NOISE STUDY REPORT

SR426/CR419 PD&E Study

From Pine Avenue to Lockwood Boulevard
City of Oviedo
Seminole County, Florida

Prepared for:

Dyer, Riddle, Mills & Precourt, Inc.
1505 East Colonial Drive
Orlando, Florida 32803

April 2004

TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 Project Description.....1
1.1.1 Existing and Proposed Facility Characteristics.....1
1.1.2 Existing Land Use.....1
1.1.3 Existing and Predicted Traffic Volumes.....2
1.2 Study Objectives 2

2.0 TRAFFIC NOISE ANALYSIS.....2
2.1 Noise Sensitive Areas 2
2.2 Noise Modeling Methods.....2
2.3 Measured Noise Levels.....5
2.4 Predicted Noise Levels 5
2.5 Noise Modeling Conclusions.....6

3.0 NOISE ABATEMENT MEASURES.....6
3.1 Alignment Selection.....7
3.2 Property Acquisition 7
3.3 Land Use Controls 7
3.4 Traffic Management.....7
3.5 Noise Barriers 7

4.0 CONSTRUCTION NOISE AND VIBRATION 9

5.0 COORDINATION WITH LOCAL OFFICIALS.....9

6.0 CONCLUSION.....9

TABLES

Table 1 Noise Abatement Criteria 4
Table 2 Measured Noise Levels at Noise Sensitive Areas (Existing).....5
Table 3 TNM Validation Table.....5
Table 4 Predicted Noise Levels (dB) without Noise Barriers.....6
Table 5 Build Scenarios – with and without Noise Barriers.....6

APPENDICES

Figure 1 Project Location Map..... I
Figures 2A-2K Proposed Alignment II
Figures 3A-C Proposed Roadway Typical Cross Sections..... III
Figures 4A-C Land Use Map..... IV
Figures 5A-F Noise Contour Maps V

1.0 INTRODUCTION

The City of Oviedo is currently evaluating the widening of State Road (SR) 426/County Road (CR) 419 from Pine Avenue to Lockwood Boulevard (approximately 3.0 miles) in Oviedo, Florida. The project corridor is located in Sections 9, 10, 11, 13, 14, 15 & 16, Township 21 South, Range 31 East, Seminole County (See Appendix I).The first phase of the noise study involved collecting a complete set of actual noise data for potential noise-sensitive receptors such as homes, churches, and hotels/motels located in close proximity to the existing right-of-way line. Relative elevations at these sites were also taken. Sound level contours were then established and compared to traffic generated noise levels, using the Federal Highway Administration's (FHWA) approved Traffic Noise Model (TNM) computer program, with respect to the noise-sensitive receptors. The accuracy of the model was determined as discussed further in this report. The format and content of this report is based on the procedures established in Chapter 17, Noise, Part II, Florida Department of Transportation (FDOT) Project Development and Environment (PD&E) Manual.

1.1 Project Description

The SR 426/CR 419 corridor currently contains numerous commercial developments, office complexes, residential communities, recreational facilities, and educational facilities. The existing two-lane roadway is proposed to be widened to four-lanes. The current roadway is a two-lane typical section consisting of one 12.0' wide travel lane in each direction and roadside swales to accommodate surface water runoff. A single left turn lane can be found at major intersections. The current posted speed limits range from 30 to 45 miles per hour (mph) within the study corridor.

1.1.1 Existing and Proposed Facility Characteristics

The existing roadway is a two-lane typical section consisting of one 12.0' wide travel lane in each direction, turn lanes at major intersections, and roadside swales to accommodate surface water runoff. The proposed improvements would expand the existing two-lane roadway to a four-lane roadway (See Appendix II). The proposed roadway typical sections consist of two travel lanes in each direction with 4.0' wide outside bicycle lanes, a median width of 18.0' minimum, and a curb-and-gutter drainage system. The proposed right-of-way widths are approximately 100.0' (See Appendix III for proposed typical sections). The proposed posted speed limits would range from 45 mph from Pine Avenue to Lake Jessup Drive, 30 mph from Lake Jessup Drive to Division Street, and 45 mph from Division Street to Lockwood Boulevard. The design year for the proposed project is 2030.

1.1.2 Existing Land Use

Land uses within the limits of the project study area consist primarily of commercial, educational, and residential. Commercial development consists of shopping centers, gas stations, churches, and business/office parks. The existing land use aerials for the project study area can be found in Appendix IV. Several undeveloped forested areas are located north and south of the SR 426/CR 419 corridor. There are three educational facilities: Oviedo High School, Lawton Elementary School, and Jackson Heights Middle School. There are two residential communities known as the Waverlee Woods and Kingsbridge East Subdivisions and several individual dwellings along the SR 426/CR 419 corridor.

1.1.3 Existing and Predicted Traffic Volumes

Existing traffic volumes, classification counts, and directional patterns were established for the study corridor. All existing and proposed traffic information was provided by Dyer, Riddle, Mills & Precourt, Inc. (DRMP). Traffic information was provided as raw numbers only.

1.2 Study Objectives

The objectives of this Noise Study Report (NSR) include the following:

- Identify potential noise sensitive sites.
- Determine existing noise levels at the noise-sensitive receptor sites.
- Compare existing noise levels to TNM predicted noise levels at two sites.
- Evaluate reasonable noise abatement measures where warranted.
- Identify noise impacts related to construction activities and measures to minimize construction noise.

2.0 TRAFFIC NOISE ANALYSIS

2.1 Noise Sensitive Areas

Noise sensitive areas (as defined in Table 1(p.22)) associated with this noise study report include: single-family residences, recreational facilities, educational facilities, and churches (see Appendix V). Measured noise levels for Waverlee Woods Subdivision, Kingsbridge East Subdivision, and representative residential dwellings along the corridor are shown in Table 3. Other existing structures include commercially developed parcels such as shopping centers, gas stations, doctors' offices, and various other businesses.

The residential communities of the Waverlee Woods and Kingsbridge East Subdivisions are located at the eastern terminus of the project adjacent to the SR 426/CR 419 right of way (ROW). Two churches are located along the SR 426/CR 419 corridor towards the beginning of the project limits.

2.2 Noise Modeling Methods

A detailed field analysis of the existing conditions within the project corridor was performed prior to TNM modeling. All potential noise sensitive areas were identified and labeled on aerial photographs.

Quest Electronics Model 2900 noise logging dosimeters were used to gather existing noise levels at the noise sensitive locations within the project corridor. The noise readings as well as associated traffic counts/speeds for three ten minute events were used to validate the TNM. The actual noise levels recorded were compared to the TNM predicted noise levels to determine the accuracy of the model predictions.

The TNM program was used for noise evaluation for the proposed project corridor. Existing noise data for the chosen noise-sensitive receiver sites as well as 2030 “Build” and “No Build” scenarios were generated for the potential noise-sensitive sites as listed above (See Table 4).

Hourly traffic volumes for cars, medium, and heavy trucks traversing the roadway were input into TNM for this project. Levels-of-service “C” conditions or worst-case demand traffic volumes, whichever is less, are simulated in the noise model. The speeds used in the TNM modeling program were based on the posted speed limit on the roadway of 35-45 mph and the future design speed limit for the proposed roadway of 35-45 mph.

Drawing files were incorporated into the TNM program to establish the input parameters for modeling the roadway, including coordinates and receivers. Relative elevations of noise-sensitive areas were also determined and input into the TNM model. When the predicted traffic noise levels are approached or exceeded, consideration of noise abatement measures must be considered.

The abatement criterion of 66 dBA (Leq) for the FDOT, for Activity Category B is applicable to all of the noise receivers modeled for this project. The PD&E manual states that the Leq is “The level equivalent steady-state sound level which in a stated period of time contains the same acoustic energy as the time-varying sound level during the same time period”. The Laeq is the a-weighted level equivalent. See Noise Abatement Criteria, Table 1:

TABLE 1 NOISE ABATEMENT CRITERIA

[Hourly A-Weighted Sound Level-decibels (dBA)]

Activity Category	Abatement Level (in Laeq) FHWA	FDOT	Description of activity category
A	57	56 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67	66 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotel, schools, churches, libraries, Recreational Vehicle (RV) parks, day care centers, and hospitals.
C	72	71 (Exterior)	Developed lands, properties, or activities not included in Categories A and B above.
D	--	--	Undeveloped lands.
E	52	51 (Interior)	Residences, motels, hotels, public meeting, rooms, schools, churches, libraries, hospitals, and auditoriums.

(*Based on Table 1 of 23 CFR Part 772*)

Note: The FDOT defines that a substantial noise increase occurs when the existing noise level is predicted to exceed by 15 decibels or more as a result of the transportation improvement project. When this occurs, the requirement for abatement consideration will be followed.

2.3 Measured Noise Levels

Representative noise-sensitive receptor data was collected on February 26, 2003, March 6, 11, 12, 2003 during the morning and afternoon hours. Atmospheric conditions consisted of partly cloudy skies, light to moderate winds, and approximately 75 degrees. See Table 2 below for existing field verified noise receptor information:

TABLE 2 MEASURED NOISE LEVELS AT NOISE SENSITIVE AREAS (EXISTING)

Location	Approximate Distance from Nearest Travel Lane	Leq (dB)
601 Buckingham Drive	100’	69.1
621 Buckingham Drive	100’	68.3

2.4 Predicted Noise Levels

Prior to noise modeling analysis, the TNM model was validated for accuracy with respect to the field recorded noise levels at the existing noise-sensitive sites. One of the sites used for model validation shown in Table 3 below was predicted within two decibels of the actual field recorded noise levels. The TNM predicted noise level at the second location was slightly lower than field recorded noise levels. This was due to added noise from lawn maintenance equipment that was not incorporated into the model. Therefore, the TNM model was validated at one location and slightly higher at the other.

TABLE 3 TNM VALIDATION TABLE

Location	Existing dB (Field Recorded)	TNM dB Predicted	Difference
601 Buckingham Drive	69.1	65.9	-3.2
621 Buckingham Drive	68.3	66.8	-1.5

Existing and 2030 “Build” and “No Build” scenario noise levels were predicted for the noise sensitive areas identified within the 66 dBA contour. Results can be found in Table 4.

The 66 dBA contour line for the year 2030 “Build” scenario from Pine Avenue to Lockwood Boulevard ranges from approximately 40 feet to 100 feet from the center of the nearest travel lane. The various contour lines are depicted in Figures 5A-5F (Appendix V).

TABLE 4 PREDICTED NOISE LEVELS (dBs) WITHOUT NOISE BARRIERS

Location	2030 "Build"	2030 "No Build"
R1 (510 Augustine Court)*	66.4	57.6
R2 (440 Augustine Court)*	66.3	57.2
R3 (665 Buckingham Drive)*	66.5	65.3
R4 (583 Horseman Drive)*	68.3	64.1

*R1 & R2 represents receivers on the north & south side of SR 426, respectively, within that area. R3 & R4 represents all receivers within the Kingsbridge East Subdivision.

Table 5 below shows TNM "Build" scenarios for the noise sensitive sites that would likely require noise barrier analysis. Various noise barrier heights were modeled for 2030 "Build" scenario as shown.

TABLE 5 "BUILD" SCENARIO - WITH AND WITHOUT NOISE BARRIERS (MEASURED IN dBs)

Noise Sensitive Sites	2030 "Build" No Wall	2030 "Build" with Wall	
		12' high	14' high
R1	66.4	54.5 (11.9)*	53.4 (13.0)*
R2	66.3	52.3 (14.0)*	51.3 (15.0)*
R3	66.5	52.5 (14.0)*	51.7 (14.8)*
R4	68.3	53.7 (14.6)*	53.0 (15.3)*

* (Insertion loss)

2.5 Noise Modeling Conclusions

The results of the TNM noise model indicate that the model is consistent with the actual field data measured at the existing noise-sensitive receptor sites. All existing and proposed noise level data can be found in Tables 3, 4, and 5 as previously shown.

3.0 Noise Abatement Measures

The FHWA requires that various noise abatement measures be considered for a proposed project when the predicted noise levels approach or exceed noise abatement criterion, or, will increase substantially over existing levels by 15 dB. The following measures were considered: alignment selection, property acquisition, land use controls, traffic management, and noise barriers.

3.1 Alignment Selection

Alignment selection involves the orientation of the project location in such a way as to minimize impacts and costs. For noise abatement, alignment selection is primarily a matter of (a) siting the roadway at a sufficient distance from the noise sensitive sites, and, (b) siting the roadway at a location where other noise abatement techniques such as a noise abatement wall can be implemented. The consideration of other alternative alignments was not deemed practical because of the heavily urbanized project corridor. The cost of relocations would be significant because of the dense commercial, retail, institutional, and residential developments.

3.2 Property Acquisition

Property acquisition for buffer zones alone is considered to be costly. Methods of applying land use controls to maintain and establish buffered areas through zoning may be established by local jurisdiction.

3.3 Land Use Controls

One of the most effective noise abatement measures is the proper implementation of land use controls to minimize future noise impacts. Local jurisdictions with zoning control can implement policies to limit the growth on noise sensitive land uses adjacent to the roadway. See Figures 4A - 4C for the Land Use Map.

3.4 Traffic Management

Traffic management measures that limit vehicle type, speed, volume, and time of operations are often effective noise abatement measures. These types of measures were not considered appropriate for this project because of projected negative impacts that would occur to the capacity and level-of-service of the roadway.

3.5 Noise Barriers

Noise Abatement Conclusions

It has been determined that construction of noise barriers throughout the majority of the project limits would not be considered reasonable or feasible to construct since the noise barrier(s) would be ineffective due to the numerous driveways throughout the project. Two (2) noise barriers near the eastern terminus of the project would be considered feasible since they would provide a 5 dB or more reduction. Factors considered in this analysis included accessibility issues via entrance and exit driveways that impact the placement and effectiveness of the walls, the walls being cost-prohibitive with respect to the number of potential noise-sensitive sites being benefited, and the land's natural contours and existing bermed areas in front of many of the noise-sensitive sites, which assist in minimizing noise as a natural buffer, but also cause difficulties with constructing the walls. Two noise sensitive areas were reviewed for detailed noise analysis. Due to numerous noise sensitive sites, two receivers were chosen for each area to represent both subdivisions. Results of the noise abatement analysis are discussed below.

Waverlee Woods Subdivision - This noise-sensitive area consists of closely spaced noise-sensitive sites (single-family homes), located north of the CR 419 ROW (see Figure 5E). An existing masonry noise barrier approximately 5.9' tall is located at the edge of the ROW on the north side of CR 419. The existing wall appears to be providing some level of noise abatement.

The proposed replacement noise barrier for this site would be approximately 1,800’ long. The noise barrier was modeled at heights ranging from 12.0' to 14.0'. All receivers were modeled, but according to TNM results, 77 of the homes would experience a 5 dBA or greater noise reduction due to the construction of a noise barrier. This reduction was based on the 2030 “Build” scenario. A 12.0’ noise barrier would provide a 5 dBA or greater insertion loss.

The cost to construct the 12.0' high noise barrier would be approximately $540,000.00. This amount was calculated based on a cost of 25 dollars per square foot. Therefore, the average cost per benefited receiver would be approximately $7,013.00, far below the $35,000 allowed by the FHWA guidelines. Therefore, a noise barrier would be considered reasonable and feasible to construct at this location.

Kingsbridge East Subdivision - This noise-sensitive area consists of closely spaced noise-sensitive sites (single-family homes), located south of the CR 419 ROW (see Figure 5E). An existing undulating berm approximately 3.0’ tall currently backs the front row receivers on the south side of CR 419. The existing berm does not appear to be providing any level of noise abatement. The noise barrier modeled for this site was approximately 2,340’ long. The noise barrier was modeled at heights ranging from 12.0' to 14.0'. All receivers were modeled, but according to TNM results, 50 of the homes would experience a 5 dBA or greater noise reduction due to the construction of a noise barrier. This reduction was based on the 2030 “Build” scenario. A 12.0’ noise barrier would provide a 5 dBA or greater insertion loss.

The cost to construct the 12.0' high noise barrier would be approximately $702,000.00. This amount was calculated based on a cost of 25 dollars per square foot. Therefore, the average cost per benefited receiver would be approximately $14,040.00, far below the $35,000 allowed by the FHWA guidelines. Therefore, a noise barrier would be considered reasonable and feasible to construct at this location.

Noise barriers reduce noise levels by blocking the sound path between a roadway and noise sensitive sites. To be effective, barriers have to be continuous, sufficiently long and tall, shield a reasonably sized impacted area or a number of people, and provide appreciable noise level reduction. Construction of a noise barrier wall is considered reasonable and feasible to mitigate for traffic noise impacts within the Waverlee Woods and Kingsbridge East Subdivisions only within the project corridor. The FDOT is committed to the construction of feasible noise abatement measures at noise impacted locations identified contingent upon the following conditions:

- ☐ Detailed noise analysis during the final design process supports the need for abatement.
- ☐ Cost-effectiveness analysis
- ☐ Community input regarding desires, types, heights, and locations (if applicable).
- ☐ Preferences regarding compatibility with adjacent land uses, particularly as addressed by officials having jurisdiction over such land uses
- ☐ Safety and engineering aspects related to the roadway user and the adjacent property owner.

Based on the noise analyses performed to date, noise barrier construction, to mitigate for noise impacts, would be considered reasonable and feasible at Waverlee Woods and Kingsbridge East Subdivisions.

4.0 CONSTRUCTION NOISE AND VIBRATION

Construction activities for the proposed improvements will have minimal noise impacts for those residents and travelers within the immediate vicinity of the project.

Noise and vibration impacts will be caused by heavy equipment movement and construction activities such as pile driving and vibratory compaction. Noise control measures will be implemented according to the FDOT's Standard Specifications for Road and Bridge Construction and adherence with local noise ordinances.

5.0 COORDINATION WITH LOCAL OFFICIALS

This report should be used to promote compatibility between the land development and the operation of the proposed facility through the access management technique and coordination of project activities with Seminole County, the City of Oviedo staff, and elected officials.

A copy of the final NSR will be sent to the appropriate local planning/zoning officials in Seminole County.

6.0 CONCLUSION

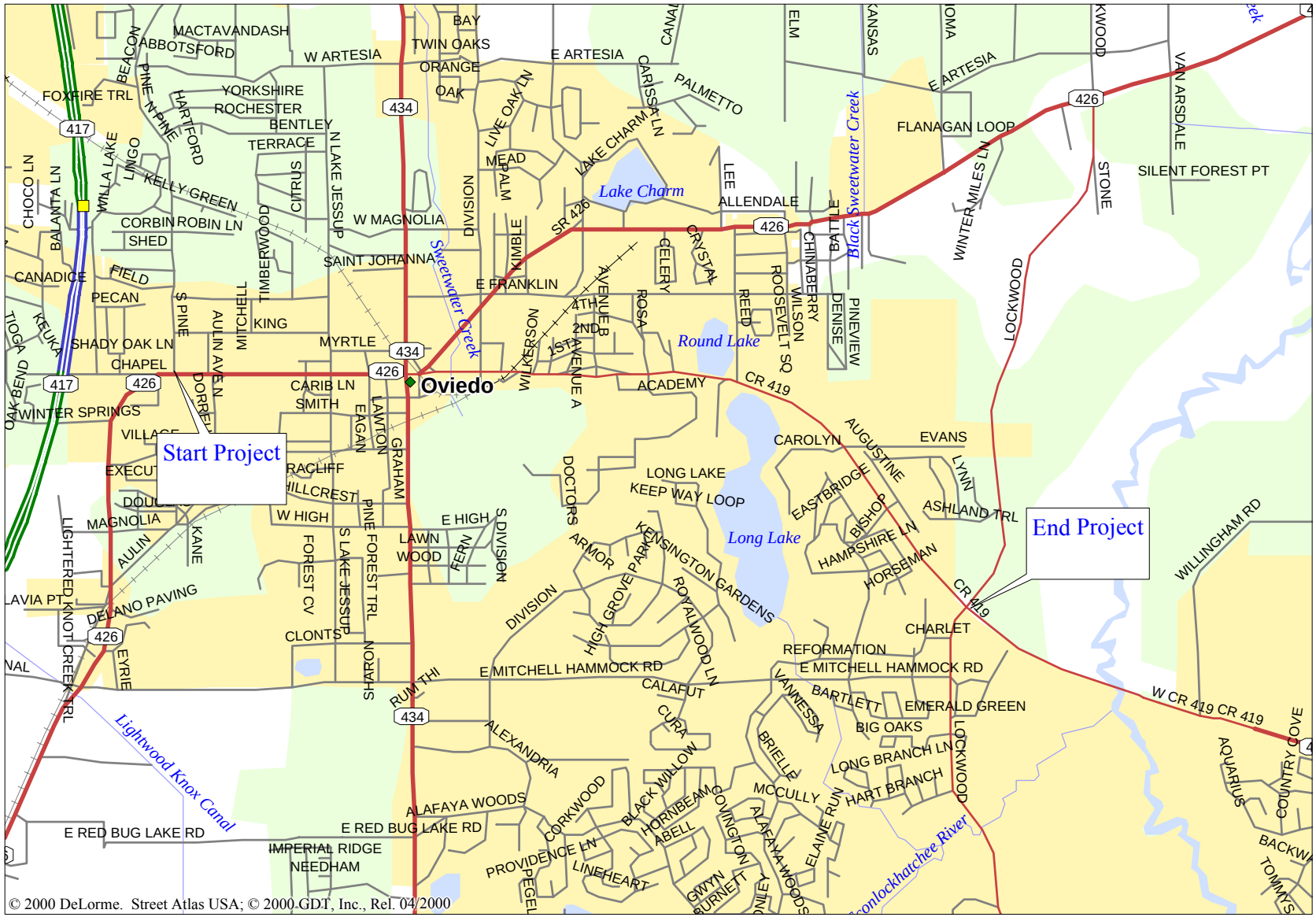
Based on the TNM results, noise barriers would be considered reasonable and feasible to construct at two (2) residential subdivisions within the project corridor. As mentioned earlier, the two residential developments, located near the eastern terminus of the project, are known as the Waverlee Woods and the Kingsbridge East Subdivisions.

The 12.0’ tall noise barriers modeled for this project would have a total length of approximately 4,140 feet. The noise barriers are generally constructed at or within 5’ of the outside right of way limits. The total cost to construct the noise barriers would be approximately $1,242,000.00, an average cost per benefited receiver of approximately $9,780.00

Several other single family dwellings and churches are located within the 66 dBA contour. However, due to the numerous driveway and side street openings, noise barriers would not be considered reasonable and feasible to construct. Because the driveways and side street openings are very close together, the gaps within any proposed noise barriers would not allow for adequate amounts of noise attenuation. Also, churches often do not want a noise barrier blocking the view of their complex and do not have areas of frequent human use adjacent to the roadway. Therefore, construction of noise barriers in front of churches could severely limit the visibility of the complex by passing motorists/pedestrians. No noise barriers were modeled adjacent to churches. Since some of the noise sensitive sites west of the downtown district are very near the proposed edge of the right-of-way, construction of any potential noise barriers could cause site distance-related safety concerns.

APPENDIX I

PROJECT LOCATION MAP



SCIENTISTS
ENGINEERS
PLANNERS

407/260-0883

Location Map
SR 426/CR 419 Oviedo
Seminole County, FL

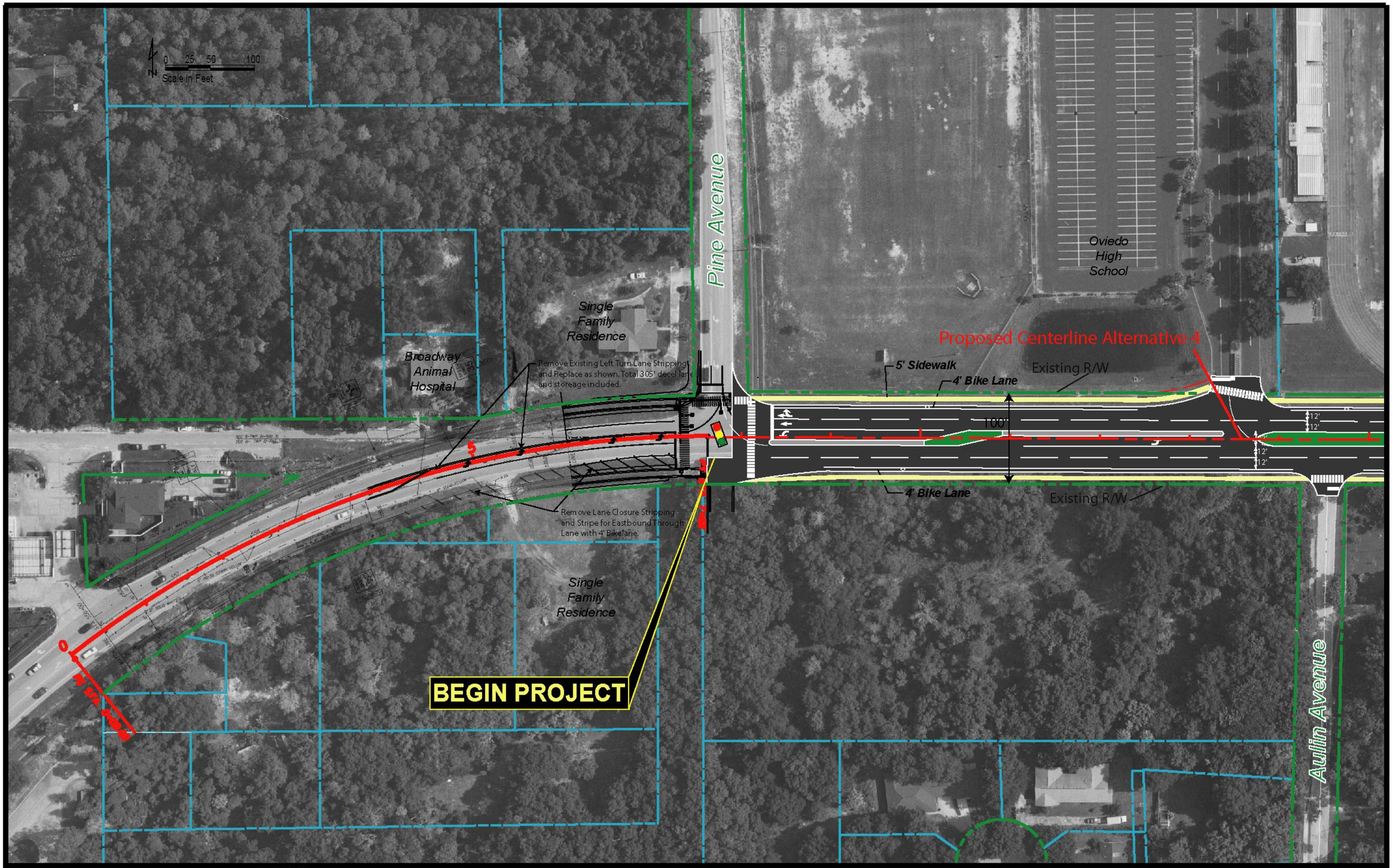
Date: 04/13/04
Scale: 1" = .50 Mile

Figure 1

g:/proj/ems/02168/av/sr426.apr

APPENDIX II

PROPOSED ALIGNMENT



DRMP

REVISIONS		
DATE	BY	DESCRIPTION

SR 426 /CR 419
PROJECT DEVELOPMENT & ENVIRONMENT (PD&E) STUDY
From Pine Avenue to Lockwood Boulevard
City of Oviedo

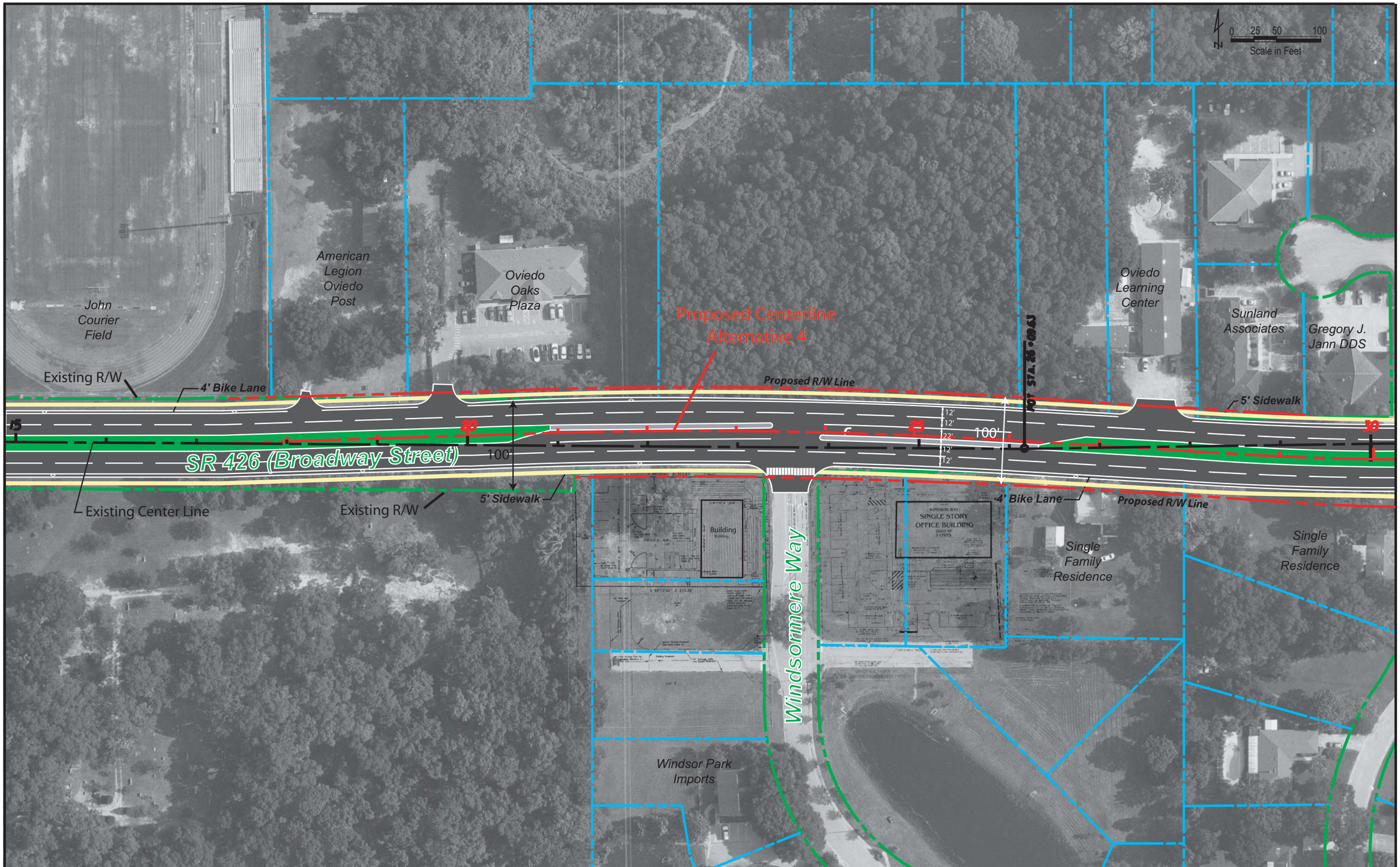
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

Best Fit Alternative

Sheet 1

09/30/2002 08:31:07 AM N:\Dorly\design\base.DGN



DRMP
ENGINEERS · SURVEYORS · PLANNERS · SCIENTISTS

REVISIONS		
DATE	BY	DESCRIPTION

SR 426 /CR 419
PROJECT DEVELOPMENT & ENVIRONMENT (PD&E) STUDY
From Pine Avenue to Lockwood Boulevard
City of Oviedo

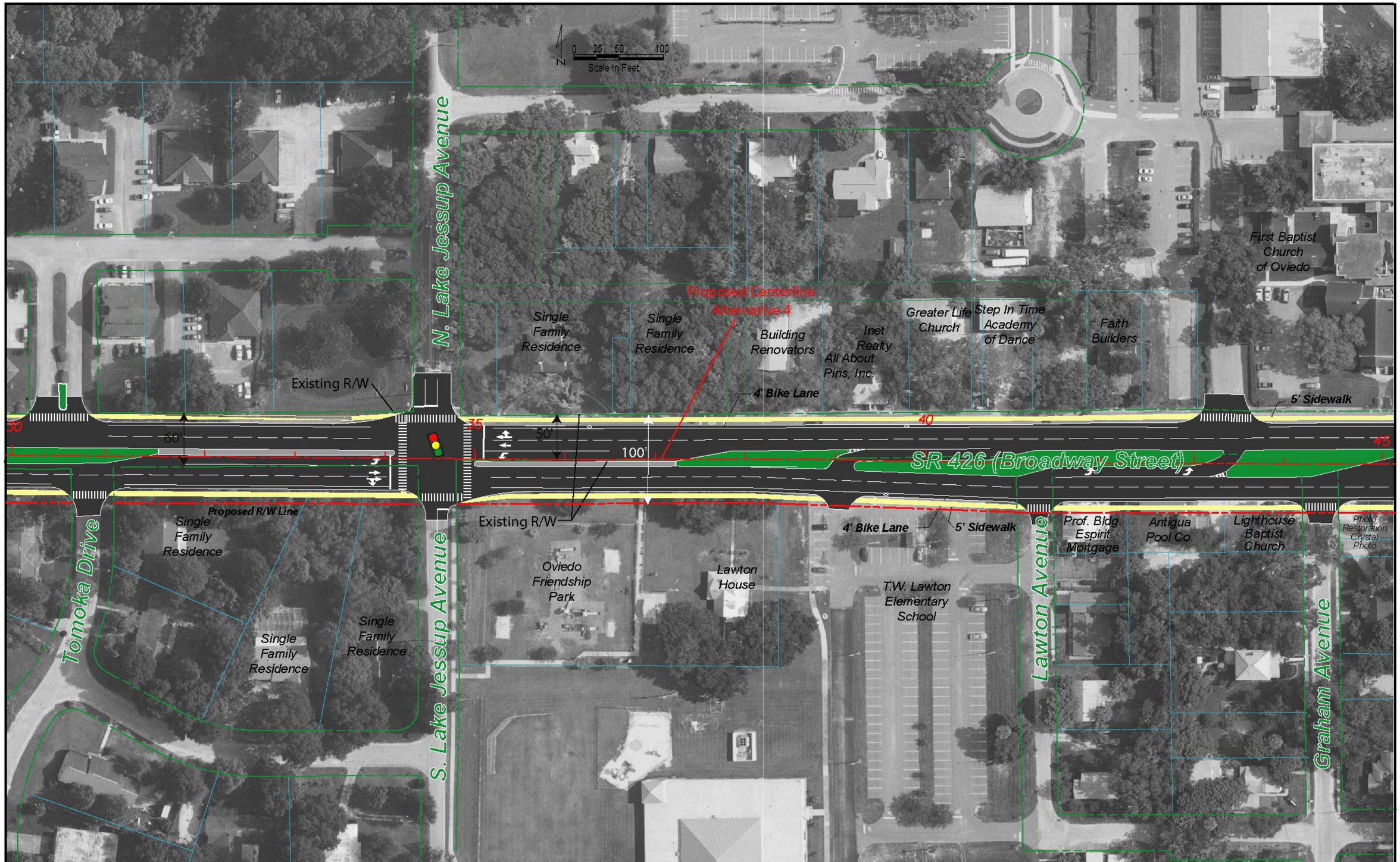
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

Best Fit Alternative

Sheet 2

09/30/2002 09:31:07 AM N:\00rdy\design\base.DGN



DRMP

REVISIONS		
DATE	BY	DESCRIPTION

SR 426 /CR 419
PROJECT DEVELOPMENT &
ENVIRONMENT (PD&E) STUDY
From Pine Avenue to Lockwood Boulevard
City of Oviedo

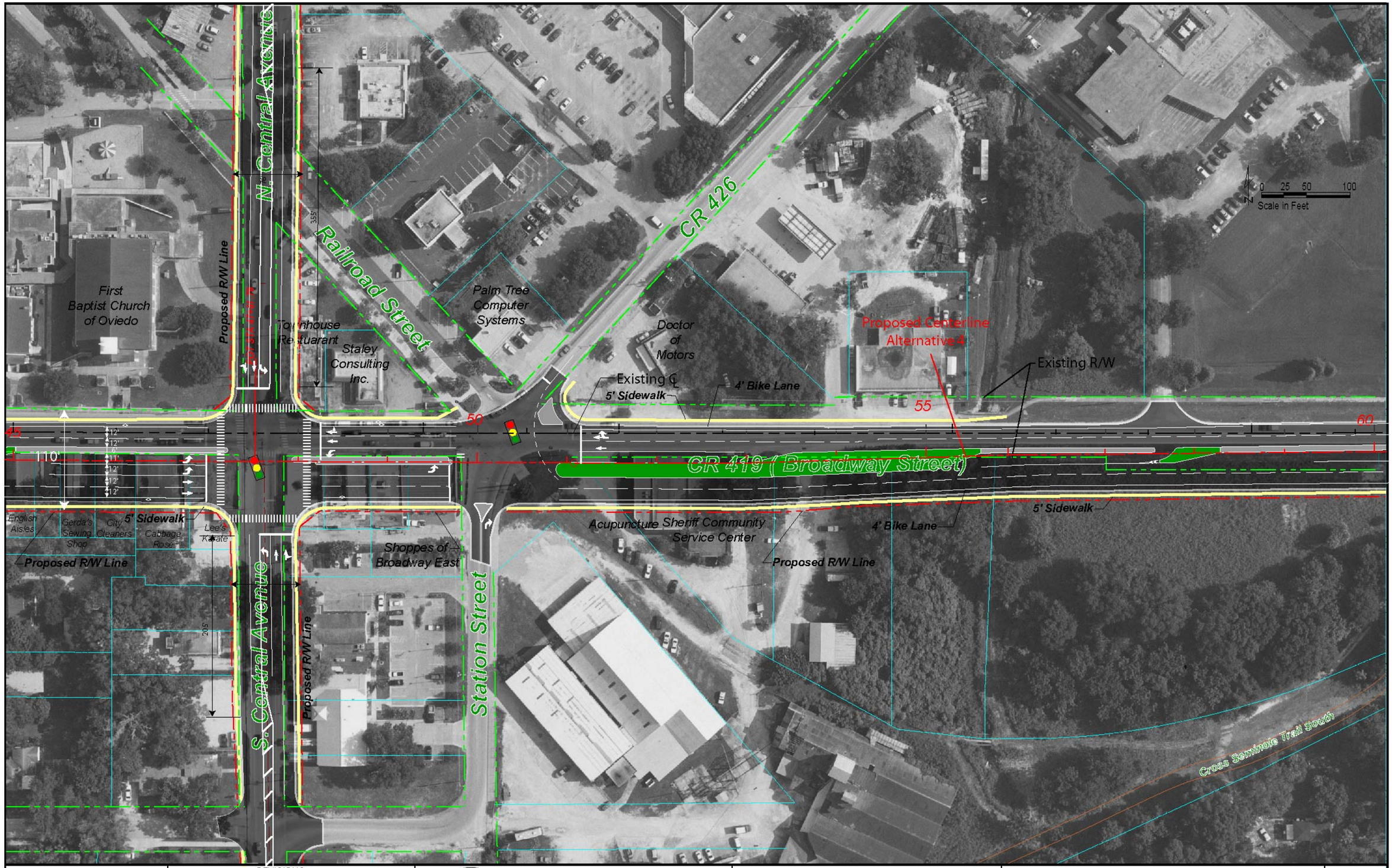
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

Best Fit Alternative

Sheet 3

09/30/2002 09:31:07 AM N:\DOrdy\design\base.DGN



DRMP

REVISIONS		
DATE	BY	DESCRIPTION
490'		

SR 426 /CR 419
PROJECT DEVELOPMENT & ENVIRONMENT (PD&E) STUDY
From Pine Avenue to Lockwood Boulevard
City of Oviedo

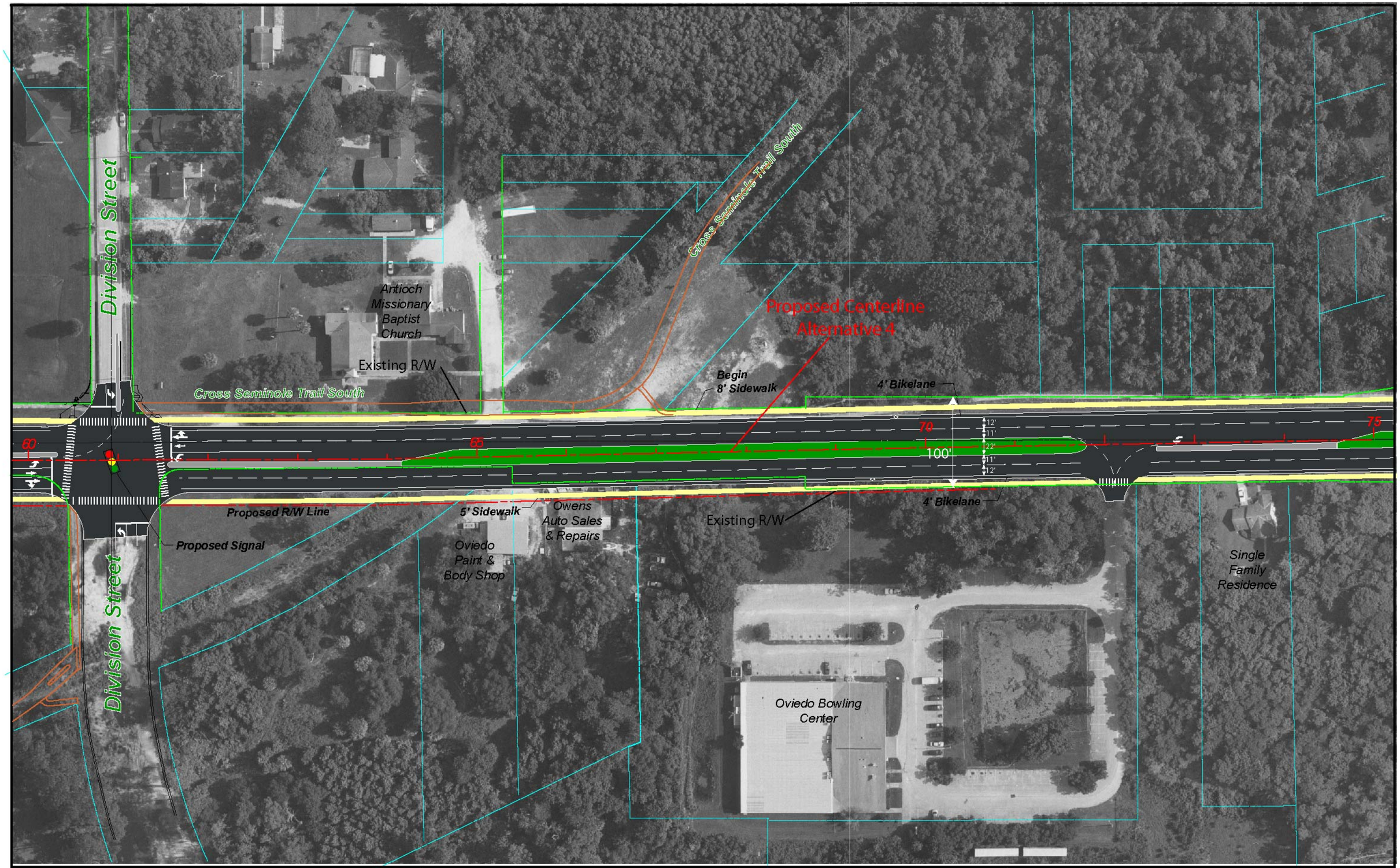
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

Best Fit Alternative

Sheet 4

09/30/2002 09:31:07 AM N:\00roly\design\base.DGN



DRMP

REVISIONS		
DATE	BY	DESCRIPTION

SR 426 /CR 419
PROJECT DEVELOPMENT & ENVIRONMENT (PD&E) STUDY
From Pine Avenue to Lockwood Boulevard
City of Oviedo

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

Best Fit Alternative

Sheet 5

09/30/2002 09:31:07 AM N:\OOrdy\design\base.DGN

	REVISIONS		
DRMP	DATE	BY	DESCRIPTION

SR 426 /CR 419
PROJECT DEVELOPMENT &
ENVIRONMENT (PD&E) STUDY
From Pine Avenue to Lockwood Boulevard
City of Oviedo

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

Best Fit Alternative

Sheet 6

09/30/2002 09:31:07 AM N:\00roy\design\base.DGN

DRMP

REVISIONS		
DATE	BY	DESCRIPTION

SR 426 /CR 419
PROJECT DEVELOPMENT &
ENVIRONMENT (PD&E) STUDY
From Pine Avenue to Lockwood Boulevard
City of Oviedo

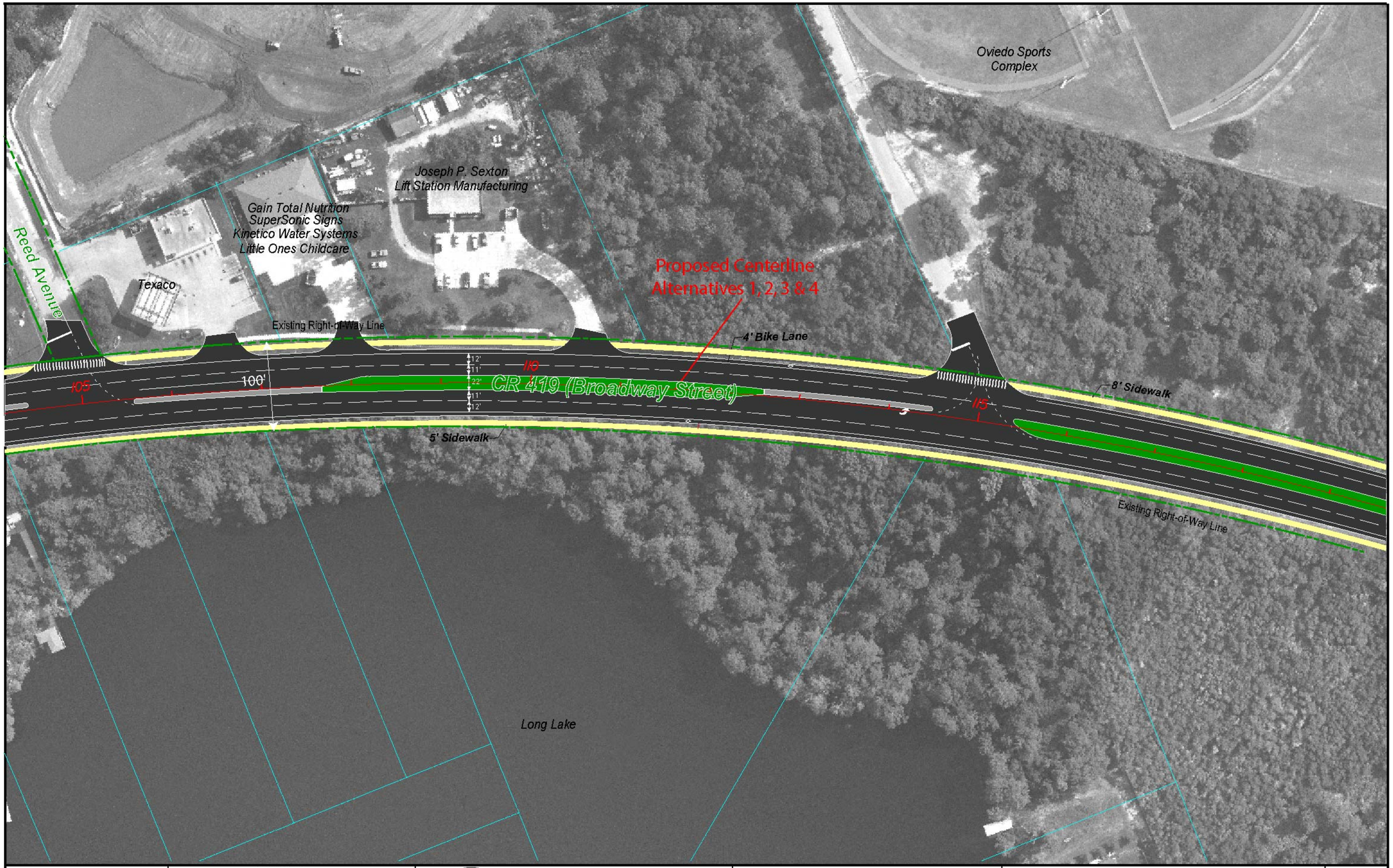
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

Best Fit Alternative

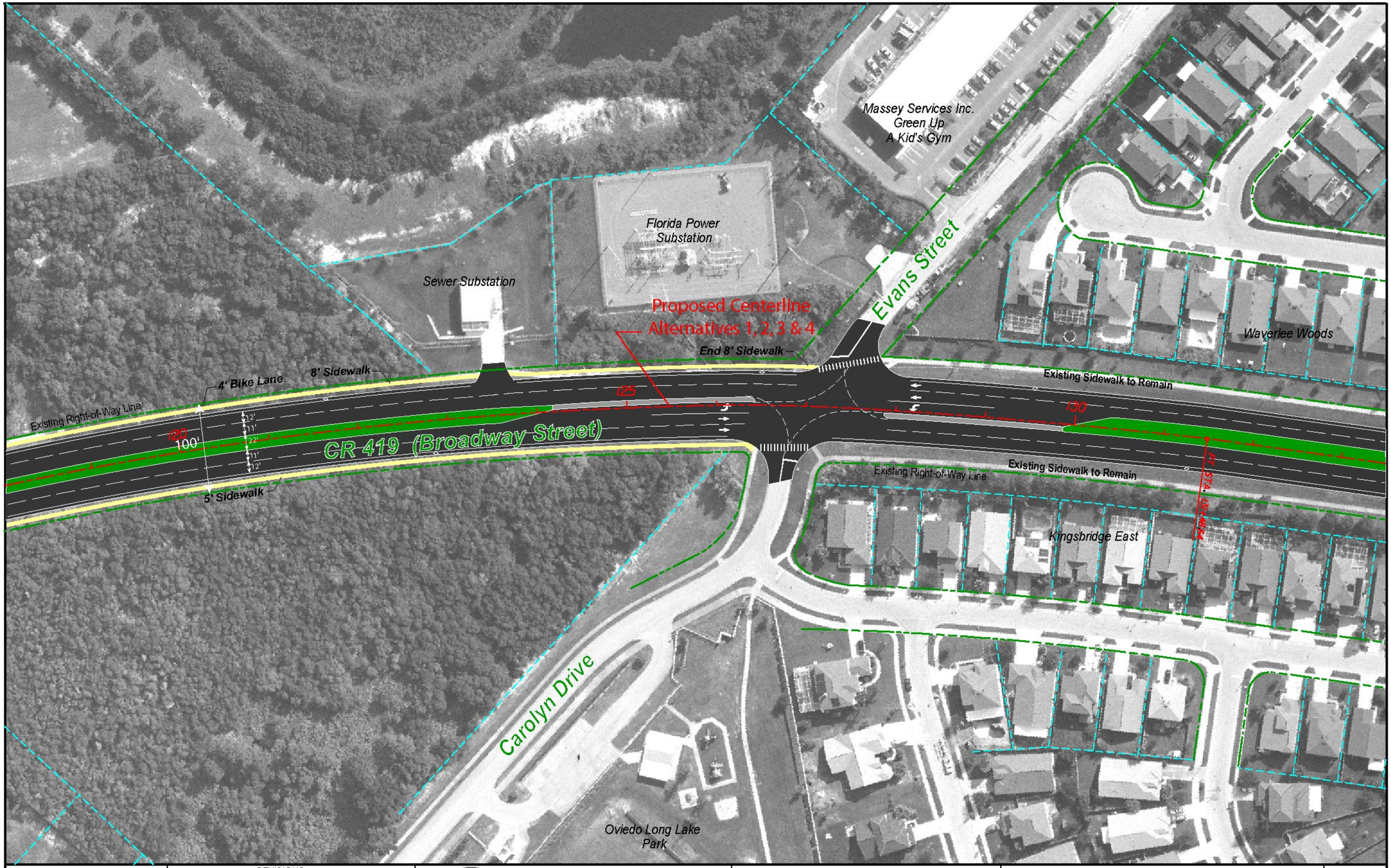
Sheet 7

09/30/2002 09:31:07 AM N:\00rdy\design\base.DGN



	REVISIONS						
DRMP	DATE	BY	DESCRIPTION	SR 426 /CR 419 PROJECT DEVELOPMENT & ENVIRONMENT (PD&E) STUDY From Pine Avenue to Lockwood Boulevard City of Oviedo	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION ROAD NO. / COUNTY / FINANCIAL PROJECT ID	Best Fit Alternative	Sheet 8

09/30/2002 09:31:07 AM N:\OOrdy\design\base.DGN



DRMP

REVISIONS		
DATE	BY	DESCRIPTION

SR 426 /CR 419
PROJECT DEVELOPMENT &
ENVIRONMENT (PD&E) STUDY
From Pine Avenue to Lockwood Boulevard
City of Oviedo

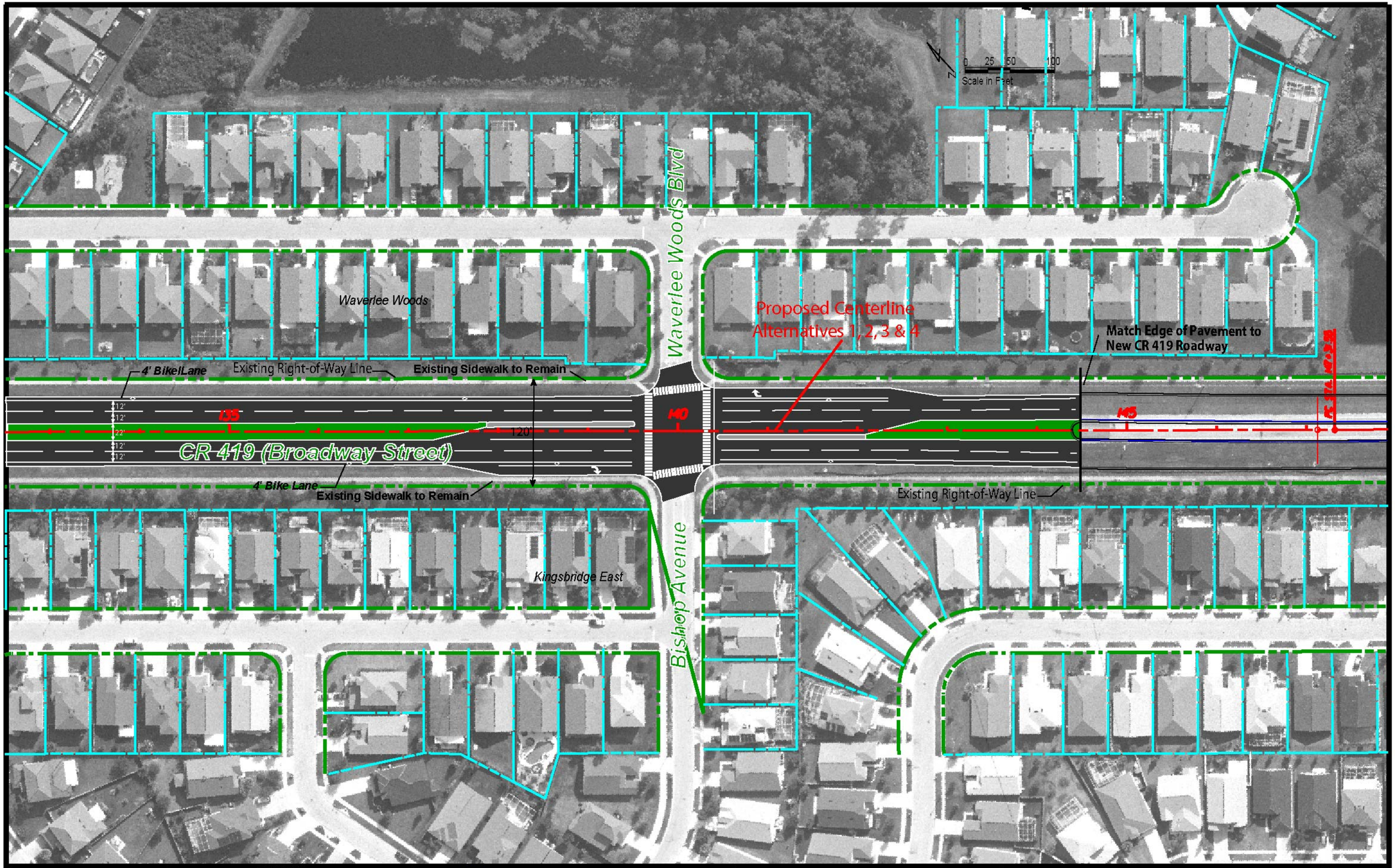
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

Best Fit Alternative

Sheet
9

09/30/2002 09:31:07 AM N:\00rdy\design\base.DGN



DRMP

REVISIONS		
DATE	BY	DESCRIPTION

SR 426 /CR 419
PROJECT DEVELOPMENT &
ENVIRONMENT (PD&E) STUDY
From Pine Avenue to Lockwood Boulevard
City of Oviedo

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

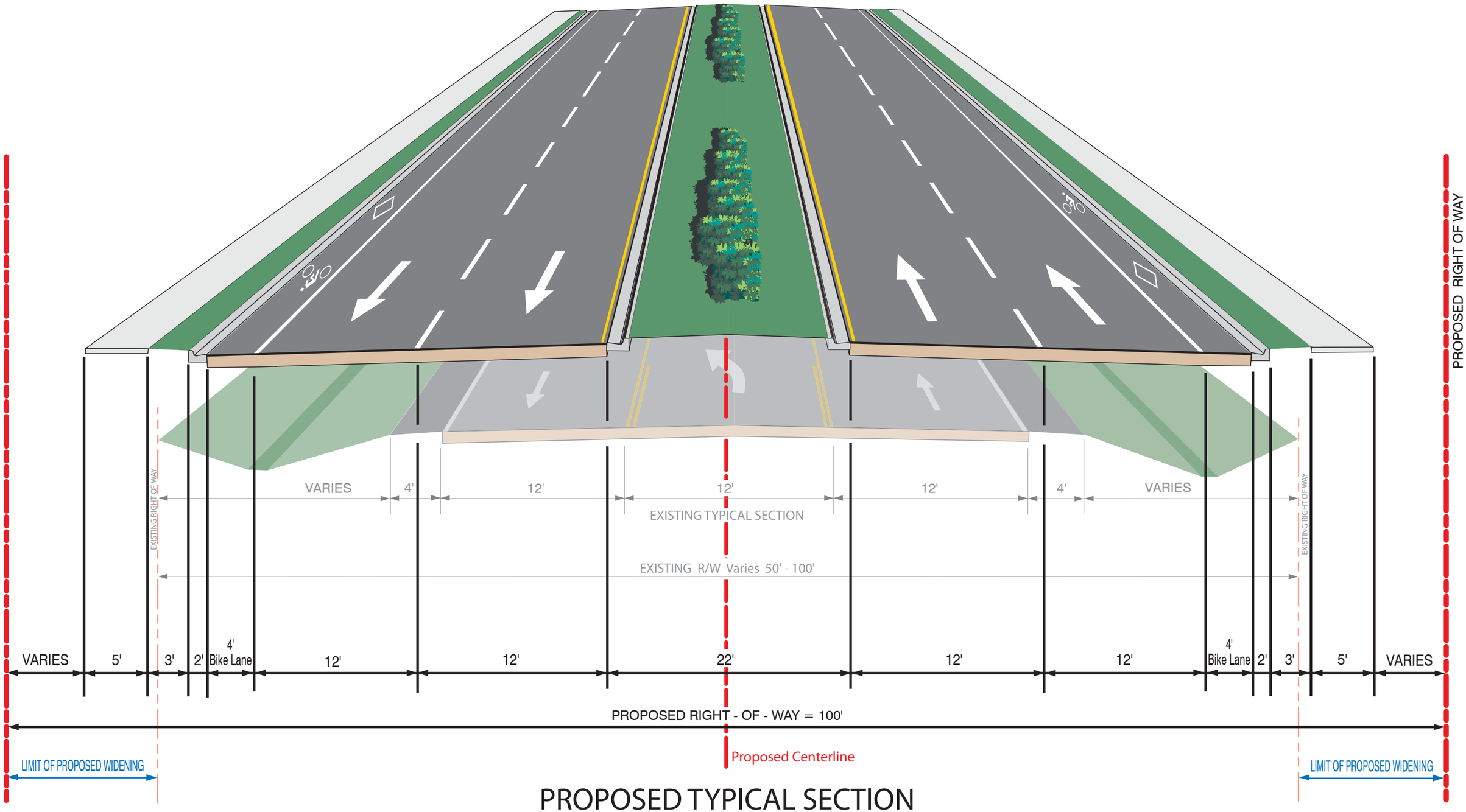
Best Fit Alternative

Sheet
10

09/30/2002 09:51:07 AM N:\00rdy\design\base.DGN

APPENDIX III

PROPOSED ROADWAY TYPICAL CROSS-SECTIONS

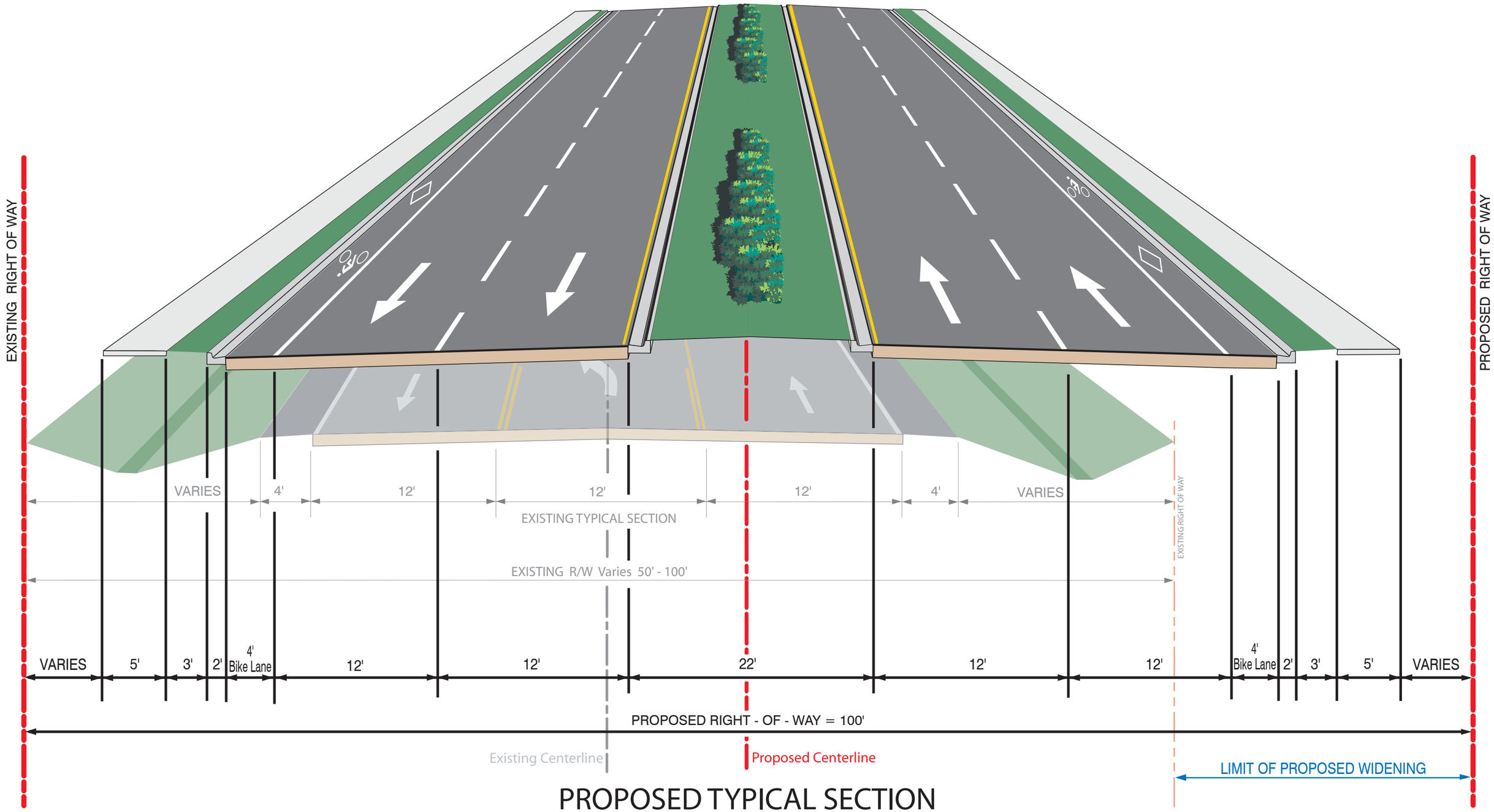


PROPOSED TYPICAL SECTION

ALTERNATIVE 4 (Recomended Alternative)

(WIDEN TO NORTH AND SOUTH OF EXISTING)

PINE AVENUE TO TOMOKA DRIVE

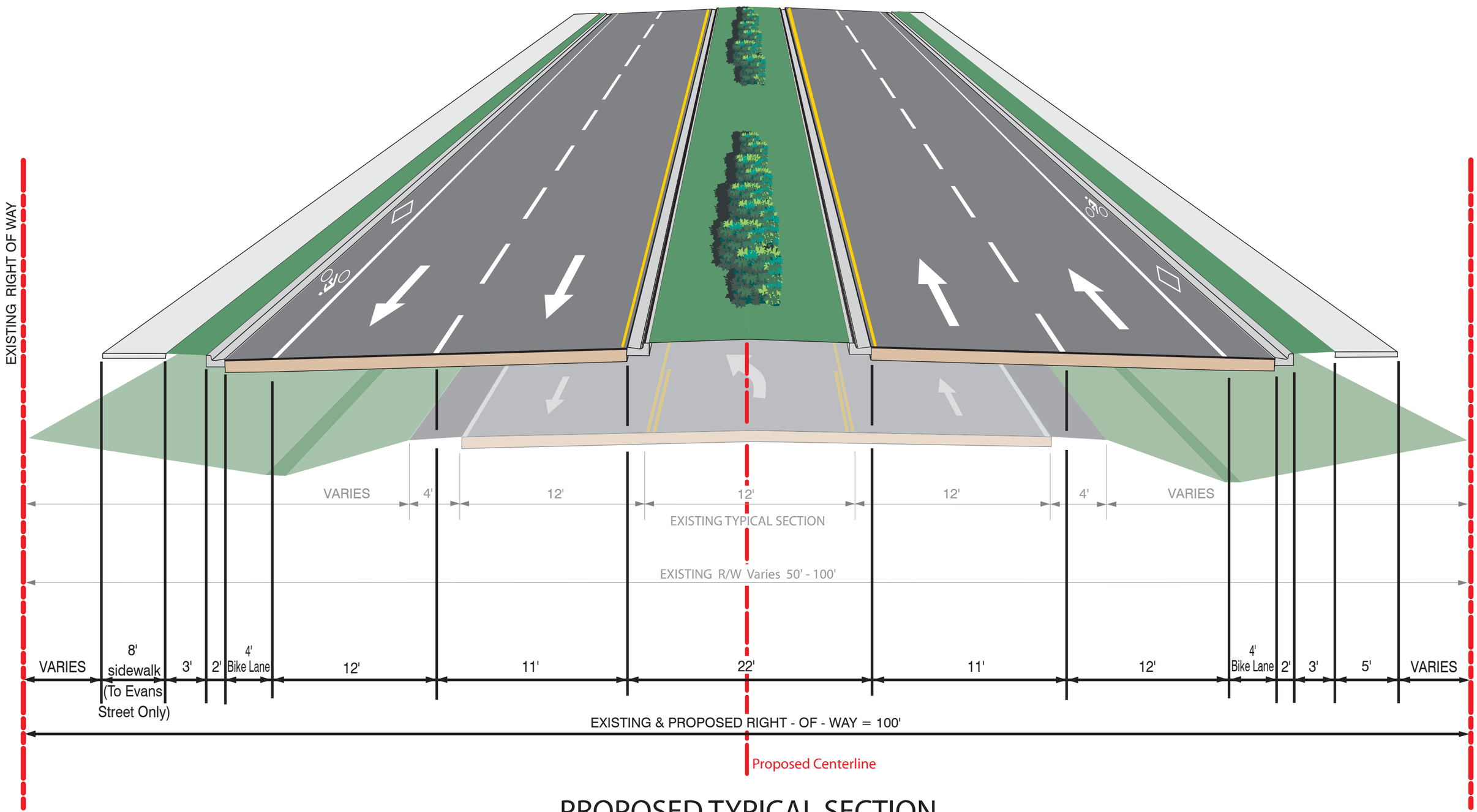


PROPOSED TYPICAL SECTION

ALTERNATIVE 4 (Recommended Alternative)

(WIDEN TO SOUTH OF EXISTING)

TOMOKA DRIVE TO EAST OF DIVISION STREET



PROPOSED TYPICAL SECTION
ALTERNATIVE 4 (Recommended Alternative)
EAST OF DIVISION STREET TO EAST OF WAVERLEE WOODS BLVD.

APPENDIX IV

LAND USE MAP

g:/proj/ems/02168/av/sr426.apr

SCIENTISTS
ENGINEERS
PLANNERS

407/260-0883

FLUCFCS Map
SR 426/CR 419 Oviedo
Seminole County, FL

Date: 04/13/04
Scale: 1" = 500'

Figure 4A

g:/proj/ems/02168/av/sr426.apr

EMS

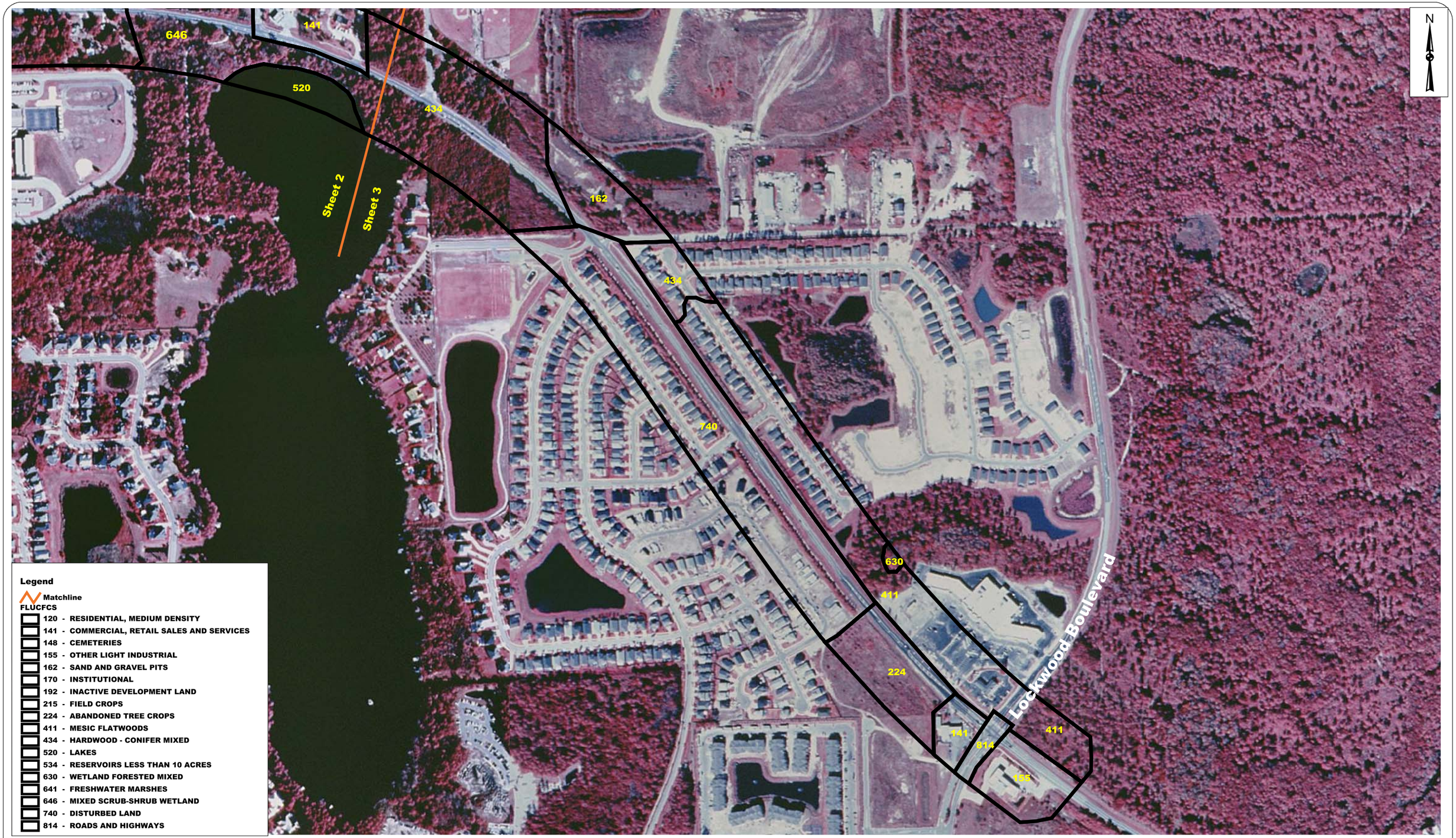
SCIENTISTS
ENGINEERS
PLANNERS

407/260-0883

FLUCFCS Map
SR 426/CR 419 Oviedo
Seminole County, FL

Date: 04/13/04
Scale: 1" = 500'

Figure 4B



g:/projems/02168/av/sr426.apr

EMS

SCIENTISTS
ENGINEERS
PLANNERS

407/260-0883

FLUCFCS Map
SR 426/CR 419 Oviedo
Seminole County, FL

Date: 04/13/04
Scale: 1" = 500'

Figure 4C

APPENDIX V

NOISE CONTOUR MAPS

g:/proj/ems/02168/av/sr426.apr

SCIENTISTS
ENGINEERS
PLANNERS

407/260-0883

Noise Contour Aerial
SR 426/CR 419 Noise Study
Seminole County, FL

Date: 04/20/04
Scale: 1" = 200'

Figure 5A

g:/proj/ems/02168/av/sr426.apr

SCIENTISTS
ENGINEERS
PLANNERS

407/260-0883

Noise Contour Aerial
SR 426/CR 419 Noise Study
Seminole County, FL

Date: 04/20/04
Scale: 1" = 200'

Figure 5B

g:/projems/02168/av/sr426.apr

SCIENTISTS
ENGINEERS
PLANNERS

407/260-0883

Noise Contour Aerial
SR 426/CR 419 Noise Study
Seminole County, FL

Date: 04/20/04
Scale: 1" = 200'

Figure 5C

g:/proj/ems/02168/av/sr426.apr

SCIENTISTS
ENGINEERS
PLANNERS

407/260-0883

Noise Contour Aerial
SR 426/CR 419 Noise Study
Seminole County, FL

Date: 04/20/04
Scale: 1" = 200'

Figure 5D

g:/proj/ems/02168/av/sr426.apr

SCIENTISTS
ENGINEERS
PLANNERS

407/260-0883

Noise Contour Aerial
SR 426/CR 419 Noise Study
Seminole County, FL

Date: 04/20/04
Scale: 1" = 200'

Figure 5E

g:/proj/ems/02168/av/sr426.apr

SCIENTISTS
ENGINEERS
PLANNERS

407/260-0883

Noise Contour Aerial
SR 426/CR 419 Noise Study
Seminole County, FL

Date: 04/20/04
Scale: 1" = 200'

Figure 5F