUCIE SANDS 0-5% SLOPES
- 25, PINEDA FINE SAND
- 26, UDORTHENTS - EXCAVATED
- 27, POMELLO FINE SAND 0-5% SLOPES
- 28, POMPANO FINE SAND - OCCASIONALLY FLOODED
- 29, ST. JOHNS & EAUGALLIE FINE SANDS
- 30, SEFFNER FINE SAND
- 31, TAVARES-MILLHOPPER FINE SANDS 0-5% SLOPES
- 34, URBAN LAND 0-12% SLOPE
- 35, WABASSO FINE SAND
- 99, OPEN WATER

major roads

Figure 4-7

Astatula-Apopka fine sands, 0 to 5 percent slopes – This soil is level to gently sloping and excessively drained. It is on hillsides and ridges on the uplands. The slopes are smooth to convex.

Samsula, depressional – The soils in this map unit are nearly level and very poorly drained. These soils are in swamps and depressions. The slopes are dominantly less than 2 percent. Typically, Samsula soil has a surface layer of muck about 30 inches thick. The undrained areas of the soils in this map unit are ponded for 6 to 9 months or more.

Canova – The soils in this map unit are level and very poorly drained. These soils are in depressions and freshwater marshes. The slopes are dominantly less than 1 percent. Typically, Canova soils have a surface layer of black muck about 10 inches thick. Below that layer, to a depth of about 15 inches, is black fine sand.

Myakka fine sands – The soils in this map unit are nearly level and poorly drained. These soils are on broad plains on the flatwoods. The slopes are dominantly less than 2 percent.

Pomello fine sand, 0 to 5 percent slopes – This soil is nearly level to gently sloping and moderately well drained. It is on low ridges and knolls on the flatwoods. The slopes range from 0 to 5 percent.

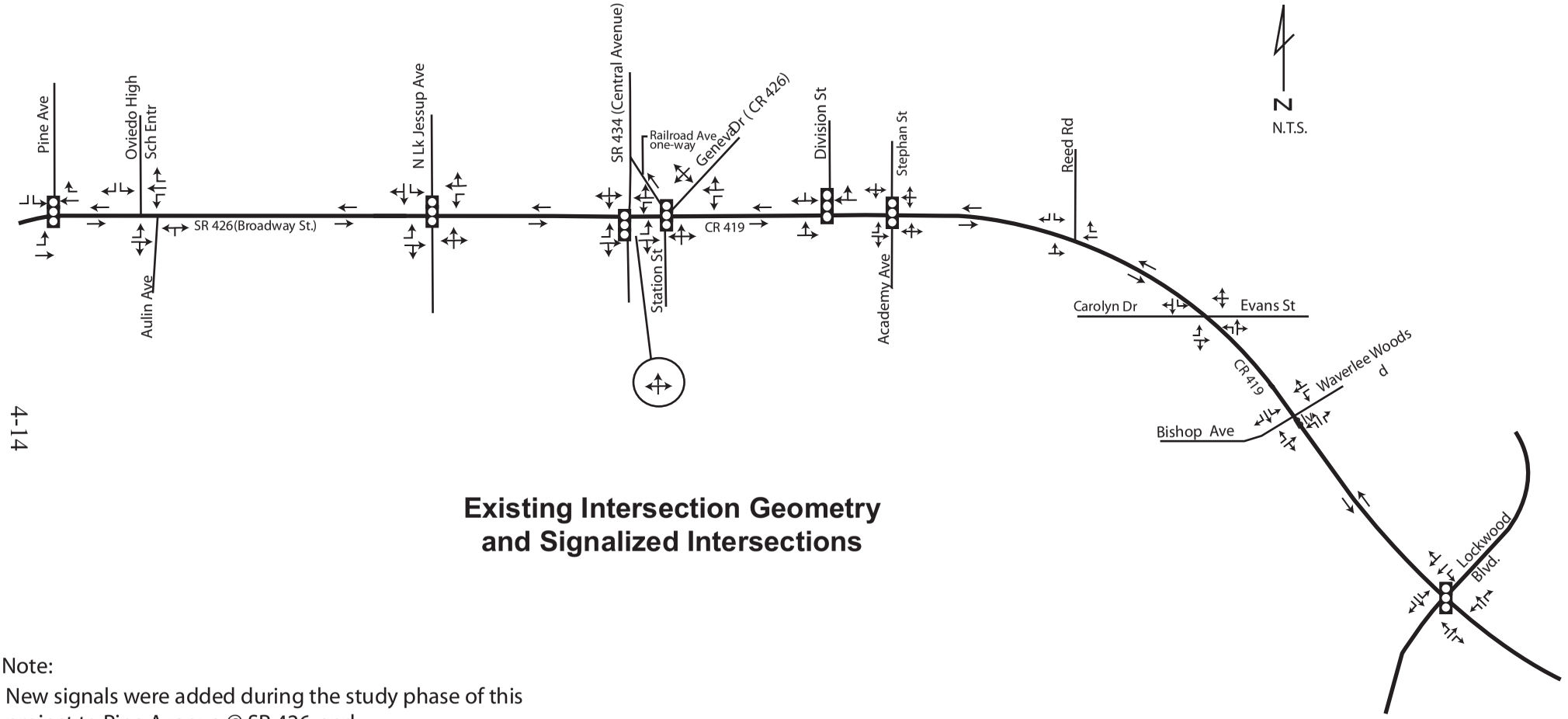
Tavares-Milhopper fine sands, 0 to 5 percent slopes – The soils in this map unit are nearly level to gently sloping and moderately well drained. These soils are on low ridges and knolls on the uplands. The slopes are nearly smooth to slightly convex.

Urban Land, 0 to 12 percent slopes – This miscellaneous area is covered by urban facilities, such as shopping centers, parking lots, industrial buildings, houses, streets, sidewalks, and related structures. The natural soil cannot be observed. The slopes are dominantly less than 2 percent but range to 12 percent.

Intersections and Signalization

Figure 4-8 shows the existing functional geometry for the major signalized intersections located along SR 426/CR 419 (Broadway Street). The signalized intersections along SR 426/CR 419 (Broadway Street) within the study area include:

- SR 426 at Pine Avenue
- SR 426 at Lake Jessup Avenue
- SR 426 at Central Avenue (SR 434)
- SR 426 at CR 426 (Geneva Drive)
- CR 419 at Stephen Street
- CR 419 at Lockwood Boulevard



4-14

Existing Intersection Geometry and Signalized Intersections

Note:
New signals were added during the study phase of this project to Pine Avenue @ SR 426, and Division Street @ CR 419

SR 426/ CR 419 Broadway Street
Project Development & Environment (PD&E) Study
From Pine Avenue to Lockwood Boulevard

Figure 4-8

Lighting

Street lighting is provided continuously along the north and south sides of SR 426/CR 419 (Broadway Street). These facilities consist of Cobra Head style, high-pressure sodium fixtures. The pole spacing varies between 200 feet to 500 feet.

Utilities and Railroads

The following information describes, in general terms, the existing utilities and railroad facilities within the study area. Aerial maps showing existing utility locations are provided in the project file.

Railroads: There are no active rail lines within the SR 426/CR 419 corridor from Pine Avenue to Lockwood Boulevard.

City of Oviedo Utilities: The City of Oviedo has a system of potable water mains and gravity sewer lines that lie within the SR 426 / CR 419 right-of-way (R/W).

Potable Water: The City's potable water lines vary in diameter. From Pine Avenue to west of Division Street an 8 inch diameter water main is located on the north side of SR 426/CR 419 corridor. From Division Street to Stephen Street/Academy Avenue a 10-inch diameter water main continues east on the north side of CR 419. The 10-inch main lines branch off into residential areas with a 6-inch diameter water main lines. The city's water system continues east from Stephen Street with an 8-inch water main on the north side of CR 419. This 8-inch line continues east to Evans Street where it branches into the Kingsbridge East and the Waverlee Woods subdivisions along CR 419.

Sanitary Sewer: The City's sanitary sewer system within the SR 426/CR 419 corridor begins at Graham Avenue just west of SR 434. An 8-inch diameter line runs east-west, on the south side of SR 426 behind the properties fronting SR 426. This line crosses Station Street where it splits going north and south. The line going north crosses CR 419 and to the west right-of-way line of CR 426. The force main line going south continues south along the east right-of-way line of Station Street. At Division Street an 8 inch diameter force main runs along the west right-of-way line crossing CR 419 to the south right-of-way line. At this point, the force main runs east along CR 419 to Boston Alley and then turns south to the Jackson Heights Middle School.

Electrical Lines (Progress Energy, formerly Florida Power): Progress Energy owns and operates electrical power lines along the SR 426/CR 419 corridor. Progress Energy maintains a 12KV distribution lines mounted on concrete and wooden poles located inside the right-of-way lines along SR 426/CR 419. These power lines are located mostly along the north right-of-way lines of SR 426; switching to both sides of the right-of-way line between Railroad Street and Division Street. From Division Street to Lockwood Boulevard the power lines are located along the north right-of-way line. Progress Energy also maintains a transmission line in the SR 426/CR 419 corridor. These lines cross CR

419 just north of Carolyn Drive. A power substation is located on the northeast corner of CR 419 and Evans Street.

Telephone (Bellsouth): Bellsouth has numerous buried cables, manholes and duct lines that run along both sides of the SR 426/CR 419 corridor. Starting at the northwest corner of Pine Avenue, a 12-inch steel casing crosses SR 426 to the south right-of-way line. At this point, four buried 4-inch duct lines turn east to Lake Jessup Avenue. Between Pine Avenue and Lake Jessup Avenue, these 4-inch lines connect to buried manholes. At Lake Jessup Avenue, the duct lines split turning north and south along the west right-of-way line of Lake Jessup Avenue. At Central Avenue and SR 426, a set of six 4-inch buried lines run along the north right-of-way line of SR 426, to a point along the right-of-way line approximately 300 feet east of CR 426. This set of buried 4-inch duct lines then turns ninety degrees to the south right-of-way line where the lines again turn ninety degrees to the east. These lines then continue east to Carolyn Drive turning ninety degrees to the north right-of-way line of CR 419 at Evans Street where the lines end.

Cable Television (Bright House Networks, formerly Time Warner Communications): Bright House Networks has aerial cable lines along the north side of SR 426 /CR 419 corridor between Pine Avenue and Lockwood Boulevard. The aerial cable lines continue east crossing SR 426 at Aulin Avenue, Lake Jessup Avenue and Graham Avenue to supply service to the residential communities along this area. At Central Avenue the cable lines turns to the north and to the south along the west right-of-way line of Central Avenue. At a point along the north right-of-way line of CR 419, about 400 feet east of Division Street, a Bright House Network underground line connects to an aerial cable pole. This aerial line then runs east along the north right-of-way line to Lockwood Boulevard. Along this run, the cable crosses CR 419 several times to supply service to the residential communities.

Pavement Conditions

The existing pavement on SR 426/CR 419 consists primarily of Type II asphaltic concrete surface. Based on information supplied by the FDOT, the Wear and Tear Index of approximately 91 for SR 426 indicates that the pavement is in good condition with minor cracking and minimum rutting. Table 4-3 shows FDOT Flexible Pavement Condition Survey, the highlighted line shows the limits of this section of roadway. A pavement condition report for CR 419 supplied by Seminole County (Table 4-4) indicates that the overall quality of the roadway is very good to excellent (80-97). However, the report also shows that there are some sections of CR 419 where the subsurface of the pavement is experiencing minor rutting. Additionally, our field observations identified the section between SR 434 and CR 426 as showing major pavement cracking and sub grade rutting and generally in very poor condition.

4.2 Existing Bridges

There are no bridge structures within the limits of the SR 426/CR 419 PD&E Study from Pine Avenue to Lockwood Boulevard.

TABLE 4-3

FLORIDA DEPARTMENT OF TRANSPORTATION — 17:35 Tuesday, March 25, 2003
FLEXIBLE PAVEMENT CONDITION SURVEY -- 2003
SORT BY DISTRICT RDWYID MILEPOST R ASCENDING L DESCENDING

DIST	RDWYID	BEGIN M.P.	END M.P.	NET LENGTH	RDWY	LANE	SYST	TYPE	SR NO.	US NO.	MO	YR	RAVEL	PAT	IRI	<< DEDUCTS >> RUT LAS	CRACKING CW	CRACKING CO	<< RATINGS >> CRK	RUT	RIDE	CTRY KPE	** REMARKS **
5	77030000	3.182	4.129	0.949	R	2	1	1	46		06	02			98	1	0.5	0.0	9.5	9	7.8	C	
5	77030000	4.129	5.090	0.963	R	2	1	1	46		06	02			72	1	2.5	0.0	7.5	9	8.2	C	
5	77030000	5.090	6.040	0.949	R	3	1	1	46		06	02			75	2	2.5	0.0	7.5	8	8.1	C	
5	77030000	6.040	7.300	1.238	R	2	1	1	46		06	02			70	1	4.5	0.0	5.5	9	8.4	C	
5	77030000	7.300	8.454	1.087	R	2	1	1	46		06	02		M	124	1	1.0	0.0	9.0	9	6.4	C	PT IN WP
5	77030000	8.454	8.929	0.457	R	2	1	1	46		06	02			137	1	0.5	0.0	9.5	9	6.7	C	
5	77030000	8.454	8.929	0.465	L	2	1	1	46		06	02			122	1	1.0	0.0	9.0	9	6.6	C	
5	77030000	7.130	8.454	1.263	L	2	1	1	46		06	02		L	98	1	4.5	0.0	5.5	9	7.2	C	PT IN WP,DEL
5	77030000	5.998	7.130	1.136	L	2	1	1	46		06	02			68	1	0.5	0.0	9.5	9	8.3	C	
5	77030000	5.090	5.998	0.833	L	3	1	1	46		06	02			62	1	2.0	0.0	8.0	9	8.6	C	
5	77030000	4.129	5.090	0.842	L	2	1	1	46		06	02			100	1	2.0	0.0	8.0	9	7.6	C	
5	77030000	3.182	4.129	0.963	L	2	1	1	46		06	02			75	1	0.5	0.0	9.5	9	8.2	C	
5	77040000	0.000	1.014	1.002	R	2	1	1	46		06	02			161	1	1.0	0.0	9.0	9	6.3	C	DEL
5	77040000	1.014	3.805	2.770	C	2	1	1	46		06	02			89	1	4.5	1.0	4.5	9	7.8	C	
5	77040000	3.805	5.245	1.439	C	2	1	1	46		06	02			51	1	2.0	0.0	8.0	9	8.8	C	
5	77040000	5.245	5.614	0.344	C	2	1	1	46		06	02			75	1	0.0	0.0	10.0	9	8.1		
5	77040000	5.614	5.705		C	2	1	9	46														BRIDGE770004
5	77040000	5.705	5.808		C		1	0	46														EXCEPT 79020
5	77040000	5.808	11.046	5.217	C	2	1	1	46		06	02			84	2	2.5	0.0	7.5	8	8.0	C	
5	77040000	11.046	16.100	5.057	C	2	1	1	46		06	02	L	1- 5%	67	2	2.0	0.0	8.0	8	8.5	C	RAV
5	77040000	0.000	1.014	0.984	L	2	1	1	46		06	02			80	2	1.0	0.0	9.0	8	7.9	C	
5	77060000	0.000	1.450	1.439	R	2	1	1	426		06	02			61	0	0.0	0.0	10.0	10	8.7		
5	77060000	1.450	5.480		R	2	1	8	426														UNDER CONST
>5	77060000	5.480	6.992	1.476	C	2	1	1	426		06	02			91	1	0.0	0.0	10.0	9	7.7		
5	77060000	1.450	5.480		L	2	1	8	426														UNDER CONST
5	77060000	0.000	1.450	1.424	L	2	1	1	426		06	02			66	1	0.0	0.0	10.0	9	8.6		

TOTAL P.02

TABLE 4-4

IMS Infrastructure Management Services

SEMINOLE COUNTY, FL

Detailed Pavement Condition Report

August 17, 2004

Street	From	To	St-Blk Zone	St-Blk #	Dynaflect Data DMD	SCI	BCI	W5	%SP	Surface Data CRK	RUT	RQ#	Pvmt Type
C-415 CELERY AV	1056 FT	1584 FT	005	0293-003	0.64	0.22	0.10	0.16	57	94	95	83	Stabilize
C-415 CELERY AV	1584 FT	2112 FT	005	0293-004	0.75	0.20	0.10	0.26	63	95	89	85	Stabilize
C-415 CELERY AV	2112 FT	2640 FT	005	0293-005	0.76	0.25	0.09	0.25	60	94	88	79	Stabilize
C-415 CELERY AV	2640 FT	MELLONVILLE AV	005	0293-006	0.63	0.22	0.07	0.18	57	100	64	10	Stabilize
C-415 CELERY AV	MELLONVILLE AV	528 FT	005	0293-007	0.53	0.16	0.06	0.20	64	89	95	63	Stabilize
C-415 CELERY AV	528 FT	1056 FT	005	0293-008	0.47	0.09	0.06	0.22	71	100	95	89	Stabilize
C-415 CELERY AV	1056 FT	1584 FT	005	0293-009	0.71	0.19	0.11	0.24	63	100	92	77	Stabilize
C-415 CELERY AV	1584 FT	2112 FT	005	0293-010	0.50	0.12	0.07	0.17	63	100	82	90	Stabilize
C-415 CELERY AV	2112 FT	2640 FT	005	0293-011	0.84	0.36	0.10	0.23	54	86	77	75	Stabilize
C-415 CELERY AV	2640 FT	3168 FT	005	0293-012	0.60	0.18	0.10	0.19	62	100	95	86	Stabilize
C-415 CELERY AV	3168 FT	3696 FT	005	0293-013	0.84	0.16	0.13	0.22	65	93	98	72	Stabilize
C-415 CELERY AV	3696 FT	4224 FT	005	0293-014	0.88	0.20	0.14	0.30	65	100	98	91	Stabilize
C-415 CELERY AV	4224 FT	4752 FT	005	0293-015	0.51	0.12	0.10	0.16	64	100	95	91	Stabilize
C-415 CELERY AV	4752 FT	BRISSON AV	005	0293-016	0.61	0.12	0.10	0.26	69	94	95	81	Stabilize
			Average:		0.65	0.18	0.09	0.22	63	96	91	78	
C-415 W 13TH ST	US 17-92	528 FT	005	0294-001	0.68	0.25	0.09	0.17	55	94	98	60	Stabiliz
C-415 W 13TH ST	528 FT	1056 FT	005	0294-002	0.49	0.12	0.10	0.13	60	93	91	68	Stabiliz
C-415 W 13TH ST	1056 FT	1584 FT	005	0294-003	0.69	0.20	0.08	0.21	59	100	95	65	Stabiliz
C-415 W 13TH ST	1584 FT	2112 FT	005	0294-004	0.82	0.28	0.08	0.17	52	95	97	44	Stabiliz
C-415 W 13TH ST	2112 FT	SANFORD AV	005	0294-005	0.77	0.25	0.07	0.19	55	95	92	53	Stabiliz
			Average:		0.69	0.22	0.08	0.17	56	95	95	58	
C-419	SR 426	528 FT	001	0295-001	0.72	0.23	0.10	0.25	59	70	42	45	Stabilize
			Average:		0.72	0.23	0.10	0.25	59	70	42	45	
C-419	528 FT	1056 FT	001	0295-002	0.62	0.32	0.07	0.14	49	79	81	83	Flexibl
			Average:		0.62	0.32	0.07	0.14	49	79	81	83	
C-419	1056 FT	1584 FT	001	0295-003	0.39	0.13	0.07	0.12	60	100	77	89	Stabilize
C-419	1584 FT	2112 FT	001	0295-004	0.62	0.28	0.07	0.17	52	100	89	90	Stabilize
C-419	2112 FT	2640 FT	001	0295-005	0.59	0.26	0.07	0.14	51	82	63	87	Stabilize
C-419	2640 FT	3168 FT	001	0295-006	0.64	0.26	0.08	0.18	54	84	52	84	Stabilize
C-419	3168 FT	3696 FT	001	0295-007	0.45	0.18	0.07	0.12	55	100	65	96	Stabilize
C-419	3696 FT	4224 FT	001	0295-008	0.55	0.27	0.06	0.11	48	100	89	97	Stabilize
C-419	4224 FT	4752 FT	001	0295-009	0.63	0.31	0.06	0.12	47	100	77	94	Stabilize
C-419	4752 FT	5280 FT	001	0295-010	0.60	0.29	0.05	0.12	48	83	77	92	Stabilize
C-419	5280 FT	5808 FT	001	0295-011	0.70	0.33	0.07	0.14	48	94	81	88	Stabilize
C-419	5808 FT	6336 FT	001	0295-012	0.80	0.35	0.10	0.16	50	76	64	89	Stabilize
C-419	6336 FT	6864 FT	001	0295-013	0.65	0.33	0.06	0.12	47	67	66	95	Stabilize
C-419	6864 FT	7392 FT	001	0295-014	0.68	0.27	0.09	0.19	54	72	65	91	Stabilize
			Average:		0.61	0.27	0.07	0.14	51	88	72	91	

4.3 Environmental Characteristics

Land Use

Existing Land Use

The nature, extent, and distribution of existing land uses extending one-half mile from the project roadway was analyzed using 2003 property use code data prepared by the Seminole County Property Appraiser's Office. Land uses are classified according to the Department of Revenue (DOR) property use code system using a Geographic Information System.

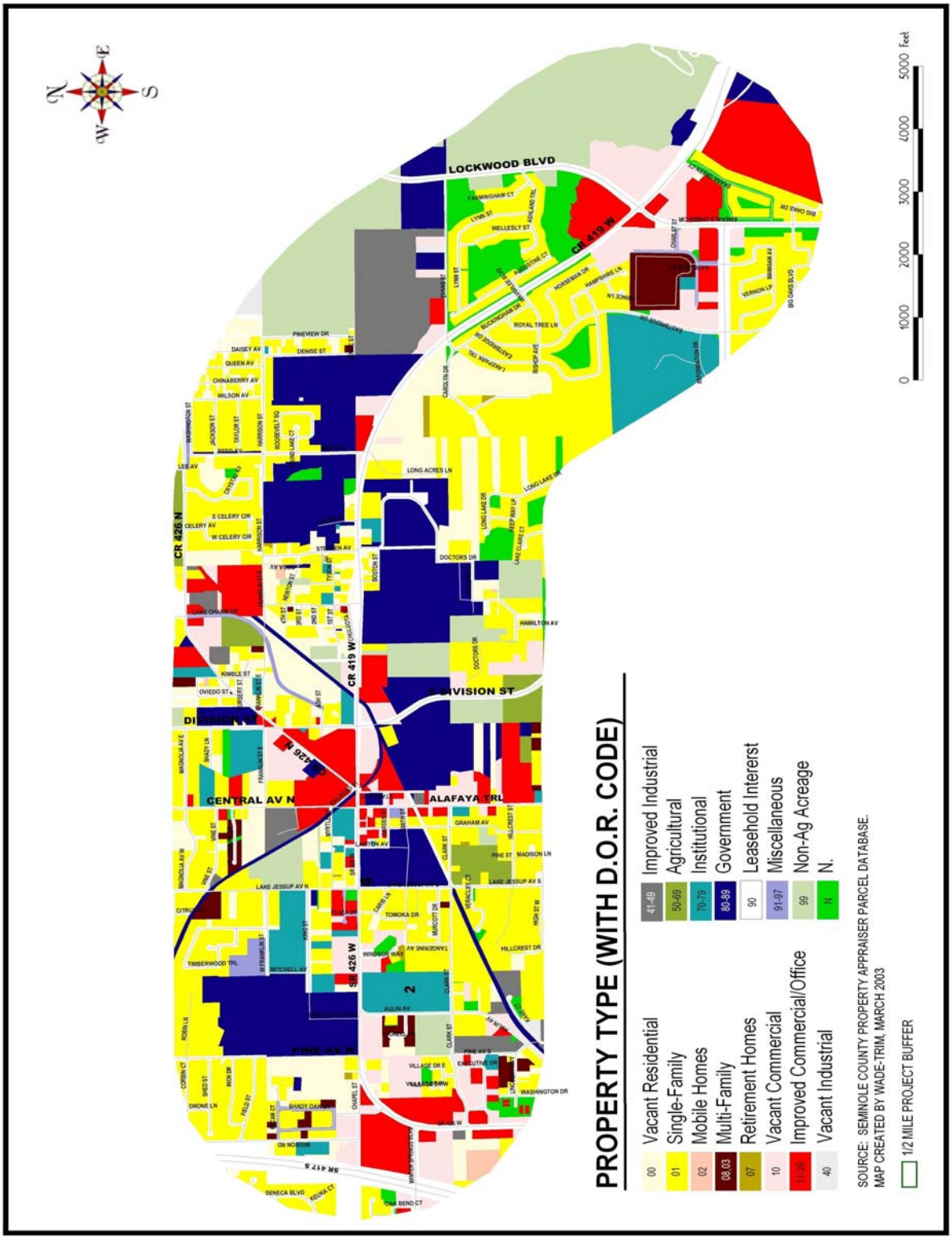
Table 4-5 summarizes the allocation of existing land uses in the one-half mile extent of the Study Area. Figure 4-9 portrays the distribution.

Table 4-5 Existing Land Use Within One Half Mile Radius

DOR CODE	LAND USE	Acres	Percent	Parcels	Percent
00	Vacant Residential	199	7%	357	12%
01	Single Family	654	22%	2068	69%
02	Mobile Home	6	0%	4	0%
08,03	Multi-Family	35	1%	51	2%
07	Retirement Homes	3	0%	8	0%
10	Vacant Commercial	155	5%	120	4%
11-39	Improved Commercial	391	13%	137	5%
40	Vacant Industrial	23	1%	4	.5%
41-49	Improved Industrial	79	3%	23	1%
50-69	Agricultural	188	6%	13	0%
70-79	Institutional	134	5%	40	1%
80-89	Government	476	16%	73	2%
90	Leasehold Interests	0.08	0%	1	0%
91-97	Miscellaneous	18	1%	11	0%
99	Non-Agricultural	481	16%	30	1%
N	Information/Reference Parcel	112	4%	97	3%
	TOTAL	**2954**	**100%**	**3037**	**100%**

SOURCE: Calculated by Wade-Trim based on 2003 parcel data from the Seminole County Property Appraiser's Office

Figure 4-9 Existing Land Use



The general character of the area is predominantly single-family residential intermixed with wooded vacant residential and commercial lots, aging commercial buildings located around the intersection of Broadway Street and Central Avenue, as well as churches, schools, parks and open space areas. Figure 4-10 portray examples of the general character of the project area.

Figure 4-10 Residential Single Family Development

Residential single-family developments (right and left) abutting the project roadway at CR 419 and Waverlee Boulevard. There is a landscape buffer between the houses and CR 419 along this section of the roadway.

The existing land use of parcels that front SR 426 and CR 419, between Pine Avenue and Lockwood Boulevard, were field verified during a windshield survey conducted on February 5, 2004. Table 4-6 summarizes the allocation of existing land uses. Special attention is paid to these parcels as they could potentially be directly affected by the road improvement.