TOWN OF LOXAHATCHEE GROVES

TOWN HALL COUNCIL CHAMBERS

155 F. ROAD, LOXAHATCHEE GROVES, FL 33470

ROADWAY EQUESTRIAN TRAILS AND GREENWAY ADVISORY COMMITTEE

AGENDA

FEBRUARY 27, 2025 – 5:00 PM

Committee Member Frank Schiola, Chairperson (Seat 4)
Committee Member Darcy Dean Murray, Vice Chairperson (Seat 3)
Committee Member Katie Lakeman (Seat 1) - Committee Member Ashley Bruce (Seat 5)
VACANT (Seat 2)

Administration

Town Manager Francine L. Ramaglia
Town Clerk Assistant Sammie T. Brown
Committee Staff Liaison: Richard Gallant, Director of Public Works

Civility: Being "civil" is not a restraint on the First Amendment right to speak out, but it is more than just being polite. Civility is stating your opinions and beliefs, without degrading someone else in the process. Civility requires a person to respect other people's opinions and beliefs even if he or she strongly disagrees. It is finding a common ground for dialogue with others. It is being patient, graceful, and having a strong character. That is why we say "Character Counts" in Town of Loxahatchee. Civility is practiced at all Town meetings.

Special Needs: In accordance with the provisions of the American with Disabilities Act (ADA), persons in need of a special accommodation to participate in this proceeding shall within three business days prior to any proceeding, contact the Town Clerk's Office, 155 F Road, Loxahatchee Groves, Florida, (561) 793-2418.

Quasi-Judicial Hearings: Some of the matters on the agenda may be "quasi-judicial" in nature. Town Council Members are required to disclose all ex-parte communications regarding these items and are subject to voir dire (a preliminary examination of a witness or a juror by a judge or council) by any affected party regarding those communications. All witnesses testifying will be "sworn" prior to their testimony. However, the public is permitted to comment, without being sworn. Unsworn comment will be given its appropriate weight by the Town Council.

Appeal of Decision: If a person decides to appeal any decision made by the Town Council with respect to any matter considered at this meeting, he or she will need a record of the proceeding, and for that purpose, may need to ensure that a verbatim record of the proceeding is made, which record includes any testimony and evidence upon which the appeal will be based.

Consent Calendar: Those matters included under the Consent Calendar are typically self-explanatory, non controversial, and are not expected to require review or discussion. All items will be enacted by a single motion. If discussion on an item is desired, any Town Council Member, without a motion, may "pull" or remove the item to be considered separately. If any item is quasi-judicial, it may be removed from the Consent Calendar to be heard separately, by a Town Council Member, or by any member of the public desiring it to be heard, without a motion.

CALL TO ORDER

PLEDGE OF ALLEGIANCE

ROLL CALL

APPROVAL OF THE AGENDA

APPROVAL OF THE MINUTES

1. 1/28/2025 - Roadway, Equestrian Trails and Greenway Advisory Committee Meeting Minutes

PUBLIC COMMENTS

A limited public audience can be accommodated in our Town Council chambers with mandatory facemasks and socially spaced seating. Public Comments for all meetings may be received by email, or in writing to the Town Clerk's Office until 12:00 p.m. (noon) day of the meeting. Comments received will be "received and filed" to be acknowledged as part of the official public record for the meeting. The meeting will be live-streamed and close-captioned for the general public via our website, instructions are posted there.

REGULAR AGENDA

2. Discussion regarding Recommendation for Mural Mosaic Proposed Project Adoption

3. Discussion and review of the Rural Road Improvement Standards

4. Discussion and review of the Master Roadway, Equestrian Trails and Greenway Plan (MREG)

COMMITTEE MEMBER COMMENTS

CONFIRM NEXT MEETING DATE

ADJOURNMENT

TOWN OF LOXAHATCHEE GROVES

TOWN HALL COUNCIL CHAMBERS

155 F ROAD, LOXAHATCHEE GROVE, FLORIDA. 33470

ROADWAY, EQUESTRIAN TRAILS AND GREENWAY ADVISORY COMMITTEE MINUTES

TUESDAY, JANUARY 28, 2025 – 6:00 P.M. – 8:15 P.M.

Meeting Audio Available Upon Request in the Office of the Town Clerk

CALL TO ORDER

Town Clerk Assistant Sammie Brown called the Roadway, Equestrian Trail, and Greenway Advisory Committee Meeting to order at 6:00 P.M.

ROLL CALL

Present: Committee Members Katie Lakeman, Darcy Dean Murray, Frank Schiola, and Ashley Bruce. Town Manager Francine Ramaglia, Town Clerk Assistant Sammie Brown, Public Works Director & Committee Liaison Richard Gallant, Project Coordinator Jeff Kurtz, Mary McNicholas (Geoffrey B. Sluggett & Associates) and Trish Barr (Simmons and White, Traffic Engineer & Equestrian Expert).

PLEDGE OF ALLEGIANCE

Town Clerk Assistant Sammie Brown led the Committee and staff in the pledge of allegiance.

APPROVAL OF THE AGENDA

Town Clerk Assistant Sammie Brown informed the Committee that staff would be moving Item 2 to Item 1 and adding a new Item 3 regarding the swearing-in of all committee members and the selection of Chair and Vice Chair.

A motion to approve the agenda was made by Committee Member Frank Schiola and seconded by Committee Member Katie Lakeman. The motion passed unanimously, **4-0.**

COMMENTS FROM THE PUBLIC

Mr. Coleman inquired about the percentage of funding allocated to TPA's endeavors and received specific information from consultants regarding the estimated costs of pedestrian crossings. The consultants further explained that the costs have not yet been fully determined; however, crossings are estimated to range

between $25,000 and $30,000 each, with seven crossings requested, bringing the total estimated cost to approximately $250,000 to $300,000.

Mr. Coleman also asked about ADA compliance, and Consultant Mary McNicholas informed him that they would look into his question and provide further clarification.

REGULAR AGENDA

Item 1. Presentation on Transportation Alternatives with the Palm Beach County Transportation Agency

A presentation was delivered by Mary McNicholas (Geoffrey B. Sluggett & Associates) and Trish Barr (Simmons and White, Traffic Engineer & Equestrian Expert). The discussion focused on the 2019 Transportation Planning Agency's vision for a multi-use trail along Okeechobee Boulevard, integrating pedestrian, equestrian, and bicycle pathways to enhance accessibility. Key points included proposed crossing improvements at major intersections for safety, federal funding opportunities, and engineering considerations such as trail surfacing, fencing, and curbing. Safety concerns related to flashing beacons, pedestrian awareness signage, and road-sharing guidelines were also addressed. A public engagement session is scheduled for February 11, 2025, to gather further community input. The estimated cost for the initial phase of the project is $1.39 million, with an $886,000 federal grant allocated toward funding. Committee members were encouraged to submit final input before the grant deadline on February 14, 2025.

The committee members expressed a consensus to support the Transportation Alternatives project and submit the necessary grant application.

Item 2. Discussion on Rural Road Improvement Standards

Public Works Director Richard Gallant provided an overview of the town's updated Rural Road Improvement Standards, covering road construction, maintenance, drainage management, bikeway and equestrian trail requirements, and compliance with state and federal guidelines. Key discussion points included right-of-way easement consistency for future trail expansion, potential grant funding for improving existing and proposed trail systems, and safety measures for equestrians on paved roads. Committee members raised concerns about the maintenance of equestrian trails, the availability of financial resources, and the need for appropriate signage to educate motorists on equestrian crossings.

Item 3. Swearing-In and Election of Officers

Town Clerk Assistant Sammie Brown officiated the swearing-in ceremony for all committee members.

Following the swearing-in of all Committee Members, the Town Clerk Assistant called for nominations of the Chairperson and Vice Chairperson of the Roadway, Equestrian Trails, and Greenway Advisory Committee.

A motion was made by Committee Member Ashley Bruce to appoint Committee Member Frank Schiola as the Committee Chair and seconded by Committee Member Katie Lakeman. That motion passed unanimously, **4-0.**

A motion was made by Committee Chair Frank Schiola to appoint Committee Member Darcy Dean Murray as the Committee Vice Chair and seconded by Committee Member Katie Lakeman. That motion passed unanimously, **4-0.**

COMMENTS FROM COMMITTEE MEMBERS

The committee Members and staff briefly discussed possible changes to the Roadway, Equestrian Trails, and Greenway Advisory Committee and what to anticipate regarding the future of the Transportation Alternatives grant application and future meetings. Staff informed the committee that there would be an additional public outreach event hosted on February 11, 2025.

CONFIRM NEXT REGULAR MEETING DATE:

The next Roadway, Equestrian Trails, and Greenway Advisory Committee is scheduled for 5:00 P.M. Thursday, February 27, 2025.

ADJOURNMENT

Motion to Adjourn:

A motion to adjourn the meeting was made by Committee Chair Schiola and seconded by Committee Member Bruce. The motion passed unanimously, and the meeting adjourned at **7:45 P.M.**

ATTEST:

Sammie T. Brown, FRA-RP, MEDP
Town Clerk Assistant

TOWN OF LOXAHATCHEE GROVES, FLORIDA

Frank Schiola
Roadway, Equestrian Trails, and Greenway Advisory Committee

Chairperson

TOWN OF LOXAHATCHEE GROVES

155 F Road Loxahatchee Groves, FL 33470

AGENDA MEMO

TO: **Roadway. Equestrian Trails and Greenway Advisory Committee (RETGAC)**

FROM **Francine Ramaglia, CPA, AICP, ICMA-CM, Town Manager**

DATE: **Thursday, February 25, 2025**

SUBJECT: **Discussion Regarding Recommendation for Mural Mosaic Proposed Project Adoption**

Background:

On Wednesday, February 19, 2025, Vice Chairperson Darcy Dean Murry of RETGAC discussed with staff the possibility of recommending the adoption of the **Mural Mosaic Project**. This project is designed to enhance public spaces by incorporating a large-scale collaborative mural composed of individual mosaic pieces created with contributions from local artists and community members.

The concept of a **Mural Mosaic** aligns with public art initiatives that celebrate community identity, cultural heritage, and creative expression. Similar projects have been successfully implemented in other municipalities, fostering civic pride, tourism, and economic development. The recommendation was accompanied by supporting background information outlining potential locations, estimated costs, funding opportunities, and anticipated community benefits.

Recommendation:

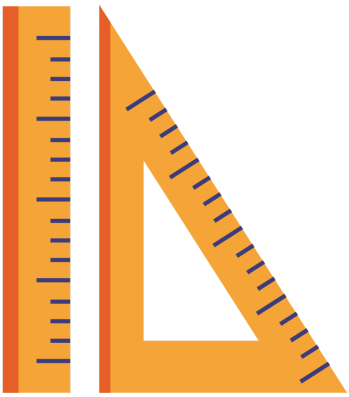
Staff recommends further discussion and review of the Mural Mosaic Project to assess feasibility,

Ready to Paint a Mural Mosaic with your Community?

Let's get this painting party started! We're ready to create a magnificent mosaic with your community, organization, business or team. Read on to learn how to bring a production to your group.

Request a Quote

How does Producing a Mural Mosaic actually Work?



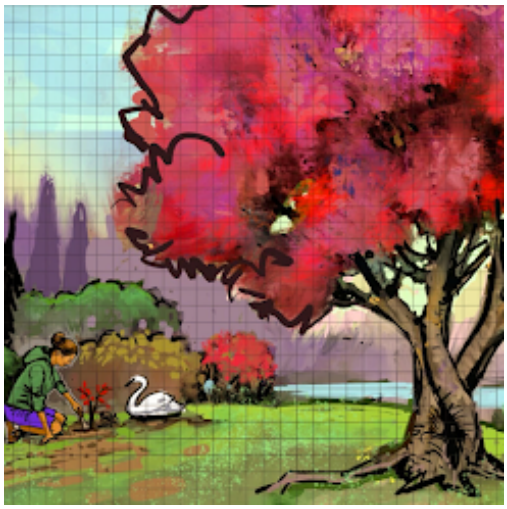
1. Decide Your Mural Size

Our team will work with you to determine a mural size based on your wall area and total participants.

You can have as large a mural for as many people as you like - our smallest murals are 8×8 foot for up to approximately 300 participants.

We have produced murals for 1000's of participants; simply tell us how many participants you have and how big you'd like the mural to be.

We can size a mural mosaic as large as you decide!



2. We'll Create a Custom Design for your Mural

Working with your preference for an overall design, our artist will create an image that fits exactly what you want.

The best murals have one overall image (ie. Tree, Eagle, Canoe, Bridge, Sailboat) then our team paints hundreds of custom tiles that can represent your community, business or cause to add to your mosaic.

You will approve your custom mural final design so your mural is exactly the image that you want.

3. Paint Your Tiles!

Our studio crew will cut your mural into tiles for your participant painting kits created with custom color palettes so that your group's completed paintings fit into your final custom design.

Gather your participants for a group painting party or distribute your kits to individuals for return to our studio so we can produce your final mural.

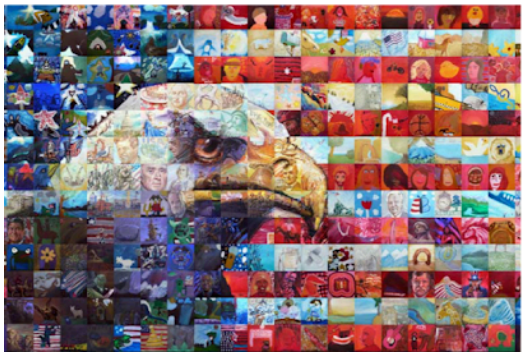
Our team will work with you to recommend the best paint and collect strategy for your unique project.

Item 2.

Behold the *magical transformation of your custom Mural Mosaic!

*ask about the behind the scenes magic of our mosaics






Contact Us

Got questions? We've got answers!

How long does a mural production take?

Mural productions run 6–18 months depending on overall size of mural and total number of participants. Our team of artists, graphic and web designers, mural production and studio crew spend hundreds to thousands of hours on each mural. *Ask us about the magic behind the mosaics!

How many participants can we invite to paint and how big can our mural be?

You can have as large a mural for as many people as you like - our smallest murals are 8×8 foot for up to approximately 300 participants. We have produced murals for 1000's of participants, tell us how many participants you have and how big you'd like the mural to be!

Would a Mural Mosaic work for a Team Building Event?

Yes! We have produced murals for several conference and team building events! Tell us about your group and we can customize a Mural Mosaic Team Building Event for your team.

Can a Mural Mosaic be promoted as a fundraiser?

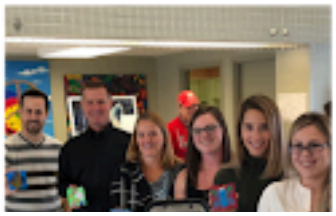
Once you hire us to produce a mural, you are most welcome to promote your production as a fundraiser; this is a separate activity from our contract with you. Our team can give you many examples of how organizations have structured their mosaics as fundraisers.

Is there an age or skill limit required?

Everyone of any age or skill level is welcomed to paint in a mural mosaic! Each kit comes with easy to understand instructions and encouragement to put brush to canvas to experience the joy of painting in a collaborative art piece.

Who installs the mural?

We leave installation on your wall up to the receiving organization with lots of support from our production team for advice from our experience - the installation process is super simple and easy.



Who is Mural Mosaic?

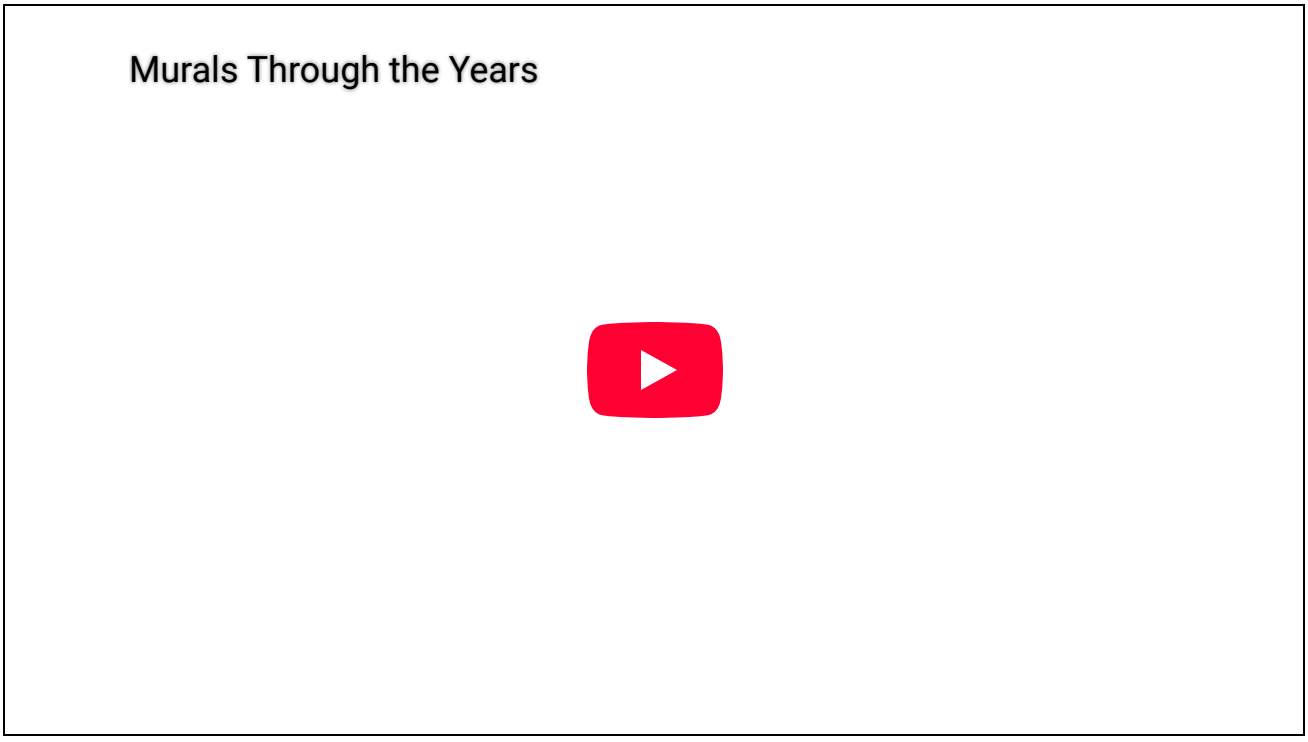
Mural Mosaic has been connecting communities, businesses, schools and teams since 2003.

Founded by Lewis & Paul Lavoie, their passion is unity through diversity. The brothers Lavoie with Mural Mosaic's extended leadership team, artists, graphic designers and studio support crew have

created murals around the world!

At the heart of Mural Mosaic is the message of collaboration and community, celebrating our love of art; connecting tile to tile, creating a moving mosaic legacy of a moment in time.

We are grateful for the opportunity to have worked with so many incredible organizations to celebrate their milestones and to create lasting memories in these beautiful expressions of mosaic art murals.



Ready to create a Legacy?

Bring a Mural Mosaic Project to your Community, Organization or Business today to experience the joy of painting while celebrating unity through diversity - each unique brushstroke represented in the final collaboration creates a legacy artwork for everyone to enjoy.

Contact Us

Contact us today!

Please complete the questions with as much detail about your organization, business or team that you can give us and our Director will connect with you to provide a quote.

First Name

First Name

Community, Business or Organization Name

Community, Business or Organization Name

City & Province/State

City & Province/State

Email

Email address

Phone Number

Phone Number

Approximate Participant Total

Approximate Participant Total

Mural/Wall Size (ie. 8×8 foot, 8×12 foot, 12× 12 foot)

Mural Size

Tell us about your Organization or Event

Tell us more here; include any questions about a production

Click to Submit

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Privacy Policy

TOWN OF LOXAHATCHEE GROVES

155 F Road Loxahatchee Groves, FL 33470

AGENDA MEMO

TO: **Roadway. Equestrian Trails and Greenway Advisory Committee (RETGAC)**

FROM **Richard Gallant, Director of Public Works**

DATE: **Thursday, February 25, 2025**

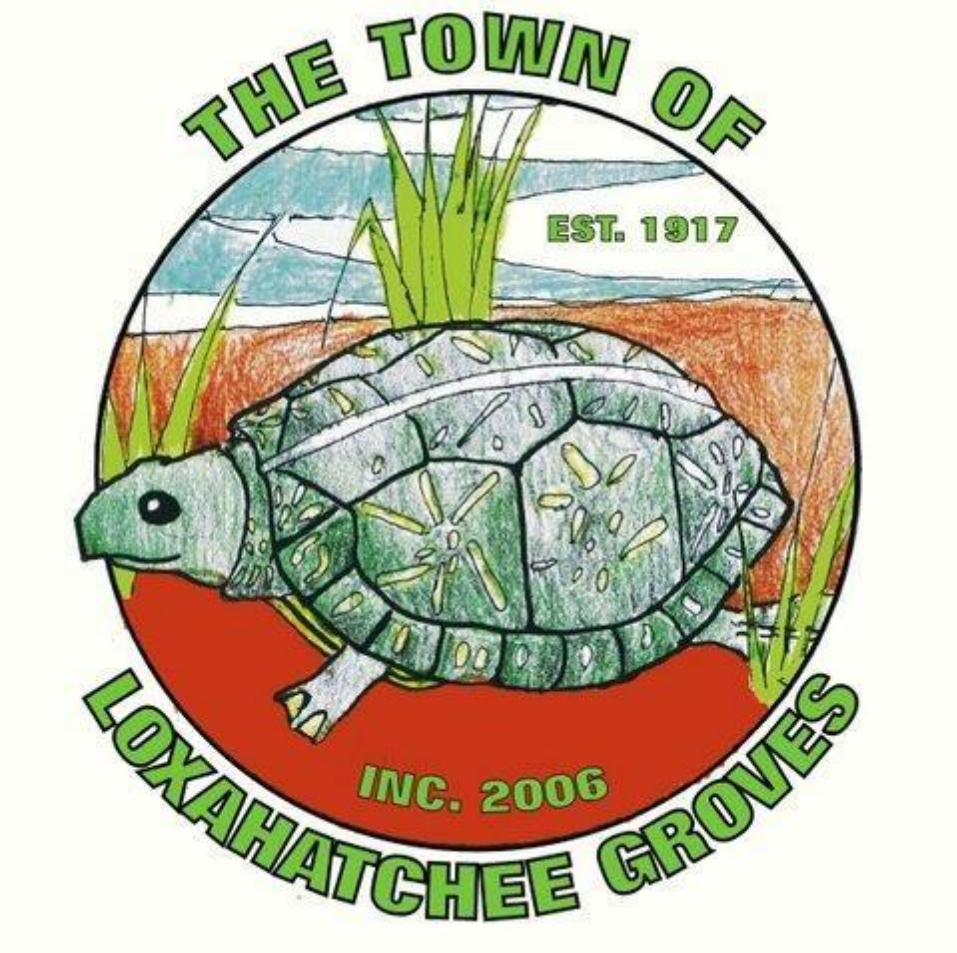
SUBJECT: **Discussion and review of the Rural Road Improvement Standards**

Background:

The continued review of the Draft 2025 Rural Road Improvement Standards originally presented at the January 28, 2025, RETGAC meeting. Should any Committee Member wish to review the standards or have questions concerning the standards prior to the meeting, please contact Richard Gallant, Public Works Director. +1 (561) 985-2778 * RGallant@loxahatcheegrovesfl.gov

Recommendation:

Staff requests that the RETGAC review and discuss the proposed 2025 Rural Road Improvement Standards and provide a formal recommendation to the Town Council for their consideration.



RURAL ROAD IMPROVEMENT STANDARDS
UPDATED FEBRUARY 2025

I. Table of Contents

I. PURPOSE AND APPLICABILITY

The purpose of the Rural Road Improvement Standards is to establish unique road improvement design standards that are rural (rather than urban) in character for future road improvements in the designated Rural Residential area of the Town. The intent of the Rural Road Improvement Standards is to preserve and enhance the existing rural character of the Rural Residential Area consistent with the policy direction in the Comprehensive Plan. It is not the intent of these new design standards to change the planned roadway improvements outlined in the adopted Comprehensive Plan, but rather to affect the design and potentially construction timing of those future improvements to be more rural in character.

Once adopted by the Town Council, the Rural Road Improvement Standards shall apply to all future road improvements within the Town, including all new road widening and intersection improvements, as well as roadway paving and new road construction. These design standards shall also apply to previously approved road improvement projects within the Town that are not yet constructed or otherwise vested. For example, design specifications for intersection light standards outlined herein will be utilized on all public roadways where other intersection light fixtures have not already been purchased and/or placed.

The Rural Road Improvement Standards is a value-based approach for incremental (rather than ultimate) road improvements that solve specific traffic issues identified through periodic evaluations of traffic conditions. The Rural Road Improvement Standards document is based on principles of Context Sensitive Design. Under this policy, roads are not simply built to the projected ultimate improvement unless the actual demand exists. By phasing road improvements, the character of the rural residential area can be maintained.

II. RELATIONSHIP TO OTHER TOWN-ADOPTED PLANS AND POLICIES

COMPREHENSIVE PLAN

The Rural Road Improvement Standards implement the Comprehensive Plan goals, policies, and actions. These standards implement the provisions of the Future Land Use and Transportation Elements regarding the maintenance of features that create the rural character, including small local roadways and their functional characteristics and multiple use. Pursuant to State law, implementing documents must be consistent with the Town's adopted Comprehensive Plan.

UNIFIED LAND DEVELOPMENT CODE (ULDC)

The Rural Road Improvement Standards supplement the allowed use and development standards in the Town's adopted ULDC. Both documents are planning tools used by the Town to guide the physical form and function of the community consistent with the Comprehensive Plan. While most of the Town's ULDC regulations apply to land outside the public right-of-way, the rural roads Improvement standards focus on improvements within the public right-of-way. The ULDC does include special development standards for improvements within and adjacent to the right-of-way, including but not limited to access, fencing, special signage, and clear visibility requirements at the intersections of streets and driveways.

TOWN WIDE IMPROVEMENT STANDARDS

The Rural Road Improvement Standard document replaces the Districtwide Paving Analysis Report for design details associated with the Town's local roads, as defined in the Transportation Element of the Comprehensive Plan (Refer to Appendix A).

TRAILS MASTER PLAN

The Trails Master Plan is an expression of the Town's desire to have an exemplary off-street equestrian trail system that provides connectivity throughout the Town in order to offer recreational opportunities and an alternative method for transportation for Loxahatchee Groves residents. The Trails Master Plan discusses the use of off-street trails throughout the Town and is not part of this Rural Roads project since the Rural Road Improvement Standards focus on improvements in the right of way.

III. DEFINITIONS

Arterial streets- The arterial system carries the major portion of trips entering and leaving the urban area, as well as the majority of through movements. In addition, significant intra-area travel, such as between residential areas and commercial or business should be served by this system.

Average Daily Traffic (ADT) - The average of 24-hour traffic flows on a roadway segment (both directions) measured over multiple days, typically over a week or longer, measured under typical operating conditions excluding holidays, non-recurrent conditions (i.e., accidents), and times when schools are not in session.

Collector Streets - Provide both land access service and traffic circulation within residential neighborhoods, commercial and industrial areas. Collectors penetrate residential neighborhoods, distributing trips from the arterials through the area to the ultimate destination. Conversely, the collector street also collects traffic from local streets in residential neighborhoods and channels it into the arterial system.

Context Sensitive Design – Tailoring roadway design to adjacent land use with sensitivity to community values and considers cultural, historic, environmental and economic as well as traffic issues. Community members and Town staff are involved in a collaborative process that includes people/stakeholders with diverse expertise in order to reach solutions.

Endangered or Threatened Plant Species – Landscaping that is endangered or threatened shall not be removed without permission of the landowner. The list of endangered or threatened species is found in the Florida Administrative Code Chapter 5B-40.0055 – Regulated Plant Index

Invasive Species – Landscaping that is found on the Noxious Weed List in the Florida Administrative Code 5B-57.007. These plants shall be removed from any property and properly disposed of when a project under the scope of these standards is constructed.

Local streets - Primary function is to provide direct access to abutting land and access to collector streets. It offers the lowest level of mobility.

Median - Generally raised and curbed area separating opposing lanes of traffic.

Native Landscaping - Landscaping that is native and does not contain ornamental plantings. A list of native landscaping can be found on the UF/IFAS Extension website at https://gardeningsolutions.ifas.ufl.edu/plants/ornamentals/native-plants/

Off Street – Improvements that are not located in the public right of way

On-Street –Improvements that are located in the public right of way

Right of Way – A strip of land occupied or intended to be occupied by certain transportation and public use facilities such as roadways and utilities.

Roundabout – A roundabout is larger than a traffic circle and used to allocate right-of-way for competing movements.

Rural Road – A roadway that is located within the Rural Residential Area of the Town.

Traffic Circle – A traffic circle is used as a traffic calming device at intersections that typically fit within the existing curb line.

Traffic Control Device – Traffic control devices shall be defined as all signs, signals, markings, and other devices used to regulate, warn, or guide traffic, placed on, over, or adjacent to a street, highway, pedestrian facility, or bikeway by authority of a public agency having jurisdiction.

IV. GENERAL PROCESS

Implementation of Rural Road Improvement Standards

The process for implementation of these Rural Road Improvement Standards is outlined in this document. Once the need for an improvement is identified, the Town will work with affected property owners and rural residents to discuss impacts and alternatives. Town Council will provide direction on the alternatives and the Capital Improvement Project Process outlined below will commence.

Capital Improvement Project Process

Roadway and intersection improvements are carried out by the Town Public Works Department and are listed as Capital Improvement Projects (CIP). Listed below are the steps of a CIP project.

1. Preliminary roadway evaluation to identify options, opportunities and constraints,
2. Employ the services of a surveyor to establish right-of-way, easement, or property lines so residents can visualize the improvement,
3. Community outreach meetings with affected property owners,
4. Preliminary project design, scope, and environmental evaluation,
5. Refine project design, scope, and environmental evaluation as needed to remain within budgetary constraints and proceed with certification,
6. Certification of the final preferred project,
7. Right-of-way engineering and negotiations-primarily with individual property owners,
8. Final design with more details in the defined right-of-way (e.g., landscape, lighting design, driveways) for review, comment, and approval by the Town Council after recommendations from the affected property owners,
9. Request bids for construction, award contract, and commence construction.

V. ROADWAY DESIGN

This section includes basic street typologies describing the range of public roads within the Rural Residential Area. The Rural Road Standards, identified as Table 1 Roadway Classifications, identifies the roadway design specifics for each of those road typologies. As stated in the Rural Roads Improvement Policy document, roadway widening shall occur when certain thresholds are met. The street sections shall be refined on a case-by- case basis for the preservation of trees. All roads will have minimal lane width with open drainage and native landscape. Roads within the Rural Residential Area will typically not include curb, gutter, or sidewalk. Except for demonstrated safety needs or for necessary tree preservation, there shall be no medians in the Rural Residential Area.

STREET SECTIONS

Roadways in the Rural Residential Area shall have a rural character that will include minimal lane widths. Roadway section standards are shown in the Rural Roads Standards table on page 9 of this document and include provisions for center turn lanes for improved access and safety.

EQUESTRIAN TRAILS OR PATHS

Horses and riders have the right-of-way on all local streets where equestrian trails are not presently available or accessible.

There may be places within the Rural Residential Area where equestrian trails or paths are necessary or desired (e.g., designated pedestrian access to schools and community facilities or commercial uses, connection to Townwide trail system). If included within the Rural Residential Area, paths shall be constructed with a surface such as compacted soil, shell rock, decomposed granite or other similar surface, that is appropriate for the intended use.

BIKEWAYS

Bike lanes and bike routes can be included as part of the roadways within the Rural Residential area as needed and as space permits. Bicycle circulation through the rural area will be provided with the use of bike routes and bike lanes for connectivity to Townwide trail system. Bike routes and bike lanes have been accounted for in the Rural Road Standards table in this document in the paved shoulder column.

CENTER TURN LANES

For the Rural Residential Area, use of center turn lanes will have a negligible effect on roadway capacity in the Town since the volume of turning traffic into and out of adjacent properties is low. However, the benefit of a center turn lane may be substantial for local residents that may have difficulty accessing their property. Consequently, center turn

lanes may be considered for implementation at any time to improve safety and convenience independent of intersection improvements. The need for center turn lanes will be determined on a case-by case basis.

MEDIANS

Except for demonstrated safety needs or for necessary tree preservation, there shall be no medians in the Rural Residential area. If needed for tree preservation, the inside travel lane (closest to the median) will be 12 feet and include a curb between the travel lane and median and will include curb cuts in order to facilitate drainage from around the tree.

LANDSCAPE

Rural roadways shall have native landscaping within the public right-of-way. Ornamental plantings will not be part of the project unless they are pre-existing. The landscaping will not be irrigated except as necessary for establishment. Healthy, viable trees shall be saved wherever possible. Exotic and Noxious plants shall be removed from the project area.

GUARDRAIL

Guardrails should be used along all roadways to protect drivers and vehicles from roadside hazards. Guardrails, when used, should be designed in accordance with FDOT Section 536 following the plans located in the FDOT Standard Plans Index 536.

DRAINAGE

Rural roadways shall include open swales for drainage. Native vegetation will be allowed to grow within the open swale as long as the vegetation does not reduce the efficiency of the swale or create a fire hazard. Swale width shall be the minimum necessary to accommodate the drainage requirements of the particular roadway and adjacent properties.

Roadside swales shall be designed and constructed as necessary to accommodate the drainage requirements of the particular roadway and adjacent properties. Roadway drainage improvements shall incorporate sound engineering practices to maintain the integrity of the roadway and the conveyance of storm water runoff.

TRAFFIC CALMING

There are many methods for traffic calming that can be employed by the Town. The Town standard is the Seminole style speed hump. The details for the traffic calming can be found in Appendix B. The design of this hump is as follows.

1. The total length of the speed hump is 22 foot in length;
2. The total elevation at the “table” section is 3.5”;
3. The ramp length is 6 foot in length;

4. The flat section is 10 foot in length;
5. “Speed Hump” signs shall be placed immediately prior to start of the speed hump.
6. Within 150’ foot of the base of the speed hump a “Bump Ahead” sign shall be placed.

EXISTING CONDITIONS

All current roads that are in service at the time of adoption of these standards are non-conforming roads that are considered in compliance with the standards at the time of the road’s installation. As these roads are milled and overlayed or significantly improved, they will be required to be brought up to the current accepted standards.

VI. ROADWAY CLASSIFICATIONS The roadway classifications levels are identified as follows:

1. County and State Roads – Okeechobee Blvd and Southern Blvd - Okeechobee Blvd is classified as a County Road and the road surface is maintained by Palm Beach County. The signs and striping are maintained by the Town. Southern Blvd is a State Road, and the Town has no maintenance obligation for this road. The weight limit on County and State Roads is determined by the agency responsible per Florida Department of Transportation Guidance.

2. Service Level 1 – Throughfare Roads – B Rd, D Rd, and F Rd – These arterial roads are defined as "Principal public access from Town properties to both Okeechobee Blvd and Southern Blvd." All service level 1 roads are a paved surface and stripped in accordance with the road paving guidance at the time of paving and striping. These roads should have a maintained drive width of at least 20 feet with a preferred width of 24 feet. The weight limit on service level 1 roads is 22,000 lbs.

3. Service Level 2 – Primary Roads – A Rd, C Rd, and E Rd – These arterial roads are defined as "Public access from Town properties to Okeechobee Blvd or Southern Blvd." This includes the following lettered roadways A Rd, C Rd, and E Rd. The primary roads are usually at least a half mile in length and should have a maintained drive width of at least 18 feet with a preferred width of 24 feet. These roads are currently a combination of paved and unpaved surfaces. The weight limit on these roads is 22,000 lbs.

4. Service Level 3 – Subdivision Neighborhood Roads – Upper and Lower North Rd, Collecting Canal Rd, Compton Rd, Bryan Rd, Casey Rd, Marcella Rd, Tangerine Dr, E Citrus Rd, Gruber Ln, and 6th Ct N – These collector streets are defined as "Connector public access between two or more Service Level 1 or Service Level 2 roads." These roads have a typical straight away length of at least one half a mile, servicing at least 12 lots. These roads should have a maintained drive width of at least 18 feet with a preferred width of 24 feet. These roads are a combination of paved and unpaved surfaces. The weight limit on these roads is 22,000 lbs.

5. Service Level 4 – Subdivision Non-Through Roads – These roads are defined as "Non-through public direct access to Town properties." These roads are connected to service level 3 roads and are typically considered dead end roads. These roads should have a maintained drive width of at least 16 feet with a preferred width of 20 feet. These roads are a combination of paved and unpaved surfaces. The weight limit on these roads is 22,000 lbs.

6. Service Level 5 – Private Roads – These roads are defined as "Non-through

private direct access to Town properties." The roads are considered and labeled as privately maintained subdivision roads. These roads are not built, paved, or maintained by the Town. Zoning code states the road surface for a private road shall be a minimum of 15 feet and will make the recommendation on the most efficient surface and manner to maintain the road. The weight limit on these roads are restricted to rating provided by the engineer of record who designed them.

Table 1 Roadway Classifications

Rural Road Classification	Lane Width (Minimum)	Paved Shoulder	Unpaved shoulder/transition	Roadside Ditch	Total Pavement Width	Turn Lane Width
Level 1 (>400 ADT)	10-ft	1 to 3-ft	1-ft	Open, varies	20 to 24-ft	11
Level 2 (<400 ADT)	10-ft	1 to 3-ft	1-ft	Open, varies	20 to 24-ft	0
Level 3	10-ft	1 to 3-ft	1-ft	Open, Varies	18 to 24-ft	0
Level 4	10-ft	1 to 3-ft	1-ft	Open, Varies	16 to 20-ft	0
Level 5	8	1 to 3-ft	1-ft	Open, Varies	15 to 20-ft	0
2-lane	11-ft	3 to 5-ft	3-ft	Open, Varies	28 to 32-ft	0
2-lane + center turn lane	11-ft	3 to 5-ft	3-ft	Open, Varies	40 to 44-ft	12-ft

VII. INTERSECTION DESIGN

Intersection improvements shall be phased and constructed as needed based on traffic counts. Intersections will be designed in keeping with the rural character of the area and shall not include curb, gutter, and sidewalks and will have only minimal safety lighting.
Phased Intersection improvements are based on traffic volumes The intersection improvements are the maximum that would be made at an intersection. Once the threshold is met, the intersection will be evaluated to see if all the improvements listed are warranted.

INTERSECTION IMPROVEMENTS

Intersections shall not adversely affect nor alter or detract from the existing rural residential appearance, appeal, or quality of life. Improvements will include designs and scale that minimizes pavement and use of turn lanes whenever possible.
Luminaires may not be required on all four corners of an intersection. Lighting analysis software shall be used to determine the minimum number of luminaires required at an intersection to meet standard illumination requirements. Lighting requirements at specific intersections will be evaluated on a case-by- case basis.
The installation of curb, gutter, and sidewalk is not required and shall not be a part of the signalization of an intersection. Other options that may be considered when an intersection is signalized are placing signal poles farther from the edge of travel way, placing berms around signal poles or signal cabinets, and providing small pedestrian refuge areas at the edge of the road where a crosswalk is proposed.

DRIVEWAY SEPARATION (NEW DRIVEWAYS ONLY)

When existing driveways are near an intersection and their access is impacted by intersection improvements then a special evaluation is required. The Town will work with affected property owners to determine appropriate action to maintain property access. For new driveways, compliance with Section 100 of the Unified Land Development Code is required.

SIGHT TRIANGLES

The Town of Loxahatchee Groves has established Article 105-005 in regard to sight triangles at various interception types.

1. *Intersection of driveway and street.* Where a driveway intersects a street, the triangular area of property on both sides of a driveway, measured 10 feet from the intersection, and on the street line, measured 10 feet from the intersection, shall form two legs of the sight distance triangle, and the third side being a line connecting the ends of the two other sides.
2. *Intersection of trail and street.* Where a trail intersects a street, the triangular area of property on both sides of a trail, measured 10 feet from the intersection, and on the street line, measured 10 feet from the intersection, shall form two legs of the sight distance triangle, and the third side being a line connecting the ends of the two other sides.
3. *Intersection of two streets.* Where two streets intersect, the triangular area of

property on all sides of the intersection measured 25 feet from the intersection, and on the street line, measured 25 feet from the intersection, shall form two legs of the sight distance triangle, and the third side being a line connecting the ends of the two other sides.

In addition to these requirements, properly located and designed driveways and intersections allow drivers to visualize oncoming traffic at the point where the driveway meets the road. Vegetation such as tree limbs, shrubbery, and bushes should be maintained at a level to promote adequate visibility. For all Town roads a proper sight distance of 335 feet should be maintained if you look to the left and 290 feet if looking to the right.

Cameras

The Town of Loxahatchee Groves has contracted the services of an automated speed detection system to detect and cite those driving in excess of the posted speed limit. These devices will be deployed in school zones to enforce school zone speed for the safety of our children and the pedestrian traffic who may be traversing these areas. Locations and associated fines are outlined by the ordinances passed by the Town Council. In addition to the speed detection cameras, the Town is deploying license plate reading cameras at critical intersections in cooperation with the Palm Beach County Sheriff's Office to assist law enforcement, providing safety and protection for our residents. The location of these cameras will be determined by Town Management through discussions with the Palm Beach County Sheriff's Office and the vendor. These cameras will be used exclusively by the aforementioned parties. Future locations will be considered as needed. Installations will be located at a minimum of 6 feet from the road edge if not protected by a curb or guardrail. The distance will be 2 feet if the camera is protected by a raised Type “D” or Type “F” curb or a guard rail.

VIII. INTERSECTION LIGHTING STANDARDS AND DESIGN

The least intrusive intersection lighting is to be considered when improvements are made at an intersection, where lighting is needed for safety reasons, or when a new intersection is constructed. Continuous roadway lighting is not to be installed. Computer software shall be used to calculate the optimum location, height, and spacing for alternative lighting solutions at each intersection. All lighting shall comply with Section 50-030 of the current edition of the Unified Land Development Code.

LIGHTING SOURCES

Energy efficient LED lighting is preferred due to the more natural color rendition and pure white light. LED fixtures are energy efficient and have a long service life. High pressure sodium or metal halide lamps are not permitted.

DARK SKY

To minimize trespass lighting to the skies, full cutoff luminaires are required. Full cutoff luminaires are designed so that they do not emit any light above 90 degrees, thereby reducing sky glow. Ensure the design results in good uniformity to improve visibility and minimize reflected light into the sky.

POLE HEIGHTS

The height of any outdoor lighting pole shall not exceed 25 feet per Section 50-030 of the current approved edition of the Unified Land Development Code.

SHIELDS

Use internal or external shields when necessary to minimize light trespass onto neighboring properties. Use of shields should be evaluated to ensure they do not impact the required intersection lighting levels.

IX. SPECIAL SIGNAGE

Signage can be used for many purposes in the Rural Residential Area. Signs can identify that a motorist is entering a Rural Residential Area as well as posting a speed limit for the area.

AGRICULTURAL VEHICLE, LIVESTOCK, HORSE CROSSING, AND PEDESTRIAN CROSSING SIGNS

Signs that indicate to motorists they are in a Rural Residential Area are encouraged. These signs may be used at appropriate locations in the Rural Residential area.

SPECIAL SPEED LIMIT SIGNS

Speed limit signs that utilize radar for detecting speed shall be used whenever possible in key locations along 2- and 4-lane arterials with Town approval.

W11-7

W11-5

X. ROADWAY CONSTRUCTION SPECIFICATIONS

1. Roadway Design Requirements

1.1 General Design Standards

- **Follow AASHTO Green Book for geometric design principles.**
- **Adhere to FDOT SP-12.5 asphalt specifications for surfacing where applicable.**

1.2 Geometric Design

Design Parameter	Specification
Design Speed	30 mph (based on road classification).
Design Weight	80,000 pounds
Roadway Width	Arterial and Collector Roads: 20’ Min., 24’ Preferred; Local Roads: 18’ Min., 20’ Preferred.
Shoulder Width	2 feet, Shell Rock preferred.
Stopping Sight Distance	As per AASHTO for selected design speed.
Cross Slope	2–4% to facilitate proper drainage.
Pavement Thickness	SP-12.5 asphalt, 2.5 inches thick on compacted base rock.
Base Layer	Minimum 10 inches of compacted limerock or shell rock base (LBR 100).
Subgrade Layer	12” Compacted Subgrade
Shoulder Cross Slope	4–6% to prevent water accumulation.

1.3 Road Surfacing

1. **Asphalt Pavement:**
    - **Material: SP-12.5 asphalt mix, as per FDOT Specifications.**
    - **Thickness: Minimum 2.5 inches compacted thickness.**
    - **Base: Minimum 10 inches of limerock or shell rock base (LBR 100) compacted to 98% maximum density per AASHTO T-180.**
    - **Subgrade: Minimum 12 inches of compacted to 98% maximum density pre AASHTO T-180.**
2. **Shell Rock Roads:**

- **Surface thickness: Minimum 8 inches of limerock or shell rock base (LBR 100) compacted to 98% maximum density per AASHTO T-180.**
- **Subgrade: Minimum 12 inches of compacted to 98% maximum density pre AASHTO T-180.**
- **Gradation: base to 1-12 shell to ensure load-bearing and minimal dust.**

2. Roadway Drainage Specifications

2.1 Roadway Drainage Principles

- **Effective drainage is essential for rural road longevity and safety.**
- **Get water off the road quickly and avoid water running lengthwise along the road.**

2.2 Cross Slope and Road Crown

- **Cross Slope:**
  - **Asphalt Roads: 2–4% slope.**
  - **Shell Rock Roads: 4–6% slope to allow for water runoff.**
- **Crown: Maintain a consistent crown to ensure water dispersal to shoulders and ditches.**

2.3 Shoulders and Ditches

1. **Shoulders:**
   - **Width: 2–4 feet, surfaced with Shell Rock or compacted soil.**
   - **Cross Slope: 4–6% for proper drainage.**
2. **Ditches:**
   - **Slope:**
     - **2:1 for stable soils.**
     - **3:1 for erodible soils or where safety concerns exist.**
   - **Depth: Minimum 18–24 inches below the road surface.**
   - **Lining:**
     - **Grass-lined for non-erosive flows (less than 2 ft/sec).**
     - **Stone or riprap-lined for erosive or high-velocity flows.**
3. **Ditch Maintenance:**
   - **Regular cleaning to remove obstructing sediment and vegetation.**

- **Avoid direct discharge into canals—use vegetated buffers or turnouts.**

2.4 Culverts and Stream Crossings

1. **Culverts:**
    - **Material: Corrugated Aluminum pipe (CAP) reinforced concrete pipe (RCP), or Advanced Drainage Systems ADS-HP pipe.**
    - **Minimum Diameter: 18 inches.**
    - **Design Capacity: Accommodate 100-year storm flows with debris allowance.**
    - **Placement: Ensure proper bedding and alignment to prevent erosion.**
    - **Reinforced concrete pipe must include a headwall at any otherwise unsupported ends**
2. **Low-Water Crossings:**
    - **For low-flow swales with minimal environmental impact.**
    - **Surface: Reinforced concrete or riprap for erosion resistance.**
3. **Headwalls:**
    - **Install concrete or riprap headwalls to stabilize culverts where pipes penetrate the sloped ground surface**

2.5 Roadside Drainage Structures

- **Swales: Grass-lined or stone-lined swales for low-velocity runoff.**
- **Turnouts: Divert water away from ditches into vegetated areas to reduce erosion.**
- **Energy Dissipation: Use riprap aprons or plunge pools at culvert outlets.**
- **Catch basin: collect runoff where necessary and install culvert connection to receiving canal**

3. Safety Features

- **Signage and Markings: Comply with MUTCD standards for rural roads.**
- **Clear Zones: Maintain a 10-foot recovery area where feasible.**
- **Pavement Markings:**
    - **Centerlines: Required for roads >20’ and with traffic >400 vehicles/day.**
    - **Edge lines: Recommended for all paved roads >20’.**

4. Maintenance and Rehabilitation

1. **Paved Roads (SP-12.5 Asphalt):**
    - **Crack Sealing: Annually for cracks >1/4 inch wide.**
    - **Patching: Use hot mix asphalt for potholes and localized failures.**
    - **Overlays: Apply 1–2 inches of new asphalt every 8–12 years based on traffic load.**
2. **Shell Rock Roads:**
    - **Grading: Grade monthly to maintain cross slope and crown.**
    - **Re-Shell Rocking: Add new aggregate every 2–3 years or as needed.**
3. **Drainage Systems:**
    - **Clean ditches and culverts annually to ensure unobstructed flow.**
    - **Stabilize eroded areas with vegetation or stone as needed.**
    - **Take advantage of natural slopes and well-drained subgrade when possible to promote safe and efficient collection and removal of water from roadways and reduce saturation of roadway and base materials**

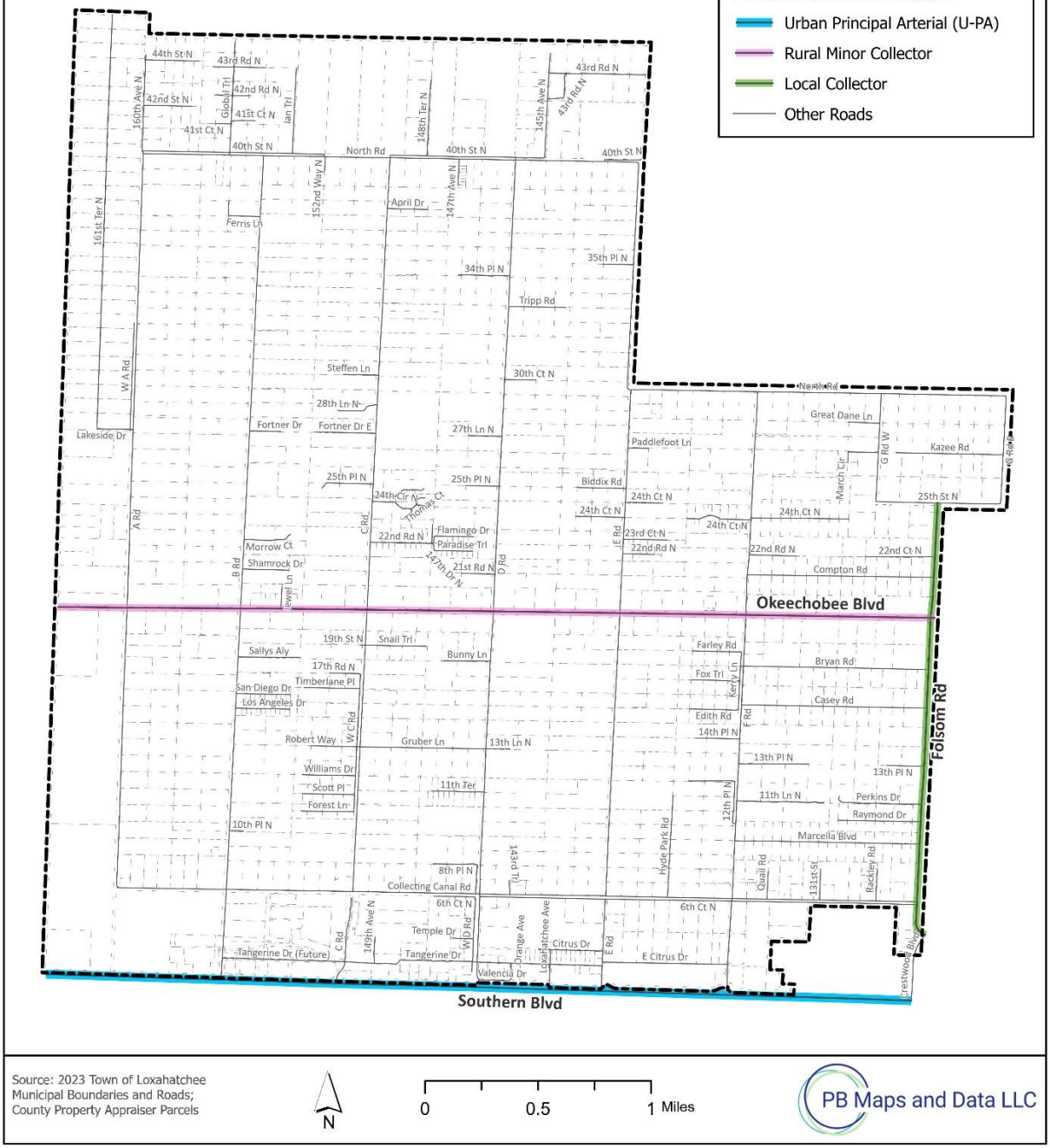
5. Environmental and Cost Considerations

- **Design roads to minimize environmental impact, avoiding wetlands and flood-prone areas.**
- **Use erosion control measures such as grassed swales, riprap, and sediment basins.**
- **Balance cost and performance using locally sourced materials for subbase and surfacing.**

APPENDIX A

LOXAHATCHEE GROVES FLORIDA

MAP TRN-1 - Major Roads Functional Classification Map



Source: 2023 Town of Loxahatchee Municipal Boundaries and Roads; County Property Appraiser Parcels

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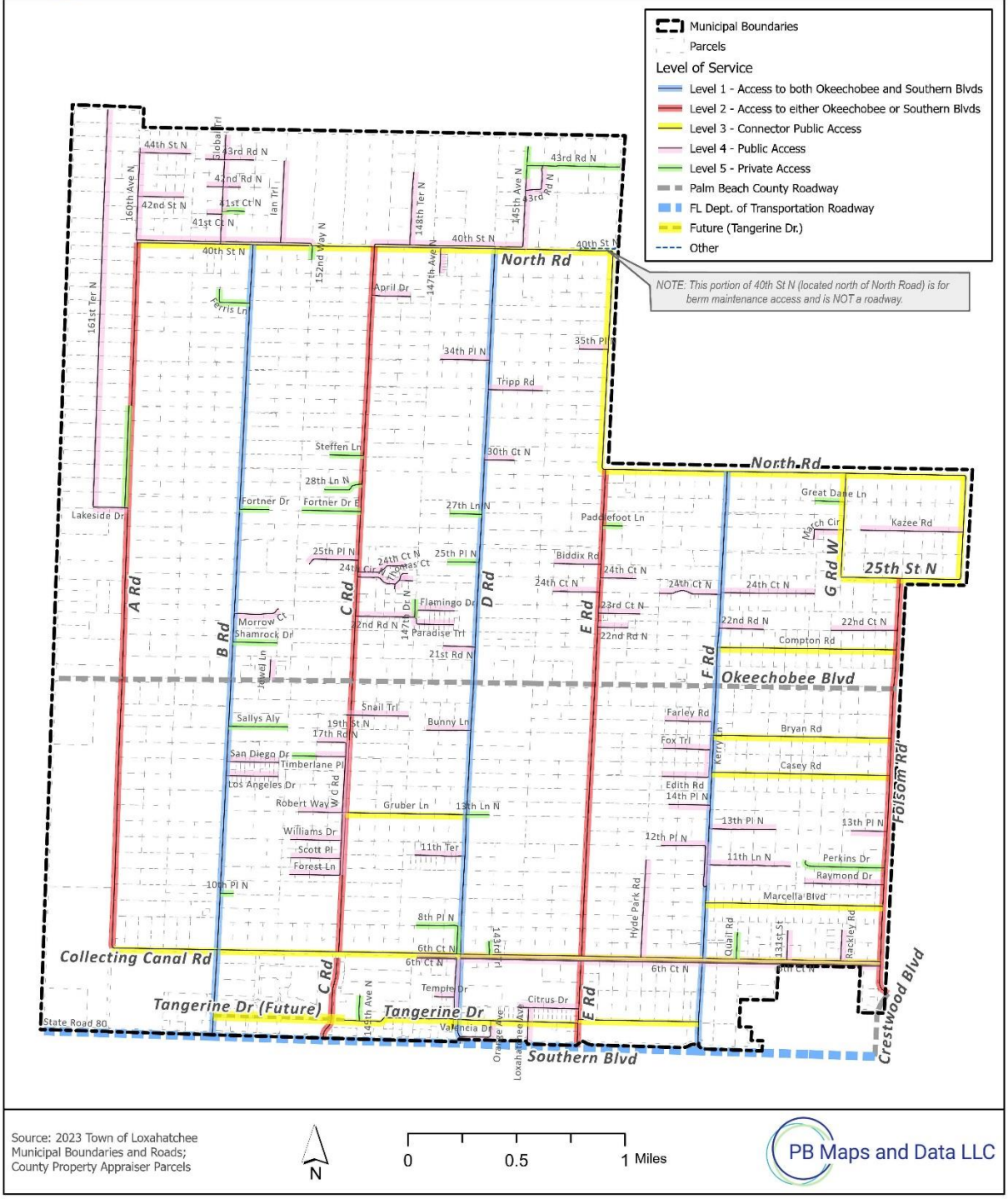
0 0.5 1 Miles

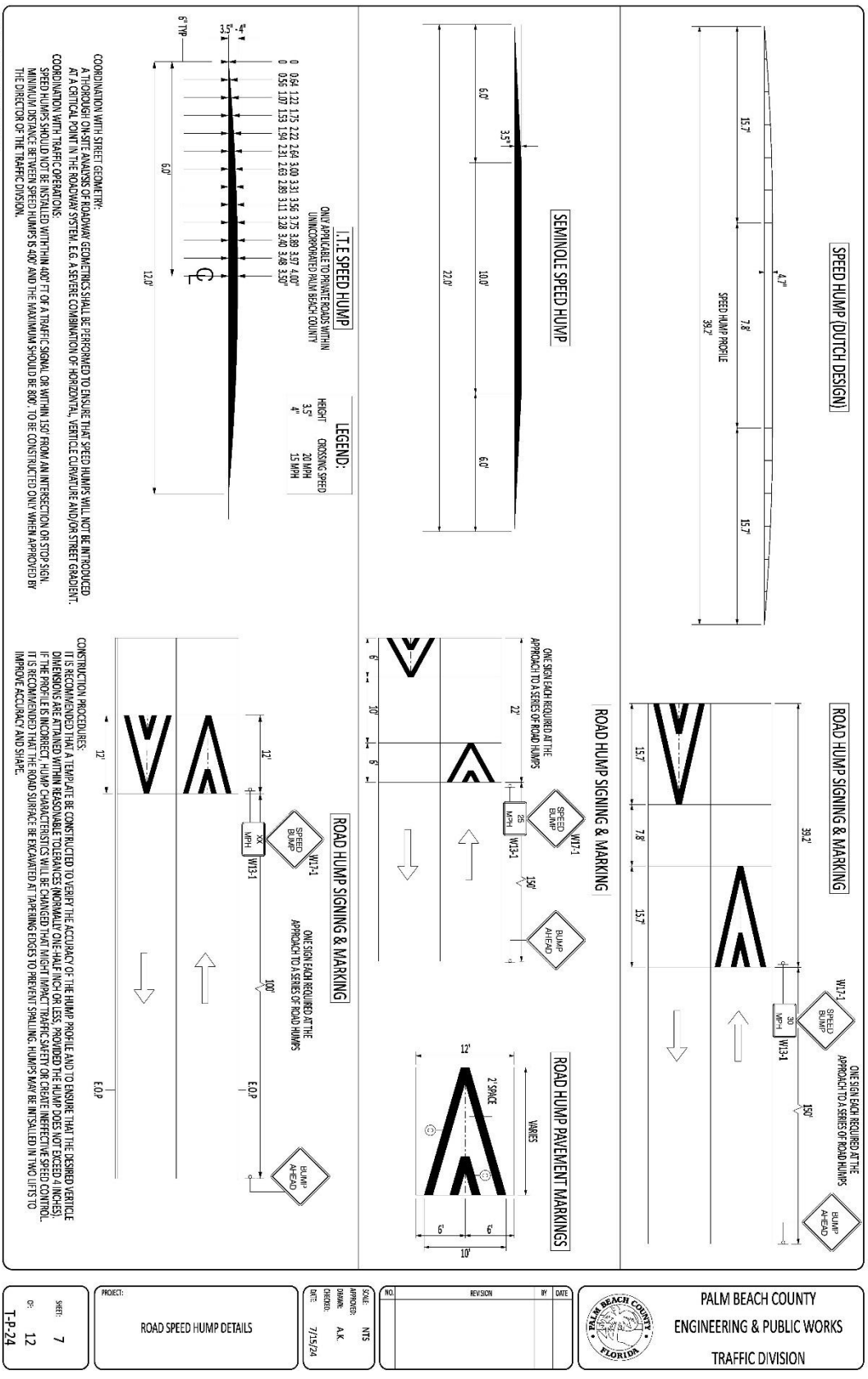
PB Maps and Data LLC

LOXAHATCHEE GROVES
FLORIDA

MAP TRN-2 - Local Roads Classification Map



APPENDIX B



PALM BEACH COUNTY
ENGINEERING & PUBLIC WORKS
TRAFFIC DIVISION

NO.	REVISION	BY	DATE

SCALE: NTS
APPROVED:
DRAWN: A.K.
CHECKED:
DATE: 7/15/24

PROJECT:
ROAD SPEED HUMP DETAILS

SHEET: 7
OF: 12
T-P-24

TOWN OF LOXAHATCHEE GROVES

155 F Road Loxahatchee Groves, FL 33470

AGENDA MEMO

TO: **Roadway. Equestrian Trails and Greenway Advisory Committee (RETGAC)**

FROM **Francine Ramaglia, CPA, AICP, ICMA-CM, Town Manager**

DATE: **Thursday, February 25, 2025**

SUBJECT: **Discussion and review of the Master Roadway, Equestrian Trails and Greenway Plan (MREG)**

Background:

Calvin, Giordano & Associates, Inc. (CGA) was commissioned by the Town of Loxahatchee Groves to develop the Master Roadway, Equestrian, and Greenway Plan (MREG) 2009. The plan evaluates the operational characteristics of the existing and future transportation network in the Town and identifies opportunities for equestrian trails and greenways. It includes analyses of traffic volumes, intersection control measures, and potential roadway improvements.

The committee will review and evaluate the plan and provide direction on necessary updates.

Recommendation:

Staff recommends the Roadway, Equestrian Trails, and Greenway Advisory Committee review the MREG findings and provide input on the updating of the MREG.

Master Roadway, Equestrian and Greenway Plan (MREG)

Prepared for:
Town of Loxahatchee Groves

Prepared By:

Calvin, Giordano & Associates, Inc.
EXCEPTIONAL SOLUTIONS
an Employee Owned Company

560 Village Boulevard Suite 340
West Palm Beach, Florida 33409
Phone: (561) 684-6161 Fax: (561) 684-6360

CGA Project No. 08-2032

March, 2009

Table of Contents

1.0 INTRODUCTION

Calvin, Giordano & Associates, Inc. was commissioned by the Town of Loxahatchee Groves to develop a Master Roadway, Equestrian and Greenway Plan (MREG) to evaluate traffic operational characteristics of the existing and future transportation network in the Town and identify opportunities for equestrian trails and greenways.

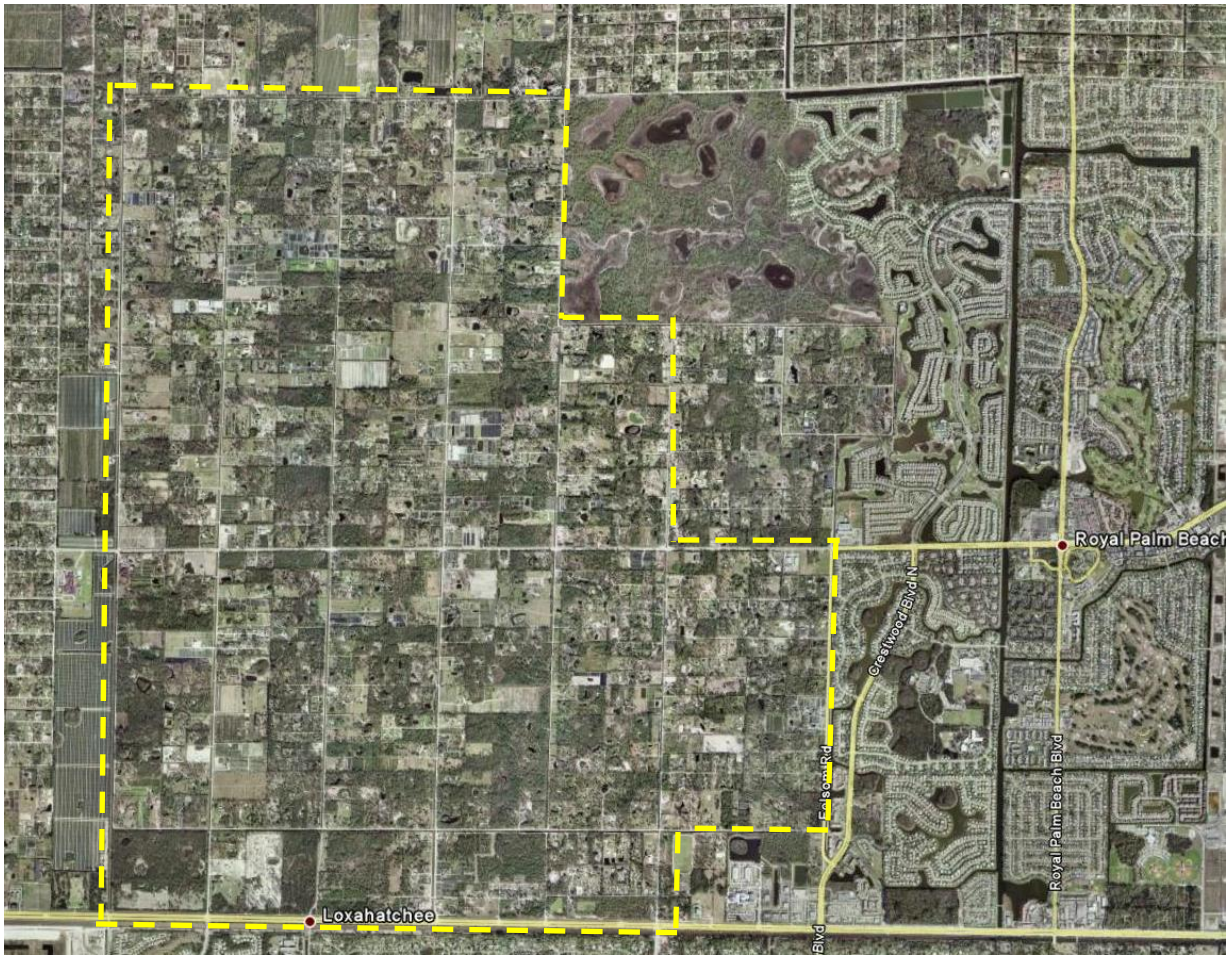
The Town of Loxahatchee Groves is a rural, residential and agricultural community encompassing approximately 12.5 square miles in Palm Beach County. Adjacent communities include the Village of Wellington to the south, the Village of Royal Palm Beach to the east, and areas of unincorporated Palm Beach County known as "The Acreage" to the north and west.

The Town is located within the Loxahatchee Groves Water Control District (LGWCD), a special district created in 1917 which maintains the roadways within the Town limits. In Year 2006, the LGWCD commissioned a report entitled the *LGWCD Districtwide Paving Analysis Report* (Erdman Anthony of Florida, Inc., October, 2006). The paving analysis report considered roadway surface treatment alternatives and typical cross section alternatives for roadways throughout the Town. A review of the findings of the paving analysis report was conducted and the recommendations of the report have been incorporated in the MREG, where appropriate.

The scope of the MREG includes traffic volume data collection, traffic operational analyses of 36 primary intersections for existing and future conditions, recommendations for traffic operational improvements, and identification of opportunities for equestrian trails and greenways. Where appropriate, the MREG incorporates historical research and current roadway practices of the LGWCD. Study boundaries are depicted in **Figure 1**.

FIGURE 1
Master Roadway, Equestrian and Greenways Plan

Study Area Location Map



Legend

Study Area Boundary

Calvin, Giordano & Associates, Inc.
EXCEPTIONAL SOLUTIONS

2.0 TRAFFIC OPERATIONAL ANALYSIS

2.1 Existing Roadway Network

2.1.1 Roadway Functional Classifications

In general, roadways are classified based on the purpose they serve, the speed of travel they accommodate, and adjacent access and mobility needs. The four functional classification groups common to rural and urban roadways are Major Arterials, Minor Arterials, Collectors and Local streets. Rural or urban designation is based primarily on population and the Town of Loxahatchee Groves falls under the Urban Area Boundary of Palm Beach County. Descriptions of roadway functional classifications applicable to the Town are described as follows:

Major Arterial Road

This roadway provides service primarily through high speed and high volume traffic. Major Arterials usually provide service that is relatively continuous and for longer trip lengths. Typical principal arterials include interstates, freeways, and other limited access facilities. **SR-80/Southern Boulevard**, a four-lane divided facility with 12' wide lanes, is classified as Major Arterial in the study.

Collector Road

This roadway provides both land access and traffic circulation between arterials and local roads for moderate trip length at moderate speeds. A collector street system transitions vehicular traffic from local streets onto the arterial system. **Okeechobee Boulevard**, a two-lane undivided roadway, is classified as County Collector within the Town limits.

Local Road

This roadway permits direct access to abutting property and connections to a higher order roadway such as a collector or arterial. A local road provides service for low traffic volumes and short average trip lengths or minimal through traffic movements. **The primary letter roads (A Road, B Road, C Road, D Road, E Road and F Road)** in the study area are classified as Local roads.

2.1.2 Roadway Characteristics

Most of the roadways within the Town are unpaved dirt roadways consistent with a rural lifestyle. Some exceptions to this include SR-80/Southern Boulevard and Okeechobee Boulevard, which are primary east-west roadways. The primary north-south roadways within the Town include A Road, B Road, C Road, D Road, E Road and F Road. These roadways are referred to as "The Letter Roads" in this report.

2.1.3 SR-80/Southern Boulevard Corridor

SR-80/Southern Boulevard is a designated Strategic Intermodal System (SIS) facility and part of the Florida Intrastate Highway System (FIHS). SR-80/Southern Boulevard is an east-west State highway that connects western Palm Beach County to eastern Palm Beach County. Within the Town, SR-80/Southern Boulevard consists of a four-lane divided highway with a 220-foot right-of-way and a posted speed limit of 50 mph. District IV of the Florida Department of Transportation (FDOT) has classified SR-80/Southern Boulevard as Access Class 3. The adopted Level of Service for SR-80/Southern Boulevard is D. There are currently only two traffic signals within the study area, which are located at the intersections of SR-80/Southern Boulevard & B Road and SR 80/Southern Boulevard & F Road. Intersection spacing between the two signals is approximately 2 miles. Minor approach Stop-control is provided at all the remaining intersections along SR-80/Southern Boulevard within the study area.

2.1.4 Okeechobee Boulevard

Okeechobee Boulevard is an east-west, County thoroughfare classified as a County Collector. Within the Town, Okeechobee Boulevard is a two-lane roadway with a 120-foot right-of-way and a posted speed limit of 45 mph. All intersections on Okeechobee Boulevard within the Town operate with Stop-control on the minor approaches. Okeechobee Boulevard is classified as a CRALLS facility from E Road to Seminole Pratt Whitney Road only for the Florida Research Park build out extension from 2014 to 2021.

2.1.5 Unpaved Local Roads

The primary north-south roadways in the Town; A Road, B Road, C Road, D Road, E Road and F Road (The Letter Roads), are all unpaved dirt roadways with the exception of F Road. The Loxahatchee Groves Water Control District has installed a surface treatment on F Road consisting of Open Graded Emulsion Mix (OGEM). The *LGWCD Districtwide Paving Analysis Report* (Erdman Anthony of Florida, Inc., October, 2006) concluded that OGEM provides a low-cost and low maintenance alternative to typical asphalt pavement. Traffic mitigation measures consisting of speed tables have been installed on F Road in an effort to ensure compliance with posted speed limits and discourage cut-through traffic.

The Letter Roads have an identified right-of-way of 60 feet and a speed limit of 30 mph. In general, The Letter Roads are adjacent to open drainage canals contained within the 60-foot prescribed right-of-way. Acceptable Level of Service standards have not been established for unpaved dirt roads on either a national or regional level.

2.2 Data Collection

2.2.1 Existing Traffic Volumes

To establish a baseline for the traffic operational analysis element of the MREG, traffic volume data were collected at significant intersections and corridor locations throughout the Town. Four-hour turning movement counts encompassing morning and evening peak-hours were conducted at studied intersections and twenty-four hour traffic counts were conducted on studied corridors. The counts were conducted in November and December of 2008 and complete printouts are included in Appendix A.

In addition to traffic data collected in association with the MREG, data collected in conjunction with the ongoing SR 80 Access Control Plan were incorporated for analysis purposes. These data sets were collected in April and May of 2008 and are also included in Appendix A.

Four-Hour Turning Movement Counts

Turning movement counts were collected on a typical weekday (Tuesday through Thursday) during the AM and PM peak hours at the following 36 locations:

1. B Road and SR-80
2. B Road and Collecting Canal Road
3. C Road and SR-80
4. C Road and Tangerine Drive
5. C Road and Collecting Canal Road
6. D Road and SR-80
7. D Road and Tangerine Drive
8. West D Road and Tangerine Drive
9. D Road and 6th Court North Road
10. D Road and Collecting Canal Road
11. Loxahatchee Avenue and SR-80
12. Loxahatchee Avenue and Tangerine Drive
13. Loxahatchee Avenue and Citrus Drive

14. E Road and SR-80
15. E Road and East Citrus Drive
16. E Road and Tangerine Drive
17. E Road and Citrus Drive
18. E Road and 6th Court North Road
19. E Road and Collecting Canal Road
20. F Road and SR-80
21. F Road and East Citrus Drive
22. F Road and 6th Court North Road
23. F Road and Collecting Canal Road
24. A Road and Okeechobee Boulevard
25. B Road and Okeechobee Boulevard
26. C Road and Okeechobee Boulevard
27. D Road and Okeechobee Boulevard
28. E Road and Okeechobee Boulevard
29. F Road and Okeechobee Boulevard
30. A Road and North Road
31. B Road and North Road
32. C Road and North Road
33. D Road and North Road
34. North Road and 140th Avenue
35. E Road and North Road
36. F Road and North Road

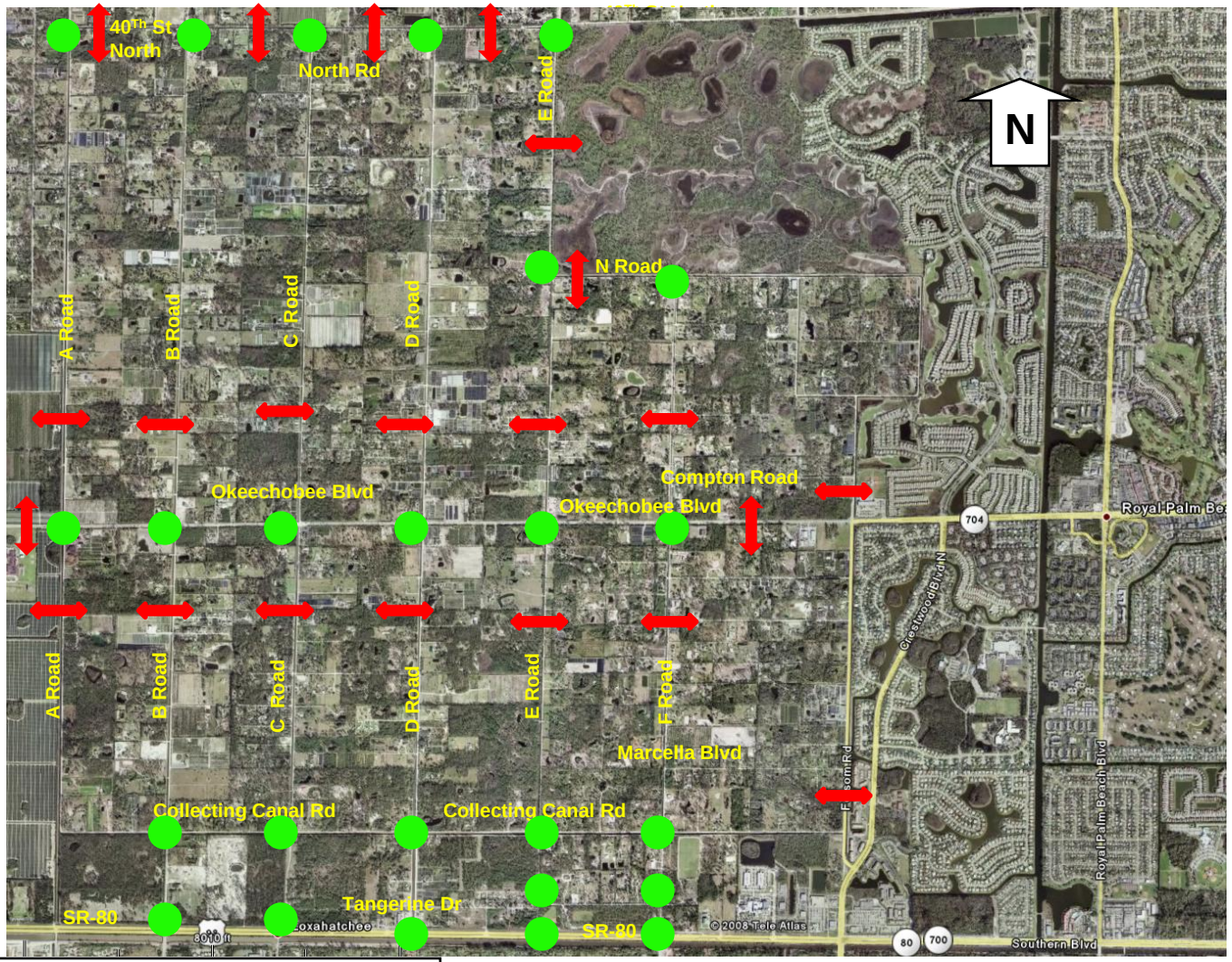
24-Hour Bi-Directional Approach Counts

In addition to turning movement counts, 24-hour bi-directional counts were also collected for the following twenty-two locations on December 11, 2008:

1. A Road, south of Okeechobee Boulevard
2. B Road, south of Okeechobee Boulevard
3. C Road, south of Okeechobee Boulevard
4. D Road, south of Okeechobee Boulevard
5. E Road, south of Okeechobee Boulevard
6. F Road, south of Okeechobee Boulevard
7. A Road, north of Okeechobee Boulevard
8. B Road, north of Okeechobee Boulevard
9. C Road, north of Okeechobee Boulevard
10. D Road, north of Okeechobee Boulevard
11. E Road, north of Okeechobee Boulevard
12. F Road,, north of Okeechobee Boulevard
13. Okeechobee Boulevard, east of F Road
14. Okeechobee Boulevard, west of A Road
15. N Road between E Road and F Road
16. E Road between N Road and North Road
17. North Road between A Road and B Road
18. North Road between B Road and C Road
19. North Road between C Road and D Road
20. North Road between D Road and 140th Avenue
21. Folsom Road between Marcella Blvd and Collecting Canal Road
22. Folsom Road between Okeechobee Boulevard and Compton Road

Figure 2 graphically depicts all the data collection locations and complete printouts of all traffic counts are included in **Appendix A**.

FIGURE 2
Master Roadway, Equestrian and Greenway Plan
Locations of Traffic Counts



Legend

- Peak Hr TMC Locations
- 24-Hr Bi-Directional Count Locations (for illustration purpose, not the exact location of counts)

Calvin, Giordano & Associates, Inc. EXCEPTIONAL SOLUTIONS

2.2.2 Review of Paving Analyses Report & Comparison of ADT

Average daily traffic (ADT) volumes collected in association with the *LGWCD Districtwide Paving Analysis Report* (Erdman Anthony of Florida, Inc., October, 2006) were reviewed for comparison with ADT volumes collected in 2008 in association with the MREG. The Districtwide Paving Analysis included ADT volumes both north and south of Okeechobee Boulevard on the following roadways: A Road, B Road, C Road, D Road, E Road, F Road and Folsom Road. The results of the comparison are illustrated in **Figure 3** and in **Tables 1A** and **1B**, and are graphically depicted in charts illustrated in **Figure 4**. As indicated, ADT volumes increased from Year 2006 to Year 2008 on the following roadway segments:

South of Okeechobee Boulevard:

- A Road
- B Road
- C Road
- F Road
- Folsom Road

North of Okeechobee Boulevard

- A Road
- B Road
- C Road
- D Road

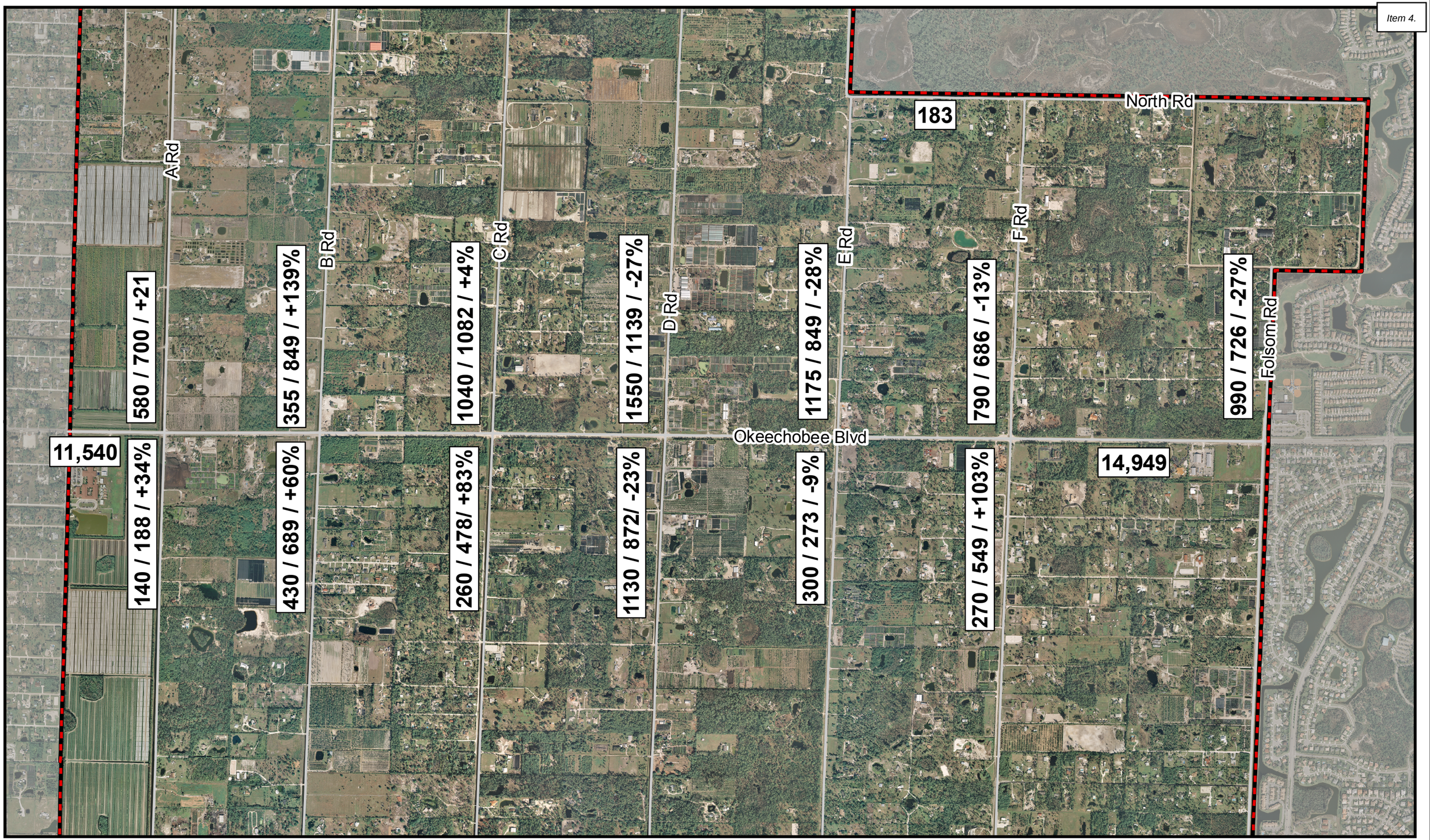
ADT volumes decreased from Year 2006 to Year 2008 on the following roadway segments:

South of Okeechobee Boulevard:

- D Road
- E Road

North of Okeechobee Boulevard

- D Road
- E Road
- F Road
- Folsom Road



Loxahatchee Groves
24 Hour Roadway Volumes

260 / 478/ +83% = 2006 Volume / 2008 Volume / % Difference

183 = 2008 Volume

0.5 Miles

N

Calvin, Giordano & Associates, Inc.

GIS Produced and maintained by the CGA Geographic Information Systems Services

Table 1A
ADT Comparison Table (2006 ADT VS 2008 ADT)
ADT Collected South of Okeechobee Blvd

Roadway	From	To	ADT[1]	CGA ADT[2]	% Increase/decrease
A Road	Collecting Canal Rd	Okeechobee Rd	140	188	34%
B Road	Collecting Canal Rd	Okeechobee Rd	430	689	60%
C Road	Collecting Canal Rd	Okeechobee Rd	260	478	84%
D Road	Collecting Canal Rd	Okeechobee Rd	1130	872	-23%
E Road	Collecting Canal Rd	Okeechobee Rd	300	273	-9%
F Road	Collecting Canal Rd	Okeechobee Rd	270	549	103%

Note:

1) The ADT were directly taken from the Districtwide Paving Analysis Report, 2006 prepared by Erdman & Anthony of Florida, Inc.

2) The ADT volumes were based on twenty-four hour traffic counts performed on December 11, 2008.

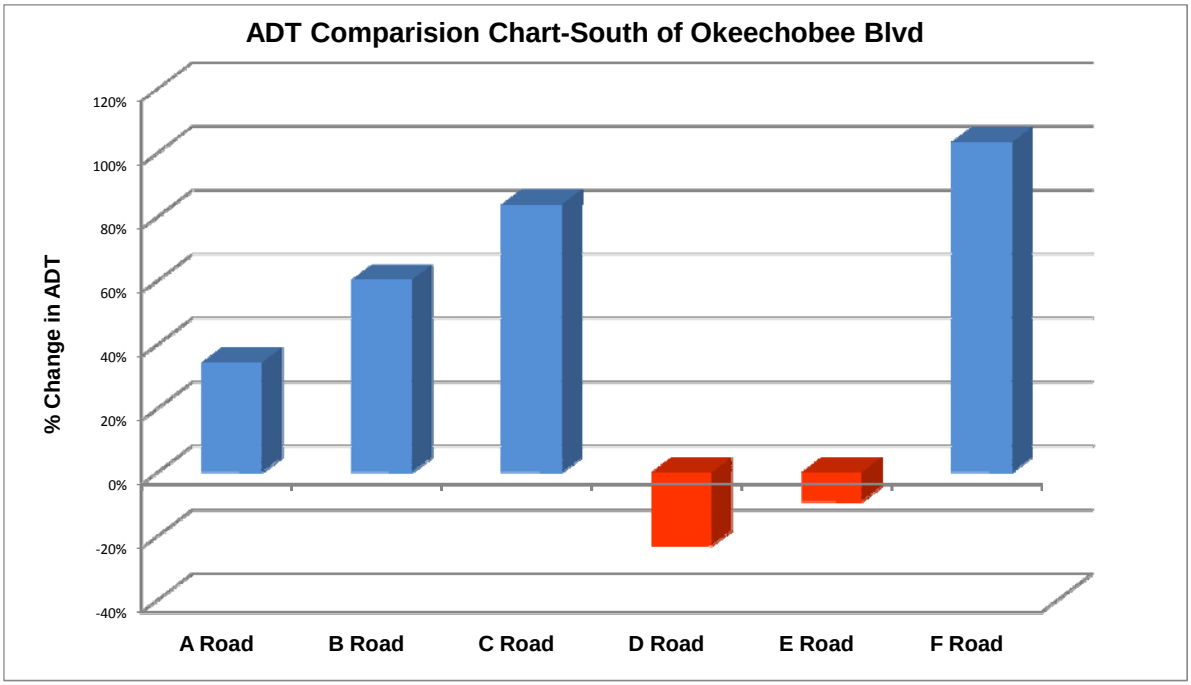
Table 1B
ADT Comparison Table (2006 ADT VS 2008 ADT)
ADT Collected North of Okeechobee Blvd

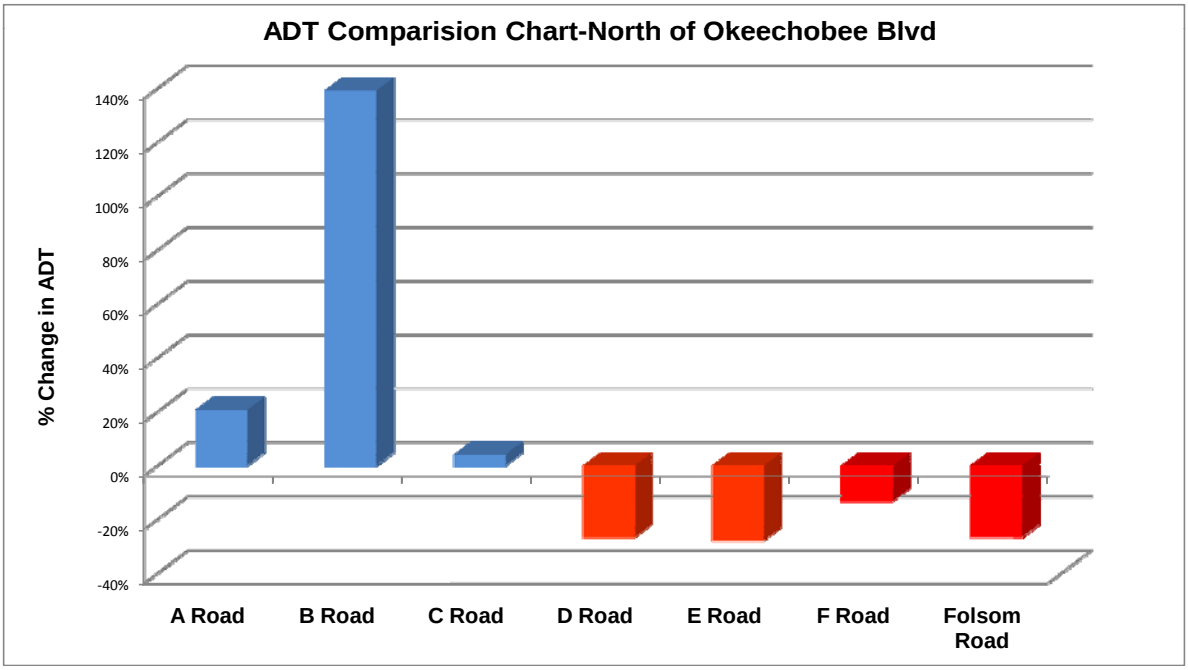
Roadway	From	To	ADT[1]	CGA ADT[2]	% Increase/decrease
A Road	Okeechobee Rd	North Rd	580	700	21%
B Road	Okeechobee Rd	North Rd	355	849	139%
C Road	Okeechobee Rd	North Rd	1040	1082	4%
D Road	Okeechobee Rd	North Rd	1550	1139	-27%
E Road	Okeechobee Rd	North Rd	1175	849	-28%
F Road	Okeechobee Rd	North Rd	790	686	-13%
Folsom Road	Okeechobee Rd	North Rd	990	726	-27%

Note:

1) The ADT were directly taken from the Districtwide Paving Analysis Report, 2006 prepared by Erdman & Anthony of Florida, Inc.

2) The ADT volumes were based on twenty-four hour traffic counts performed on December 11, 2008.


ADT Comparision Chart-South of Okeechobee Blvd
% Change in ADT
120%
100%
80%
60%
40%
20%
0%
-20%
-40%
A Road
B Road
C Road
D Road
E Road
F Road


ADT Comparision Chart-North of Okeechobee Blvd
% Change in ADT
140%
120%
100%
80%
60%
40%
20%
0%
-20%
-40%
A Road
B Road
C Road
D Road
E Road
F Road
Folsom Road

2.2.3 Traffic Growth Patterns: Cut-Through Traffic

The changes in ADT volumes tracked between the 2006 data set and the 2008 data set indicate substantial increases on B Road, C Road and F Road south of Okeechobee Boulevard (60%, 83% and 103%, respectively). It is highly unlikely and unrealistic to conclude this level of growth was attributable to the development of vacant land or the reconfiguration of existing land uses within the Town. It is more reasonable to conclude that these roadway segments were increasingly utilized as alternative routes between SR 80 and Okeechobee Boulevard by non-residents. This trend is known as cut-through traffic and is addressed in further detail in this report.

However, due to the limited number of data sets compared (One data set collected in Year 2006 and one data set collected in Year 2008), caution should be exercised when drawing conclusions regarding global traffic patterns. It is recommended that the Town continue monitoring traffic volumes on local roads to identify emerging trends and aid in future traffic analyses.

2.3 Safety Analysis

2.3.1 Speed Studies-Okeechobee Boulevard

In an MREG public workshop conducted in September 2008, Town residents expressed concerns regarding speeding on Okeechobee Boulevard and the difficulty of entering the high speed traffic stream on the roadway. A speed analysis was performed on Okeechobee Boulevard west of F Road to determine the extent of speed limit compliance on the roadway. The current posted speed limit on the subject roadway segment is 45 mph.

Speed data, collected on September, 26, 2007, was obtained from Palm Beach County Traffic Engineering Division. The results of an analysis of the data are summarized in **Table 2**. Analysis of the dataset showed that the 85th percentile speed on Okeechobee Boulevard was 54 mph, which is a 20% increase over the posted speed limit. The analysis also showed that 65.7% of vehicles on the roadway were driving at a higher speed than 45 mph.

2.3.2 Crash Data

To evaluate the existing conditions and to identify safety issues within the study area, available vehicular crash data were evaluated. Raw crash data compiled from January 2006 through May 2008 were obtained from Palm Beach County Traffic Division and are provided in **Appendix B** and summarized in **Figure 5**. The crash dataset was incorporated in traffic signal warrant analyses, as discussed in a subsequent section of this report.

TABLE 2

Speed Study Summary

Master Roadway Plan for the Town of Loxahatchee Groves

Location: Okeechobee Boulevard, West of F Road
Direction: East-West
Posted Speed Limit: 45 MPH

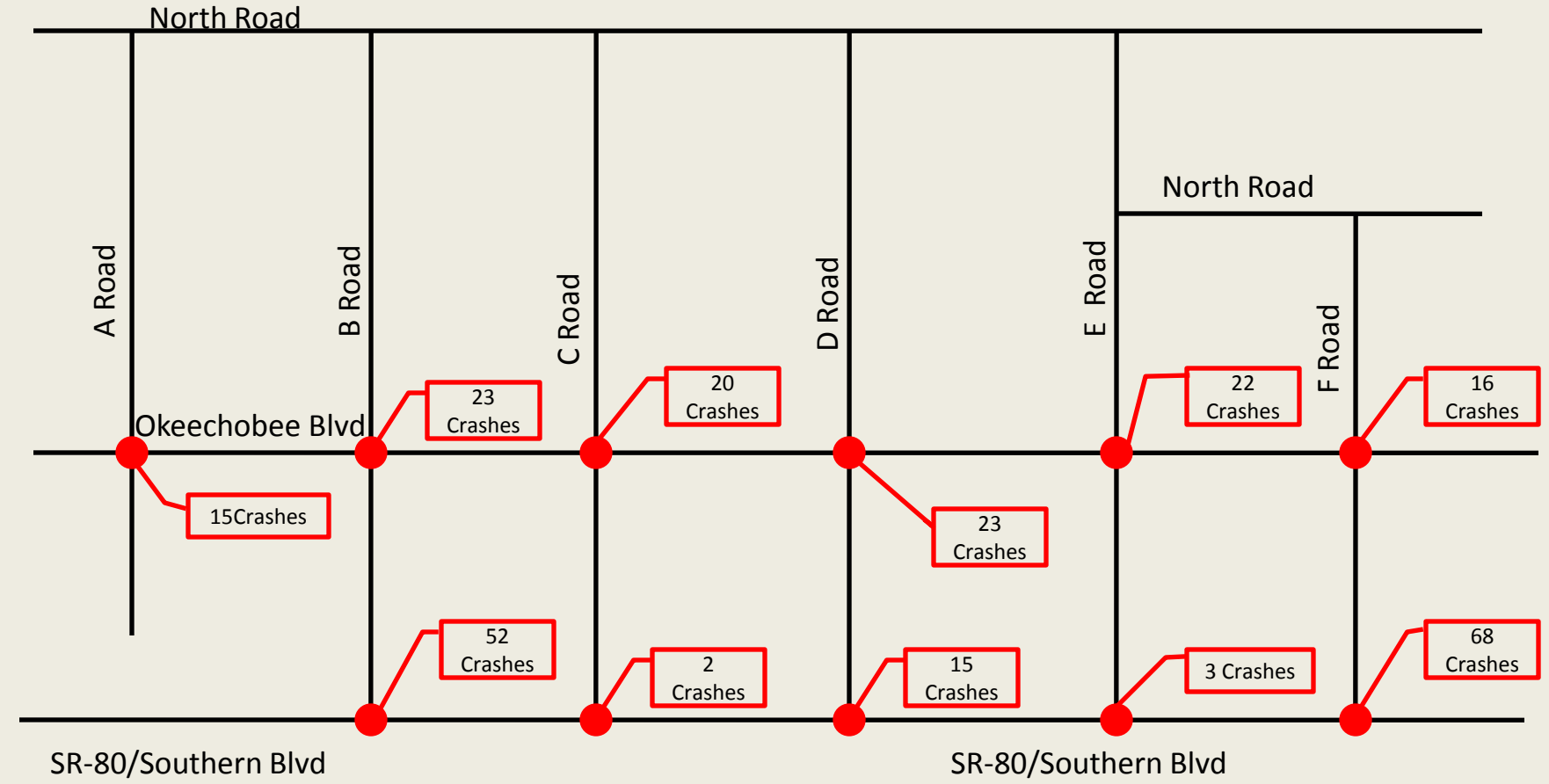
Date:	Wednesday, September 26, 2007														**Total**
Speed	0-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-9999	
Vehicles	166	32	53	84	285	835	2,884	4,406	2,796	640	132	38	27	282	12,660

Source: Palm Beach County (PBC) Traffic Division

Statistics

15th percentile	41 MPH
50th percentile	42 MPH
85th percentile	54 MPH
95th percentile	59 MPH
Mean Speed	
Number of vehicles > 45 MPH	8321
Percent of vehicles > 45 MPH	65.70%

FIGURE 5
Master Roadway, Equestrian and Greenway Plan
Intersection Crash Diagram



Legend
Intersection

2.4 Existing Conditions (Year 2008) Operational Analyses

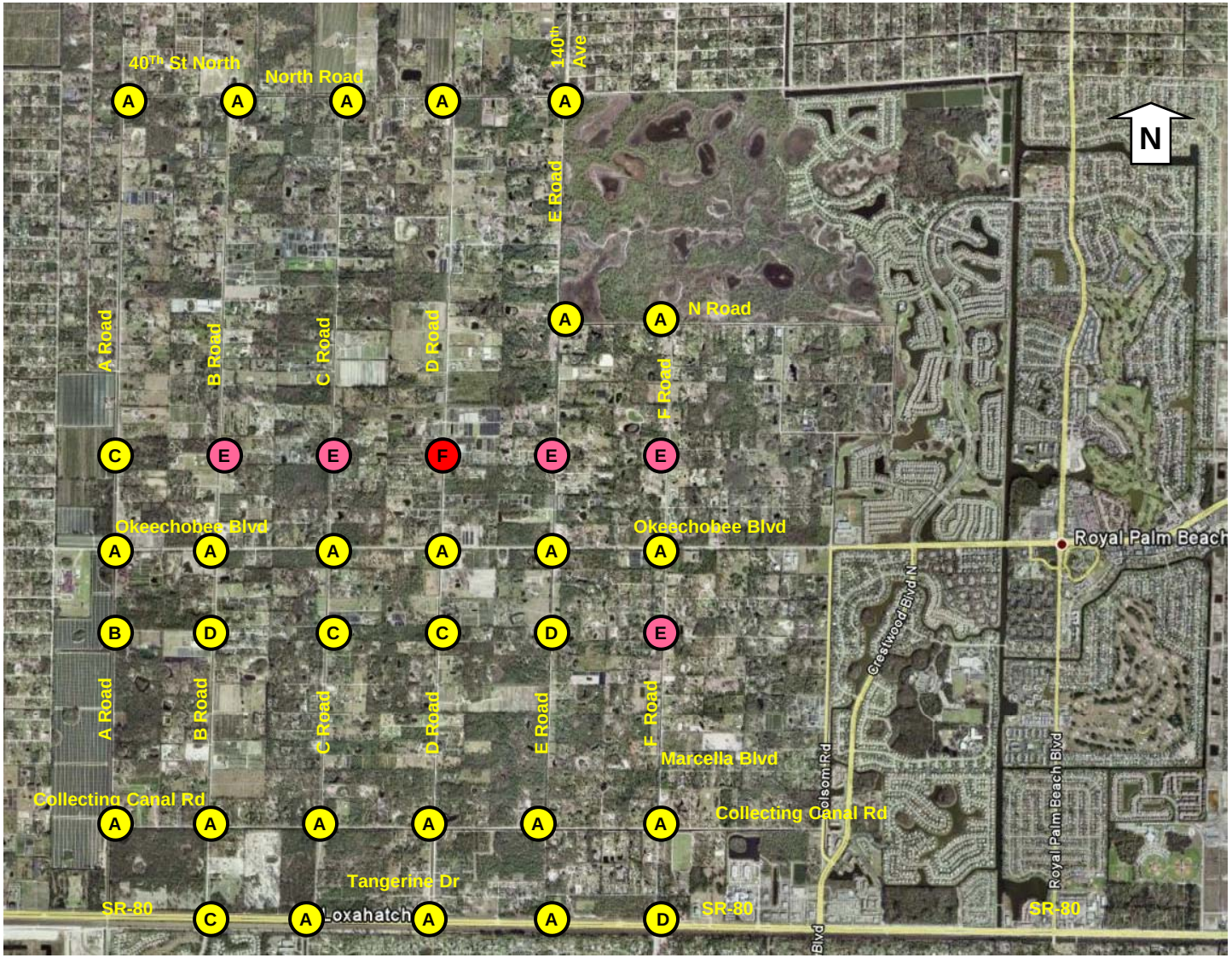
To determine the traffic operational conditions of existing intersections, the existing roadway network was modeled utilizing the analysis software packages SYNCHRO 7.0 and SimTraffic. Traffic operational analyses were performed for thirty-six intersections within the aforementioned study area limits.

Results of the analyses indicate that all studied intersections are currently operating within acceptable Levels of Service when considering overall intersection performance. However, minor approaches on intersections of The Letter Roads with Okeechobee Boulevard were shown to operate below acceptable Levels of Service. In particular, the north approaches on B Road, C Road, D Road, E Road and F Road and south approach on F Road were shown to experience substantial vehicle delay, particularly during the evening peak-hour. It is important to note that overall intersection performance is a weighted average of the delay experienced by each vehicle entering an analyzed intersection. Since the volume of traffic on the minor street approaches (The Letter Roads) is relatively low, the delay experienced by these drivers does not heavily influence the overall intersection performance. Thus substantial delay can be experienced by most if not all drivers on the minor street approach and the intersection can still reflect an acceptable overall Level of Service performance. This is the case for the analyzed intersections on Okeechobee Boulevard.

The arterial analyses of SR-80/Southern Boulevard under existing conditions revealed that the corridor in both the eastbound and westbound direction will be operating well above the adopted Level of Service standards. The results of the arterial analysis are summarized in **Table 3**.

The Levels of Service under existing conditions for intersections within study area are depicted in **Figure 6** and complete printouts are included in **Appendix C.**

Figure 6
Master Roadway, Equestrian and Greenway Plan
Existing 2008 Conditions-Intersection LOS



LEGEND

A — Intersection/Approach LOS

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TABLE 3

Existing 2008 -PM Peak Hour Arterial Analysis

Arterial Level of Service: EB SR-80

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
B Rd/Binks Forest Dr	I	55	49.4	19.1	68.5	0.75	39.7	B
F Rd/Big Blue Trace	I	55	131.1	22.6	153.7	2.00	46.9	A
Total	**I**		**180.5**	**41.7**	**222.2**	**2.75**	**44.6**	**A**

Arterial Level of Service: WB SR-81

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
F Rd/Big Blue Trace	I	55	35.5	9.4	44.9	0.46	36.5	B
B Rd/Binks Forest Dr	I	55	131.1	10.9	142	2.00	50.7	A
Total	**I**		**166.6**	**20.3**	**186.9**	**2.46**	**47.3**	**A**

2.5 Traffic Signal Warrant Analyses

During the PM peak-hour, it was observed that heavy delays were experienced on the minor street approaches of intersections of The Letter Roads with Okeechobee Boulevard. To address this condition, a traffic signal warrant analysis was performed for the intersections of Okeechobee Boulevard with B Road and with F Road. These intersections were selected due in part to significant traffic volumes on both corridors, to provide acceptable gaps in traffic at intersections between these locations, and due to the fact that signalized intersections are currently provided at the intersections of SR 80/Southern Boulevard with each of these corridors.

The signal warrant analyses were performed in accordance with standards set forth in Section 4C of the Manual on Uniform Traffic Control Devices, 2003 Edition (MUTCD). The signal warrant analyses and applicable MUTCD tables and figures are included in **Appendix D**. Applicable warrants are described below.

Warrant 1, Eight-Hour Vehicular Volume - Warrant 1 is satisfied when either Condition A or Condition B is satisfied. If neither Condition is satisfied, then the combination of Conditions A and B can be considered. Condition A is satisfied when the major and minor street volumes equal or exceed the limits given in the 100 percent or 70 percent columns in MUTCD Table 4C-1 *Condition A-Minimum Vehicular Volume*. Condition B is satisfied when the major and minor street volumes equal or exceed the limits given in the 100 percent or 70 percent columns in Table 4C-1 *Condition B-Interruption of Continuous Traffic*. Since the posted speed limit on Okeechobee Boulevard is 45 miles per hour, which exceeds 40 miles per hour, the minimum volume thresholds identified in the 70 percent columns are used as the basis for this analysis, per MUTCD 2003 guidelines.

Warrant 2, Four-Hour Vehicular Volume - Warrant 2 is considered satisfied when traffic volumes during four hours of an average day for the major street (total of both approaches) and the corresponding volume on the higher-volume

minor street exceed minimum thresholds as defined in Figure 4C-2 of the MUTCD.

Warrant 3, Peak-Hour Vehicular Volume - Warrant 3 is considered satisfied when traffic volumes recorded during one hour (any four consecutive 15-minute periods) for the major street (total of both approaches) and the corresponding volume on the higher-volume minor street (one direction only) exceed the minimum volume thresholds identified in Figure 4C-4 of the MUTCD.

2.5.1 Signal Warrant Analysis: Okeechobee Boulevard at B Road & F Road

Based on intersection characteristics, traffic signal warrants for 70% criteria were evaluated for the intersections of Okeechobee Boulevard with B Road and F Road. Twenty-four hour traffic counts were used to evaluate the signal warrants, and copies of the volume counts are included in **Appendix A.** The speed analysis conducted earlier was used to find the average weekday and weekend 85^{th} percentile speeds on Okeechobee Boulevard, in order to establish applicable volume limits for each signal warrant. Crash data at the intersections of Okeechobee Boulevard with F Road and B Road within the last three years (01/01/06-5/31/08) were also incorporated into the analyses. Based on the analyses, no warrants are currently met for signalization of either intersection. Monitoring of intersection conditions is recommended to determine if signalization warrants are met in the future.

2.6 Programmed Cost Feasible Roadway Projects

In the Palm Beach County Metropolitan Planning Organization's (MPO) 2030 Long Range Transportation Plan (LRTP), SR-80/Southern Boulevard is planned to be widened from 4 lanes to 6 lanes and Okeechobee Boulevard is planned to widen from 2 lanes to 4 lanes. Also, FDOT has a PD&E study for the widening of SR-80/Southern Boulevard programmed in their five year work program for 2011.

Bicycle and pedestrian improvements are also planned along Okeechobee Boulevard in the MPO Long Range Transportation Plan.

In the adopted 2030 Cost Feasible Plan, an east-west Palm Tran Bus Grid System is proposed on Okeechobee Boulevard and SR-80/Southern Boulevard. Also, north south routes are proposed on Folsom Road and Seminole Pratt Whitney Road.

2.7 Development of Future Traffic Volumes

2.7.1 Background Traffic Growth

According to the *Palm Beach County Traffic Division Historic Growth Table*, roadways in the vicinity of the study area including Folsom Road, Crestwood Boulevard, Forest Hills Boulevard, Orange Boulevard, Persimmon Boulevard, Seminole Pratt Whitney Road and SR-7 experienced a negative growth rate. Okeechobee Boulevard from Seminole Pratt Whitney Road to Royal Palm Beach Boulevard experienced a negative growth rate as well. However, traffic volumes collected in association with the MREG indicated instances of significant growth within the Town. Therefore, to ensure a conservative analysis, a 1.0% area wide compound annual growth rate was applied from 2008 to 2013and a 0.5% linear growth rate was applied from 2013 to 2030 to determine the background turning movement volumes for analyzed Town roadways north of Collecting Canal Road.

The growth rates obtained from the *Palm Beach County Traffic Division Historic Growth Table* are included in **Appendix E** and listed in **Table 4A**.

The traffic forecasting methodology used for each studied roadway segment south of Collecting Canal Road was chosen after reviewing applicable forecast methodologies. The forecast methodologies reviewed include the following:

- Regression analysis of 7 years of the most recent historical daily traffic volumes from Palm Beach County.
- Regression analysis of 7 years of the most recent historical daily traffic volumes from Palm Beach County along with the Palm Beach County MPO 2030 model volumes without the E Road extension.
- Growth between the validation year 2000 and the 2030 Palm Beach County MPO model without the E Road extension.
- Zonal analysis of adjacent TAZ employment data from the validation year 2000 and the 2030 Palm Beach County Model.

The regression analyses of the historical Annual Average Daily Traffic (AADT) alone and the historical AADT combined with the 2030 Palm Beach County MPO model volumes without the E Road extension were completed using the "Traffic Trends" spreadsheet for SR-80/Southern Boulevard, Big Blue Trace and Binks Forest Drive. A linear, exponential, and decaying exponential trend line was fit to the data, and the trend analysis printouts for each traffic monitoring site are provided in **Appendix E**.

Future 2030 background volumes south of Collecting Canal Road were calculated employing the preferred growth rate as compound growth rate for each roadway from 2008 to 2030. The growth rate methodology table provided in **Table 4B** details the reasoning behind the selection of each traffic forecasting methodology.

Table 4A
Historic Growth Rate Table

Roadway	From	To	Historic GR
Southern Blvd	Seminole Pratt Whitney	Binks Forest Dr/B Rd	-8.37
	Binks Forest Dr/B Rd	Big Blue Trace/F Rd	-4.2
	Big Blue Trace/F Rd	Forest Hill/Crestwood Blvd	-2.46%
Okeechobee Blvd	Seminole Pratt Whitney	140th Ave	-3.39%
	140th Ave	Crestwood Blvd	-3.62%
	Crestwood Blvd	Royal Palm Blvd	-3.52%
Folsom Blvd	Crestwood Blvd	Okeechobee Blvd	-0.11%
Crestwood Blvd	Southern Blvd	Folsom Rd	-3.00%
	Folsom Rd	Okeechobee Blvd	-3.37%
	Okeechobee Blvd	Royal Palm Blvd	-2.37%
Seminole Pratt Whitney	Southern Blvd	Okeechobee Blvd	-8.83%
	Okeechobee Blvd	Sycamore Dr E	-5.80%
Royal Palm Beach Blvd	Southern Blvd	Okeechobee Blvd	1.35%
	Okeechobee Blvd	RPB North limits	-3.51%
Forest Hill Blvd	Southern Blvd	Wellington Trace	-2.08%
Big Blue Trace	Wellington Trace	Southern Blvd	1.37%
Coconut Blvd	Persimmon Blvd	Orange Blvd	-7.77%
	Orange Blvd	Temple Blvd	-6.70%
Northlake Blvd	Seminole Pratt Whitney	Coconut Blvd	-1.71%
Orange Blvd	140th Ave N	Coconut Blvd	-5.30%
	Cocounut Blvd	Royal Palm Blvd	-6.35

TABLE 4B
Growth Rate Comparison Table
Southern Boulevard Traffic Forecast

Florida Department of Transportation District IV - Systems Planning

Location	METHOD 1 Historic Trend Analysis	METHOD 2 Historic+2030	METHOD 3 2000 - 2030 FSUTMS Forecasts			METHOD 4 2000 - 2030 FSUTMS TAZ Data	Recommended Growth Rate	Notes
			2000	2030	Compd Growth			
Southern Blvd east of F Rd	1.11% LGR	1.1% CGR	32,147	58,100	1.99%		1.00%	A growth rate of 1% was utilized since committed development along SR 80 is available.
Southern Blvd b/w B Rd and F Rd	2.84% CGR	0.95% CGR	18,832	38,967	2.45%		1.00%	
Southern Blvd b/w Seminole Pratt Whitney Rd and B Rd	3.53% CGR	1.44% CGR	19,988	44,350	2.69%		1.00%	
Binks Forest S. of Southern Blvd	0.41% CGR	1.41% CGR	7,257	14,574	2.35%		1.50%	Good Correlation between historical and model conditions.
Big Blue Trace S. of Southern Blvd	0.39% CGR	2.68% CGR	16,393	21,791	0.95%		1.00%	The 2008 data from PBC shows an AADT of 11,000. PBC 2030 model volume is unrealistically high.
D Rd N. of Southern Blvd			1,080	1,475	1.04%		1.50%	Utilized same growth rate as all roadways within Loxahatchee Groves.
Ousley Farms Rd S. of SR 80						0.15% CGR	0.50%	Minimum growth rate utilized.
All roadways within Loxahatchee Groves						1.59% CGR	1.50%	Averaged population TAZ data for all centroids within study limits north of SR 80.

2.7.2 Approved Committed Development

The Palm Beach County Traffic Performance database was utilized to determine committed development trips within the study area. Future committed developments within the Town of Loxahatchee Groves along SR-80 include the following:

- Loxahatchee Retail, between C Road and D Road.
- Southern Crossing MUPD, between E Road and D Road.
- Groves Medical Plaza, west of F Road.

Other committed developments located outside the Town of Loxahatchee Groves but within the vicinity of study area include the following:

- Crestwood Middle School Expansion
- Binks Forest Residential
- Wellington Elementary School
- Everglades Farm Equipment
- Highland Dunes
- Cypress Key
- Southern Palm Crossing
- Palms West Hospital
- Taheri

Details of the approved committed developments are provided in **Appendix E**.

2.7.3 Maximum Future Development and Projected Land use

2.7.3.1 Vacant Parcel Trips

To account for trips associated with the possible development of currently undeveloped parcels, a trip generation analysis was performed using Palm Beach County Trip Generation Rates and Equations for vacant parcels within the Town of Loxahatchee Groves. The resultant trips were assigned onto the surrounding roadway network and included in future turning movements to determine future total traffic volumes.

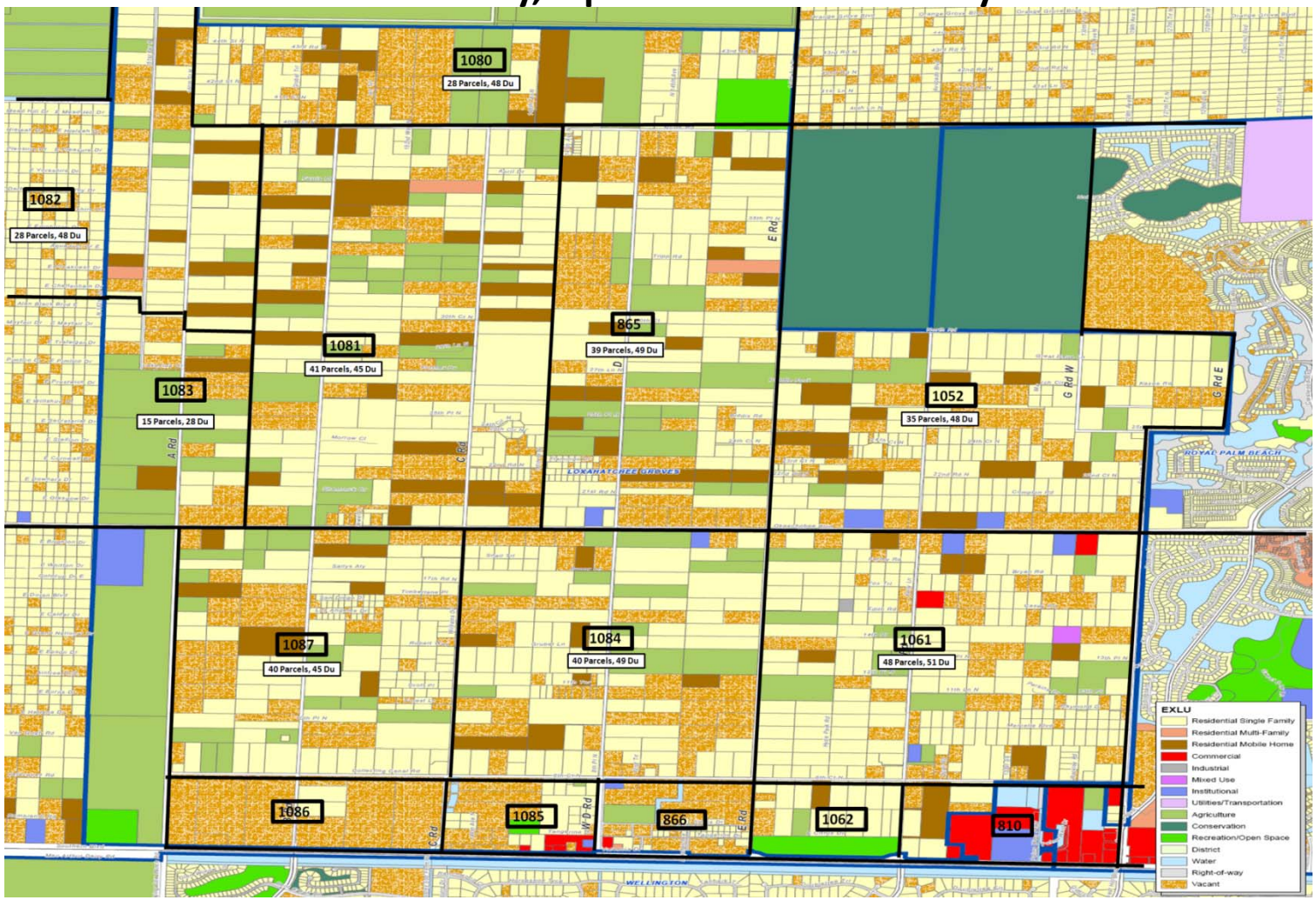
Traffic Analysis Zone (TAZ) and vacant parcel information is included in **Figure 7** and **Appendix E** and a trip generation analysis is provided in **Table 5**.

2.7.4 Year 2030 Traffic Volume Projections

Year 2030 total traffic volumes include the sum of existing 2008 traffic volumes, future background traffic volumes, Palm Beach County approved committed traffic volumes, vacant parcels trips, and traffic volumes from potential commercial developments along SR-80/Southern Boulevard. Year 2030 turning movement volumes are reflected in the Year 2030 Synchro analyses contained in **Appendix C**.

FIGURE 7

Master Roadway, Equestrian and Greenway Plan



Legend

1250 **Traffic Analysis Zone**

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EXCEPTIONAL SOLUTIONS

TABLE 5
Vacant Parcel Trip Generation Table

TAZ 1087

Landuse	ITE Code	Unit	Allowable Max Density	Daily Rate Equation	Daily Trips	Pass-by	AM			PM		
							Total	In	Out	Total	In	Out
Single Family	210	Dwelling Unit	45	10	450	0%	41	10	31	52	33	19

TAZ 1084

Landuse	ITE Code	Unit	Intensity	Daily Rate Equation	Daily Trips	Pass-by	AM			PM		
							Total	In	Out	Total	In	Out
Single Family	210	Dwelling Unit	49	10	490	0%	44	11	33	56	36	21

TAZ 1061

Landuse	ITE Code	Unit	Intensity	Daily Rate Equation	Daily Trips	Pass-by	AM			PM		
							Total	In	Out	Total	In	Out
Single Family	210	Dwelling Unit	51	10	510	0%	45	11	34	58	37	22

TAZ 1081

Landuse	ITE Code	Unit	Intensity	Daily Rate Equation	Daily Trips	Pass-by	AM			PM		
							Total	In	Out	Total	In	Out
Single Family	210	Dwelling Unit	45	10	450	0%	41	10	31	52	33	19

TAZ 865

Landuse	ITE Code	Unit	Intensity	Daily Rate Equation	Daily Trips	Pass-by	AM			PM		
							Total	In	Out	Total	In	Out
Single Family	210	Dwelling Unit	49	10	490	0%	44	11	33	56	36	21

TAZ 1052

Landuse	ITE Code	Unit	Intensity	Daily Rate Equation	Daily Trips	Pass-by	AM			PM		
							Total	In	Out	Total	In	Out
Single Family	210	Dwelling Unit	48	10	480	0%	43	11	32	55	35	20

TAZ 1083

Landuse	ITE Code	Unit	Intensity	Daily Rate Equation	Daily Trips	Pass-by	AM			PM		
							Total	In	Out	Total	In	Out
Single Family	210	Dwelling Unit	45	10	450	0%	41	10	31	52	33	19

TAZ 1082

Landuse	ITE Code	Unit	Intensity	Daily Rate Equation	Daily Trips	Pass-by	AM			PM		
							Total	In	Out	Total	In	Out
Single Family	210	Dwelling Unit	48	10	480	0%	43	11	32	55	35	20

TAZ 1080

Landuse	ITE Code	Unit	Intensity	Daily Rate Equation	Daily Trips	Pass-by	AM			PM		
							Total	In	Out	Total	In	Out
Single Family	210	Dwelling Unit	48	10	480	0%	43	11	32	55	35	20

Note:
1) Palm Beach County Trip Generation Rates & Equations.
AM
T = 0.7 (X) + 9.43
25/75
PM
Ln (T) = 0.90 Ln (X) + 0.53
63/37

2.8 Future Conditions Scenarios

Three alternate scenarios for future traffic conditions were considered and analyzed. They are as follows:

1) Alternative 1-No Build Scenario
2) Alternative 2-Proposed Roundabouts on Okeechobee Boulevard
3) Alternative 3-Proposed Signals on Okeechobee Boulevard

2.8.1 Okeechobee Intersection Control – Roundabouts or Traffic Signals

Existing and projected future traffic volumes at intersections of The Letter Roads with Okeechobee Boulevard are relatively low and therefore intersection control will not likely be warranted on all Letter Road intersections. However, providing intersection control at two strategic intersections such as B Road and F Road can dramatically improve the operational characteristics of all Letter Road intersections on Okeechobee Boulevard. Providing intersection control at B Road and F Road will result in gaps in the overall traffic stream at all intersections between B Road and F Road. Gaps in the traffic stream result when traffic is stopped or significantly slowed at the two controlled intersections. These gaps will allow minor street traffic at C Road, D Road and E Road to enter the traffic stream on Okeechobee Boulevard or cross Okeechobee Boulevard more effectively and will reduce the minor street delay identified in operational analyses. Therefore, intersection control was analyzed for the intersections of Okeechobee Boulevard with B Road and F Road.

2.8.2 Operational Analysis for Alternative 1-No Build Scenario

Alternative 1 serves as the baseline alternative. This alternative takes into consideration the future planned roadway improvements and future volumes based on existing plus committed network, background volumes, undeveloped vacant parcel trips and proposed commercial developments along SR-80/Southern Boulevard. All the intersections in the study area were analyzed using Trafficware's SYNCHRO 7.0 and SimTraffic software for Alternative 1-No Build conditions during the PM peak hour. The analyses illustrated that all the analyzed

intersections on Tangerine Drive, Collecting Canal Road, 6th Court North Road, Citrus Drive and North Road will be operating at LOS A with minimal delays. All the intersections on Okeechobee Boulevard except Okeechobee Boulevard at B Road will be operating at or above LOS B. However, most of the minor approaches on Okeechobee Boulevard will experience heavy delays and are expected to operate below acceptable Level of Service standards. The analyses demonstrated that all the intersections on SR-80/Southern Boulevard except SR-80/Southern Boulevard at Loxahatchee Avenue will be operating below acceptable Level of Service standards. However, the arterial analyses of the corridor revealed that the SR-80/Southern Boulevard corridor, both in the eastbound and westbound directions, will be operating well above the adopted Level of Service standards. The results of the arterial analysis are summarized in **Table 6**.

The Levels of Service for all analyzed intersections in the study area for No Build Conditions are depicted in **Figure 8**. The results of the Synchro analyses for all thirty-six intersections are included in **Appendix C**.

TABLE 6

2030 Future Conditions-PM Peak Hour

Arterial Analyses

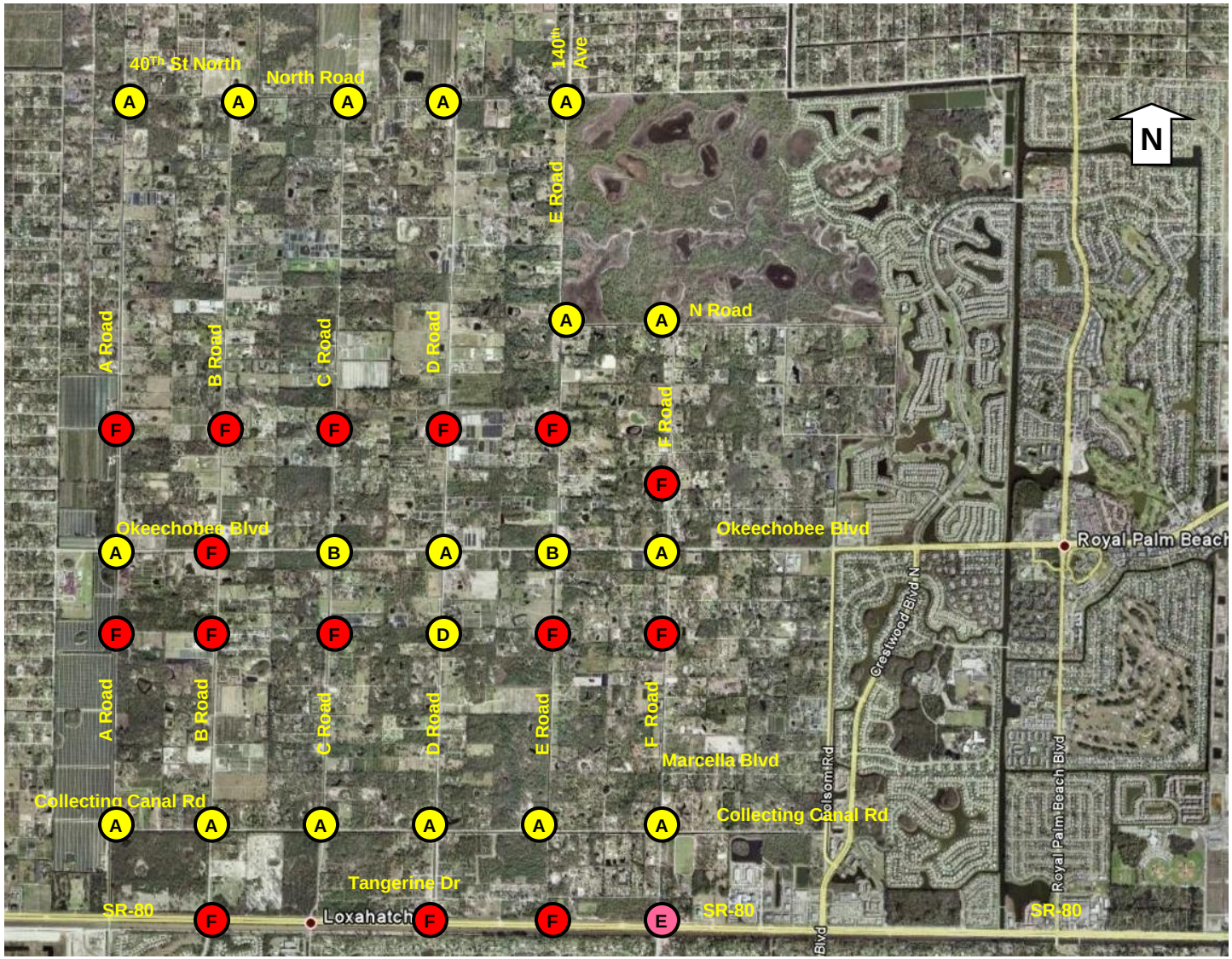
Arterial Level of Service: EB SR-80

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
B Rd/Binks Forest Dr	I	55	49.4	98.0	147.4	0.75	18.4	E
F Rd/Big Blue Trace	I	55	131.1	79.2	210.3	2.00	34.3	B
Total	**I**		**180.5**	**177.2**	**357.7**	**2.75**	**27.7**	**C**

Arterial Level of Service: WB SR-80

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
F Rd/Big Blue Trace	I	55	35.5	27.4	62.9	0.46	26.1	D
B Rd/Binks Forest Dr	I	55	131.1	24.6	155.7	2.00	46.3	A
Total	**I**		**166.6**	**52.0**	**218.6**	**2.46**	**40.5**	**B**

Figure 8
Master Roadway, Equestrian and Greenways Plan
Future 2030 Conditions-Intersection LOS



LEGEND

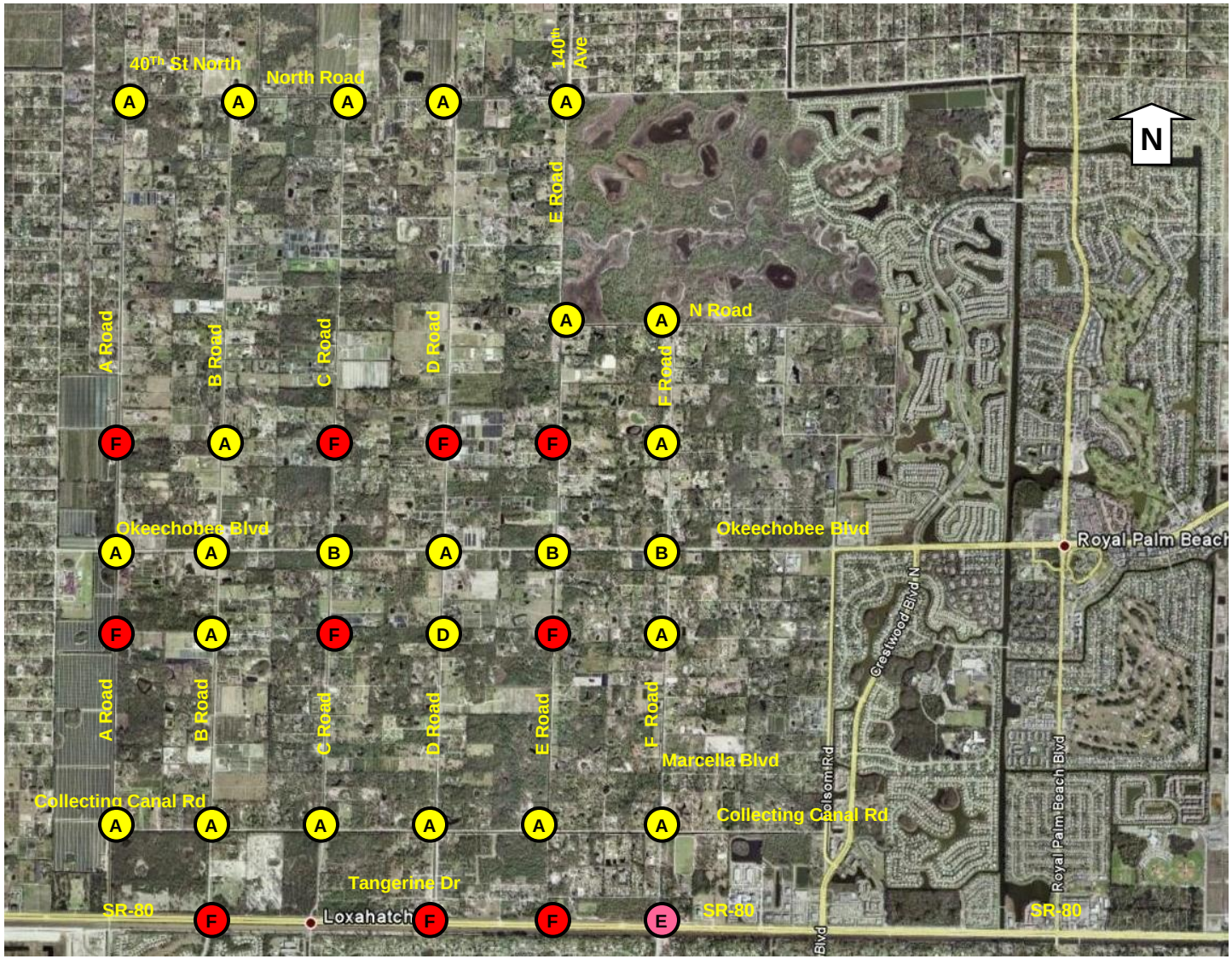
A — Intersection/Approach LOS

2.8.3 Alternative 2-Proposed Roundabouts on Okeechobee Boulevard

Existing condition and Future No-Build condition traffic analyses indicated that Okeechobee Boulevard intersections are expected to operate within acceptable Levels of Service for each overall intersection. However, individual approaches were shown to experience significant delay, particularly on side street approaches north and south of Okeechobee Boulevard. To address this problem, Alternative 2 proposes two roundabouts on Okeechobee Boulevard, one roundabout on Okeechobee Boulevard at B Road, and a second roundabout on Okeechobee Boulevard at F Road. These intersections were selected due in part to the significant growth in traffic volumes illustrated on both roadway segments south of Okeechobee Boulevard. It is apparent from the traffic count data that non-resident cut-through traffic is significant on both of these roadway segments and subsequently, at the intersection of these segments with Okeechobee Boulevard. The roundabout analysis for these two intersections was performed using Rodel software. Results of the analyses indicate that a roundabout at Okeechobee Boulevard and B Road will operate at LOS A with an average delay of 8.3 seconds per vehicle and the roundabout at Okeechobee Boulevard and F Road will operate at LOS B with an average delay of 13.2 per vehicle.

The levels of service for all the intersections in the study area for future 2030 proposed conditions are depicted in **Figure 9**. The Rodel analyses are included in **Appendix C**.

Figure 9
Master Roadway, Equestrian and Greenways Plan
Future 2030 Analyses with Improvements (Roundabouts)



LEGEND

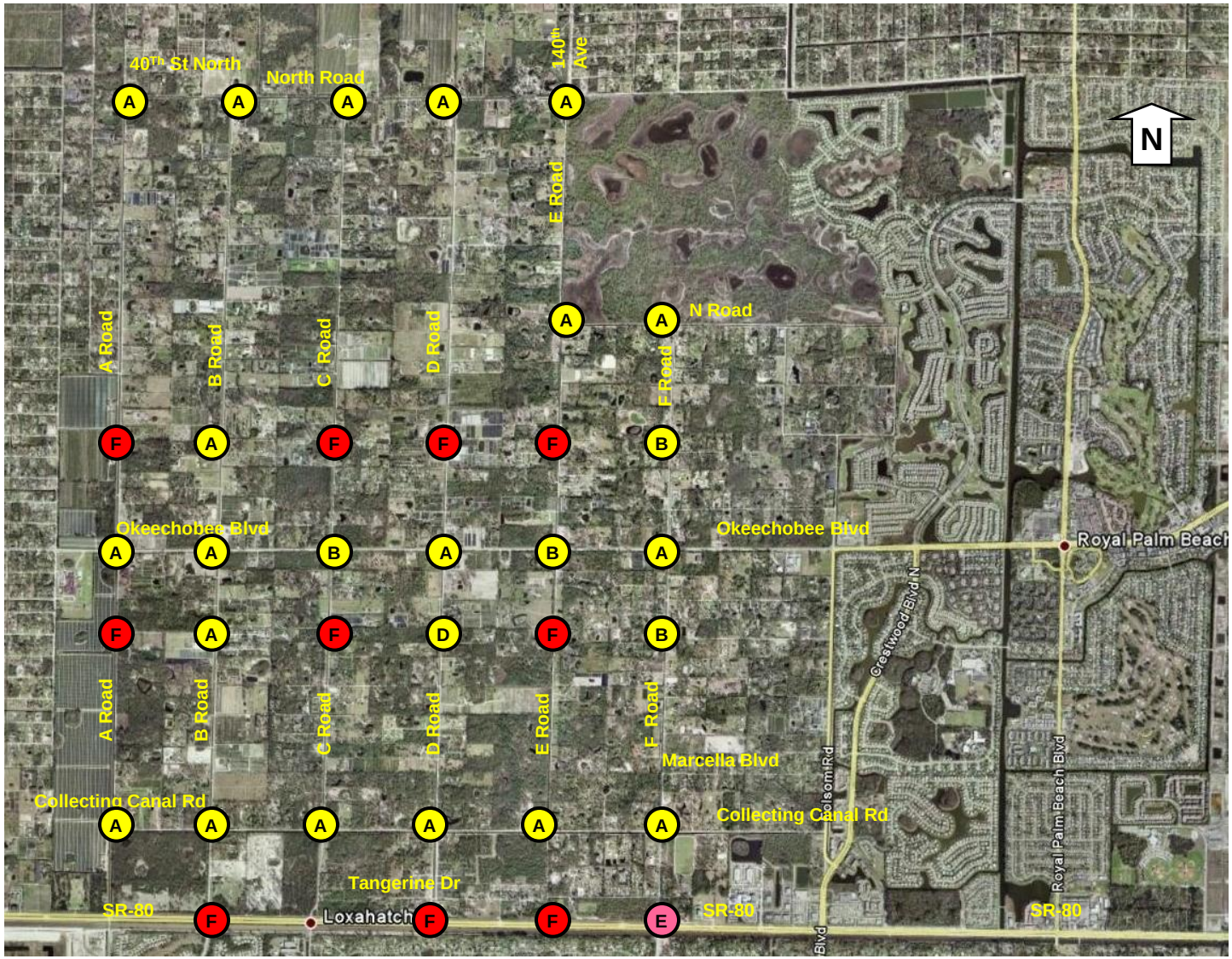
A Intersection/Approach LOS

2.8.4 Alternative 3-Proposed Signals on Okeechobee Boulevard

Existing condition and Year 2030 No Build condition analyses revealed that although most intersections on Okeechobee Boulevard were expected to operate within adopted level of service standards, traffic on minor street approaches will experience significant delays due to lack of adequate gaps. To improve the overall operations of the corridor and provide adequate gaps in the traffic stream, Alternative 3 proposes two traffic signals on Okeechobee Boulevard, one signal at the intersection with B Road and a second signal at the intersection with F Road.

The signalized intersections were analyzed utilizing Synchro 7 software and the results of the analyses are illustrated in **Figure 10**. As indicated, the signalized intersections are expected to operate at Level of Service B or better. Complete printouts of the analyses are included in **Appendix C**.

Figure 10
Master Roadway, Equestrian and Greenway Plan
Future 2030 Analyses with Improvements (Signals)



LEGEND

A — Intersection/Approach LOS

2.9 Roadway Typical Cross-Sections

The existing unpaved roadway cross-sections on The Letter Roads are not compliant with design standards set forth in the *Manual of Minimum Uniform Standards for Design, Construction and Maintenance for Streets and Highways* (also known as the Florida Green Book), Edition 2007. The Green Book provides minimum dimensions for typical roadway cross-sections. **Figure 11** illustrates the existing unpaved roadway cross-sections on The Letter Roads.

The *LGWCD Districtwide Paving Analysis Report* (Erdman Anthony of Florida, Inc., October, 2006) included four alternatives for roadway typical cross-sections with required right-of-way widths ranging from 102.5 feet to 133 feet and the preferred alternative was entitled "Preferred Grant Typical Section" with a proposed ROW width of 111 feet. All four of the proposed alternatives are summarized in **Table 7**. The minimum width roadway typical cross-section identified in the LGWCD Districtwide Paving Analysis Report is illustrated in **Figure 12**.

2.9.1 LGWCD Roadway Surface Treatment

The *LGWCD Districtwide Paving Analysis Report* (Erdman Anthony of Florida, Inc., October, 2006), discussed the costs and benefits of the following three roadway surfacing alternatives: Standard pavement (asphalt), open graded emulsion mix (OGEM), and unpaved or dirt surfaces. The LGWCD has since proceeded with a roadway surface treatment program that includes application of OGEM on roadway segments where a majority of adjacent and affected residents vote in favor of roadway improvements. To date, OGEM has been installed on F Road north and south of Okeechobee Boulevard. In addition, the LGWCD has installed speed tables and additional warning and regulatory signage on F Road. An illustration of a typical roadway cross section of OGEM surface treatment on The Letter Roads is shown in **Figure 13**.

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Figure 11 - Existing Unpaved Conditions; Letter Roads

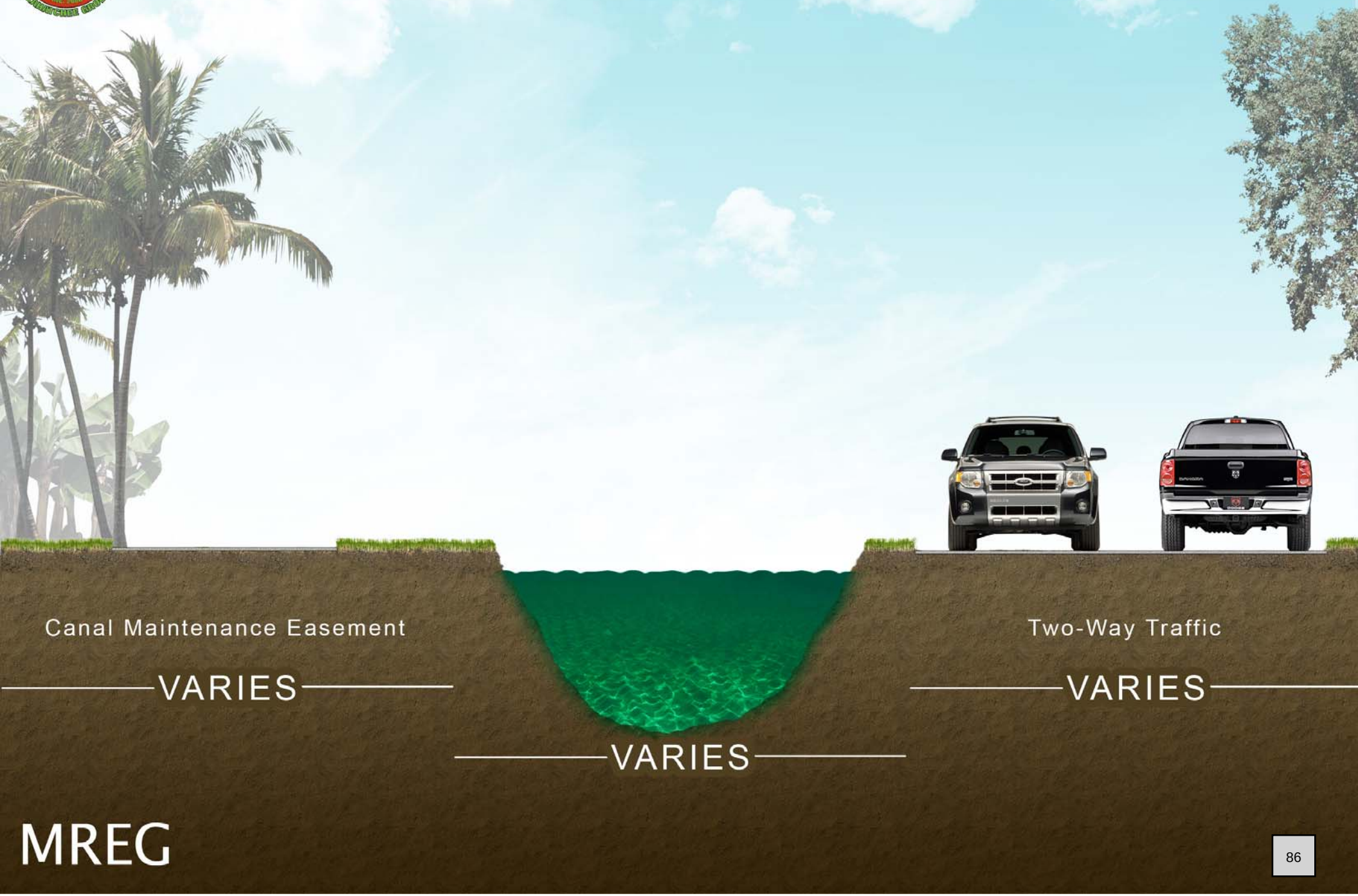

Table 7
Typical Sections
Districtwide Paving Analysis Report

Design Elements	Minimum Width Typical Section[1] (ft)	Typical Section-All Amenities[2] (ft)	Preferred Typical Section [3](ft)	Preferred Grant Typical Section [4](ft)
Canal Maintenance Rd	20	20	20	
Canal Maintenance Rd/Equestrain Trail				20
Canal Rd	41	41	41	41
Canal Buffer	5	5	5	5
Equestrian Path		12		
Curb & gutter	4.5	4.5	2	2
Maintenance Strip		2.5	3	3
Asphalt Path			8.2	8
Travel Lane	12	12	12	12
Grass Swale		8	8	8
buffer	2	2		
Sidewalk	6			
Shared Use Path		12		
Total	**102.5**	**133**	**111.2**	**111**

Note:
1) The information is directly taken from Exhibit 1-*Districtwide Paving Analysis Report* prepared by Erdman & Anthony of Florida, Inc.
2) The information is directly taken from Exhibit 2-*Districtwide Paving Analysis Report* prepared by Erdman & Anthony of Florida, Inc.
3) The information is directly taken from Exhibit 3-*Districtwide Paving Analysis Report* prepared by Erdman & Anthony of Florida, Inc.
3) The information is directly taken from Exhibit 9-*Districtwide Paving Analysis Report* prepared by Erdman & Anthony of Florida, Inc.

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Figure 12 - FDOT Greenbook Compliant Minimum Cross Section

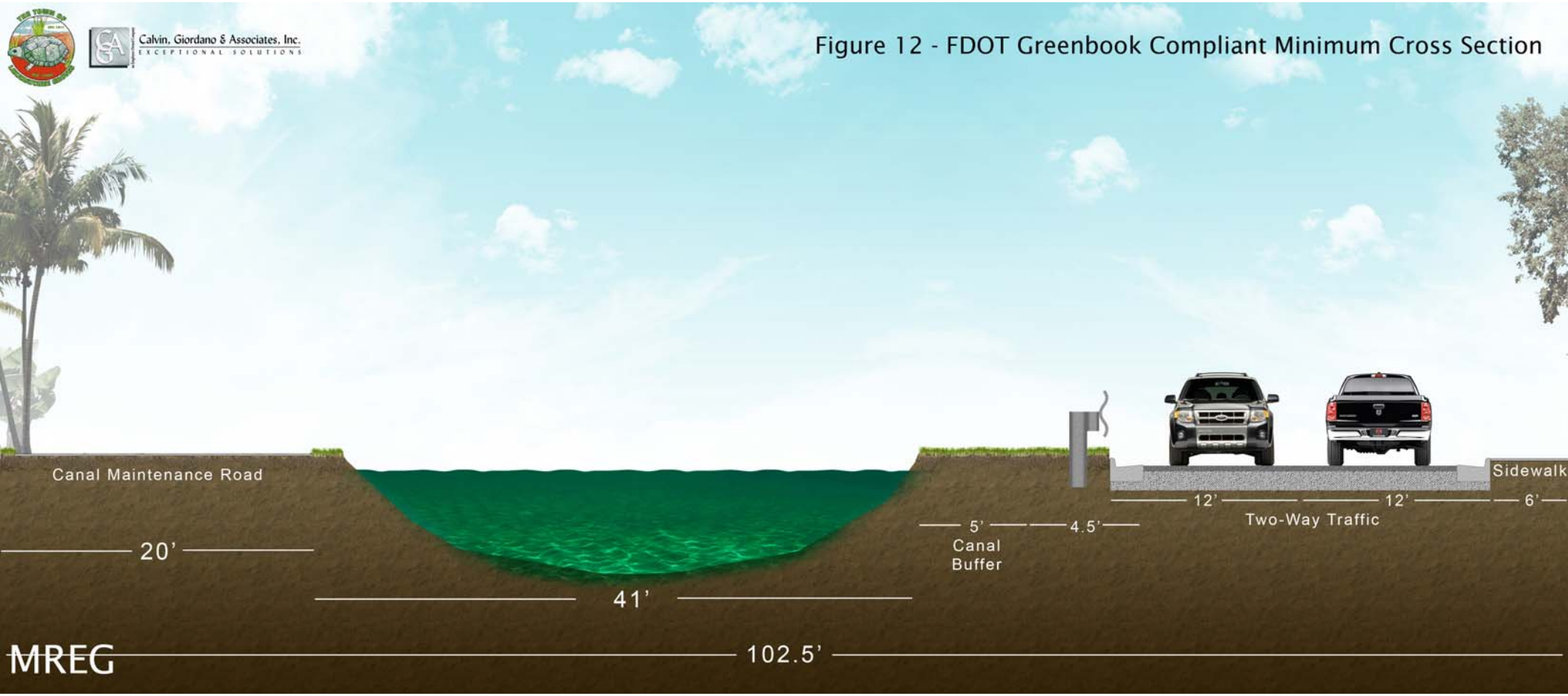

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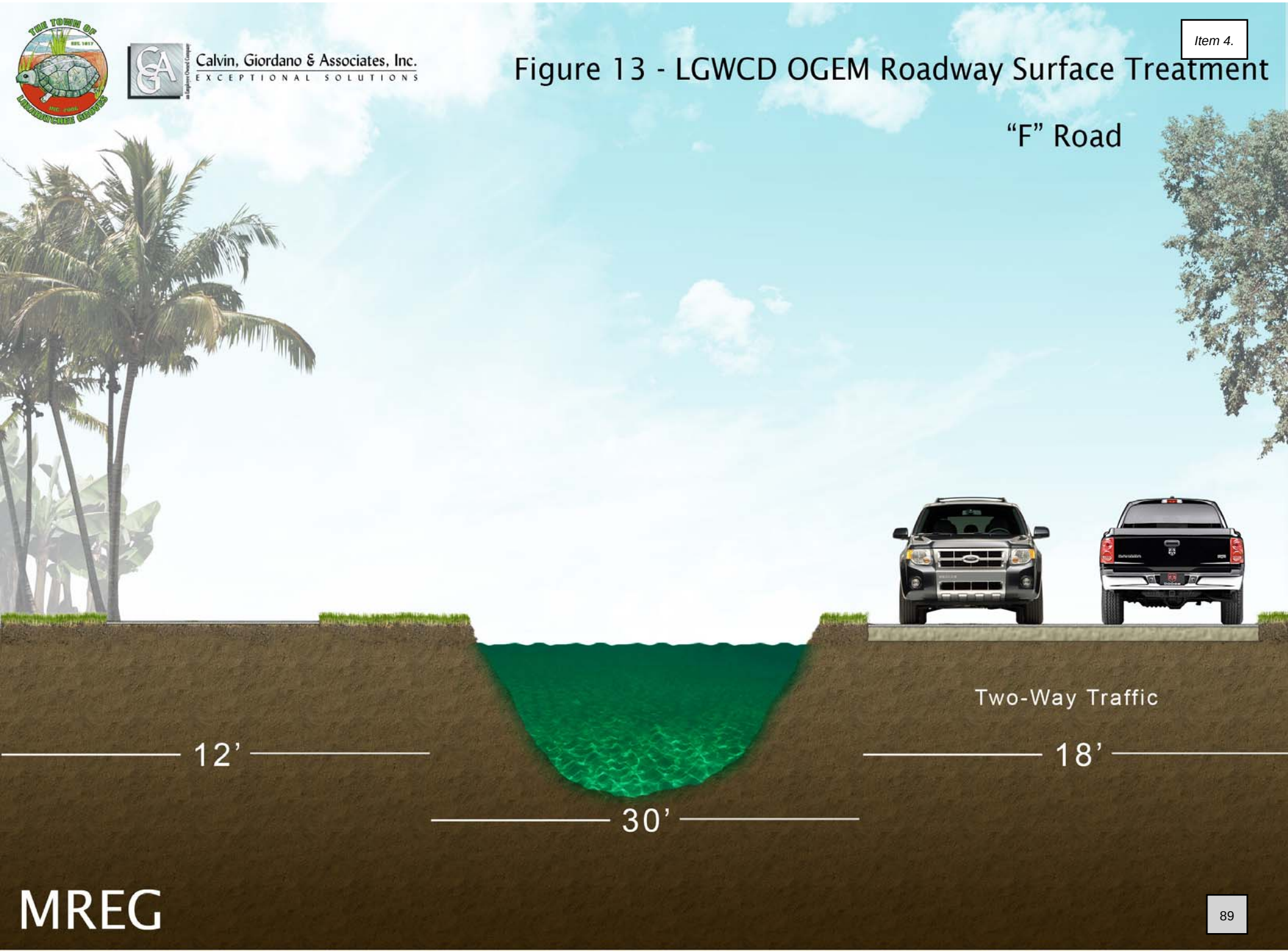
Figure 13 - LGWCD OGEM Roadway Surface Treatment

"F" Road



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2.9.2 Right-of-Way Information

Limited available right-of-way information, such as that contained in the LGWCD Paving Analysis Report, indicates that existing roadways may have migrated significantly beyond existing prescribed right-of-way limits. As a result, the acquisition of additional right-of-way may be required even to simply maintain the existing roadway cross-sections. Acquiring accurate roadway survey data is critical in evaluating possible roadway widening options and it is therefore recommended that the Town work to obtain updated survey data for The Letter Roads before evaluating roadway widening options. The LGWCD maintains roadway survey data for The Letter Roads, however the database may need to be supplemented with more frequent roadway cross sections taken at 50-foot or 100-foot intervals to identify any roadway migration.

3.0 Equestrian Trails and Greenways

Throughout the Visioning process associated with the development of the Comprehensive Plan, as well as in public workshops held in association with the development of the MREG, residents have consistently identified a strong desire for a comprehensive equestrian trail and greenway network within the Town. Existing facilities are limited to an equestrian trail/greenway along the canal maintenance easement (west of the canal) on F Road and an equestrian trail within the Loxahatchee Groves Park.

The Town lies within the Palm Beach County Northeast Everglades Natural Area (NENA) boundary. Palm Beach County recently revised the trail maps for NENA and the revised maps include a proposed greenway trail along North Road within the Town of Loxahatchee Groves, providing access to Royal Palm Beach Pines Natural Area. Several greenways have been established within the Royal Palm Beach Pines Natural Area as well as within the Pond Cypress Natural Area.

Florida Statutes define a greenway as a linear open space established along either a natural corridor, such as a riverfront, stream valley, or ridge-line, or over land along a railroad right-of-way converted to recreational use, a canal, a scenic road, or other route; any natural or landscaped course for pedestrian or bicycle passage; an open space connector linking parks, nature reserves, cultural features, or historic sites with each other and populated areas; or a local strip or linear park designated as a parkway or greenbelt.

The Town of Loxahatchee groves has a unique opportunity to develop a comprehensive network of greenways throughout the Town due to the availability of canal maintenance easements on The Letter Roads. These canal maintenance easements vary in width, but generally provide a width of approximately twelve feet. The incorporation of equestrian trails within a typical cross-section of The Letter Roads is illustrated in **Figure 14**.

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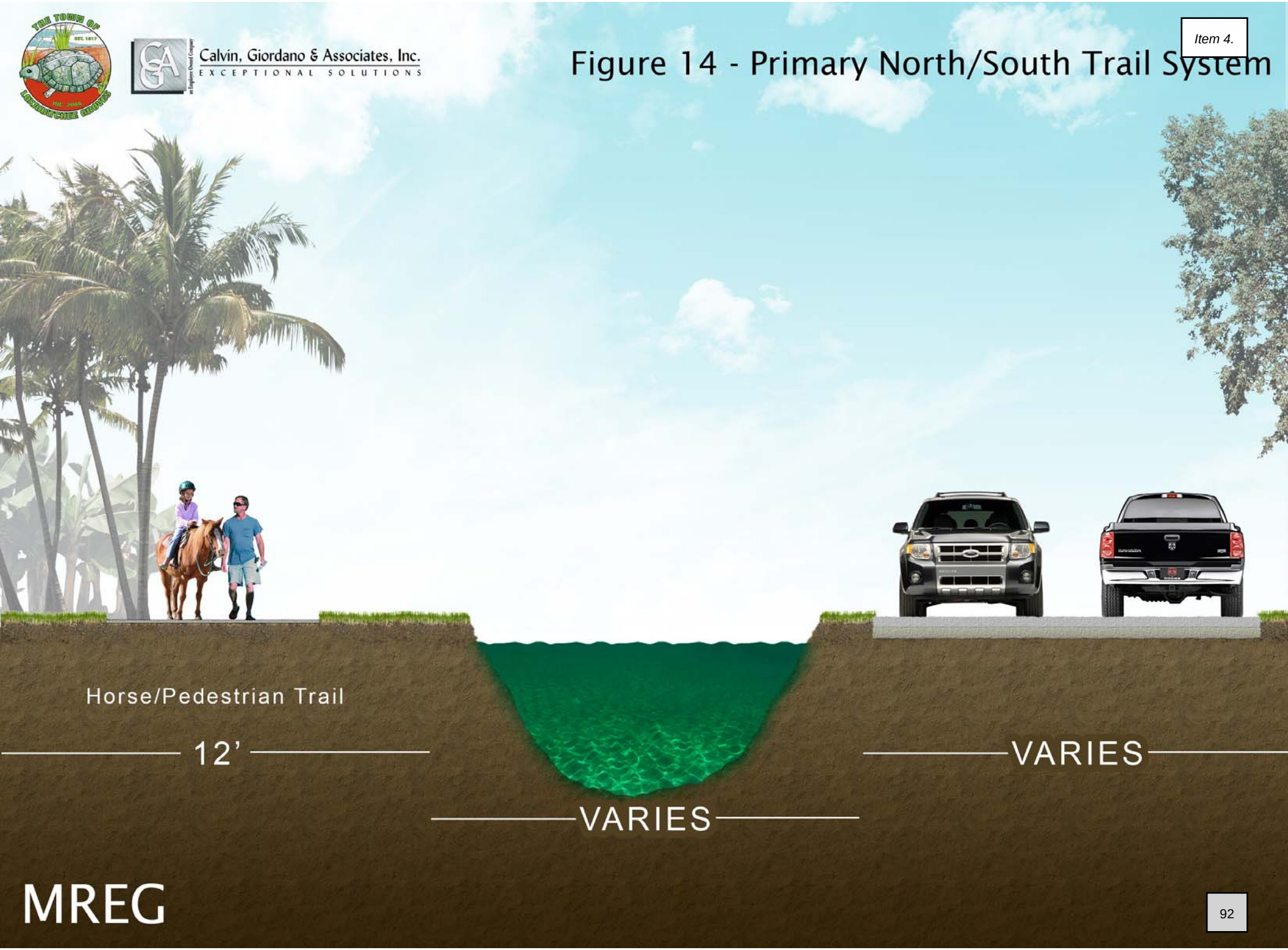
Figure 14 - Primary North/South Trail System



MREG

The establishment of dedicated equestrian trails and greenways on all Letter Roads will provide direct access to a trail network for a substantial portion of Town residents. It is recommend, however, that only trails located on B Road and F Road allow for crossing Okeechobee Boulevard to coincide with the intersection control recommended in this report. This will ensure that trail crossings of Okeechobee Boulevard occur where vehicular traffic is either already forced to come to a complete stop, in the case of intersection signalization, or where vehicular traffic speeds are substantially reduced, in the case of a roundabout.

While the canal maintenance easements provide exceptional opportunities for direct access to equestrian trails from residences, this also poses the problem of pets and livestock randomly entering the trail system and startling the horses. For this reason, it is recommended that the Town work with homeowners adjacent to the canal maintenance easements to install adequate fencing.

It is recommended that equestrian trails and greenways are pursued along 6th Court North to provide direct access to the Loxahatchee Groves Park as well as east/west connectivity to trails established on The Letter Roads. However, this corridor has physical constraints such as limited canal crossings. For this reason, it is recommended that the Town work to include trail easements on future commercial developments adjacent to SR 80/Southern Boulevard. This will help to provide east/west trail connectivity as well. It is recommended that equestrian trails and greenways are pursued along North Road to provide direct access to the Royal Palm Beach Pines Natural Area as well as east/west connectivity to trails established on The Letter Roads.

The proposed equestrian trail and greenway network is illustrated in **Figures 15** and **16**. The proposed network will connect to the Royal Palm Beach Pines Natural Area to the northeast and the Loxahatchee Groves Park to the south. The proposed network will provide a well-connected equestrian trail and greenway system to meet the needs of the community.

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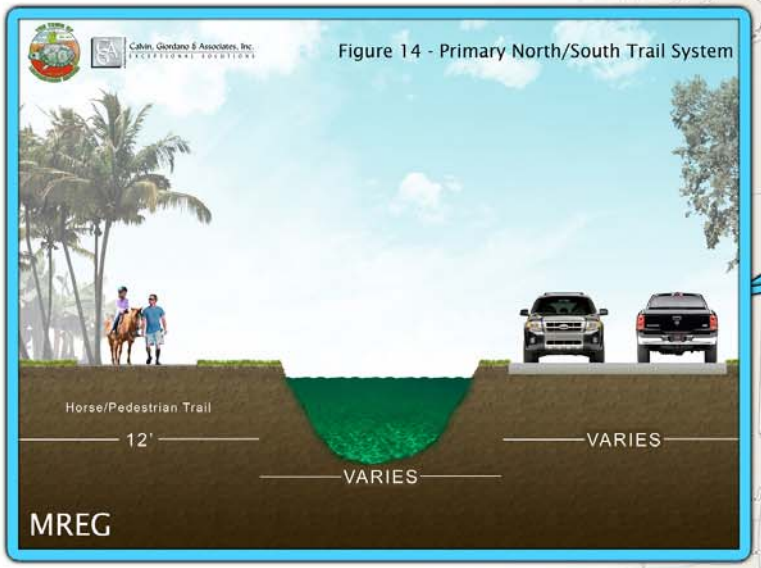
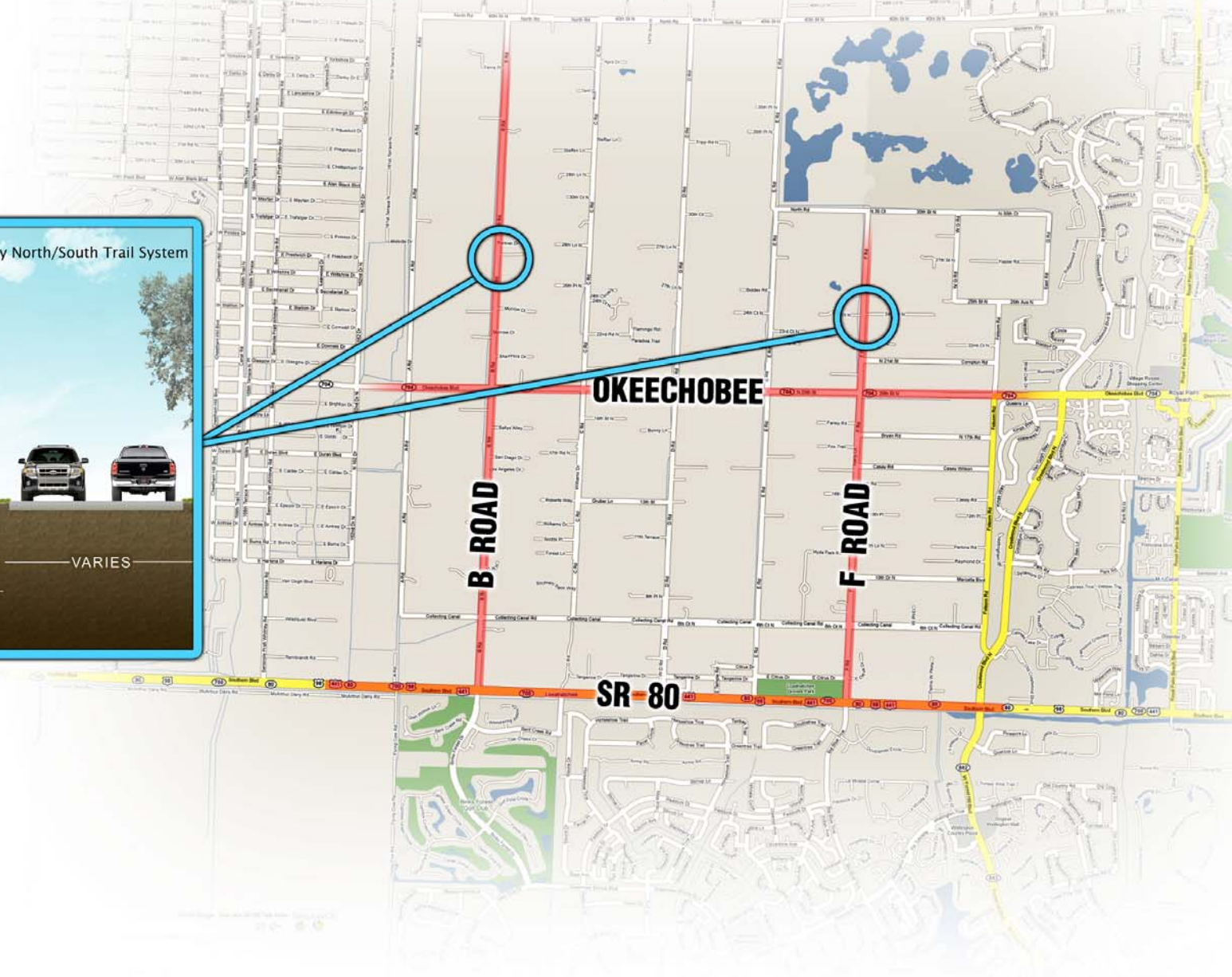
Figure 15 - Primary North/South Trail System





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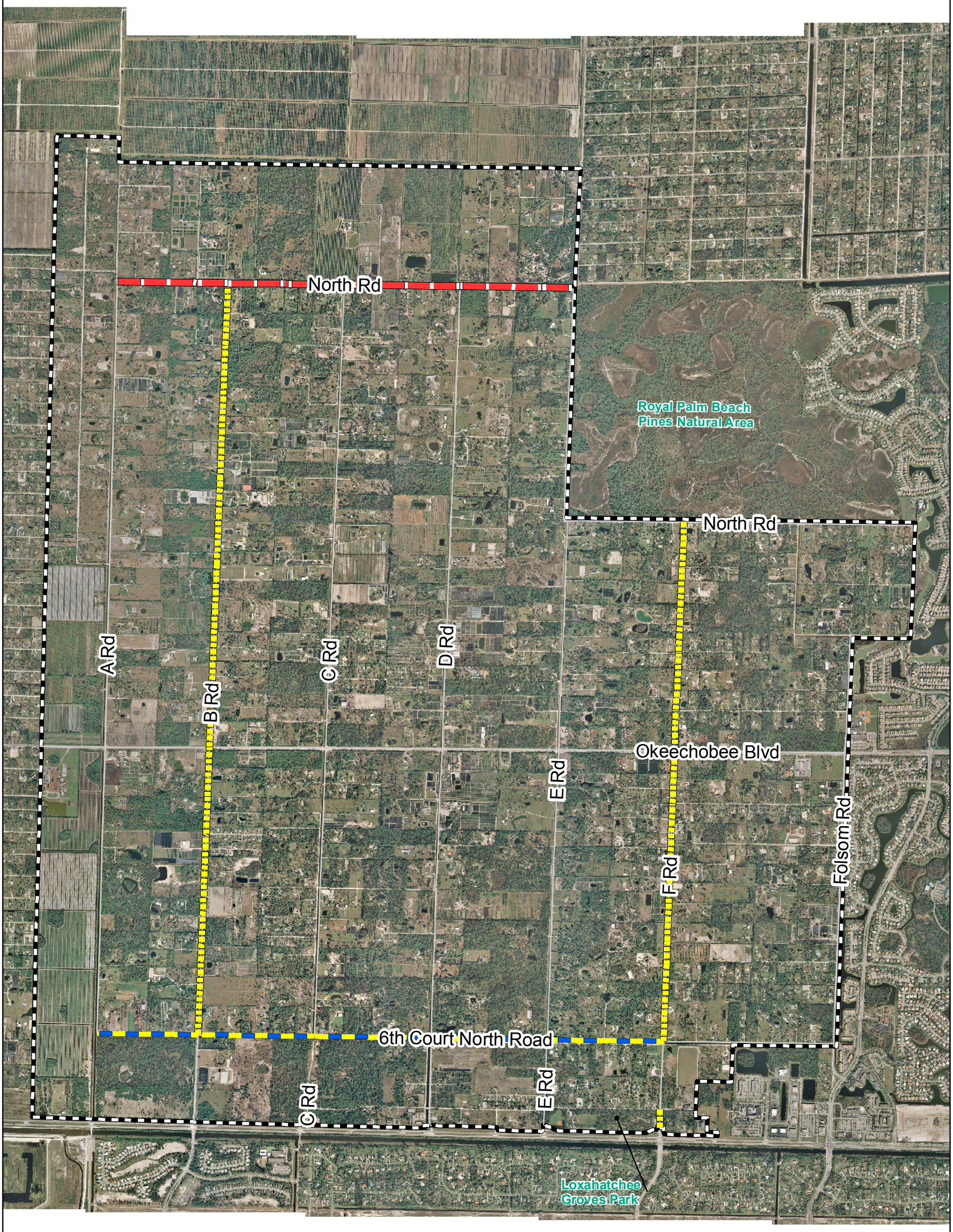

Loxahatchee Groves
Equestrian Trails and Greenways

Legend

Equestrian and Greenways

- Northern East-West Trail
- Southern East-West Trail
- Primary North-South Trail

0.5 Miles

N

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GIS Produced and maintained by the CGA Geographic Information Systems Services

Figure 16

4.0 RECOMMENDATIONS

4.1 Equestrian Trails and Greenways

- **Establish equestrian trails and greenways within the existing canal maintenance easements on all Letter Roads**.
- **Pursue north/south Town-wide trail connectivity along B Road and F Road by pursuing trail crossings of Okeechobee Boulevard at B Road and F Road**. Trail crossings of roadways are safer at or near controlled intersections. It is recommended in this report that full intersection control be pursued at the intersections of Okeechobee Boulevard with B Road and F Road. Therefore, trail crossings at these particular intersections are recommended as well.
- **Pursue east/west Town-wide trail connectivity along 6th Court North and North Road**.
- **Pursue equestrian trail/greenway easements within future commercial developments along SR 80/Southern Boulevard**. Due to physical constraints along 6th Court North, such as limited canal crossings, it is recommended that the Town work to include trail easements on future commercial developments adjacent to SR 80/Southern Boulevard. This will help to provide east/west trail connectivity.
- **Pursue equestrian trail/greenway easements to provide connectivity between the Loxahatchee Groves Park and the existing trail on F Road**.
- **Pursue funding options and coordinate with the Palm Beach County Greenway Program and Office of Greenway and Trail (OGT)-Department of Environmental Protection (DEP) for greenway designations and improvements.**
- **Work with homeowners adjacent to canal maintenance easements on The Letter Roads to install adequate fencing**. This will help to prevent

pets and livestock from randomly entering the equestrian trails and startling the horses.

- **Work with the LGWCD in developing trail design documents**. Design documents for the proposed trail system will likely include right-of-way and easement identification, trail cross-sections, signage, and surface treatments.

4.2 Roadways

- **Provide intersection control (roundabout or traffic signal) at Okeechobee Boulevard/B Road and Okeechobee Boulevard/F Road**. Providing intersection control at B Road and F Road will result in gaps in the overall traffic stream on Okeechobee Boulevard and will dramatically reduce delay on The Letter Roads at each of the intersections between B Road and F Road. Signalization of these intersections is recommended when MUTCD Warrants are met, or installation of roundabouts is recommended if roundabout warrants are met. It is recommended that the Town commission a roundabout warrant analysis for these intersections.
- **Obtain additional existing roadway survey data on The Letter Roads**. Understanding the actual existing right-of-way limitations on these primary corridors is critical before significant roadway improvements are considered.
- **Install roadway surface treatment on B Road in accordance with LGWCD standards or install asphalt pavement in accordance with Florida Greenbook Standards**. A hard roadway surface such as OGEM or asphalt pavement will be required on this roadway before intersection control can be installed.
- **At the discretion of the Town, allow OGEM surface treatment, asphalt pavement or unpaved roadways**. The MREG has identified the need to install either OGEM surface treatment or asphalt pavement on B Road in order to address traffic operational issues. No other traffic

operational issues were identified that would either require or prohibit the installation of roadway surface improvements.

- **Work with Palm Beach County to reduce speeding on Okeechobee Boulevard**. Installation of intersection control, as recommended above, will have the added benefit of dramatically reducing speeding on Okeechobee Boulevard. In the interim, it is recommended that the Town work with the County to address the speeding problem identified in this report.
- **Work with the Florida Department of Transportation to address traffic operational deficiencies at SR 80/Southern Boulevard intersections**. Coordination efforts will include the completion of the access control plan commissioned by the Town.
- **Improve the capacity and efficiency of B Road and F Road to ease the burden of cut-through as well as general traffic**. A comparison of traffic count data collected in Year 2006 with traffic count data collected in Year 2008 indicates an increase in traffic volumes on several corridors. While many factors may have lead to the increase in traffic, it is likely that some of the increase is attributable to cut-through traffic. MREG findings recommend improving the B Road and F Road corridors to coincide with existing traffic signals on SR 80 Southern Boulevard. Improving the efficiency and capacity of these corridors should help to ease the burden of traffic in general throughout the Town.
- **Establish and maintain a semi-annual traffic count program**
  Historical 24-hour Average Daily Traffic volume data for roadways throughout the Town are limited yet critical in determining global traffic patterns. It is recommended that the Town work with the LGWCD in collecting ADT volumes and maintaining a database of the traffic counts to track changes in motorist behavior and identify the need for roadway improvements.