

Glades  
Region  
Master  
Plan



Glades Region Master Plan  
Palm Beach County

February 14, 2015

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Resilience



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## **County Administration**

Robert Weisman, County Administrator

Shannon LaRocque-Baas, Assistant County Administrator

## **Economic Sustainability**

Edward Lowery, Director

Sherry Howard, Deputy Director

Carol Thompson, Special Projects Manager (GRMP Manager)

Pamela Nolan, Economic Development Specialist

Kimberly Ciklin, Special Projects Coordinator

## **Planning, Zoning and Building**

Rebecca Caldwell, Executive Director

Lorenzo Aghemo, Planning Director

Patrick Rutter, Chief Planner

Patricia Behn, Principal Planner

Jon MacGillis, Zoning Director

Maryanne Kwok, Chief Planner

Bill Cross, Principal Planner

## **Engineering**

George Webb, County Engineer

Tanya McConnell, Deputy County Engineer

Omelio Fernandez, Roadway Production Director

Kristine Frazzell-Smith, Senior Project Manager

Holly Knight, Project Manager

Dave Young, Special Projects Manager

Dan Weisberg, Traffic Engineering Director

Kim Graham, Assistant Traffic Engineering Director

## **Water Utilities**

James Stiles, Director

Maurice Tobon, Engineering Director

Jennifer Prettell, Project Designer

Maritza Navarro, Construction Coordination Aide

### **Palm Tran**

Charles Frazier, Assistant Director Fred  
Stubbs, Planning Manager Jeannie Taylor,  
Senior Transit Planner Lili Finke, Marketing  
Manager

### **Metropolitan Planning Organization**

Nick Uhren, Director  
Angela Morlok, Principal Planner  
Bret Baronak, Senior Planner  
Malissa Booth, Public Information Specialist

### **Office of Community Revitalization**

Houston Tate, Director

### **Public Affairs**

Lisa De La Rionda, Director  
Javier Lopez, Public Relations Specialist David Kelly,  
Web Site Specialist  
Lester Williams, Channel 20 Station Manager

### **Treasure Coast Regional Planning Council**

Michael Busha, Executive Director  
Greg Vaday, Economic Development Coordinator (GRMP Project Manager)  
Dana Little, Urban Design Director

### **CareerSource Palm Beach County**

Steve Craig, CEO and President  
Michelle Dryer, Manager of Partnerships and Program Innovation  
Charles Duval, Manager, West Career Center

### **LORE Alliance**

Donia Roberts, President  
Ashley Tripp

### **Business Development Board of Palm Beach County**

Kelly Smallridge, President and CEO  
Brandon Carson, Glades Region Vice President of Economic Development

## **Core Planning Committee Members**

Reverend Patti Auperlee, First United Methodist Church of Pahokee  
Holly Bennett, Provost, Palm Beach State College – Belle Glade  
Regina Bohlen, Director, Pahokee Chamber of Commerce  
Brenda Bunting, Director, Belle Glade Chamber of Commerce  
Leondrae Camel, City Manager, South Bay  
Brandon Carson, Business Development Board  
Charles Duval, CareerSource West Career Center  
Kim Erickson, Canal Point CDC  
Lomax Harrelle, City Manager, Belle Glade  
Sherry Howard, Deputy Director, PBC Department of Economic Sustainability  
Art Kirstein, Coordinator, Agriculture/Cooperative Extension Service  
Shannon LaRocque-Baas, PBC Assistant County Administrator  
Dana Little, Urban Design Director, TCRPC  
Katisha McKelvin, South Bay resident  
Carl Morrison, Sr., Pahokee resident  
Derrek Moore, City Manager, Pahokee  
Reverend Robert Rease, Belle Glade resident  
Donia Roberts, President of LORE Alliance  
Reverend Bill Taylor, Canal Point resident  
Carol Thompson, Special Projects Manager, PBC Department of Economic Sustainability  
Greg Vaday, Economic Development Coordinator, TCRPC  
Caroline Villanueva, Florida Crystals

## **Glades Guardians**

### **Housing and Urban Development**

(*Office of Economic Resilience*)  
Shelley R. Poticha, Director  
J. Malcolm Smith, Grant Officer  
Lynnette, McRae, Grant Technical Representative  
(*Miami Field Office*)  
Armando Fana, Director  
Matthew Lord, Program Analyst and Sustainability Officer  
Thomacina Brown, Operations Specialist

### **Florida Department of Transportation**

Larry Hymowitz, FDOT District IV Mobility Coordinator

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# Glades Region Master Plan

**Prepared by:**

**Palm Beach County Department of Economic Sustainability**



**PALM BEACH COUNTY  
BOARD OF COUNTY  
COMMISSIONERS**

**Shelley Vana**  
Mayor

**Mary Lou Berger**  
Vice Mayor

**Hal R. Valeche**

**Paulette Burdick**

**Steven Abrams**

**Melissa McKinley**

**Priscilla A. Taylor**

**January 2015**



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### **Appendices<sup>1</sup>**

- A. Market Overview and Economic Development Analysis – Treasure Coast Regional Planning Council, December 2014
- B. Public Participation Process – Treasure Coast Regional Planning Council, December 2014
- C. Glades Region Water Master Plan – Carollo Engineers, September 2014
- D. Glades Wastewater Master Plan – Hazen and Sawyer, P.C., September 2014
- E. Glades Region Master Plan – Drainage Inventory and Evaluation (Task 5.4, 5.7 and 5.8 Deliverables), Last Devenport, Inc. / Mock Roos, January 2014
- F. Glades Region Master Transit Plan – Center for Urban Transportation Research (University of South Florida), June 2014
- G. Hooker Highway and Avenue E Alignment Study – Civil Design, Inc., June 2014
- H. Roadway and Railroad Improvements – Palm Beach County Engineering Traffic Division, December 2014
- I. Community Challenge Planning Grant Glades Region Master Plan – Palm Beach County Planning, Zoning and Building Department

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<sup>1</sup> Appendices are a compilation of the various reports used to develop the Glades Region Master Plan and are included in a separately bound document.



## Section 1.0 Introduction

Palm Beach County, as a recipient of a 2012 U.S. Department of Housing and Urban Development (HUD) Community Challenge Planning Grant, in conjunction with its partners, and on behalf of the cities of South Bay, Belle Glade, and Pahokee and the surrounding unincorporated areas, has studied and recommended ways to improve mobility, quality of life, and economic sustainability in the Glades Region. This study considered new and emerging economic development opportunities for the Glades Region and summarizes those opportunities in an implementable plan. This effort was conducted with significant and meaningful public participation throughout the process.

The project area for the Glades Region Master Plan (GRMP) focused on, but was not limited to, the three (3) municipalities along the southeastern shore of Lake Okeechobee: (1) City of South Bay, (2) City of Belle Glade, and (3) City of Pahokee. The entire Glades Region, including the Everglades Agricultural Area west of the City of West Palm Beach, was analyzed for economic and job-creation opportunities as well as other community stabilizing initiatives.

Key elements of the study include:

- The creation of a comprehensive master plan for the cities and key areas of the region which considers infill and redevelopment opportunities.
- A review of land use and development regulations in order to recommend improvements and ways to incentivize desired redevelopment and business creation.
- The development of a market overview which reviews existing market conditions, demographics, and analyzes key market trends in the region.
- An economic development analysis which examines existing and emerging industry clusters and their potential in the Glades Region.
- A community-based vision for an economically sustainable Glades Region.
- An evaluation of infrastructure needs (including water, wastewater, drainage, roadways and railway) and public transportation improvements necessary to support a sustainable Glades Region.
- A review of previous and current studies conducted in the Glades Region.

## 1.1 Scope of Work

The scope of work included elements of Market Overview and Economic Development Analysis, Water and Wastewater, Transportation (Roadway/Railroad), Drainage/Flood Protection and Stormwater Management, Transit, and Planning Zoning and Building. **Table 1.1** outlines the project coordination and due diligence related tasks associated with the GRMP.

**Table 1.1**  
**Project Coordination and Due Diligence (Tasks/Deliverables)**

Description	Deliverables
Participate in all coordination meetings and participate in coordinating all project tasks and schedules to ensure milestones and deadlines are aligned between Partners.	Team meeting summaries
Develop, the necessary base documentation for the project to include: GIS databases, aerial photography, ownership maps, residential and non-residential intensity maps, etc.	Collection and catalogue of base documents
Assemble data pertinent to the project to include: previous and current economic development, redevelopment, and planning studies for the area; historical and cultural information; business and economic profiles; regulatory documents for Palm Beach County, and the Cities of South Bay, Belle Glade, and Pahokee.	Brief summary of previous and current economic development, redevelopment, and planning studies
Conduct field work and site visits to develop a photo database and review on-site conditions.	--
Review the Comprehensive Plan and local Land Development Regulations for Palm Beach County, and the Cities of South Bay, Belle Glade, and Pahokee.	Brief analysis of regulatory review
Perform a market overview and an economic analysis for the Glades Region Master Plan which shall focus on those "building blocks" that will guide preparation of a comprehensive economic development strategy that addresses the Glades Region's economic challenges of high unemployment and poverty, disinvestment, lack of jobs, and declining tax revenues.	Brief summary of the market overview and analysis

## SECTION 1 - INTRODUCTION

The key components of the economic analysis include:

- Demographic and Economic Profile
- Real Estate Market Conditions
- Economic Development Potential
- Target Industry Analysis Update
- Measuring Economic Impacts of Housing/Workplace Land Use Trends

In addition, tasks and deliverables related to Workshops for each community were included as highlighted in **Table 1.2**.

**Table 1.2**  
**Community Workshops (Tasks/Deliverables)**

Description	Deliverables
1. <u>Pre-Workshop for South Bay/Belle Glade</u> <ul style="list-style-type: none"><li>• Public Involvement Plan</li><li>• Creation of Workshop Host Committee</li><li>• Public Outreach Efforts</li><li>• Stakeholder Interviews</li></ul>	<ul style="list-style-type: none"><li>• Copy of the Public Involvement Plan</li><li>• List and contact information for the Workshop Host Committee</li><li>• List of the public outreach efforts undertaken for the South Bay / Belle Glade Workshops</li><li>• General summary of the individual stakeholder interviews</li></ul>
2. <u>Public Design Workshop for South Bay/Belle Glade</u> <ul style="list-style-type: none"><li>• Saturday Public Design Session</li><li>• Greetings and Opening Presentation</li><li>• Table Sessions</li><li>• Table Presentations</li><li>• Wrap-up</li><li>• Workshop Design Studio</li><li>• Work-in-Progress Presentations</li></ul>	<ul style="list-style-type: none"><li>• Copy of video recordings and photographs taken at the workshop and presentations</li><li>• Description of the week-long (Saturday to Friday) charrette process and a summary of the Work-in-Progress Presentation</li></ul>
3. <u>Pre-Workshop for Pahokee/Canal Point</u> <ul style="list-style-type: none"><li>• Public Involvement Plan</li><li>• Creation of Workshop Host Committee</li><li>• Public Outreach Efforts</li><li>• Stakeholder Interviews</li></ul>	<ul style="list-style-type: none"><li>• Copy of the Public Involvement Plan</li><li>• List and contact information for the Workshop Host Committee</li><li>• List of the public outreach efforts undertaken for the South Bay / Belle Glade Workshop</li><li>• Copy of the individual stakeholder interviews</li></ul>

**Table 1.2 (continued)**  
**Community Workshops (Tasks/Deliverables)**

<b>Description</b>	<b>Deliverables</b>
<p><u>4. Public Design Workshop for Pahokee/Canal Point</u></p> <ul style="list-style-type: none"> <li>• Saturday Public Design Session</li> <li>• Greetings and Opening Presentation</li> <li>• Table Sessions</li> <li>• Table Presentations</li> <li>• Wrap-up</li> <li>• Workshop Design Studio</li> <li>• Work-in-Progress Presentations</li> </ul>	<ul style="list-style-type: none"> <li>• Copy of video recordings and photographs taken at the workshop and presentations</li> <li>• Description of the week-long (Saturday to Friday) Workshop process and a summary of the Work-in-Progress Presentation</li> </ul>
<p><u>5. Post-Workshop Reports</u></p> <ul style="list-style-type: none"> <li>• Market Overview and Economic Development Analysis Report</li> <li>• Draft Public Participation Process Report</li> <li>• Final Public Participation Process Report</li> </ul>	
<p><u>6. Post-Report Meetings and Approval Hearings</u></p> <ul style="list-style-type: none"> <li>• Post-Report Meetings</li> <li>• Project Approval Hearings</li> </ul>	

Task descriptions and deliverables associated with the Water and Wastewater elements of the GRMP are noted in **Table 1.3**.

**Table 1.3**  
**Water and Wastewater (Tasks/Deliverables)**

<b>Task</b>	<b>Description</b>	<b>Deliverables</b>
3.1	Periodic Project Coordination Meeting(s) with Partners and/or Stakeholders	Attend meetings
3.2	Contract with two Consultants for Water and Wastewater Master Plan	Approved Consultant Services Authorizations (CSA)
3.3	Evaluate Population Data / Projections / Collect Data Models (20 yrs.). Complete Utility Operation Analysis	20 year population projections with associated water and wastewater demands calculations
3.4	Infiltration and Inflow sewer analysis	Infiltration and Inflow draft report
3.5	Participate in Workshop and gather input	Attend all meetings and provide feedback from Water Utilities Department

**Table 1.3 (continued)**  
**Water and Wastewater (Tasks/Deliverables)**

Task	Description	Deliverables
3.6	Create Hydraulic Model / Assess Costs; Develop Costs and Schedule	Hydraulic models of the water and wastewater systems. Utilize population and demand projections to determine the impact of growth on the water and wastewater systems.
3.7	Make Projections on Future Water / Wastewater and Evaluate Condition Assessment	A Capital Improvement Plan to replace or upgrade water and wastewater infrastructure for 20 years. Condition assessment of major equipment.
3.8	Present Recommendations / Identify Costs and Schedule	Final master plan reports with all costs, schedules, and recommendations.
3.9	Participate in Presentation of Final Glades Region Master Plan	Presentation and Document

Task descriptions and deliverables associated with the Transportation Multimodal System element of the GRMP are noted in **Table 1.4**.

**Table 1.4**  
**Transportation Multimodal System (Tasks/Deliverables)**

Task	Description	Deliverables
4.1	Periodic Project Coordination Meeting(s) with Partners and/or Stakeholders	Attend meetings
4.2	Develop future land use and convert into MPO model socio-economic data	Future land use by traffic analysis zones (TAZ); conversion of TAZ land use to socio-economic inputs for MPO 2035 year model.
4.3	Define Subarea for Model analysis purposes. Identify inconsistencies between County Thoroughfare Map, 2020 Number of Lanes Map, and MPO Model Network within the Subarea. Define a base highway network for the Subarea.	Base highway network to be used in Subarea calibration of model for base year 2009; re-evaluate TAZ structure within Subarea.
4.4	Inventory conditions on existing Glades Area Roadway Network	Traffic volumes, accident data, bridge and pavement conditions, geometric constraints to large truck movements.
4.5	Subarea Calibration of Model	Calibrated Subarea Model
4.6	Inventory conditions on existing Glades Area Rail Network	Track condition, safety of highway / rail crossings, availability of passing opportunities on single tracks.

**Table 1.4 (continued)**  
**Transportation Multimodal System (Tasks/Deliverables)**

Task	Description	Deliverables
4.7	Run Calibrated MPO Model with base highway network and future year socio-economic data	Model results which identify roadway capacity deficiencies and excessive travel times on base network; summary analysis of existing and projected Truck/ Rail network deficiencies (including result of SERPM Model truck movement study).
4.8	Identify and compare impacts of alternative networks of multimodal improvements to meet travel demand and access requirements for Glades Area	Model results which compare capacity deficiencies and travel times for alternative networks; general comparison of costs, performance, and environmental impacts for all alternatives (including No Build).
4.8	Adoption of Transportation Component of Glades Region Master Plan	Prepare required Amendments to MPO Long-Range Transportation Plan (LRTP), Thoroughfare ROW Identification Map (TIM), Number of Lanes Map, and Functional Classification Map.
4.9	Select Consultant for Alignment Study for Access Routes to Intermodal Logistics Center	Prepare Request for Proposal, Advertise for Proposals, Complete County-mandated Selection Process, Finalize Scope of Work and Fee, Prepare Contract Documents for BCC Approval, Issue Notice to Proceed
4.10	Data Collection	Prepare Design Traffic Estimates; Collect Survey, Property, Utility, and Environmental Data
4.11	Conduct Utility and Environmental Investigations to Determine Possible Constraints on Alignments	Analyze utility and environmental data for possible constraints; hold permitting pre-application meetings with agencies to identify possible constraints in area
4.12	Develop Alignment Alternatives	Develop Typical Design Section; Prepare Alternative Alignment Conceptual Designs; Prepare Intersection Details; Prepare Cost Estimates for Alternatives; Prepare summary Report
4.13	Review and Adoption of Final Alignment Study	PBC In-house Review and Comment on Summary Report; Preparation of Final Alignment Study; Advertisement / Notices for Public Hearing
4.14	Participation in Presentation of Final GRMP	Participation / Presentation

## SECTION 1 - INTRODUCTION

Task descriptions and deliverables associated with the Drainage/Flood Protection and Stormwater Management element of the GRMP are noted in **Table 1.5**.

**Table 1.5**  
**Drainage/Flood Protection and Stormwater Management (Tasks/Deliverables)**

Task	Description	Deliverables
5.1	Periodic Project Coordination Meeting(s) with Partners and/or Stakeholders	Attend meetings
5.2	Contract with one Drainage Consultant	Approved Consultant Services Authorizations (CSA)
5.3	Data Collection in coordination with Drainage District Engineer	Summary of existing drainage systems
5.4	System Analysis	Determine potential Municipal areas susceptible to flooding
5.5	Participate in Workshop Process	Attend all meetings and provide feedback on drainage.
5.6	Develop Alternative Plans / Scenarios	Establish various possible improvements
5.7	Develop / Present Final Recommendations Report	Refine potential possible improvement scenarios
5.8	Develop Plans and Cost Estimates from Final Recommendations	Final Master Plans and Reports
5.9	Participation in Presentation of Final GRMP	Participation / Presentation

Task descriptions and deliverables associated with the Public Transit element of the GRMP are noted in **Table 1.6**.

**Table 1.6**  
**Public Transit (Tasks/Deliverables)**

Task	Description	Deliverables
7.1	Periodic Project Coordination Meeting(s) with Partners and/or Stakeholders	Attend meetings
7.2	Contract with one Transit Consultant focusing on three major routes	Approved Consultant Services Authorizations (CSA)
7.3	Analyze existing service for performance and expanded frequencies	Summarize system assessment and determine potential improvements
7.4	Develop proposal for new service to / from Employment Centers (such as the Intermodal Logistics Center) / Residents / Shopping	Determine specification of routing and scheduling strategies
7.5	Participate in Workshop and gather input	Attend all meetings and provide input on Palm Tran (transit)

**Table 1.6 (continued)**  
**Public Transit (Tasks/Deliverables)**

Task	Description	Deliverables
7.6	Identify potential transfer facility locations for route connections.	Determine potential possible transfer locations for fixed connections
7.7	Develop cost estimates for proposed services additions and improvements	Determine cost estimates for proposed service additions and improvements and transfer center
7.8	Participate in Presentation of Final GRMP	Determine cost estimates for proposed service additions and improvements and transfer center

Task descriptions and deliverables associated with the Planning Zoning and Building element of the GRMP are noted in **Table 1.7**.

**Table 1.7**  
**Planning Zoning and Building (Tasks/Deliverables)**

Task	Description	Deliverables
8.1	Periodic Project Coordination Meetings with Partners and Stakeholders	Participation in meetings.
8.2	Provide and Support Data Gathering	Comprehensive data and analysis report with a series of maps to understand current conditions.
8.3	Participate in Public Planning Workshop and gather input	Attend all meetings and provide feedback from Planning. Assist in preparation and actual Workshop.
8.4	Develop Overlay Guideline for Glades Region in coordination with cities/county	Participate in coordination meetings and assist TCRPC with developing guidelines. Determine appropriate way to implement.
8.5	PBC- Prepare Amendments needed to implement GRMP and modifications to process	Prepare outline of what amendments are necessary to implement the Master Plan and Comprehensive Plan provisions.
8.6	PBC (Unincorporated) - Comprehensive Plan Amendment Process	Review draft provisions and recommend language that will complement the proposed Unified Land Development Code (ULDC) amendments.
8.7	PBC - Draft Code Language	Prepare the code language with input from various county agencies and recommendations from subcommittee.

**Table 1.7 (continued)**  
**Planning Zoning and Building (Tasks/Deliverables)**

Task	Description	Deliverables
8.8	PBC- Establish / Run a Subcommittee Process (LDRAB)	Locate industry and interested parties for subcommittee. Prepare meeting agendas.
8.9	PBC- Hold Hearings; Make Recommendations to the BCC.	Attend all meetings and provide feedback from Planning and Zoning.
8.10	PBC Implement; Train Staff / Industry; Review for Consistency	Training industry and staff on new provisions.
8.11	Participate in Presentation of Final GRMP	Participation in meetings to ensure the Plan is successful. Provide presentations to BCC and cities.

## 1.2 Master Plan Elements

The following is a listing and brief overview of the various planning elements considered in this study and addressed in the GRMP. They are more fully discussed, including recommendations relative to each, in the following sections of this report. Critical to the planning process was Public Participation, and that effort is discussed in Section 2.

- Section 3 (Economics and Market Overview) – Included evaluation of demographic characteristics, real estate market conditions and target industries to establish the basis for economic development strategies.
- Section 4 (Water) – Included 20 year population and demand projections, distribution system (hydraulic) modeling, and 20 year capital improvement plan with costs and schedules.
- Section 5 (Wastewater) – Included 20 year population and demand projections, transmission system (hydraulic) modeling, infiltration and inflow analysis, and 20 year capital improvement plan with costs and schedules.
- Section 6 (Drainage/Flood Protection and Stormwater Management) – Included coordination with municipalities and Drainage District Engineers regarding stormwater systems and problem areas, prioritization of problem areas, and analysis of alternatives for improvement scenarios.
- Section 7 (Transit Plan) – Included evaluation of and potential improvements to the Transit system serving the Glades Region (included routes, schedules, resources and associated costs for service additions, transfer centers and other improvements).

## SECTION 1 - INTRODUCTION

- Section 8 (Roadway Alignments) – This section specifically addressed alternative alignments and development of typical sections and design criteria for the extensions of Hooker Highway and Avenue E to serve the Intermodal Logistics Center (ILC).
- Section 9 (Roadway and Railroad Improvements) – Included evaluation of long range impacts of ILC, inventory of existing roadway conditions, assessment of roadway improvement needs, and high level evaluation of needs for additional roads/railroads.
- Section 10 (Land Planning) – Includes development of Overlay Guidelines, Amendments to facilitate implementation of the GRMP, Comprehensive Plan Amendments, and related staff training



## Section 2.0 Public Participation Process

Engaging the public in a continuous and meaningful way has been a cornerstone of the Glades Region Master Plan (GRMP) process. On March 1, 2013, Palm Beach County kicked-off the GRMP with an opening presentation and panel forum introducing the community to the multiple aspects of the master plan elements and process. The HUD Community Challenge Planning Grant, which funded this effort, was clear in two particular areas: the grant dollars were meant for “planning” efforts and not capital improvements; and, a meaningful process of public input and engagement was essential. For the GRMP, the primary process for public input and engagement can be broken into four key components: the Core Planning Committee, the Stakeholder Interview Process, the Public Workshops, and the Ongoing Outreach through meetings and presentations.

### 2.1 The Core Planning Committee

The Core Planning Committee (CPC) was established early in the process as the key conduit for information exchange with the greater community. The CPC met on a bi-monthly and then monthly basis as the project progressed. Members of the committee were invited by County staff to participate, and the meetings, while not publicly advertised, were open to the public. The committee members represent a wide cross-section of the residential, parochial, educational, and business community of the Glades. In addition to providing outreach contacts and opportunities, the CPC also reviewed periodic presentations of the other elements of the GRMP.

### 2.2 Stakeholder Interview Process

The Planning Team scheduled and conducted over 45 one-hour, individual interviews with residents and community and civic leaders, in the summer of 2013. The interviews were mainly conducted at the offices of Workforce Alliance in Belle Glade and provided valuable insight to the issues and concerns of the various communities. While many issues identified were concerns shared by all of the Glades communities (unemployment, crime, job-readiness), there were also ideas and opportunities unique to each locale. The high visibility of South Bay as the “Crossroads of the Glades,” the unique backwaters of Torry Island in Belle Glade; the world class open-water marina in Pahokee; and the historical focus of Canal Point were just some of the unique characteristics echoed repeatedly during the interview process. In addition to providing valuable reconnaissance to assist the project team, the interview process provided a critical forum for the planning team to engage key members of the community to explain and demystify the process and project expectations.

## 2.3 The Public Design Workshops

At the core of the public outreach and input efforts were the two, week-long public design workshops and in-town “offices.” Each week-long public design workshop kicked-off with a Saturday session that included a public presentation of issues and objectives, and provided a forum for input and discussion. In order to provide adequate attention to each of the Glades communities, two week-long workshops were established on a geographic basis: a Belle Glade/South Bay workshop and a Pahokee/Canal Point workshop. Advertising and promotion of the workshops were primarily handled through the assistance of the Core Planning Committee contacts, personal invitations during the interview process, community groups and local congregations.

The Saturday workshop sessions were designed to provide the greatest amount of public input possible in an environment that is congenial and inviting. The following is an overview of the structure of the Saturday workshops.

### 2.3.1 Opening Presentation

Each Saturday session began with an Opening Presentation that provided an overview of the project and observations of the study area. The opening presentation provided many visual examples of the intent of the project and examples of areas of concern. The presentation was a good way to prepare the participants to think about their communities and to provide verbal, written, and illustrated input.

### 2.3.2 Table Sessions

The rooms in which the Saturday workshops were held were arranged with 10-12 banquet tables with six-to-eight chairs each. As the participants arrived they were encouraged to sit where, and with whom, they felt most comfortable. There was no attempt to group or separate particular individuals or affiliations. At each table a member of the project team served as a facilitator to the group. Most of the team facilitators were architects, planners, or economists. Their role was to keep the discussions flowing and record the group’s input. Each table had a large-scale aerial photograph of the study area which was covered with tracing paper. The table facilitators encouraged the table participants to write or draw their ideas and suggestions on the base map. Often participants identified their homes, workplaces, or places of community interest on the maps. This helped provide context to the information provided and the table maps served as important records of information for the team going forward.

### 2.3.3 Belle Glade / South Bay Workshop

On November 2, 2013, the first week-long public workshop kicked-off at Palm Beach State College in Belle Glade. Nearly 60 participants spent about five hours providing their input, sharing ideas and concerns with neighbors, and presenting their ideas to their peers and the planning team. After an opening Power Point presentation by the planning team that provided an overview of the project scope, work done to date, and expectations of the workshop itself,

## SECTION 2.0 PUBLIC PARTICIPATION PROCESS

the participants worked at tables developing their ideas. Lunch and refreshments were provided. After lunch, representatives of each of the table groups presented their ideas back to the overall group. This process was an excellent opportunity for the community to hear from their own friends and neighbors about ways to improve the Glades Region. This input was also critical for the project team as it serves as the basis for future recommendations.



Figure 2-1: Citizen Involvement during the Belle Glade / South Bay Workshop

### 2.3.4 Pahokee / Canal Point Workshop

On November 16, 2013, the second weeklong public workshop kicked-off at the old Pahokee High School gymnasium. Nearly 70 participants spent about five hours providing their input, sharing ideas and concerns with neighbors, and presenting their ideas to their peers and the TCRPC team. After an opening Power Point presentation by the planning team that provided an overview of the project scope, work done to date, and expectations of the workshop itself, the participants worked at tables developing their ideas. Lunch and refreshments were provided. After lunch, a representative of each of the table groups presented their ideas back to the overall group. This process provided an excellent opportunity for the community to hear from their own friends and neighbors about ways to improve the Glades area. This input gained is critical for the project team as it serves as the basis for future recommendations.



Figure 2-2: Citizen Involvement during the Pahokee / Canal Point Workshop

## 2.4 Ongoing Outreach

### 2.4.1 Belle Glade / South Bay

After the Saturday workshop the planning team set up a mobile office at Palm Beach State College for the following six days. The mobile office was open to the public from 9:00 am until 5:00 pm each day and many members of the community visited the office to provide further input. The key function of the mobile office was to provide an on-site location for the team to work and give members of the public and agency partners a central location to continue the dialogue and information exchange. Perhaps most importantly, the on-site office provided a unique opportunity for the project team to engage daily with the community. This interaction helped to build connections between the team and the community and was intended to increase the sense of authorship the participants felt toward the process.

During the week, the team developed the following key areas of analysis to assist in the overall GRMP effort:

- Development of Study Area Base Maps; Qualitative Assessment of the Built Environment; Infill Housing Prototypes; Marketing and Promotional Images; and Emerging Economies.
- Using high-resolution aerial photographs and cross-referencing with Palm Beach County Property Appraiser data, the GRMP team developed base maps of all of the Glades communities. These maps were developed in AutoCad and illustrate existing blocks, lots, building footprints, and significant landmarks including canals and parks.

### **2.4.2 Pahokee / Canal Point**

After the Saturday workshop the planning team set up a mobile office at old Pahokee High School gymnasium for the following six days. The mobile office was open to the public from 9:00 am until 5:00 pm each day and many members of the community visited the office to provide further input. The key function of the mobile office is to provide an on-site location for the team to work and give members of the public and agency partners a central location to continue the dialogue and information exchange. Perhaps most importantly, the on-site office provided a unique opportunity for the project team to engage daily with the community. This interaction helped build connections between the team and the community and served to increase the sense of authorship the participants feel toward the process.

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## **2.5 Conclusions and Recommendations**

Throughout the public outreach and input process, the planning team formulated a series of observations and potential recommendations to address the many issues brought forward by the community. Over the years, many planning studies and analyses have been conducted in the Glades area producing numerous strategies and recommendations for economic and community improvements. Since the beginning of the GRMP effort, a lingering question has remained, “how will this effort be different?” From its inception, the basic structure and program of the GRMP has been multidisciplinary, comprehensive, and inclusive. Palm Beach County, in managing the overall GRMP effort, has put great emphasis and effort into assuring all elements of the plan are focused, discreet to their particular objectives, yet remain connected to the other areas of the plan. There are four distinct characteristics of the GRMP that separate the effort from previous plans and studies:

1. A Multi-Disciplinary and Comprehensive Plan - The GRMP includes detailed infrastructure and engineering analyses necessary to begin near-term implementation of physical improvements. While the Community Challenge Planning Grant funding cannot pay for physical implementation, the infrastructure master plans are developing the work needed for implementation. The study is comprehensive in its breadth of disciplines (water, sewer, drainage, roadway and rail networks, transit, housing and community planning, and economic strategies).

## SECTION 2.0 PUBLIC PARTICIPATION PROCESS

The study is also comprehensive in that it includes the tri-cities, Canal Point, and unincorporated areas of Palm Beach County.

2. An Inclusive Plan - The GRMP has been developed with a continuous connection to the local community, agencies, and business interests. Dozens of public presentations, weeks of public workshops in the community, and an established base of community leaders guiding the process, have made this the most complete public planning effort in the Glades' history.
3. A Tangible Plan - While broad and comprehensive, a hallmark of the GRMP is its specificity. There are real, defined projects that can be quantified and therefore implemented throughout all disciplines of the plan. Specifically to the planning effort, great detail is provided to which buildings, which roadways, which sidewalks, and which areas need improvements. Each community will be able to use this data to implement improvements at their own pace and priority.
4. An Enduring Plan - Palm Beach County, with the Glades communities and business partners have established a unique infrastructure for the sharing and dissemination of information. Local stakeholders can build upon the partnerships and networks established to bring the plan elements to fruition.

Key recommendations for implementing the GRMP are identified below:

### 1. **Plan Implementation**

Key local organizations such as the Lake Okeechobee Regional Economic Alliance, the Glades Guardians, Glades Technical Advisory Committee, Glades Career Readiness Roundtable and other local community leaders have played a vital role in engaging the community. These organizations can play a vital role in helping monitor and implement the GRMP through partnerships with federal, state and local funders.

### 2. **Local Visioning Process**

Each of the tri-cities could benefit from a local visioning process. The City Managers of South Bay and Pahokee asked for this specific assistance during the workshops. Providing measurable, well-illustrated vision plans for each of the communities will help them to articulate what they want to look like in the future. Where should parking lots go, where should buildings go, what are some of the special entry features desired, does a hotel fit in the area we desire it to go? These are some of the questions that could be illustrated through localized vision efforts.

### 3. **Adoption of Plan by Local Governments**

The planning team recommends that each of the tri-cities, Belle Glade, South Bay, and Pahokee consider adopting all or parts of the GRMP plan. By taking formal action, the

## SECTION 2.0 PUBLIC PARTICIPATION PROCESS

local governments will send a few key messages: (a) the city recognizes and approves of the effort and direction of the GRMP; (b) the private sector is made aware of the direction the city is going in terms of development expectations; (c) staff is given direction into areas of priority that will require study and resources.

### **4. Land Development Regulations Audit**

Each of the tri-cities needs to assess its Land Development Regulations to identify conflicts and areas that need to be streamlined. The planning and development process can be confusing and overly technical. The planning team recommends that the local governments consider developing a much-simplified development code that is easy to understand and regulate. In addition, land development regulations that are tailored specifically to a community can be more effective in implementing a community vision as described above.

### **5. Transit Routes and Roadway Improvements**

Part of the planning team analysis pinpointed and quantified an obvious problem in parts of the Glades communities, the roadway conditions. Many of the local streets, especially in South Bay and Pahokee, are in desperate need of reconditioning. In addition, the planning team analyses overlaid existing transit routes on the roadway maps to identify where the routes and poor roadway conditions align. Transit is essential in the Glades areas. Palm Beach County, Palm Tran, and the Palm Beach Metropolitan Planning Organization (MPO) can help the Glades seek funding to implement improvements to the local streets that serve as transit routes.

### **6. Distribution of Resources**

In line with the transit route/roadway improvement discussion above, the limited resources available to make improvements in the Glades should go to the areas of greatest need. One of the benefits of the planning team doing the lot-by-lot analysis of housing, sidewalk, and roadway conditions is that there can be a regional assessment of the greatest needs. As an example, South Bay needs a great deal of roadway work; however, the housing stock has relatively few needs. This approach to the allocation of improvement dollars will require great cooperation between the cities and will help ensure a collaborative spirit going forward.

### **7. West Tech**

The re-opening of West Tech training center, as part of the efforts of the Glades Educational Roundtable group, has been extremely well-received. Every effort should be made to encourage further progress and expand the access and opportunities to job training at West Tech.

## **8. Infrastructure**

Stakeholders committed to the long-term economic sustainability of the Glades communities should work together to support the implementation of infrastructure, roadway, transportation, and transit recommendations identified in the GRMP. Additionally, they should work with the Treasure Coast Regional Planning Council and other state and local partners to seek federal funding (EDA, EPA, USDA and others) for key infrastructure projects that will support regional competitiveness, innovation and high-wage job growth in the Glades Region.

## **9. Branding – BDB-Tourist Development Council**

Providing a more positive image of the Glades communities has been a constant theme throughout the GRMP process. The planning team developed marketing images and topics that could be carried forward in a larger marketing campaign. The Business Development Board (BDB) of Palm Beach County, Inc. has presented its own efforts, through various media, to better market the Glades to the business community. Working together with the County, the Palm Beach County School District, and local governments and agencies have a prime opportunity to emphasize the positive attributes of the Glades communities.

## **10. Schools and Coloring Books**

During one of the presentations in the Glades, a comment was made that the marketing materials and posters developed by the planning team would make great coloring books for children in local elementary schools. This idea, while nice and thoughtful, actually has the potential to provide the children in Glades schools a source of community pride. To have a book made for you, representing the wonderful aspects of your own community, is something that does not often exist. If desired, the planning team will work with the County and the School District to move this idea forward.



## Section 3.0 Market Overview and Economic Development Analysis

This Market Overview and Economic Development Analysis, provides an evaluation of demographic characteristics, real estate market conditions and target industry reviews, which then forms the basis for preparation of a set of economic development strategies for the Glades Region. These strategies consider local conditions in each of the three municipalities and unincorporated area which comprise the Glades Region, and the community's vision to the extent possible, and focus on meeting the objectives identified in the plan, such as net new job creation, training and workforce development, entrepreneurial opportunities, and others as identified.

Located approximately 35 miles outside of the West Palm Beach coastal population centers, the Glades Region is a relatively self-contained area anchored by three cities: South Bay, Belle Glade and Pahokee. The region's population is characterized as having low to moderate household incomes, and its economy is primarily agricultural and recreation-based. Long-term unemployment and pervasive poverty are huge challenges confronting the region. In its publication, **Planning Strategies for the Everglades Agricultural Area**, 1000 Friends of Florida makes the case for economic sustainability in the Glades Region – "...Develop creative, workable solutions to the Region's Economic Problems..."

A series of small agricultural communities near Lake Okeechobee comprise the region's residential and commercial base. They are surrounded by hundreds of thousands of acres of land in active agricultural production. Long troubled by economic issues and, until recently, a substandard water supply, the Glades communities merit attention in the form of economic development opportunities, education, training and an increased focus on public health. These communities – Pahokee, South Bay, Canal Point, and Belle Glade – need new economic development opportunities, ....It is important to thoughtfully engage citizens, leaders and experts to find economic relief that is compatible with restoration so that people in the Glades communities can find long term, sustainable employment...

*Planning Strategies for the Everglades Agricultural Area*

The planning process that facilitated the development of the Glades Region Master Plan, and will continue to support its implementation, represents a unique opportunity for Glades' residents, local elected officials, community leaders and stakeholders to come together to forge and execute a unified vision of overall economic sustainability for their Region. For the Glades Region, overall economic sustainability means: improving mobility by providing more transportation choices; providing equitable/affordable housing; enhancing quality of life and

### SECTION 3.0 MARKET OVERVIEW AND ECONOMIC ANALYSIS

economic competitiveness/sustainability; supporting existing communities; coordinating policies; and leveraging investments to help enhance communities and neighborhoods in the Glades Region.

**The Glades Region** - Although isolated, the region is at the crossroads of numerous Southeast Florida highways and within a two-hour drive to a large number of major population centers, making it an ideal logistics, recreational or employment hub. The Glades also has a community college, good schools and a new regional hospital.

**Ongoing Economic Development** - It is important to realize that Palm Beach County, through its Departments of Economic Sustainability (DES), Engineering, Water Utilities, Palm Tran, Planning, Zoning and Building and regional organizations like the Treasure Coast Regional Planning Council work collaboratively and continuously to facilitate economic development, brownfields redevelopment, plan and implement infrastructure improvement, and transportation enhancements, support affordable housing development and promote business development and job creation in the Glades Region.

DES, for example, just through its business development programs, such as the HUD Section 108 and USDA loan programs, has committed over \$24 million to promote small business development, private sector investment, downtown revitalization and job creation. Also, DES has been working with the Glades cities to undertake the demolition of unsafe and abandoned structures and to date has completed 56 demolitions within the three cities. This has been funded through nearly \$1.2 million in Neighborhood Stabilization Program 3 (NSP3) and Community Development Block Grant (CDBG) funds. Further, through CDBG, Disaster Recovery Initiative and NSP3 funds, the county has funded tens of millions of dollars in infrastructure improvements and affordable housing projects in the Glades, and will continue to do so as new sources of funding become available.

**Glades Regional Initiatives** - In its 2014 State Legislative Issues report, Palm Beach County highlights economic development and Glades Regional Initiatives at the top of its list of priorities. The report indicates... “In an effort to provide economic growth and stimulus to the region surrounding Lake Okeechobee, Palm Beach County has identified several legislative issues that will provide economic development and job creation to the area. Among the issues are:

- Funding for road reconstruction and repaving
- Redevelopment of the Glades Correctional Institution site
- Support the expansion of workforce development efforts
- Support improvements to existing affordable housing units as well as the development of new affordable housing units

### SECTION 3.0 MARKET OVERVIEW AND ECONOMIC ANALYSIS

- Torry Island Master Plan funding of \$75,000 for the redevelopment of this site into a marine resort focused on the ecotourism market
- Economic Development Incentive and Transportation funding for the Glades Region Intermodal Port
- Support reauthorization of the Enterprise Zone in the Glades

**Lake Region Water Infrastructure Improvements** - Palm Beach County is committed to improving the water infrastructure in the Glades communities. Historically, as outlined in the 2014 Palm Beach County State Legislative Issues report... “Water Infrastructure for the cities of Belle Glade, Pahokee, and South Bay (the Glades Cities) suffers from a history of poor design, faulty construction utilizing improper material and a severe lack of investment for replacement and refurbishment...” Additionally, there is considerable piping within the Glades Cities that is undersized and requires replacement. The continued deterioration of the water infrastructure eventually led to the absorption of the responsibilities for water and wastewater service by the Palm Beach County Water Utilities Department (PBCWUD). A suite of Water Infra-structure Improvement Projects (Projects) are required to repair and restore the water infrastructure of the Glades Region and to protect the health, safety and welfare of the public and businesses within the Glades communities. Implementation of the Projects will additionally improve the economic development outlook in the Glades Cities.

**Addressing Environmental Justice** - The Treasure Coast Regional Planning Council (TCR PC) and Palm Beach County DES are providing ongoing support to redevelop brownfield sites throughout the Glades Region. Environmental assistance, in the form of subgrants and/or low-interest loans for assessment and cleanup activities, is designed to bring brownfield sites back into productive uses. Supporting the redevelopment of brownfield sites that may have been previously impacted by contamination, creates positive benefits to surrounding communities, including new development, job creation, establishment of parks and open space and adaptive reuse of buildings and infrastructure.

Initial research and interviews indicate the Glades has potential demand for new residential, commercial, tourism, and employment centers, but its poor infrastructure and general lack of suitable land restrict the market-based growth.

Preliminary economic development initiatives identified in this report are both regional and local in their applicability. For example, there are systematic regional issues relating to reported construction cost premiums to buildings, infrastructure, and roads as a result of muck soil. At the local level, the differing characteristics of Belle Glade, Pahokee, South Bay, and the unincorporated areas such as Canal Point suggest specialized opportunities as well as challenges that will affect the degree and timing of implementation of key recommendations and strategies. It would be inappropriate to assume a single approach would apply equally to all locations.

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The analysis provides a set of general and community-specific recommendations or “civic initiatives” that, if implemented, will provide baseline conditions for economic growth and facilitate longer term economic development. Similarly, a set of “opportunity sites,” are illustrated in each of the Region’s communities as possible locations for future commercial/industrial development. Sample initiatives include:

- Plan locations for new infill housing in Belle Glade and South Bay for future ILC employees who may move to the area;
- Re-use vacant 211 acres of Glades Correctional Institution lands for community-supported economic development; and
- Focus tourism development opportunities in downtown Pahokee and at the Pahokee Marina.

Economic development strategies for the Glades Region should be expected to be implemented over time, in phases, and tied to both public and private investment initiatives that will generate additional employment and incremental improvements in future years. The characteristics of the available labor force and the time and specific skills sets that will support employment at the proposed Glades Intermodal Logistics Center (ILC) suggest that the ILC’s impacts may occur later than tourism infrastructure enhancements which can occur more incrementally and earlier in the process.

As a general observation, from a market perspective low population densities, the economic and demographic characteristics, and limited level of supporting retail and services for residents in the Glades Region suggest that future improvements will be small-scale, incremental, and tied to improvements to the region’s overall economy.

Achieving long-term economic sustainability in the Glades Region will be linked to four primary implementation elements:

1. Local and Regional Tourism Development
2. Glades-based Visitor Attraction
3. Direct ILC-Related Workforce Skills Improvements
4. Indirect and Collateral Industries Employment Opportunities

### **Strategy #1: Local and Regional Tourism Development**

This is the most likely near-term and fundamental opportunity for the Glades Region to reposition and strengthen its specialized offerings to the large and growing tourism market in Palm Beach County. The two near-term prospects identified in our research include:

- Supporting efforts to attract a portion of the year-round visitors in the county for beach recreation, fishing and cultural experiences; and

## SECTION 3.0 MARKET OVERVIEW AND ECONOMIC ANALYSIS

- Consider creating a visitor destination related to sugar and agriculture that can draw some portion of visitors to the county's western sugar fields, providing an educational experience for residents, school groups and businesses interested in agriculture in Palm Beach County (see Strategy #2).

### **Strategy #2: Glades-based Visitor Attraction**

In addition to development of general tourism infrastructure described in Strategy #1, it is also recommended that a specific visitor attraction project be explored to educate and inform visitors (and residents) about the sugar and agriculture industry's role in western Palm Beach County. The consulting team recommends in-depth study to establish a Glades Visitor Center oriented to the sugar and agriculture industries. There are two key elements requiring significant decisions: 1) who should organize, finance and operate such a center; and 2) identify where such a center should be located in the Glades Region. There are numerous corporate prototypes for this kind of 'product center', although there are very few facilities oriented specifically to sugar (the best example is located in Hawaii). As for potential locations, this type of facility will require approximately one to two acres of land for buildings and surface parking for cars and tour buses. We recommend that a visitor/education center be located somewhere along Highway 98, adjacent to the sugar fields in a rural location, north of Belle Glade in the unincorporated part of the study area. By placing this facility in such a location, full immersion into sugar cane growing and production throughout the cultivation and harvesting process would be visible from the facility.

### **Strategy #3: Direct ILC-Related Workforce Skills Improvements**

The third (and fourth) implementation priorities are closely related, but will occur over a longer time period and are inter-dependent on each other. These include phased development of the ILC and the need to prepare for and provide a skilled workforce to fill the range of jobs it will create. Final phasing of the ILC is not yet determined, although up to a 20-year build-out has been suggested. However, training and preparing an underemployed local workforce has already begun through cooperative efforts by Palm Beach State College, LORE, and local training and certificate programs. By pursuing and expanding skills training, the workforce will be prepared to fill new positions as they open during future phases of the ILC's implementation. The range of workforce skills can generally be organized into three major categories: (1) operations; (2) maintenance and repair; and (3) logistics management.

### **Strategy #4: Indirect and Collateral Industries Employment Opportunities and Skills**

The fourth strategy relates to future spin-off business opportunities which will be based upon phase-in of the ILC. In addition to the direct jobs (and the range of skills they require) described in Strategy #3, there will also be opportunities for indirect and collateral service industries that would expand or open in the Glades Region to provide skills and services to companies and businesses which locate within the ILC. Because the ILC is a long-term project and the programming for its later phases is currently unknown, this strategy is intended to support and expand workforce training concurrent with the ILC over its build-out period,

## SECTION 3.0 MARKET OVERVIEW AND ECONOMIC ANALYSIS

which is estimated to occur over 20 years. Some related service industries that will grow as a result of the ILC include:

- Truck servicing and fueling plazas
- Lodging and hotels
- Food and beverage and related retail
- Vehicle repair and maintenance businesses
- HVAC installation and maintenance

### 3.1 Introduction and Scope

The Glades Region Master Plan is a comprehensive and integrated planning approach to study and recommend ways to improve mobility, quality of life, and economic sustainability of the Glades Region in western Palm Beach County. This Market Overview and Economic Development Analysis considers the new and emerging economic development opportunities for the Glades Region and articulates those opportunities in an implementable plan.

**Purpose:** The purpose of this report is to focus on those “building blocks” that will guide preparation of a comprehensive economic development strategy which is reflective of existing goods and services and employment opportunities relative to the residential population. In addition, the economic analysis is intended to provide a base understanding of existing and emerging industry clusters and their potential in the Glades Region. The “building blocks” address the Glades Region’s economic challenges of high unemployment and poverty, disinvestment, lack of jobs, and declining tax revenues. The key components of the economic analysis include:

- Demographic and Economic Profile
- Real Estate Market Conditions
- Target Industry/Emerging Cluster Update
- Economic Development Potentials and Strategies
- Economic Impacts

**Scope of Services:** Key elements of the economic analysis work included:

1. Leading a public participation process to develop a community-based vision and action plan for economic development within each of the Glades Region communities of South Bay, Belle Glade, Pahokee and surrounding unincorporated areas, with a special emphasis on net new job creation, training and workforce development, and entrepreneurial and housing opportunities;

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2. Reviewing potentially valuable studies already conducted in the Glades Region as part of the due diligence process;
3. Examining infill and redevelopment opportunities within the Glades Region as part of the larger context of supporting activities related to new housing development, transportation and pedestrian improvements, shopping and recreational improvements, preservation of historical sites, vocational training, renovation of public areas, and attracting businesses to the urban cores;
4. Reviewing land use and development regulations as part of the due diligence process, in order to recommend improvements and ways to incentivize desired redevelopment and business creation;
5. Preparing an overview of real estate market conditions, demographic characteristics, and key market trends in the region;
6. Evaluating existing and emerging industry clusters and measuring their potential in the Glades Region as part of an economic development analysis and job-creation strategy; and
7. Crafting a community-based vision for an economically sustainable Glades Region.

### 3.2 Planning Framework

**Methodology/Key Tasks:** WTL+a served as the prime contractor to TCRPC, and was assisted by Retail and Development Strategies, LLC, of Arlington, VA, in preparing the Market Overview and Economic Development Analysis. The economic analysis, which commenced in August 2013 with a site reconnaissance and initial outreach, consisted of the following sequential tasks:

**Task 1: Site/Market Reconnaissance and Public Outreach:** The economic analysis commenced in August 2013 with the TCRPC team conducting a series of site and market reconnaissance tours of the study area and participating in a series of interviews with key stakeholders from both the public and private sectors.

In November 2013, the economic analysis team participated in two multi-day planning workshops held in the communities of Belle Glade and Pahokee (a detailed description of these events is presented in the Public Participation section of the Plan).

**Task 2: Demographic and Economic Profile:** Developing a set of economic development recommendations to enhance the economic sustainability and competitiveness of the Glades Region depends upon a thorough understanding of underlying demographic and economic conditions and trends. Relevant demographic characteristics of the study area's existing residential population were evaluated and factors relative to market potentials: growth in

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population, households and employment by occupational sector; and household consumer spending were analyzed. The profile focused on those sectors of the regional economy that affect opportunities for economic development.

**Task 3: Real Estate Market Conditions:** Key metrics in the study area's residential and commercial 'workplace' uses (e.g., office, retail, industrial), and lodging/hospitality real estate markets, including: recent and current market conditions; building inventory; vacant building stock; home ownership trends; and other similar indices over the past five to ten years were examined to understand the study area's competitive market position to accommodate new uses/economic development initiatives, and to guide specific strategies aimed at job creation.

**Task 4: Target Industry Review:** Previous relevant economic studies and their technical appendices as provided by TCRPC, Palm Beach County, and/or others were reviewed to understand ongoing economic initiatives and other planning efforts in the study area as the basis for identifying specific economic development strategies. This included: reviewing recent target industry studies that identify emerging industry clusters; assessing those industries with the strongest growth potential in western Palm Beach County; and, evaluating the implications of the target industry/emerging cluster update on economic development potential and land use in the Glades Region study area.

**Task 5: Economic Development Potentials and Strategies:** The market overview and economic development analysis culminates in a comprehensive set of economic development and implementation strategies. These strategies consider local conditions in each of the Region's three cities and the surrounding unincorporated area as well as each community's vision for economic development to the extent possible. Generally, each of the respective strategies are designed to meet critical objectives, such as net new job creation, training and workforce development, and entrepreneurial opportunities, and considered recent and current public investments made by Palm Beach County; proposed major investment projects such as the Intermodal Logistics Center; the sale and prospective redevelopment of the 211 acres comprising the former Glades Correctional Institution in Belle Glade and other relevant existing or planned economic activities, such as those underway by Palm Beach County's Department of Economic Sustainability, Business Development Board, and/or local entities such as the Lake Okeechobee Regional Economic Alliance (LORE).

**Task 6: Economic Impacts:** The final portion of the Market Overview and Economic Development Analysis includes estimates of the potential direct and indirect economic impacts generated by select specific initiatives and land uses.

### 3.3 Existing Conditions and Issues

**The Glades Region:** The Glades Region is the western portion of Palm Beach County that includes the cities of Belle Glade, Pahokee and South Bay and the surrounding unincorporated areas. The Glades is also referred to as the Lake Region because it is nestled

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at the southeast end of Lake Okeechobee (which is the largest freshwater lake in the Southeastern United States). Longtime residents of the area like to refer to the region as the Glades Communities. The Glades Region is mostly rural. The population of the region is just over 30,000. Poverty and long-term unemployment are structural challenges in the region. The Glades is a USDA Champion Community with some of the highest unemployment and poverty levels in the County and the Southeastern United States. The communities of Belle Glade, Pahokee and South Bay are designated by the State of Florida as a Rural Area of Critical Economic Concern (RACEC), and are located within the South Central Rural Area of Critical Economic Concern. Agriculture and food production are major economic drivers in Palm Beach County generating estimated total sales (in 2012-2013) of \$1.22 billion with an economic impact of \$2.25 billion. The agricultural industry is the legacy industry of the Glades Region of western Palm Beach County. The western section of Palm Beach County encompasses some 421,000 acres of organic soils dedicated to sugar cane primarily and other major crops such as sweet corn, lettuce, radishes, celery, green beans, sod and rice. In the midst of this plentiful bounty it is ironic that the Glades Region is designated a "Food Desert" by the U.S. Department of Agriculture. Moreover, continuing mechanization in agriculture has depressed job growth and the lack of development has severely depressed the job market resulting in high rates of unemployment, low median household income and extreme poverty. Still, agriculture remains the most important industry in the area for creating jobs in primary and secondary markets and large agricultural employers include U.S. Sugar Corporation, Sugar Cane Growers Co-op and Flo-Sun Corp.

Over the years, a number of visioning processes, community planning efforts and economic development initiatives have focused on the Glades. Those efforts have resulted in the completion of some important projects and a number of important plans that have helped to guide the Glades Communities. The region has benefited from these previous efforts but there is still much work that needs to be done.

**The City of Belle Glade:** The City of Belle Glade was incorporated in 1928. Belle Glade is the largest city in the area of western Palm Beach County situated on the southeastern edge of Lake Okeechobee. The agricultural area surrounding the City primarily grows sugar cane and winter vegetables. The 2013 estimated population is 17,372. The percentage of the population below the poverty level is estimated at 35.1 percent and the unemployment rate is 18.7 percent.

**The City of Pahokee:** The City of Pahokee was incorporated in 1925. The City is the only municipality in Palm Beach County located directly on the shores of Lake Okeechobee. Pahokee was an isolated community until the construction of the Connors Highway (now US 98) in 1926 from West Palm Beach to just north of the city limits. Similar to other Glades communities, Pahokee is surrounded by agricultural interests that grow sugar cane and other seasonal vegetables. Additionally, Pahokee's direct location on Lake Okeechobee allows boaters and anglers easy access to the Lake's bountiful amenities. The 2013 estimated population is 5,828. The poverty rate is estimated at 26.7 percent and the City's unemployment rate is 27.0 percent.

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**The City of South Bay:** The City of South Bay was incorporated in 1941. South Bay is located in an agricultural area along the southeastern edge of Lake Okeechobee, southwest of the City of Belle Glade. It is located at the intersection of two major highways: State Road 80 (east-west) and US Highway 27 (north-south). The 2013 estimated population is 4,719. The City's estimated poverty level is 42.3 percent and the unemployment rate is 22.1 percent.

### 3.3.1 Population Trends and Forecasts (2000-2035)

**Palm Beach County:** Over the past 13 years, the population of Palm Beach County increased by more than 191,200 new residents—from 1.13 million in 2000 to 1.32 million residents in 2013, reflecting sustained annual growth of 1.2% per year since 2000. Using the moderate growth scenario prepared by the University of Florida's Bureau of Economic and Business Research (BEBR) through 2035, the county's population is forecast to continue increasing, albeit at a slower pace of approximately 0.9% per year. This would translate into a countywide population of 1.6 million residents by 2035, resulting in almost 284,600 new residents over the next 22 years.

**284,600 New Residents  
Across Palm Beach County by 2035**

If the current countywide average of 2.38 persons per household is maintained, future population growth might translate into more than 119,500 new households by 2035 across Palm Beach County. However, the actual number of households might vary if household size changes, which could impact market demand for new housing and specific product types.

**Study Area Municipalities and Unincorporated Area:** Since 2000, the study area's population has shifted as a result of annexations of unincorporated areas by both the cities of Belle Glade and South Bay, resulting in reallocation of population to both of those municipalities. In fact, between 2000 and 2013 Belle Glade's population expanded by almost 2,500 new residents and South Bay's population increased by 850, which subsequently reduced the population of the unincorporated area surrounding these jurisdictions.

#### Key Findings: Demographics

- 2013: 33,600 residents (2% of County's 1.3 million people) in 8,900 households (populations rounded)
  - Belle Glade: 17,400
  - Pahokee: 5,900
  - South Bay: 4,700
  - Unincorporated: 5,600

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- Region gained almost 2,200 residents since 2000
- High poverty and unemployment
- How many new people by 2035?

Belle Glade	5,600
Pahokee	1,935
South Bay	3,300
<u>Unincorporated Area</u>	<u>7,200</u>
<b>Total</b>	<b>18,000+</b>

### Key Findings: Economic Profile

- Every Glades household spends \$10,600 per year on retail/shipping and food. At 8,900 households, that is approximately \$91M.
- \$91 million = 365,000 SF of retail space
  - Village Shoppes (Royal Palm Beach) = 337,000 SF
  - City Place = 600,000 SF
  - Mall at Wellington Green = 1.2 million SF
- Palm Beach County job trends:
  - Gained 166,000 jobs (1995-2005)
  - Lost 16,300 jobs (2007-2013)
  - Forecast to gain 84,000+ new jobs (2013-2021)
- Glades Region job trends:
  - The Glades lost 1,200 jobs and 60 businesses (2003-2013)
  - If Glades maintains its current share of 1% = 800 new jobs

### Key Findings: Real Estate

#### Belle Glade

- Housing: 6,500 units
  - 34% owner-occupied, 55% rental
  - True vacancy: 566 units (8.9%)

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- Office: 56,700 SF
  - Highly uneven vacancies: 0% to 19%
  - Flat/limited leasing activity
- Retail: 469,700 SF
  - <2% vacant: stabilized
  - Leased 7,900 SF past 8 years
- Industrial: 146,300 SF
  - Uneven occupancies: 0% to 16% vacant
  - Loss of industrial tenants: 7,300 SF of negative absorption

### **Pahokee**

- Housing: 1,995 units
  - 41% owner-occupied, 41% rental
  - True vacancy: 266 units (13.3%)
  - 140 new housing units built (2004-13)
- Office: 27,000 SF
  - Highly uneven vacancies: 0% to 32%
  - 3,800 SF of negative absorption
- Retail: 76,800 SF
  - <3% vacant: stabilized
  - Limited leasing activity
- Industrial: 22,200 SF
  - Only 3 buildings
  - Uneven occupancies: 0% to 45% vacant
  - Loss of industrial tenants: 9,900 SF of negative absorption

### **South Bay**

- Housing: 1,100 units
  - 42% owner-occupied, 40% rental
  - True vacancy: 139 units (12.9%)
  - 12 new housing units built (2004-13)

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- Office: 48,200 SF
  - Highly uneven vacancies: 0% to 95%
  - 5,700 SF of negative absorption
- Retail: 40,000 SF
  - Uneven vacancies: 0% to 23%
  - 8,000 SF of negative net absorption
- Industrial: 134,900 SF
  - 100% occupancy
  - Flat/limited leasing activity since 2006

### 3.3.2 Housing and Workplace Land Use Trends

Market/development opportunities in each community for key uses, including: new housing and commercial/industrial land uses (generated by population growth projected out to 2035 based on forecasts prepared by Palm Beach County) are discussed below:

**Belle Glade** - Palm Beach County growth forecasts suggest a population increase of almost 5,600 new residents in Belle Glade over the next 20 years (2035). If the city's average household size of 2.99 is maintained, this could potentially translate into 1,869 new households, or new housing units. If the city's current distribution of housing types is maintained, this could yield roughly 775 single-family detached and attached units; almost 900 multi-family units; and 200 mobile home units.

The analysis suggests that Belle Glade's fair share of near-term job growth in Palm Beach County would translate into potentials for 10,000 to 12,000 sq. ft. of office space and 25,000 to 30,000 sq. ft. of general industrial space over the next eight years. That is, this represents the future share that the city may capture based on natural market growth through 2021 (latest year of employment forecasts).

**Pahokee** - Palm Beach County growth forecasts suggest a population increase of 1,935 new residents in Pahokee over the next 20 years (2035). If the city's average household size of 3.22 is maintained, this could potentially translate into 600 new households, or new housing units. If the city's current distribution of housing types is maintained, this could yield roughly 350 single-family detached and attached units; more than 135 multi-family units; and over 115 mobile home units.

Market/development potential for office and industrial uses, suggest that Pahokee's share of near-term job growth in Palm Beach County would translate into limited potentials for 5,000 to 7,500 sq. ft. of office space and 3,000 to 5,000 sq. ft. of general industrial space over the next eight years.

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**South Bay** - Palm Beach County growth forecasts suggest a population increase of more than 3,300 new residents in South Bay over the next 20 years (2035). If the city's average (large) household size of 3.43 is maintained, this could potentially translate into 970 new households, or new housing units.

Market/development potential for office and industrial uses, suggest that South Bay's share of near-term job growth in Palm Beach County would translate into potential for approximately 10,000 sq. ft. of office space and 20,000 to 25,000 sq. ft. of general industrial space over the next eight years.

### 3.4 Key Issues, Analyses and Results

#### 3.4.1 Initial Findings

Initial research and interviews indicate that the Glades Region has potential demand for new residential, tourism, commercial and employment centers, but its poor infrastructure and general lack of suitable land restrict the market-based growth.

The following summarizes the feedback received during an initial series of interviews and reconnaissance of the area in August 2013.



Figure 3-1: Highway 441/98 in Belle Glade



**Figure 3-2: Highway 441/98 in Pahokee is being improved by FDOT with new streets, sidewalks and streetscape**

## **Key Findings: Economic Activity, Challenges and Opportunities**

### **Agriculture**

- The study area's economic generators are focused around agriculture, primarily sugar cane, tropical fruit and vegetables. There are approximately 400,000 acres of sugar cane production in this part of Palm Beach County (both within and outside of the study area) and there are three sugar refineries/mills located in the study area. U.S. Sugar and Florida Crystals are major employers.
- Stakeholders noted that "most of" the agricultural industry has moved to Latin America (no specifics provided), in part a function of the North American Free Trade Agreement (NAFTA). However, farmers of specialty agriculture (e.g., mangos, herb farms, sweet corn, green beans, other fruits and vegetables) have created niche markets catering to mail order/fulfillment houses and other specialty end users.
- There are several organizations to assist the agricultural industry in Palm Beach County, including: the Florida Fresh Fruit and Vegetable Association; the Farm Bureau; Farm Credit of South Florida, a Government-sponsored Enterprise; the Farm Service Agency of the U.S. Department of Agriculture and the Palm Beach County Cooperative Extension Service.
- One of the key challenges for smaller farmers and agricultural producers in this area of Palm Beach County is the inability to acquire land because significant acreage is wholly owned by large corporations (such as U.S. Sugar and Florida Crystals for sugar cane).

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- Land costs are estimated at \$8,000 to \$10,000 per acre for agricultural land conducive to sugar cane production.
- The optimum size for niche farming is five to 10 acres.
- The study area has been designated a “Food Desert” by the USDA.
- Growing season: March—October; Harvest: October—March.

**Recommendations:** Explore the feasibility and plan for niche specialty farms offering unique, quality herbs, fruits and vegetables for both wholesalers and direct retailers. Establish and brand a “Farm to Table” tourism destination by grouping dozens of specialty niche farms with a year-round market.



Figure 3-3: Downtown Belle Glade

### Financing/Banking

- Key challenges in the area's banking industry include: a lack of growth among businesses, which restricts/limits new account formations; an ongoing tight lending environment, particularly for start-up businesses and industries; declining property values; lack of jobs; questionable quality of schools (which inhibit business relocation/formation) with the exception of the International Baccalaureate World School Programme at Pahokee Elementary and Pahokee Middle Senior High School<sup>2</sup>.

<sup>2</sup> Pahokee Middle Senior High School has been an International Baccalaureate World School since March 2004 and Pahokee elementary School received authorization to teach the International Baccalaureate Primary Years Programme in December 2009.

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- Palm Beach County's Department of Economic Sustainability provides a host of small business development and enhancement programs to the Glades Region. DES loan programs have leveraged business expansions for a total capital investment of more than \$24 million throughout the region.
- It is important that state and/or county governments sponsor programs like the Rural Economic Development Summit for this part of Palm Beach County.

**Recommendation:** Expand interviews and research on potential challenges and opportunities for public and private financing of employment centers and residential development.

#### Intermodal Logistics Center (ILC)

- The Intermodal Logistics Center is a proposed 10 million square foot warehousing and distribution center that will be built on an 850-acre site owned by Florida Crystals in an unincorporated area between Belle Glade and South Bay. The ILC is a major economic development initiative, and the most visible opportunity for job creation and private investment in the region. In April of 2014, the Palm Beach County Board of County Commissioners adopted a revised definition of the ILC to allow the project to include residential, commercial and other uses as permitted in a Planned Industrial Park Development (PIPD) zoning district. This expanded definition of the ILC supports the types of land uses which would be necessary to support the future workforce of the ILC project. However, the applicant has not submitted a rezoning application yet to rezone the site to a PIPD so overall project phasing, timing and development is still to be determined. Therefore, other economic development strategies with more immediate results are critical and necessary to build momentum/visible signs of success.
- Macro-economic factors affecting development potential of the ILC include: timing of completion of the widening of the Panama Canal (scheduled for 2015); construction of a rail line extension/spur along the U.S. 27 corridor to the site; leasing/absorption potentials and demand from nearby ports such as Port of Palm Beach, Port Everglades/Broward County, and Port of Miami; competition for warehousing and distribution space among the significant inventory in Palm Beach, Broward and Miami-Dade Counties. Importantly, the Florida Department of Transportation-District Four US 27 Multimodal Planning and Conceptual Engineering (PACE) Study recommended "...When ILCs begin to develop, or east coast rail corridor requires more capacity initiate Project Development and Environment (PD and E) studies to reconstruct US 27..."
- There appear to be letters of understanding from prospective tenants and/or end users but no further information is available. Potential tenants/end users include: distribution

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centers, same-day fulfillment centers providing speed-to-market, etc.

- The project may also require road/highway improvements to nearby roads depending on tenants/end users.

**Recommendation:** Follow Progress of proposed ILC and its potential on employment and land use.



Figure 3-4: Senior Housing in Belle Glade

### Housing

- Pahokee's Housing Authority has recently updated and developed attractive new attached and single-family residential units.
- There is an apparent need for market-rate manufactured, multiple-family and single family housing to meet a demand by local fire fighters, management, teachers, etc. who are presently working in the Glades area but commuting an hour or more from the county's eastern areas.
- Some existing homes and neighborhoods are in good condition, but many need updating.

**Recommendation:** Identify sources of funding for feasibility studies to understand product type; absorption/demand potentials; marketable locations; funding sources; developer-builder outreach, etc.

## Tourism/Lake Okeechobee

- Given the focus on agriculture, the study area's economy is highly seasonal, and there is a lack of centralized marketing on tourism.
- Tourism potentials associated with Lake Okeechobee appear to be in their infancy for regional and national fishing tournaments, boating/water-based sports competitions such as powerboat and jet-ski races, bass fishing, eco-tourism, fishing camps, etc.
- The recently renovated Lake Okeechobee waterfront restaurant and resort in Pahokee shows promise, but the owner is apparently frustrated with public sector impediments.
- There is apparently a considerable opportunity for eco and agriculture-based tourism.



Figure 3-5: The waterfront Lake Okeechobee Restaurant and Resort was recently renovated in Pahokee

- County and/or state agencies, such as the Business Development Board, Tourist Development Council, Discover the Palm Beaches (formerly the Palm Beach County Convention and Visitors Bureau) and the Florida Sports Commission, should be more proactive in tourism development efforts, organizing tourism under a unified organization, branding and marketing, etc. Branding must consider the unique cultural and market positioning of the Glades Region; studies will be required to understand/determine businesses that support unique ethnicities of residents of the Glades Region.
- A fundamental lack of tourist infrastructure, such as signage, high-quality lodging facilities/hotels, access to centralized hotel reservation systems, etc., significantly hurts tourism development efforts.

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- There is a need to strengthen linkages to sports-recreation businesses, such as Bass Pro Shops, Ron Jon Surf Shop, Kampgrounds of America (KOA), etc.
- The Greater Lake Okeechobee Tourism Alliance prepared a tourism master plan in 1998-99. Torry Island comprises 640 acres on the lake. The Torry Island Campground and Marina is a key anchor in tourism development potential, with consideration for a 50- to 80-room inn. There is also a nine-hole golf course on Torry Island owned by the City of Belle Glade and under third-party management. Other tourism-related activities could potentially include an outdoor nature center, boating/kayaking, etc.
- Approximately 500 acres of Torry Island are owned by the South Florida Water Management District.
- Prospective hotel operators have indicated interest in building lodging in the Glades area; however, they would require a detailed feasibility study, and the lack of comparable facilities would preclude obtaining critical data on market performance, demand, etc.
- Sugar/agriculture themed Visitor Center concept and Lake Okeechobee recreation/tourism are both visitor market opportunities, but need tourism infrastructure improvements in place.

**Recommendations:** Seek funding sources which could finance the expansion of tourism in the region. Support the development of additional hospitality and tourism destinations.

### Roadways and Infrastructure

- Many of the primary state highways are in good condition and apparently recently updated.
- Pahokee's main street and streetscape are presently being improved by FDOT
- Many secondary and subdivision streets are in poor condition, some almost impassable

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**Figure 3-6: An existing Belle Glade street is filled with potholes and is difficult to navigate**

- Muck soils are difficult to build roadways and other utility systems on, causing frequent failures.
- Palm Beach County has committed \$25 million over the next five years to make water infrastructure improvements and already completed a \$58 million Lake Region Water Treatment Plant in 2009 to provide an alternate water supply solution to the Glades communities.
- The poor conditions of many of the streets and the water systems are apparently holding back market-based real estate development and employment centers in the Glades Region.

**Recommendations:** Gain a realistic understanding of the baseline cost and time frame to upgrade the region's infrastructure. Consider several pilot locations and an overall phasing plan to target specific redevelopment and new real estate investment.



Figure 3-7: Palm Beach County is assisting in the redevelopment of downtown Belle Glade

### Economic Development Organizations and Programs

- There are a host of public and private organizations involved in economic development efforts, including (but not limited to): Workforce Alliance; LORE/Lake Okeechobee Regional Economic Alliance (funded through corporate contributions and institutional grants); Glades Technical Advisory Committee; “Glades Guardians”, a collaborative committee; the religious community; the Department of Economic Sustainability; the County’s Business Development Board; the Office of Community Revitalization; the Tourism Development Council; Glades Career Readiness Roundtable; and others.
- LORE has funded a three-year contract for a designated economic development expert at the Business Development Board to conduct marketing and tenant recruitment in the Glades area.
- Glades Career Readiness Roundtable (GCRR) is considered a strong partnership and basis for future civic leadership.

### Competitive Industrial Parks

- In addition to the proposed ILC, other industrial parks include Belle Glade Business Park (near the salvage/recycling center) and the South Bay Park of Commerce (100 acres; no tenants).
- Potential redevelopment of the 211 acres comprising the site of the vacant Glades Correctional Institution. The site has been purchased by the BGI Group from the State of Florida.
- Another site (located outside of the study area, 20 minutes to the east of Belle Glade on State Road 80) comprises 100 acres adjacent to the Palm Beach Aggregates

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facility. Key advantages: 14 ft. above sea-level and it does not need “demucking;” it is not being actively marketed.

- Economic development specialists are confident that sufficient land exists to recruit industrial tenants.



Figure 3-8: Belle Glade's Shopping Center

### Other Observations

- Other economic generators include: a satellite campus of Palm Beach State College, which serves as a big feeder school to the larger state colleges and universities; Palm Beach Aggregates (rock mining/concrete production located outside of the study area, 20 minutes to the east of Belle Glade on State Road 80); and Lakeside Medical Center in Belle Glade.
- Significant challenges associated with poor infrastructure—water/sewer, antiquated land use/zoning regulations, lack of code enforcement, lack of trained workforce, and mechanization in the agriculture industry resulting in job losses.
- Good-quality retail/shopping opportunities are lacking, including full-service grocery stores.

#### 3.4.2 Target Industry Review

In this portion of the analysis the planning team reviewed previous relevant economic studies, planning efforts and ongoing economic development initiatives to understand those industry clusters with the best potential to enhance the economic sustainability of the Glades Region. This included: reviewing recent target industry studies that identify emerging industry clusters; assessing those industries with the strongest growth potentials in western Palm Beach

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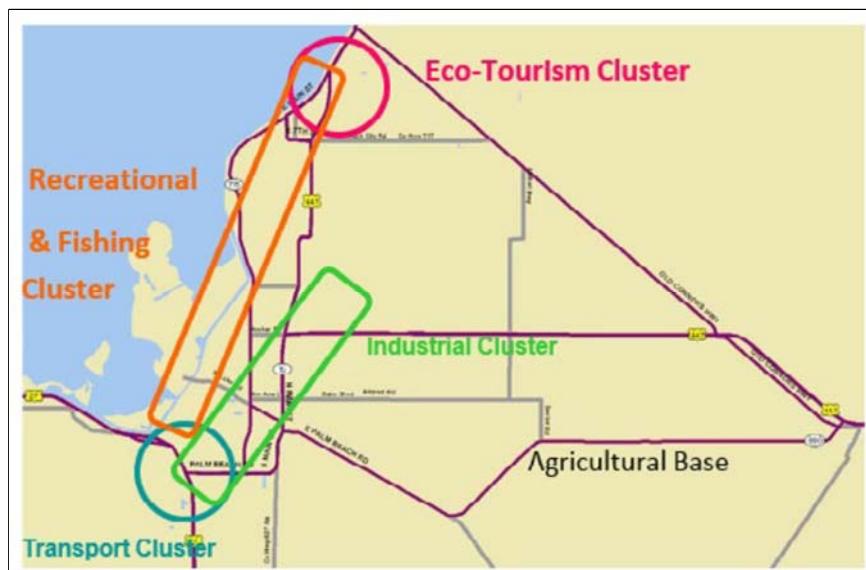
County; and, evaluating the implications of the target industry/emerging cluster on economic development potential and land use in the Glades Region.

The three identified industry clusters reviewed as part of this study include:

- Agri-business/Food Processing and Production
- Recreation and Visitor/Tourism (and Supporting Retail Services)
- Transportation and Logistics (related to the proposed Intermodal Logistics Center/ILC)

This finding is also consistent with work undertaken as far back as 2002 in “A Regional Business Plan for the Glades”. That report identified business opportunities in the Glades as best conceptualized as a base agricultural industry upon which a number of industrial clusters are built.

Map 1 from the report (**Figure 3-9**) illustrates the concept of shared and distinctive strategies that build upon the Glades assets. Glades Region communities share an agricultural base and emerging recreational and fishing clusters. The report suggests that Belle Glade and South Bay are best positioned geographically to provide an industrial base to the Region given their location in the transportation networks and the development of their business parks. Pahokee is suggested as best positioned to develop an eco- tourism cluster given its marina, lake access and distinctive location. South Bay is suggested to be best positioned for the development of a transport cluster involving warehousing, truck stops and other transport oriented facilities.



**Figure 3-9: Map 1 – Business Clusters**

Source: *A Regional Business Plan for the Glades*, Analytica, 2002

## Target Industry Review

- Areawide employment projections (all industries) 2011-2019:
  - 1.8% annual employment growth (Florida Department of Economic Opportunity)
  - 1.1% population growth (CEDS)
- Evaluated 3 emerging industry categories:
  - Agri-business/Food Production
  - Recreation/Tourism (and Supporting Services)
  - Transportation/Logistics (impact of proposed ILC)

### Agri-business/Food Production

- Agriculture - A major industry in Florida and Palm Beach County:
  - Florida is second (after California) in U.S. for total agricultural production, floriculture
  - Sugar and table-fresh vegetables are #2 industry in Palm Beach County after tourism
  - Palm Beach County: 460,000 acres is in agricultural use (37% of County's total land area) - 397,000 acres used for sugar production
- Palm Beach County produces 70% of Florida's sugar: \$750 million value (+/- 50% of U.S. sugar production)

### Recreation/Tourism

- Largest industry in Florida and Palm Beach County
- Over 1.0 million tourism-based jobs in Florida (2013)
- Florida tourism in 2013:
  - Almost 100 million visitors statewide
  - \$1 billion in taxes; \$120 million in hotel "bed" taxes
  - \$76 billion in direct tourism spending
- Palm Beach County tourism in 2013:
  - 5.5 to 6.0 million total visitors
  - Average daily spending: \$1,100 per day per visitor (including transportation)

### **Hotel Trends**

- Key indicators: average annual occupancy and average daily room rate (ADR)
- 2012 County average occupancy: 71.2%
- \$2012 ADR: increased to \$148 per room per night
- Results:
  - Potential for more hotel rooms
  - Lion Country Safari (approximately 20 minutes to the east of Belle Glade on State Road 80) draws 500,000 visitors annually to mid-County
  - New attraction could draw 50,000 visitors to the Glades

### **3.4.3 Recreation/Tourism**

#### **Glades Tourism Opportunities**

- Near-term:
  - Fishing tournaments, 'destination' Bass fishing
  - FL Bass anglers spend average of \$944/year on trips, equipment, charters
  - What is Glades capturing?
  - Freshwater fishing today: 65% men; 35% women
- Longer-term:
  - Torry Island resort potential
  - Develop a Sugar/Food Industry Visitor Center

#### **Glades Tourism Advantages**

- Proximity to Lake Okeechobee
  - Freshwater fishing
  - Wildlife watching
  - Water-based recreation
- Glades Agriculture Story: Sugar/Food Production
- Established tourism industry: 5.5 to 6.0 million annual visitors
- Skills training programs: Palm Beach State College, WestTech, Career Source

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- Cross-County partnerships: Palm Beach County Government, Palm Beach County Tourist Development Council, Discover The Palm Beaches (formerly the Palm Beach County Convention and Visitors Bureau), Business Development Board of Palm Beach County, others

### **Glades Tourism Challenges**

- Limited Glades tourism infrastructure:
  - Fishing tourism is north and south, not in Glades
  - Limited supporting services
- Safety/security/crime concerns: crime and poverty must change to attract visitors
- Limited hotel capacity/quality
- Muck soils
  - Unstable structurally
  - Reported 20% construction cost premium
- Road network and signs: confusing; need better directional signs for visitors, future ILC routes

### **3.4.4 Transportation and Logistics (ILC)**

- Proposed
  - 850-acre site
  - Up to 9.7 million SF of warehousing/distribution
  - Up to 225,000 SF of office
- Intermodal (rail/truck links) facility; TEU (Twenty-Foot Equivalent Units) container yard
- Global growth industry; major connections to FL SIS network to ports; new land-side capacity for Post-Panamax Boat capacity; more TEUs
- No specific data for ILC yet, but:
  - 1.3 jobs per 1,000 SF of warehousing/distribution uses
  - 0.9 to 1.2 jobs per 1,000 TEUs

### **3.4.5 Economic Impacts**

A key element of this study includes estimating the potential economic impacts generated by specific initiatives such as the ILC and the development of housing and workplace land uses

## SECTION 3.0 MARKET OVERVIEW AND ECONOMIC ANALYSIS

as described in the Housing and Workplace Land Use Trends section and summarized below:

### **Belle Glade:**

- 1,869 new housing units
- 10,000-12,000 sq. ft. office space
- 25,000 - 30,000 sq. ft. industrial space

### **Pahokee:**

- 600 new housing units
- 5,000 - 7,500 sq. ft. office space
- 3,000 - 5,000 sq. ft. industrial space

### **South Bay:**

- 970 new housing units
- 10,000 sq. ft. office space
- 20,000 - 25,000 sq. ft. industrial space

### **Unincorporated Area:**

- 2,300 new housing units

The planning team estimated construction values to calculate one-time impacts such as construction wages and jobs. The team also estimated ad valorem taxes generated by uses tested in the market study and accruing to each municipality (and Palm Beach County) in the study area based on current (2013) millage rates. Also measured were other secondary impacts, including permanent jobs and wages generated by the land uses tested in the market study. The full analysis is provided in the full report in the Appendices. Key findings are summarized for each municipality below:

### **Belle Glade**

- \$198 million in construction value
- 150 construction jobs; 670 permanent jobs
- \$1.3 million in annual property taxes

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### **Pahokee**

- \$64 million in construction value
- 48 construction jobs; 215 permanent jobs
- \$416,000 in annual property taxes

### **South Bay**

- \$105 million in construction value
- 80 construction jobs; up to 400 permanent jobs
- \$660,000 in annual property taxes

### **Unincorporated Area**

- \$239 million in construction value
- 182 construction jobs; up to 693 permanent jobs
- \$2.0 million in annual property taxes (Palm Beach County)

### **Intermodal Logistics Center (ILC) Project**

- 10 million sq. ft. proposed development program
- \$1.0 billion in construction value
- 850 construction jobs over buildout period; 3,000 permanent jobs (applicant's estimate)
- \$8.6 million in annual property taxes (Palm Beach County)

## **3.5 Recommendations / Implementation Plan**

The preceding analysis of demographic characteristics, real estate market conditions and target industry reviews is intended to serve as the basis for preparation of a set of economic development strategies that are reflected in **Table 3.1**. These strategies - general and strategic, consider local conditions in each of the three municipalities and unincorporated area comprising the Glades Region, and the community's vision to the extent possible, and focus on meeting the objectives identified in the plan, such as net new job creation, training and workforce development, entrepreneurial opportunities, and others as identified.

Each of the communities in the Glades Region have different issues and degrees of relative opportunity to change their economies, largely through enhancements that respond to

## SECTION 3.0 MARKET OVERVIEW AND ECONOMIC ANALYSIS

underserved market uses, whether residential or industrial, related to the ILC; the need to improve workforce skills and the institutions that are positioning themselves to provide that specialized training; or the ability to access Lake Okeechobee for fishing and traditional Florida outdoor recreation activities such as fan boat tours, other types of boating, camping; and, creation of lodging alternatives or the supporting retail and food services that tourists expect and need.

Economic development strategies for the Glades Region should not be implemented overnight, but rather over time, in phases, and tied to both public and private investment initiatives that will generate additional employment and incremental improvements in future years.

The economic analysis has also identified “Opportunity Sites” for each community, as reflected in **Figures 3-10 and 3-11**. Opportunity Sites are sites that, by their location, visibility, access to unique environmental, cultural and/or historical assets and economic development potential, provide the single best opportunities for catalytic redevelopment, job creation, business development and private sector investment within the Tri-Cities in the Glades Region.

**Table 3.1** provides a summary of the key recommendations stemming from the Market Overview and Economic Development Analysis.

## Opportunity Sites

1. Proposed Glades Visitor Education Center (1 to 2 acres located somewhere along Highway 98 in unincorporated County adjacent to sugar fields)
2. Re-use of vacant Glades Correctional Institution lands (State approved \$1.2 million sale to BGI Group - redevelopment plans/options TBD)
3. Belle Glade Business Park (additional existing parcels available for development)
4. Torry Island & Preserve (position and market future small resort facilities as stand-alone/self-contained facilities)
5. Proposed Intermodal Logistics Center (850 acres of land to site 2 million square feet of industrial land uses in Phase I)
6. South Bay Park of Commerce (100 acres of vacant undeveloped commercial/industrial land adjacent to the proposed ILC)
7. Intersection of SR 80 / US Highway 27 (prospective Town Center)

## Civic Initiatives

### Built Environment

Clean up approaches to Belle Glade along major roadways to improve the image of the community

Clean up downtown Belle Glade, and seek solutions to crime and unemployment over time

### Infrastructure

Complete the roadway connection from Hooker Highway to provide truck access to the northern portion of the ILC site, as funding is available

Implement additional streetscape enhancements for residential areas of South Bay, and provide both separate routes and clear directional signs for ILC-bound truck and other traffic

Incorporate potential rail and road linkages and improvements to strengthen connections for the ILC site's first phase

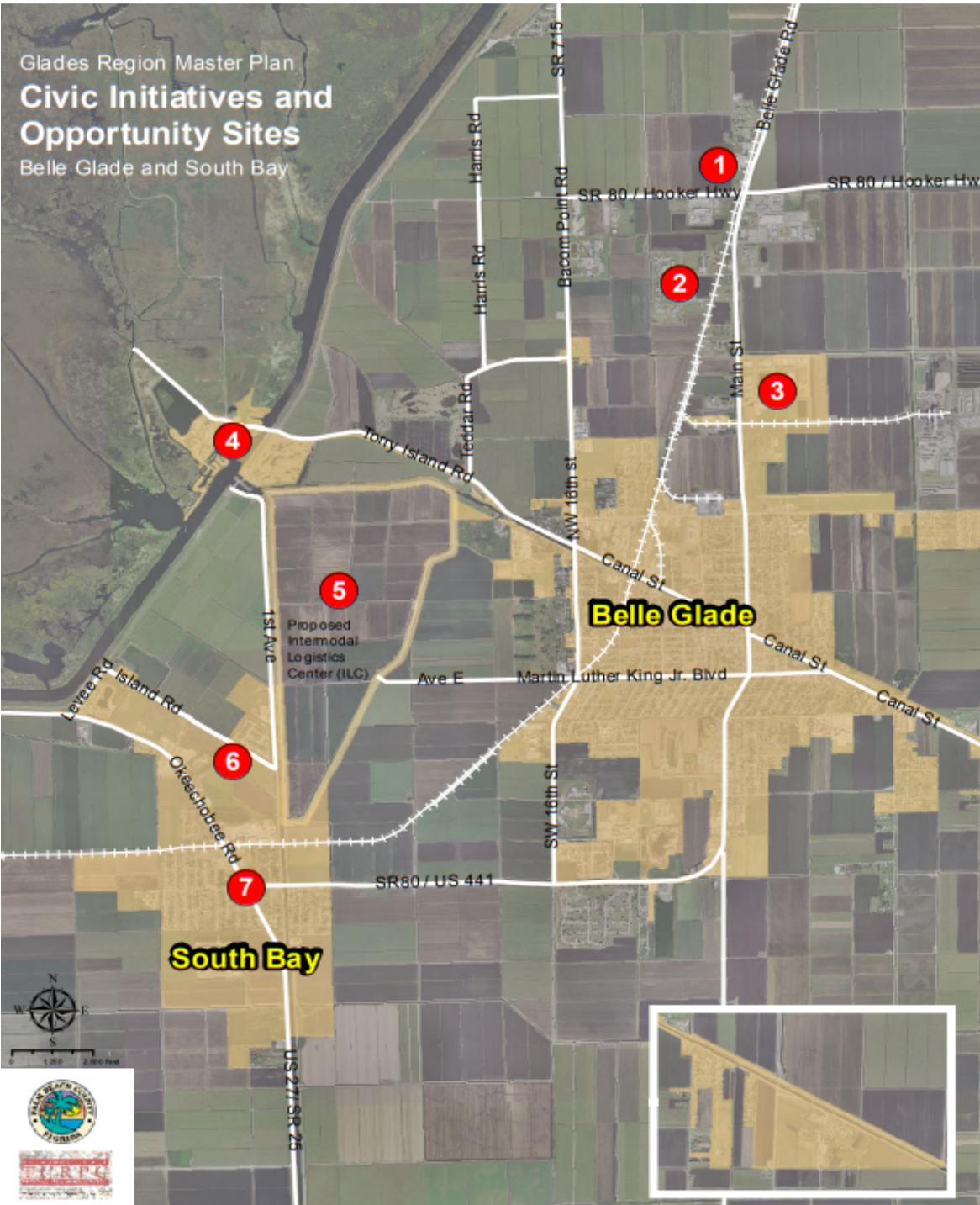


Figure 3-10: Opportunity Sites (Belle Glade and South Bay)

## Civic Initiatives

### Infill / Redevelopment Historic Preservation

Create and focus infill development to eliminate vacant sites and physical 'gaps' in downtown Belle Glade

Address muck soil conditions affecting construction of new housing and commercial development as well as existing buildings; this will require some form of financial subsidy to reduce the estimated 20% cost premium for building on muck soils, as well as targeted engineering of solutions to existing issues

As the City's population increases through ILC activities, add stronger retail operators to the mix, including grocery, food & beverage and other retail categories, as market supportable

Concentrate redevelopment in the downtown area to reduce blight and disinvestment; this will require adding job opportunities and reducing crime and negative perceptions about Belle Glade

Plan locations for new infill housing in Belle Glade for future ILC employees who may move to the area

### Tourism / Visitor Development

Improve hotel and food service offerings in key locations such as U.S. Route 27 as opening of the ILC approaches; additional variety and ranges of quality will broaden market opportunities

Plan key locations such as U.S. Route 27 as opening of the ILC approaches; additional variety and ranges of quality will broaden market opportunities Plan locations for one or more major Truck Service Plazas that will complement the ILC traffic and operations; this will include service stations, 24-hour restaurants, lodging, and specialized retail

Improve connectivity and image along approach roads and access to Torry Island if it becomes a further developed fishing/wildlife visitor destination; improvements should be tied to recommendations identified as part of a comprehensive tourism development plan/strategy for the Glades Region

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Improve connectivity and image along approach roads and access to Torry Island if it becomes a further developed fishing/wildlife visitor destination; improvements should be tied to recommendations identified as part of a comprehensive tourism development plan/strategy for the Glades Region



Figure 3-11: Opportunity Sites (Pahokee and Canal Point)

SECTION 3.0 MARKET OVERVIEW AND ECONOMIC ANALYSIS

**Table 3.1**  
**Glades Region Master Plan - Market Overview and Economic Development Analysis**  
**Summary of Key Recommendations**

Issues Identified	Sub-Issues	Short-Term	Longer Term
		General Recommendations	Strategic Recommendations
<b>Low Economic Diversity</b>	<ul style="list-style-type: none"> <li>• Agriculture-based economy</li> <li>• Low-wage industry sectors overrepresented</li> <li>• High-wage industry clusters severely under-represented</li> <li>• Limited tax base challenges adequate provision of government services</li> <li>• Region is federally designated as a "Food Desert"</li> <li>• Limited amenities and supporting services available to residents</li> <li>• Limited retail/"workplace" market potentials; tied to major economic development initiatives</li> </ul>	<ul style="list-style-type: none"> <li>• Explore the feasibility and plan for niche specialty farms offering unique, high-quality herbs, fruits and vegetables for both wholesalers and direct retailers.</li> <li>• Establish and brand a "Farm to Table" tourism destination by grouping specialty niche farms with a year-round market.</li> </ul>	<ul style="list-style-type: none"> <li>• Following renaming of the Glades communities as "Rural Areas of Opportunity", sponsor a rural economic development summit for the Glades region in conjunction with State (DEO / Enterprise Florida), regional, county and other related economic organizations.</li> <li>• Support the development and growth of the following primary industry clusters: <ul style="list-style-type: none"> <li>➢ Agri-business</li> <li>➢ Logistics and Distribution</li> <li>➢ Tourism</li> </ul> </li> <li>• Utilize the Glades Area Economic Development Overlay (GA-O) and other innovative planning mechanisms at both the County and municipal levels to effectively incentivize land uses which will create job opportunities and help to diversify the Glades Region's economy.</li> </ul>
<b>Small Business Development / Entrepreneurship</b>	<ul style="list-style-type: none"> <li>• Business growth is weak or in decline</li> <li>• Small business lending is limited</li> <li>• Technical assistance for entrepreneurship is limited</li> </ul>	<ul style="list-style-type: none"> <li>• Seek out corporate sponsors to hold yearly small business development / finance workshops; e.g., Chase Bank's "SBA in a Box" workshop.</li> <li>• Identify spin-off opportunities for small business/entrepreneurship generated by major economic development initiatives such as ILC.</li> </ul>	<ul style="list-style-type: none"> <li>• Explore the feasibility of establishing a permanent small business / entrepreneurship training network for the Glades in partnership with Palm Beach State College, FAU, Adams Center for Entrepreneurship, SBDC, and other certified providers.</li> </ul>

## SECTION 3.0 MARKET OVERVIEW AND ECONOMIC ANALYSIS

Issues Identified	Sub-Issues	Short-Term	Longer Term
		General Recommendations	Strategic Recommendations
Tourism	<ul style="list-style-type: none"> <li>A fundamental lack of tourist infrastructure, such as signage, high-quality lodging facilities/hotels, access to centralized hotel reservation systems, and related supporting services such as retail and restaurants.</li> <li>Limited stand-alone/ self-contained destinations and tourist offerings.</li> </ul>	<ul style="list-style-type: none"> <li>Seek funding sources to create and install clear directional sign systems for tourism destinations (Pahokee and the future Agriculture/ Sugar Visitor Center) from Palm Beach, West Palm Beach and Wellington, as well as before Lion Country Safari. Visitors must be 'notified' at each decision point while driving.</li> <li>Seek corporate and foundation funding for demonstration projects, innovative redevelopment concepts (such as the Agriculture/Sugar Visitor Center) and other sources to facilitate projects like a small resort concept at Torry Island and in downtown Pahokee.</li> <li>Improve connectivity and image along approach roads and access to Torry Island if it becomes a further developed fishing/wildlife visitor destination; this should be tied into the Glades comprehensive tourism development plan.</li> </ul>	<ul style="list-style-type: none"> <li>Seek funding opportunities to develop a comprehensive tourism development strategy to position the Glades Region to attract, provide services for, and sustain a share of the County's existing tourism market, both for economic development purposes and to capitalize on assets like freshwater fishing and boating on Lake Okeechobee and interpretation/education about the County's role in agriculture and sugar production.</li> <li>Upgrade hotel and food service offerings both for potential visitor markets as well as future ILC-related businesses.</li> <li>Consider funding sources to conduct an in-depth study to establish and site a Glades Visitor/Education Center oriented to the sugar and agricultural industries in the unincorporated portion of the Glades Region.</li> <li>Develop mechanisms and sources to fund market/financial feasibility studies as well as site planning studies to determine market potentials and investment viability of select, well-defined, small, standalone tourist facilities and resorts.</li> </ul>
Infrastructure	<ul style="list-style-type: none"> <li>Many secondary and subdivision streets are in poor condition, some almost impassable.</li> <li>Muck soils are difficult to build roadways and water systems on, causing frequent failures (with a reported 20% construction cost premium).</li> </ul>	<ul style="list-style-type: none"> <li>Continue to address waste water treatment and management, soils issues and other infrastructure challenges/problems in the Glades; economic development cannot happen without stable, predictable infrastructure services.</li> </ul>	<ul style="list-style-type: none"> <li>Seek funding sources to implement all infrastructure, roadway, transportation, and transit recommendations identified in the Glades Region Master Plan.</li> <li>Address muck soil conditions affecting construction of new housing and commercial development as well as existing buildings.</li> </ul>

SECTION 3.0 MARKET OVERVIEW AND ECONOMIC ANALYSIS

Issues Identified	Sub-Issues	Short-Term	Longer Term
		General Recommendations	Strategic Recommendations
	<ul style="list-style-type: none"> <li>The poor conditions of many streets and water systems are one condition apparently limiting market-based real estate development and business retention and attraction in the Glades Region.</li> </ul>		<ul style="list-style-type: none"> <li>Work with the Treasure Coast Regional Planning Council and other state and local partners to seek federal funding (EDA, EPA, USDA and others) for key infrastructure projects that will support regional competitiveness, innovation and high-wage job growth in the Glades Region</li> </ul>
Education / Workforce Development	<ul style="list-style-type: none"> <li>Disproportionate percentage of the population falls below the poverty level</li> <li>Preponderance of low-wage industries perpetuates cycle of poverty</li> <li>Number of middle and high-end jobs lags far behind the state and the nation</li> <li>Consistently high unemployment levels</li> <li>Limited levels</li> </ul>	<ul style="list-style-type: none"> <li>Encourage continuing education for Glades residents to enhance workforce skills, reduce unemployment levels and prepare local residents for jobs in the tourism industry (and supporting hospitality and food service businesses) and the range of construction and permanent jobs associated with the Glades ILC.</li> <li>Enhance and expand the educational and workforce training programs at Palm Beach State College and West Technical Education Center to address future job skills requirements for the ILC.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to align and expand educational and workforce training/development programs concurrent with workforce needs of the Intermodal Logistics Center over its build-out period.</li> <li>Support the Glades Career Readiness Roundtable, Glades Technical Advisory Committee, CareerSource Palm Beach County, and other civic leadership organizations to continue to find innovative mechanisms to provide Glades residents with education and jobs training opportunities to meet the needs of existing and future industries.</li> </ul>
Opportunity Sites	<ul style="list-style-type: none"> <li>Limited but visible development/redevelopment sites available</li> <li>Readily-developable sites/parcels for commercial and industrial uses is limited</li> <li>The costs of developing commercial/industrial sites is higher than in other rural areas due to demucking and backfilling requirements (with a reported construction cost premium of 20%).</li> <li>Brownfield sites complicate the speed of redevelopment.</li> </ul>	<ul style="list-style-type: none"> <li>Review and update local plans for commercial centers in the Glades Region consistent with the GRMP.</li> </ul>	<ul style="list-style-type: none"> <li>Identify policies and funding mechanisms to fully support the development and build-out of all existing and planned industrial parks to further enhance expansion and development of the Glades Region's targeted industry clusters.</li> <li>Link policies and funding mechanisms with business retention and recruitment strategies identified by key economic development organizations such as the BDB.</li> <li>Work with Palm Beach County and the Treasure Coast Regional Planning Council</li> </ul>

SECTION 3.0 MARKET OVERVIEW AND ECONOMIC ANALYSIS

Issues Identified	Sub-Issues	Short-Term	Longer Term
		General Recommendations	Strategic Recommendations
			<p>to identify strategic brownfield redevelopment sites throughout the Glades Region and resources to support their redevelopment such as federal and state brownfield incentives, grants and loan programs.</p>
<b>Intermodal Logistics Center</b>	<ul style="list-style-type: none"> <li>Macro-economic factors affecting development potentials of the ILC include: timing of completion of the widening of the Panama Canal (scheduled for 2015); construction of a rail line extension/spur to the site by U.S. Sugar; leasing/absorption potentials and demand from nearby ports such as Port of Palm Beach, Port Everglades/Broward County, and Port of Miami; competition for warehousing and distribution space, which comprises significant inventory in Palm Beach, Broward and Miami- Dade Counties.</li> </ul>	<ul style="list-style-type: none"> <li>Seek funding sources to complete the roadway connection from Hooker Highway to provide truck access to the northern portion of the ILC site.</li> <li>Incorporate potential rail and road linkages and improvements to strengthen connections for the ILC site's first phase.</li> </ul>	<ul style="list-style-type: none"> <li>Consider funding sources to install clear directional signs for the ILC within 3 months of opening of its first phase. Truck traffic should be directed away from residential and commercial areas to minimize road damage due to muck soil conditions and negative impacts</li> <li>Work with FDOT or relevant Project Development and Environment (PD and E) studies (prior to completion of the first phase of the ILC) that evaluate improvements necessary to US Route 27, including adding rail to accommodate future freight movements.</li> </ul>



## Section 4.0 Water

### 4.1 Introduction and Scope

Palm Beach County Water Utilities Department (PBCWUD) operates the Glades Region potable water system serving the cities of South Bay, Belle Glade, and Pahokee in western Palm Beach County. Carollo Engineers, Inc. (Carollo) was retained to assist the County in developing a Water Master Plan for the region. That Glades Region Water Master Plan (WMP) has become part of the comprehensive GRMP.

The WMP addresses development of raw and finished water demand projections for the Glades Region; development and calibration of a hydraulic water distribution system model; analysis of water treatment plant and finished water storage capacity; and development of a Capital Improvements Plan (CIP) through 2035.

### 4.2 Planning Framework

The WMP documents planning information that serves as the framework for distribution system modeling and master planning analyses. Factors including population growth, water demand projections, peaking factors, and diurnal curves were evaluated and incorporated into the water model.

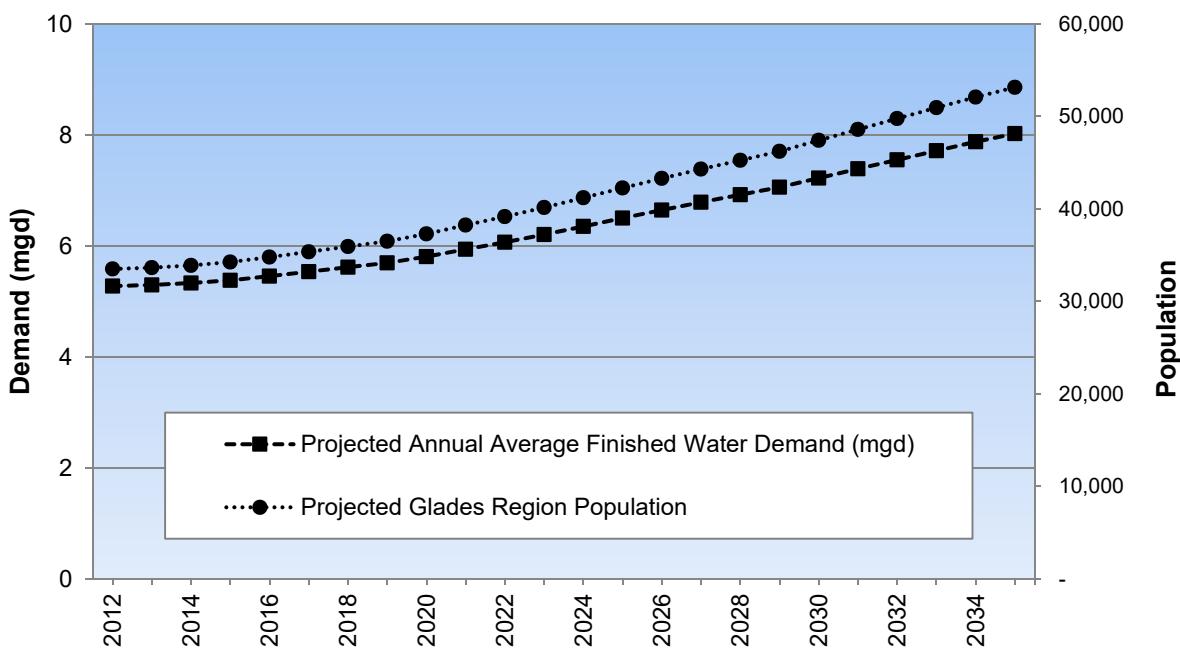
Demand projections were calculated based on Palm Beach County Planning Department population projections and a per capita water demand factor. The per capita finished water demand factor was calculated using served population and historical average finished water demand excluding bulk water sales. This factor varied from 129 to 139 gallons per capita per day (gpcd) between 2008 and 2012 with an average value of 136 gpcd. A conservative per capita demand factor of 140 gpcd was selected to calculate projected water demands for future years. The County projects that the per capita demand factor will decrease in the future as a result of metering and pipeline improvement projects that will be completed in the Glades Region. The County anticipates revisiting this WMP every five years and will continue to adjust the per capita demand factor accordingly. Peaking factors were calculated and used for developing maximum daily and peak hour demand projections.

In 2013, it was estimated that 33,663 residents were served by PBCWUD in the Glades Region, with an average annual finished water demand of 5.30 mgd, and the maximum day and peak hour finished water demands expected to reach 7.18 mgd and 12.92 mgd, respectively. Since the three cities have different peak hour behaviors, the peak hour demand factor is not expected to be the same among the three cities. Based on historical

## SECTION 4.0 WATER

usage data, the City of Belle Glade demand is about 59 percent (7.61 mgd) of the peak hour flow, the City of South Bay demand is 22.5 percent (2.90 mgd), and the City of Pahokee demands the remaining 18.5 percent (2.41 mgd). For 2035, the Glades Region population is projected to be 53,136 residents, with anticipated annual average finished water demand projection of 8.04 mgd, maximum day demand of 11.02 mgd, and peak hour demand of 20.06 mgd.

A summary of projected Glades Region service area population and finished average annual water demand is shown in **Figure 4.1**.



**Figure 4.1: Projected Glades Region Service Area Population and Water Demand**

Criteria of measurement for evaluating the performance and design of the water distribution system included pressure, velocity, and headloss gradient, as well as criteria for fire flow availability at fire hydrants and emergency storage. Comparison of the system's capabilities against these criteria provides the mechanism for identifying existing or future deficiencies and needs and serves as a guide for capital improvement projects and budget planning. The performance criteria are based on applicable regulations such as the Florida Administrative Code (FAC) and 10 State Standards, the County's Uniform Policies and Procedures (UPAP) Manual, commonly accepted engineering standards, and input from PBCWUD staff.

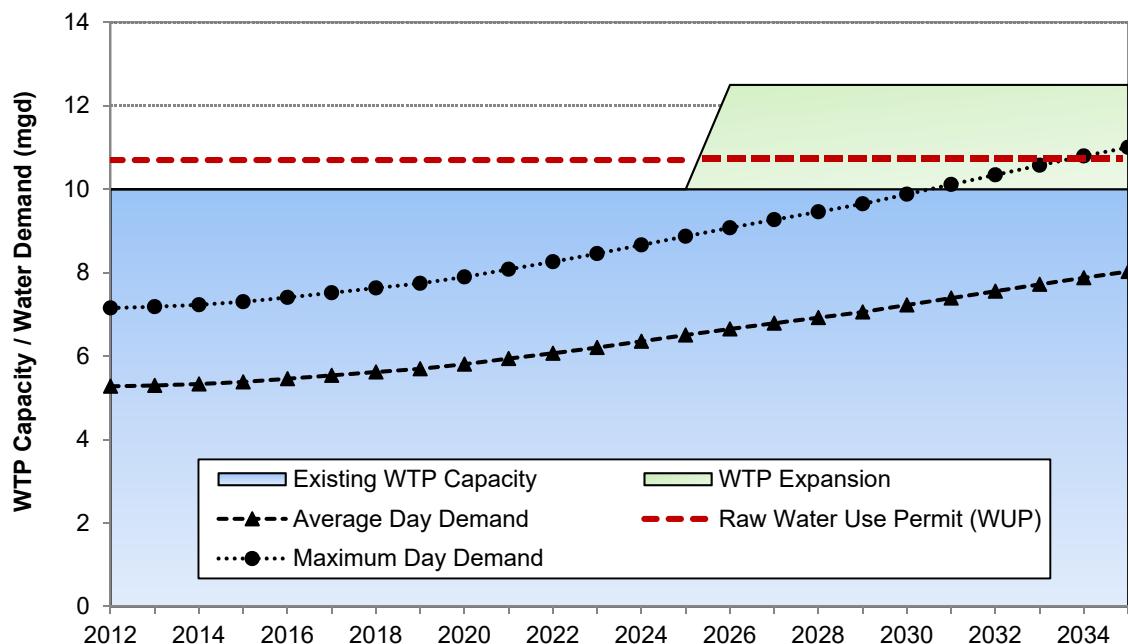
## 4.3 Existing Conditions, Assets, and Programs

### 4.3.1 Existing Water System Assets

PBCWUD currently operates one raw water wellfield in the Glades Region, with a total annual raw water allocation of 3,443 million gallons (MG), which would be equivalent to an average of 10.7 mgd. The current water use permit (WUP) is scheduled to expire in October 2025.

Groundwater is pumped to Water Treatment Plant (WTP) No. 11, which is a reverse osmosis facility with a total permitted capacity of 10 mgd. The plant has produced a daily average of 6.41 mgd of finished water since start-up, which, at 80 percent permeate recovery and the current raw water blend proportion, translates into the use of approximately 8 mgd of raw water (well below the consumptive use permit). At the same permitted recovery, if the plant were required to produce its permitted capacity, the current consumptive use permit would limit plant production.

The comparison of maximum day demand projections, WTP capacity, and permitted raw water quantity in **Figure 4-2** shows that both additional raw and finished water will be required before year 2030. A WTP capacity expansion and other projects to meet 2035 demands were analyzed and evaluated for incorporation into the CIP.



**Figure 4-2: Comparison of Maximum Day Demand Projections with WTP Capacity**

The water distribution system is comprised of 203 linear miles of pipe, three repump facilities, and several elevated and ground storage tanks that provide a total 5.5 MG of finished water storage. The service area encompasses approximately 43.5 square miles.

## 4.4 Key Issues, Methods, Analyses, and Results

### 4.4.1 Water Model Development

A hydraulic model of the water distribution system was created using InfoWater v8.1. The model was developed from available pipeline, pump station, and storage tank data. An extensive pre-calibration quality control process was undertaken to verify pipe material and diameter, system connectivity, tank sizes, and high service and repump station pump curves. Model calibration was performed using one historical day supported by SCADA data to reproduce the behavior of the existing network. The model network provided results that reflected field conditions with some discrepancies. Recommendations to minimize calibration discrepancies for future modeling efforts are addressed in the WMP. Modeling evaluations included multiple scenarios of annual average demand, maximum day demand, peak hour demand, and fire flow conditions. Steady state and extended period simulations provided the appropriate level of knowledge to allow for complete system evaluation.

### 4.4.2 Modeling Results for the Existing System (2013)

An evaluation of the water distribution system was carried out to determine if the existing infrastructure satisfies the selected performance criteria, to determine the level of redundancy in the distribution network and vulnerability of principal transmission water mains, and to identify necessary corrective actions.

The existing system has sufficient capacity to meet current water demands at peak hour, maximum day, and average day demand conditions while meeting the performance criteria, with two exceptions:

1. Failure to meet the minimum specified pressure criterion (50 psi) in the City of Pahokee. Distribution system pressure less than the 50 psi are observed in the City of Pahokee during all demand conditions due to the elevation of the 0.5 MG elevated tank (EVT), which sets a low hydraulic grade.
2. Several portions of the service area cannot meet the 1,000 gpm and 1,500 gpm available fire flow performance criteria specified for residential and commercial areas, respectively. Approximately 36 percent of fire hydrants fail to supply adequate fire flow according to model results. These results are shown in **Figures 4-3A and 4-3B**. Field investigations by PBCWUD should be completed to determine the actual fire flow availability, as time permits.

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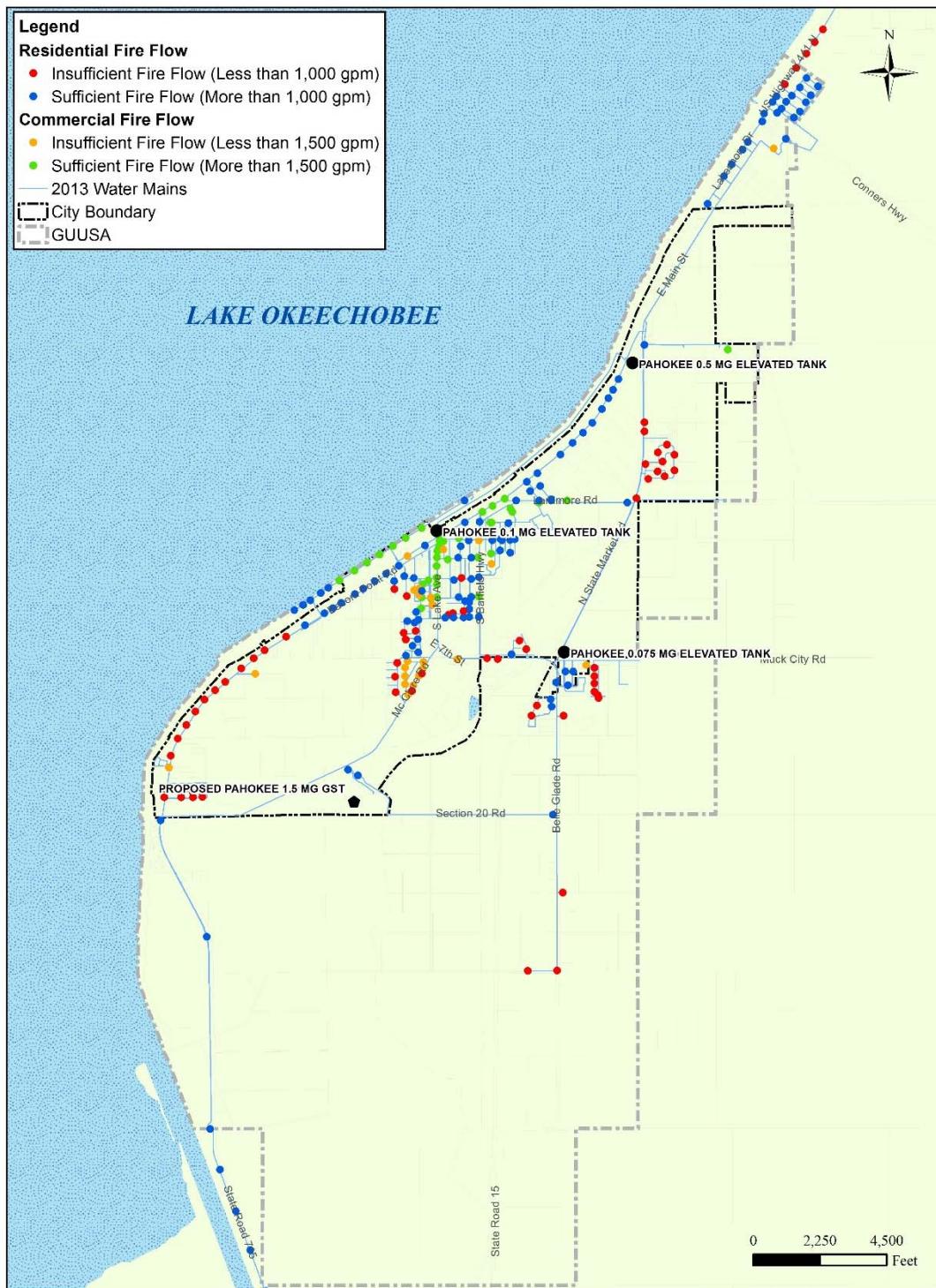


Figure 4-3A: 2013 Fire Flow Sufficiency during Maximum Day Demand Condition

## SECTION 4.0 WATER

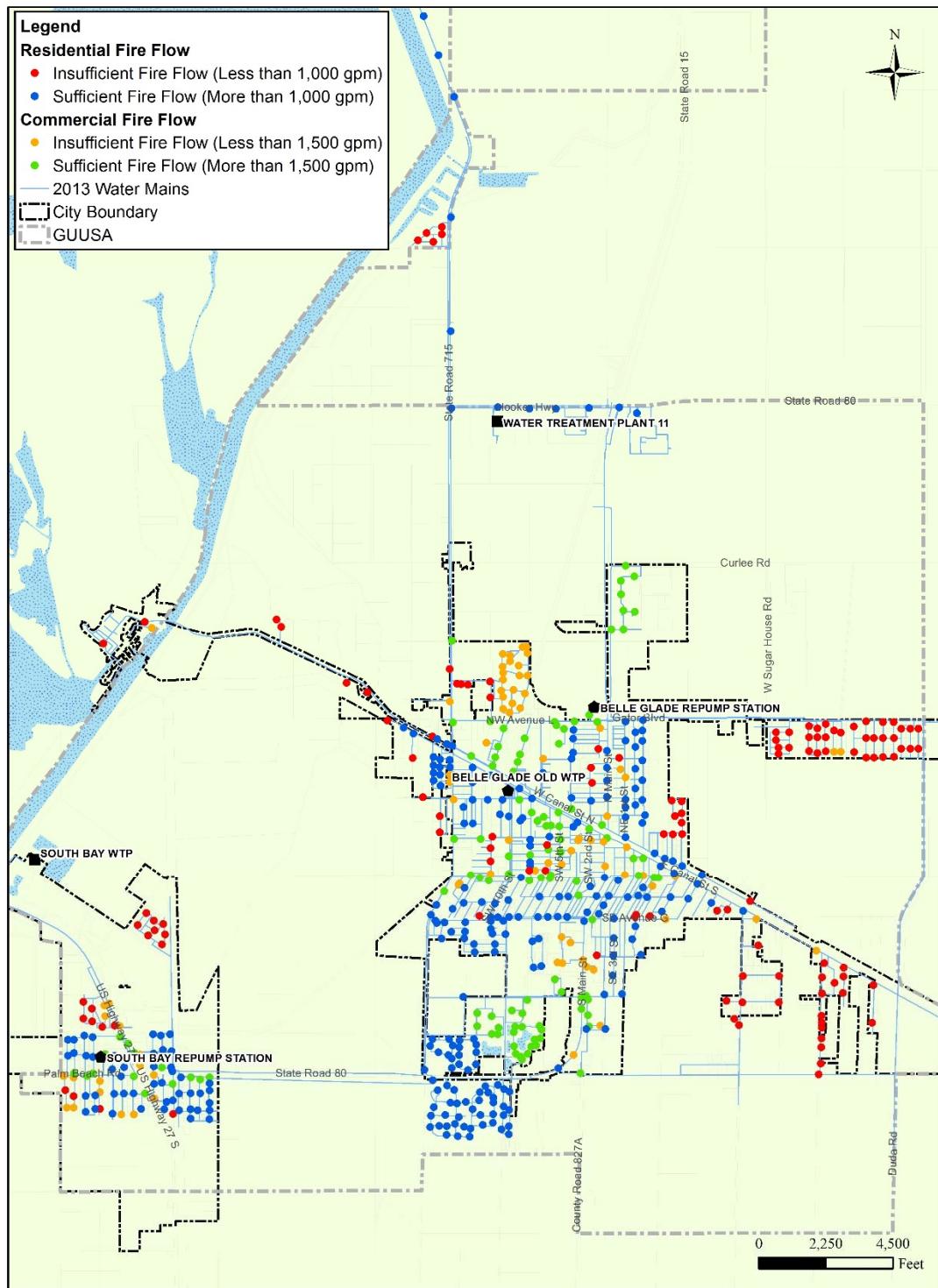


Figure 4-3B: 2013 Fire Flow Sufficiency during Maximum Day Demand Condition

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A redundancy analysis of the existing distribution system modeled under peak hour demand conditions indicates that the system has a low degree of redundancy because it heavily relies upon the 30-inch line that connects WTP No. 11 with the distribution system. This case is common in many distribution systems. The 16-inch pipeline serving the City of Pahokee, located along State Road 715, is also critical. Rupture of this pipe would cause the system to be unable to meet demand in the City of Pahokee after exhausting water available in storage tanks.

Evaluations of water age under average demand conditions conclude that retention time is higher than desired in the City of South Bay and in the northern portion of the City of Pahokee, potentially generating water quality issues. High water age in the City of South Bay occurs due to the large volume of water storage at the South Bay Repump Station and low tank turnover. High water age in the City of Pahokee occurs because of a relatively low water demand and the remoteness of the Canal Point area. Detailed explanations of the causes and a set of strategies to decrease water age are outlined in the WMP.

### 4.4.3 Modeling Results for Future Scenarios

Future planning scenarios were modeled with the goal of progressively improving network performance throughout the planning period. The first future planning year, 2015, was modeled with a small number of on-going pipeline capital improvement projects. The 2025 and 2035 scenarios reflect a series of infrastructure improvement projects that were analyzed and selected to allow the system to meet the County's selected performance criteria.

Model simulations that include pipeline projects outlined in the CIP show that 2025 and 2035 system conditions will exhibit substantial improvement in distribution system performance, including higher and more balanced distribution system pressure, improved fire flow availability, and a moderate decrease in water age. The completed future scenarios developed under the WMP show a system that would be compliant with nearly all the performance criteria during demand conditions at the built-out phase. Although overall system vulnerability (redundancy) improves after simulated completion of the proposed projects, transmission between the three cities will remain vulnerable (without redundant connections), due to the geographical separation which is typical of regional systems.

### 4.4.4 WTP and Storage Capacity

The WTP and finished water storage capacity of the system were evaluated to determine if demands of the projected population are met through 2035. The WTP capacity was compared with the projected maximum day demands through 2035. Based on maximum day demand projections, the existing WTP capacity will not be exceeded until early 2030. However, the reserve capacity by 2030 is projected to be as low as 1 percent. It is recommended to maintain approximately 10 percent reserve capacity in the system.

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Therefore, design of an expansion at WTP No. 11 is recommended to begin by 2026. An additional 2.5 mgd of treatment capacity through construction of a fifth RO membrane train and associated blending bypass at the existing WTP is recommended. Additional raw water allocation will be necessary to accommodate the WTP expansion.

Finished water storage capacity is used for operational equalization, fire reserve, and emergency needs. The existing storage capacity of 5.5 MG is sufficient to meet the storage requirements through 2035 for both the minimum PBCWUD fire reserve requirement and the more conservative AIA fire storage reserve recommendations.

### 4.5 Recommendations/Capital Improvements Plan

The Capital Improvements Plan (CIP) outlined in this WMP describes recommended improvements based on the estimated age and condition of pipelines, results of the hydraulic model evaluation for current and future scenarios, and pipe and WTP improvements already proposed by PBCWUD. The CIP will assist PBCWUD in planning and budgeting for water system improvements through 2035. Capital improvement projects were classified into three groups: WTP No. 11 projects, Storage and Pump Station Improvement Projects, and Distribution System Projects.

WTP Projects: A number of improvements at WTP No. 11 have been identified by PBCWUD and are included in the short-term CIP. The majority of these projects are slated for completion in FY 2014 or FY 2015. These projects include new wells PW-9 and PW-10, degassifier cleaning station, replacement of the variable frequency drives (VFDs) for two of the membrane feed pumps, and a new 5 MG storage tank. Additional projects are programmed for FY 2016 and FY 2017: a new clearwell, odor scrubber improvements, replacement of the degassifier packing, and addition of a roof structure over the transfer and high service pumps and generator. The projects for FY 2013 to FY 2017 are estimated to total approximately \$10.3M. A future WTP expansion to 12.5 mgd with an estimated cost of \$2.5M is included towards the end of the planning period.

Storage and Pump Station Improvement Projects: Storage and pump station improvement projects at remote facilities are included to improve hydraulic conditions, enhance system performance, and supply the forecasted water demand by 2035 based on model results. With the exception of the installation of a booster pump at the 0.5 MG Pahokee tank in the near-term to increase minimum pressures and improve fire flow availability, project needs identified as part of the WMP hydraulic modeling for storage and pumping are long-term. Such projects include replacing pumps at the South Bay Repump Station and the construction of a 1.5 MG ground storage tank and booster pump station in the City of Pahokee. PBCWUD intends to install a rechlorination station along with the booster pump station at the Pahokee 0.5 MG tank. PBCWUD also identified three additional projects it will complete in the near-term: a booster station at State Market Road, security

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improvements at the South Bay Repump Station, and tank and electrical improvements at the South Bay WTP.

The near-term booster and rechlorination station at the Pahokee 0.5 MG tank is estimated to cost \$830,000 and is slated for FY 2015. The long-term storage and pump station improvements in the cities of Pahokee and South Bay total \$2.12 M, and were allocated in FY 2028-2032.

**Distribution System Projects:** Proposed improvements to the water distribution system aim to improve hydraulic conditions while supplying forecasted water demands. Projects in this group include projects proposed by PBCWUD and pipe replacements and new pipes based on modeling results. Pipeline improvements are programmed into the CIP based on their relative priority and improvement seen in the system. **Figures 4-4A and 4-4B** illustrate the location of the proposed pipeline projects throughout the Glades Region.

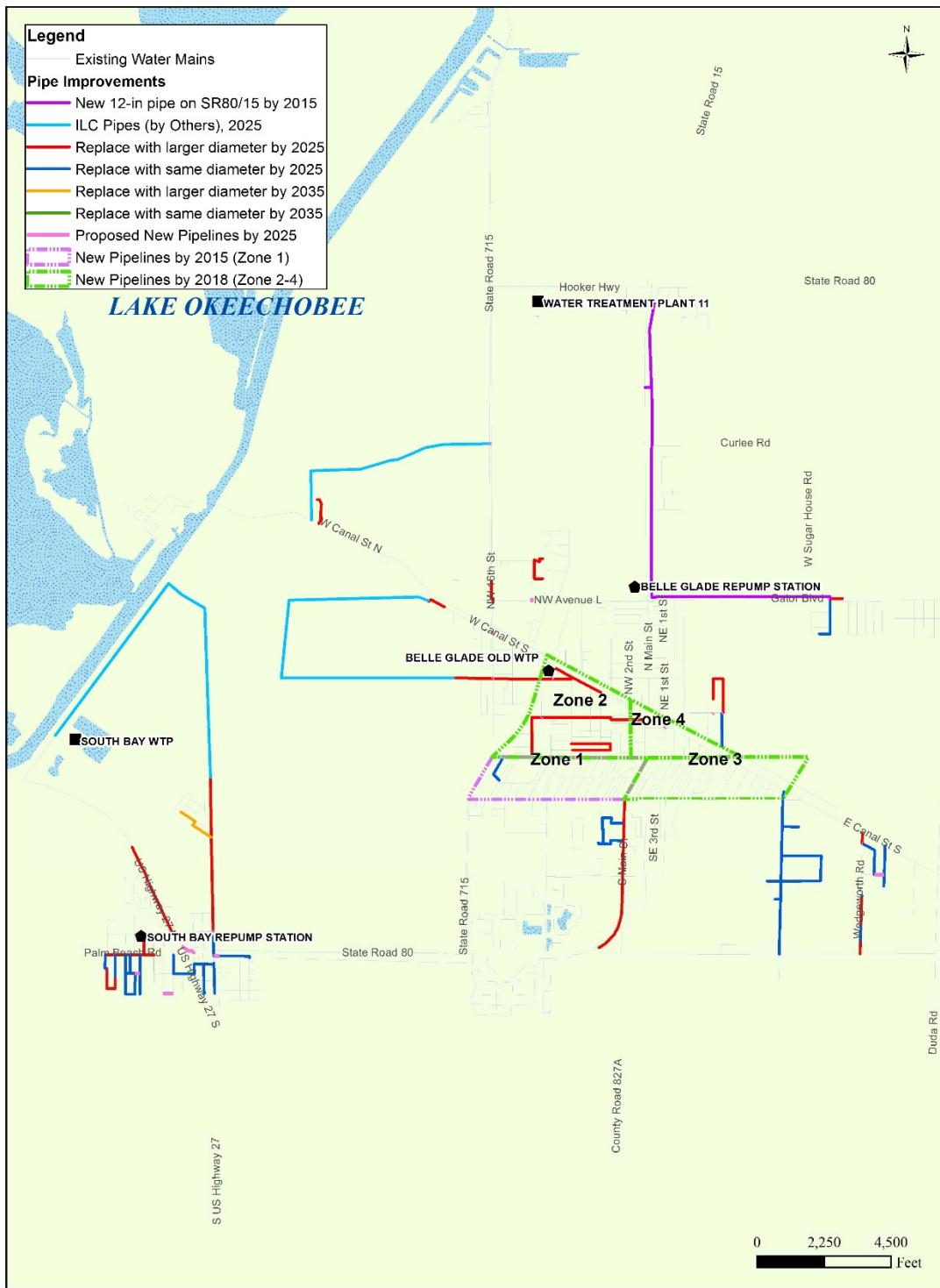
**Table 4.1** summarizes the recommended Glades Region water system CIP, which includes projects that will help to improve and maintain reliable water service to customers through 2035. Improvements at and expansion of WTP No. 11 accounts for 24 percent of this total estimated cost (about \$12.8 M), storage and pump station improvement projects account for about 6 percent (about \$3.2 M), and distribution system projects account for 70 percent (\$37.3 M).

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Figure 4-4A: Proposed Infrastructure Improvements

## SECTION 4.0 WATER



#### **Figure 4-4B: Proposed Infrastructure Improvements**

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**Table 4.1 Glades Region Water Master Plan Water Capital Improvements Plan**

Capital Improvement	CIP Schedule in 5-Year Increments				Total Estimated Cost
	FY 2013 to FY 2017	FY 2018 to FY 2022	FY 2023 to FY 2027	FY 2028 to FY 2032	
<b>WATER TREATMENT PLANT No. 11 PROJECTS</b>					
Wells PW-9 & PW-10/Raw Water Main1,2	\$3,043,000				\$3,043,000
RO Skid Energy Recovery System1,2	\$943,000				\$943,000
Degassifier Cleaning Station2	\$590,000				\$590,000
Clearwell2	\$1,200,000				\$1,200,000
Replace VFDs for Membrane Feed Pumps 1 and 4	\$400,000				\$400,000
5 MG Ground Storage Tank1	\$3,025,000				\$3,025,000
Odor Scrubber Improvements2	\$700,000				\$700,000
Roof over Transfer/High Service Pumps and Generator2	\$300,000				\$300,000
Replace Degassifier Packing2	\$80,000				\$80,000
WTP No. 11 Expansion - Fifth RO Skid			\$2,520,000		\$2,520,000
<b>Total WTP No. 11</b>	<b>\$10,281,000</b>	<b>\$0</b>	<b>\$2,520,000</b>	<b>\$0</b>	<b>\$12,800,000</b>
<b>STORAGE AND PUMP STATION IMPROVEMENT PROJECTS</b>					
Booster Pump Station & Rechlorination Station at Pahokee 0.5 MG EVT	\$830,000				\$830,000
Booster Station at State Market Road <sup>2</sup>	\$75,000				
Security Improvements at South Bay Repump Station <sup>2</sup>	\$50,000				
Tank and Electrical Improvements at South Bay WTP <sup>2</sup>	\$150,000				
1.5 MG Ground Storage Tank and Booster Pump Station in Pahokee				\$1,880,000	\$1,880,000
Increase Pump Capacity at South Bay Repump Station				\$240,000	\$240,000
<b>Total Storage &amp; Pump Station</b>	<b>\$1,105,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$2,120,000</b>	<b>\$3,225,000</b>

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**Table 4.1 Glades Region Water Master Plan Water Capital Improvements Plan (continued)**

Capital Improvement	CIP Schedule in 5-Year Increments				Total Estimated Cost	
	FY 2013 to FY 2017	FY 2018 to FY 2022	FY 2023 to FY 2027	FY 2028 to FY 2032		
<b>DISTRIBUTION SYSTEM PROJECTS</b>						
<b><i>Distribution System Projects Proposed by PBCWUD</i></b>						
SR 15 and Gator Blvd 12-inch and 16-inch Water Main Extension <sup>1</sup>	\$3,056,000				\$3,056,000	
12-inch Water Main along South Main Street, SE Ave K to SE Ave G <sup>2</sup>	\$200,000				\$200,000	
12-inch Water Main along SW Avenue J from Canal Street to Main Street <sup>2</sup>	\$280,000				\$280,000	
Pahokee Services Relocation <sup>2</sup>	\$60,000				\$60,000	
12-inch Water Main along E. Main Street from SR 15 to S. State Market Road <sup>2</sup>	\$2,500,000				\$2,500,000	
Pipeline Improvements in SW Section of Belle Glade - Zone 1 <sup>1</sup>	\$3,321,000				\$3,321,000	
Pipeline Improvements in SW Section of Belle Glade - Zone 2	\$3,000,000				\$3,000,000	
Pipeline Improvements in SW Section of Belle Glade - Zone 3	\$2,000,000				\$2,000,000	
Pipeline Improvements in SW Section of Belle Glade - Zone 4	\$2,000,000				\$2,000,000	
<b><i>Distribution System Projects Based on Modeling Results</i></b>						
Pipeline Replacement	\$17,783,000	\$988,000		1,310,000	\$20,081,000	
New Pipelines	\$721,000	\$84,000			\$805,000	
<b>Total Distribution</b>	<b>\$34,921,000</b>	<b>\$1,072,000</b>	<b>\$0</b>	<b>\$1,310,000</b>	<b>\$37,303,147</b>	
<b>TOTAL CAPITAL IMPROVEMENTS PLAN</b>	<b>\$46,307,000</b>	<b>\$1,072,000</b>	<b>\$2,520,000</b>	<b>\$3,430,000</b>	<b>\$53,329,000</b>	

**Notes:**

<sup>1</sup>. Project in progress (design or construction) or are complete.  
<sup>2</sup>. Projects identified by PBCWUD but not evaluated as part of the WMP.



## Section 5.0 Wastewater

### 5.1 Introduction and Scope

Palm Beach County Water Utilities Department (PBCWUD) operates the Glades Region wastewater facilities serving the cities of South Bay, Belle Glade, and Pahokee in western Palm Beach County. In support of the Challenge Grant, a Wastewater Master Plan (WWMP) was developed for incorporation into the overall GRMP. Hazen and Sawyer, P.C. was retained to assist the County in developing the WWMP for the region.

Specific areas addressed in the WWMP include:

- Wastewater service area and existing facilities
- Renewal and replacement needs
- Population projections
- Wastewater flow and loading projections
- Transmission system hydraulic modeling
- Collection and transmission system capacity and reliability analysis
- Infiltration and inflow assessment
- Regulatory driven issues and improvements
- Wastewater treatment plant operations and maintenance performance evaluations, capacity analysis and plant optimization studies conducted for the Belle Glade and Pahokee wastewater treatment facilities

### 5.2 Planning Framework

The purpose of this study was to determine the requirements for future utilities infrastructure, including renewal and replacement, through the 2035 planning horizon and to develop a guide for capital improvements planning and implementation.

The objective was to develop a plan that would provide an equitable, technologically sound and economical implementation strategy for managing the wastewater collection, treatment and disposal systems in the western portion of the Palm Beach County service area, known as the Glades Region Wastewater Service Area. The goal of the final plan is to provide

responsive, flexible and cost effective solutions that improve wastewater management practices and satisfy existing and future needs of the community.

## 5.3 Existing Conditions, Assets, and Programs

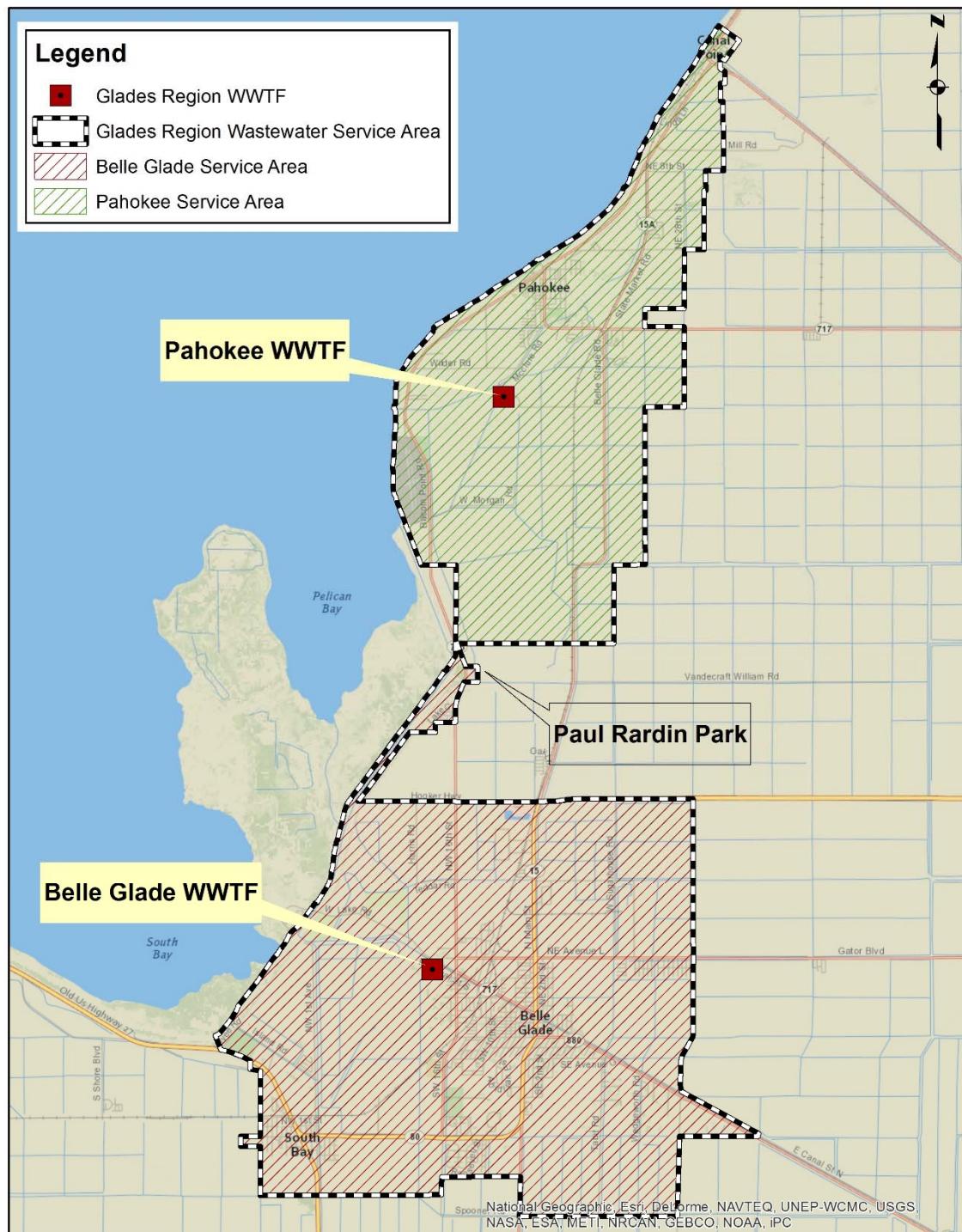
### 5.3.1 Wastewater Service Area and Existing Facilities

The overall Glades Region Wastewater Service Area encompasses approximately 43.5 square miles in western Palm Beach County. The wastewater service area is made up of two adjacent sub-areas with a common boundary slightly north of Paul Rardin Park. The 16.5 square mile service area to the north of Paul Rardin Park is comprised of collection basins whose flows are treated at the Pahokee Wastewater Treatment Facility (WWTF), and extends north to Canal Point. The 27 square mile service area to the south, extending to the G2 Canal, includes the collection and transmission system providing flows to the Belle Glade WWTF. The two wastewater service areas associated with the Belle Glade WWTF and Pahokee WWTF are shown in **Figure 5-1**. There are currently no interconnections between the two collection/treatment systems.

The Belle Glade WWTF is located on West Canal Street South in Belle Glade, Florida, just east of US-27 and south of State Road 80, and was acquired by the PBCWUD in May 2013 from Glades Utility Authority (previously the City of Belle Glade). The treatment plant is permitted to operate with a capacity of 6.5 million gallon per day (MGD) maximum monthly average daily flow (MMADF) under Florida Department of Environmental Protection (FDEP) Permit No. FLA027740-008-DW1P that was issued on May 23, 2011 and expires May 22, 2016.

The Pahokee WWTF is located on Rim Canal Road in Pahokee, Florida, east of Lake Okeechobee and north of State Road 80, and was acquired by the PBCWUD in May 2013 from Glades Utility Authority (previously the City of Pahokee). The treatment plant is permitted to operate with a capacity of 1.2-MGD three-month average daily flow (TMADF) under FDEP Permit No. FLA0136778-006-DW1P/NR that was issued on August 22, 2012 and expires August 21, 2017.

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| **Figure 5-1: Glades Region Wastewater Service Sub-Areas**

Within the wastewater collection network, small capacity lift stations receive wastewater from defined areas or developments and pump it through a network of force mains to larger master pump stations. Typically, the flows from master pump stations are re-pumped to one of the two WWTFs. **Table 5.1** summarizes the extent of both gravity sewers and pressurized force mains within both the Pahokee WWTF and Belle Glade WWTF portions of the service area. There are a total of 69 miles of gravity sewers and 54 miles of pressurized force mains in active service within the PBCWUD Glades Region Wastewater Service Area system.

**Table 5.1**  
Summary of Palm Beach County Piping  
within the PBCWUD Glades Region Wastewater Service Area

Description	Gravity Sewers (miles)	Pressurized Force Mains (miles)
Total	69	54
Pahokee WWTF	21	16
Belle Glade WWTF	48	38

**Table 5.2** provides a summary of lift stations operating within the PBCWUD Glades Region wastewater service area collection network.

**Table 5.2**  
Summary of Lift Stations within the  
PBCWUD Glades Region Wastewater Service Area

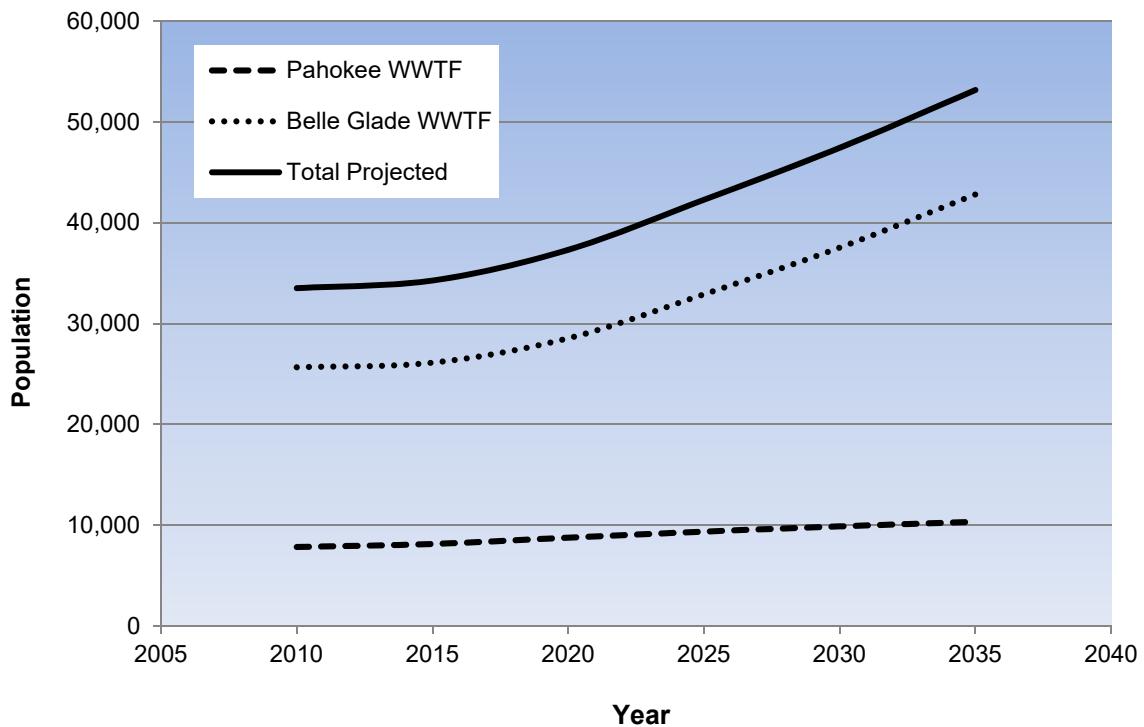
Description	No. of Lift Stations
Total	101
Pahokee WWTF	40
Belle Glade WWTF	55
Other <sup>1</sup>	6

<sup>1</sup> "Other" includes lift stations within the two WWTFs, an in-line booster station in South Bay and Lift Station 6069 that serves the Palm Beach County Police Training Facility.

## 5.4 Key Issues, Methods, Analyses, and Results

### 5.4.1 Population Projections

Population projections for each wastewater service area were developed by summing the future population estimates of the individual Traffic Analysis Zones (TAZs) within the service area and are summarized in **Figure 5-2**.



**Figure 5-2: Wastewater Service Area Population Projections**

The 2010 service area population was estimated to be 33,506 with 23 percent, or 7,836 in the Pahokee WWTF service area and 77 percent, or 25,671 in the Belle Glade WWTF service area. The Pahokee WWTF service area population is expected to increase by nearly 32 percent by 2035 to just over 10,347. By comparison the Belle Glade WWTF population is expected to grow by about 67 percent to nearly 42,816. The entire service area is expected to grow to about 53,136 by 2035, or just over 59 percent.

#### 5.4.2 Wastewater Flow Projections

The overall wastewater flow forecast (on an annual average daily flow basis) for the entire Glades Region Wastewater Service Area is presented in **Table 5.3**.

**Table 5.3**  
**Annual Average Day**  
**Forecasted Wastewater Flow**

Year	Belle Glade (mgd)	Pahokee (mgd)	Combined Flow (mgd)
2015	2.57	0.77	3.34
2020	2.69	0.80	3.49
2025	2.89	0.83	3.72
2030	3.09	0.84	3.93
2035	3.35	0.89	4.24

Maximum Day and Peak Hour peaking factors for each facility are provided in **Table 5.4**.

**Table 5.4**  
**Wastewater Treatment Facility Peaking Factors**

Description	Pahokee WWTF	Belle Glade WWTF
Maximum Day Influent Flow	2.19	7.91
Average Day Influent Flow	0.77	2.60
<b>Maximum Day Flow Peaking Factor</b>	<b>2.84</b>	<b>3.04</b>
Peak Hour Flow	3.49	10.91
Average Hour Flow	0.89	2.60
<b>Peak Hour Flow Peaking Factor</b>	<b>3.93</b>	<b>4.20</b>

### 5.4.3 Transmission System Hydraulic Modeling

The Glades Region Wastewater Service Area master planning effort included an evaluation of the wastewater transmission system through the use of hydraulic modeling methods. A Glades Region wastewater transmission system hydraulic model was developed, calibrated and deployed using the County's preferred modeling platform, InfoWater®. The hydraulic model encompasses individual transmission systems associated with both the Pahokee WWTF and the Belle Glade WWTF. Transmission system elements (i.e., pipes, pumps, and wetwells) were evaluated against a set of performance criteria approved by County staff. Improvements needed to address system hydraulic deficiencies were identified through the modeling process, proposed and tested for efficacy. Corresponding improvement recommendations were made.

#### 5.4.4 Collection and Transmission System Capacity and Reliability Analysis

The wastewater collection system is comprised of gravity mains, force mains, lift stations and master pump stations located throughout the service area. There are a total of 101 stations in the Glades Region Wastewater Service Area, with 95 submersible lift stations, two plant site lift stations at the Belle Glade WWTF, one plant site lift station at the Pahokee WWTF, an in-line booster (re-pump station) in South Bay and Lift Station No. 6069 that services the Palm Beach County Police Training Facility.

The 95 lift stations that make-up the majority of the wastewater collection system are broken into four separate regions.

The analysis of these facilities is presented (in the WWMP) with a general assessment of the lift stations within each of the regions, followed by a detailed analysis based on the risk of failure.

To create a ranked or prioritized list of submersible lift station rehabilitation over the planning horizon, a method similar to the one used for the PBCWUD's Wastewater Master Plan (June 2013) was utilized. The method establishes a consequence of failure (COF) and the possibility of failure (POF) for each lift station. The total risk is then the product of the COF and the POF (Risk = COF x POF), and facilities were ranked based upon this scoring.

Results of the assessment suggest that lift stations should be scheduled for rehabilitation/replacement (R&R) as shown in **Table 5.5**

**Table 5.5**  
Summary of Lift Stations Scheduled for Rehabilitation / Replacement

Combined Risk and Condition Score	Latest R&R Planning Year	Number of Lift Stations
110,000 to 60,000	2015	27
59,900 to 45,000	2020	27
44,900 to 30,000	2025	16
29,900 to 20,000	2030	23
19,000 to 17,000	2035	4

#### 5.4.5 Infiltration and Inflow Assessment

The communities of Belle Glade, Pahokee, and South Bay were settled in the early 1900s and owe their subsequent development and expansion in part to the federal project of draining the land around Lake Okeechobee. The gravity collection systems in these areas were reportedly installed from the 1950s through the 1990s, although some pipes are of unknown age. Pipe

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materials consist primarily of vitrified clay and newer, PVC pipe. The infiltration and inflow is a significant issue in the Glades Region.

A system-level evaluation of the effects of potable water usage, rainfall, and groundwater elevation on total WWTF flows was conducted. Observations concerning the relationships among these variables for the overall system, and for Belle Glade, Pahokee, and South Bay individually are presented in the WWMP report. Furthermore, a basin-level evaluation was conducted, which involved selection of 30 pump station collection areas representing “study areas” for more detailed analysis. Basins were selected through consultation with Utility Operation and Maintenance personnel following characterization based on a number of specific criteria.

A number of conclusions were made based on the system-level and basin-level evaluations, and are presented in the WWMP report. A comprehensive program of assessment and repair is recommended for the Belle Glade, South Bay, and Pahokee wastewater collection systems to limit infiltration and inflow and help maintain a reliable and structurally sound system. A number of actions, in support of those goals, are recommended in the WWMP report.

### **5.4.6 Regulatory Driven Issues and Improvements**

As part of the planning effort, a regulatory overview of current and emerging wastewater treatment and disposal requirements was presented. Although a detailed analysis of records and operations was not completed, it was found that the Belle Glade and Pahokee WWTFs generally comply with current regulatory standards for wastewater effluent, injection wells, reclaimed water, and biosolids.

The regulatory overview also includes information about emerging local, state, and federal regulations. Existing and/or future regulations were categorized as either short-term (within the next five years) or long-term (beyond the next five years) and summarized regarding their effects on the Belle Glade or Pahokee WWTFs with respect to potential future compliance issues.

### **5.4.7 Operation and Maintenance Performance Report**

A separate Operation and Maintenance (O&M) Performance Report was prepared for each WWTF. Such reports evaluate the capability of treatment facilities to function as intended, including a detailed assessment of the physical condition of treatment process equipment, overall treatment efficiency of the plant, performance trends and the Operations and Maintenance program. O&M Performance Reports also identify deficiencies, if any, with the physical capacity and performance conditions of the plant including problems with the present O&M program. Finally, the report provides recommendations and schedules, if needed, for corrective actions leading to improved operations. The respective O&M Performance Reports for Belle Glade and Pahokee WWTF’s include a listing of “critical” and “non-critical” repairs which are recommended. These recommendations are included in the WWMP report.

### **5.4.8 Capacity Analysis and Plant Optimization**

Capacity Analysis Reports were prepared for the Belle Glade and Pahokee WWTFs. The reports summarize evaluation of the capacity of the plants and contain data showing the permitted capacity; monthly average flows, three-month average flows; and annual average daily flows for the past 10 years; seasonal variations in flow; flow projections based on local population growth and water usage rates over the next 10 years; and an estimate of time required for the three-month average daily flow to reach the permitted capacity. The reports also include capital cost estimates of infrastructure improvements required to maintain permitted plant capacities.

In addition to the capacity analysis, baseline energy efficiency models were developed for both plants, using Hazen Energy Efficiency Tool (HEET). The HEET model was used to evaluate potential optimization improvements at each plant.

Lastly, a preliminary evaluation was conducted relative to the potential conversion of the Pahokee WWTF to a regional wastewater pump station that would transfer all Pahokee service area flows to the Belle Glade WWTF. Based on the evaluations and analyses noted above, a summary of conclusions and recommendations is presented in the WWMP report, and several key items are highlighted below:

- The Belle Glade WWTF has adequate capacity to treat projected Belle Glade service area flows through the Year 2035
- The Pahokee WWTF's hydraulic treatment capacity will be exceeded by the Year 2018.
- The Belle Glade WWTF has adequate capacity to treat projected flows from the Belle Glade and Pahokee service areas through the Year 2035, provided that Belle Glade WWTF renewal and replacement projects are completed.
- The option to demolish the Pahokee WWTF, convert the Pahokee WWTF to a regional wastewater pump station, install force mains to convey Pahokee service area flows to the Belle Glade WWTF, and consolidate treatment at the Belle Glade WWTF appears to be more cost-effective than upgrading both plants, expanding the Pahokee WWTF and operating / maintaining two separate treatment facilities. A Business Case Evaluation should be performed to justify this project.

## **5.5 Recommendations/Capital Improvements Plan**

### **5.5.1 Implementation Plan**

The wastewater master planning effort for the Glades Region Wastewater Service area included an evaluation of its wastewater system, consisting of collection (i.e. lift stations), transmission (force mains), treatment and disposal.

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Projects have been grouped based on the following categories:

- Collection System (Lift Stations)
- Transmission System (Force Mains)
- Infiltration and Inflow
- Wastewater Treatment and Disposal

Wastewater treatment and disposal projects have been further subdivided into the following sub-categories:

- Belle Glade WWTF Renewal and Replacement
- Pahokee WWTF Renewal and Replacement
- Pahokee Conversion to Regional Pump Station (for treatment at Belle Glade WWTF)

Recommended capital improvements were developed for several time horizons through 2035 as summarized in **Table 5.6**. The table provides variations expected depending upon which scenario (expand and continue to use Pahokee WWTF or convert Pahokee WWTF to regional pump station) is ultimately selected by the County.

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**Table 5.6**  
**Capital Improvement Schedule Through 2035**

<b>PROJECT DESCRIPTION</b>	<b>TOTALS</b>	<b>IMPLEMENTATION SCHEDULE</b>						
		FY2014	FY2015	FY2016	FY2017	FY2018	FY2019 thru FY2023	FY2024 thru FY2035
1.0 – Collection System (Lift Stations)	<b>\$26,254,500</b>	\$4,111,250	\$5,692,500	\$2,530,000	\$2,530,000	\$2,530,000	\$4,743,750	\$4,117,000
2.0 – Transmission System (Force Mains)	<b>\$2,770,000</b>	\$0	\$2,550,000	\$220,000	\$0	\$0	\$0	\$0
3.0 - Infiltration and Inflow	<b>\$9,270,000</b>	\$0	\$650,000	\$3,340,000	\$3,340,000	\$1,940,000	\$0	\$0
4.0 – Wastewater Treatment and Disposal								
Long-Term Use of Pahokee WWTF	<b>\$27,410,000</b>	\$1,260,000	\$2,340,000	\$2,160,000	\$1,250,000	\$1,600,000	\$11,380,000	\$7,420,000
Pahokee Regional Pump Station, All Treatment at Belle Glade WWTF	<b>\$25,360,000</b>	\$1,260,000	\$1,440,000	\$7,000,000	\$6,180,000	\$30,000	\$3,750,000	\$5,700,000
<b>TOTAL ESTIMATED ANNUAL CAPITAL COSTS (Sections 1.0 through 4.0)</b>								
LONG-TERM USE OF PAHOKEE WWTF	<b>\$65,704,500</b>	<b>\$5,371,250</b>	<b>\$11,232,500</b>	<b>\$8,250,000</b>	<b>\$7,120,000</b>	<b>\$6,070,000</b>	<b>\$16,123,750</b>	<b>\$11,537,000</b>
PAHOKEE REGIONAL PUMP STATION, ALL TREATMENT AT BELLE GLADE WWTF	<b>\$63,654,500</b>	<b>\$5,371,250</b>	<b>\$10,332,500</b>	<b>\$13,090,000</b>	<b>\$12,050,000</b>	<b>\$4,500,000</b>	<b>\$8,493,750</b>	<b>\$9,817,000</b>



## Section 6.0 Drainage

### 6.1 Introduction and Scope

An element of the Glades Region Master Plan (GRMP) is the completion of a new Drainage System Inventory and Evaluation. The GRMP is intended to be a guiding document and this element is intended to identify drainage problem areas and provide detailed analyses of the top five problem locations with recommended alternative solutions and associated costs. Last Devenport, Inc. assisted with the services necessary to produce the Drainage System Inventory and Evaluation.

### 6.2 Existing Conditions, Assets and Programs

In general, the Glades Region consists of the Cities of Belle Glade, Pahokee, and South Bay, as well as a portion of unincorporated Palm Beach County. The area is in proximity of three major South Florida Water Management District (SFWMD) canals, the West Palm Beach Canal, the Hillsboro Canal, and the North New River Canal. The lands within the Study Area are also situated partially or fully within the service areas of a number of designated Water Control Districts (WCDs). The WCDs primarily function to drain and provide irrigation water to the agricultural lands they serve, but they also receive stormwater discharge from developed lands. The WCD systems consist of networks of main canals and lateral canals, along with control structures, pumps, and other appurtenances for moving water. Much of the discharge from the municipal and County stormwater systems is received by the WCD canals, therefore those systems are impacted by the operation of the WCD systems.

### 6.3 Key Issues, Methods, Analyses and Results

#### 6.3.1 Identification of Problem Areas

##### Municipality Coordination

Extensive effort was made to engage representatives of each of the three municipalities within the study area. The primary intent was to gather information about existing stormwater systems and any noted drainage problem areas.

##### Belle Glade

A 2012 system schematic was provided showing stormwater piping, outfall locations, and drainage basins. The system component data (i.e., pipe size, pipe and structure type, invert elevations, length) was not provided.

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A meeting was held in December 2012 with the Public Works Director to discuss drainage problems areas. The City of Belle Glade indicated six problem locations. The locations were prioritized by Belle Glade.

### **Pahokee**

A 1998 system schematic was provided showing stormwater structures and piping. No other system component data was provided.

A meeting was held in March 2013 with the Public Services Director and administrative staff to discuss the drainage system and drainage problems areas. The City of Pahokee agreed to review its existing information and to identify problem areas. In September 2013 representatives of Pahokee and the DES and HUD met and discussed several drainage problems areas. As a result of that meeting three problem areas within Pahokee were identified. A priority ranking for the locations was not provided.

### **South Bay**

A 1990s system schematic was provided showing stormwater structures and type, piping, and outfalls. No other system component data was provided.

A meeting was held in March 2013 with the Public Works Director to discuss the drainage system and drainage problems areas. The City of South Bay conducted a field investigation and verified the piping network shown in the 1990s schematic and provided drainage basins for its system. South Bay indicated the three problem areas and provided photographs showing the extent of flooding in the areas from Tropical Storm Isaac (August 26-28, 2012). A priority ranking for the locations was not provided.

### **Palm Beach County Coordination**

A meeting was held in February 2013 with Palm Beach County Engineering Department Road and Bridge Division – District 5 to discuss drainage problems in the unincorporated County area that is within the Glades Region. The County indicated two problem locations within the unincorporated area. A priority ranking for the locations was not provided.

The County held a public meeting for the Glades Region on March 1, 2013 to provide an overview of the project and invite public participation. Graphics to assist in the presentation were provided to the County. A stormwater/drainage survey to gather information on additional problem areas was also prepared for distribution at the meeting. Copies of the survey were also provided to each municipality for distribution to stakeholders who did not attend the meeting. There have been no responses to the survey.

### **Water Control District Coordination**

There are six WCDs within the Glades Region Area: Pelican Lake WCD, East Beach WCD, Pahokee Drainage District, East Shore WCD, South Florida Conservancy District, and South

## SECTION 6.0 - DRAINAGE

Shore Drainage District. Five of these six WCDs serve the municipalities within the Glades Study Area. All the WCDs have the same Manager and the same District Engineer (AECOM). Water control plans and AutoCAD drawing files of each WCD's facilities were provided by the District Engineer and included the following:

- a. An aerial map delineating the legal boundary of the WCDs and their respective sub-districts and/or units within that District
- b. A narrative description of the stormwater management facilities (pump stations, control structures, operational criteria, and control elevations)
- c. A map of the stormwater system (canals and laterals)
- d. A table of the land uses within the Districts and percentage of urban and agricultural areas

### 6.3.2 Design Alternatives and Criteria

Two conceptual design alternatives were proposed for each of the five prioritized problem areas. The storm systems in these areas are either inadequately sized to accommodate their contributing drainage areas, require maintenance and/or replacement, have restrictions impeding discharge from the areas, or are non-existent. Additionally, as development occurs in each of the areas, the existing open areas providing storage will be eliminated and runoff to the storm system increased. The ideal solution for this problem would be to provide a storage component within each of the areas. This is not possible in all of the areas, but was considered where practical.

The entire project is within the SFWMD Everglades Agricultural Area drainage basin. The allowable discharge rate within this basin is limited to 20 cubic feet per second per square mile for the 5-year/3-day rain event. For SFWMD permitting, the discharge rate (after proposed improvements) will have to either comply with this criteria or it must be demonstrated that it does not exceed the pre-improvement discharge rate. If this is not possible, compensating storage for the additional discharge will be required as part of the improvements.

Storage may not be available to alleviate flooding in some areas. In some cases, flooding can only be alleviated by increasing the discharge rate from the site. If the increased rate exceeds the allowable discharge rate, compensating storage may be provided within the site's drainage basin. The compensating storage volume must be equivalent to the volume of water discharged above the allowable discharge volume for the design storm event. An analysis to determine the increased water volume discharged was completed for these areas.

### 6.3.3 Hydraulic Modeling

Five (5) priority sites and alternative solutions were evaluated with a pre/post analysis for a 3-year rainfall frequency using the Florida Department of Transportation Storm Sewer Design Hydraulic Model. Analysis of the existing system was based on pipe size information from the

four governmental entities (Belle Glade, South Bay, Pahokee, and Palm Beach County) and South Florida Water Management District. In instances where pipe sizes were not available, an analysis was completed to determine minimum pipe sizes required for the drainage system. Inlet elevations were based on available information (SFWMD permit data or LiDAR elevation data). Drainage boundaries for each site were delineated using the LiDAR data. The pre / post discharge rate was reviewed for each site. In order to comply with SFWMD permit requirements, additional storage within either the contributing drainage boundary or basin boundary was proposed to compensate for any increase in discharge rate in the post analysis.

#### **6.4 Recommendations/Capital Improvement Plan**

The conceptual alternatives propose increased pipe sizes, additional storage, and system maintenance as solutions for the drainage problems in each of the areas. A more detailed analysis during final project design may point to different options not included in this evaluation. In two of the areas, the existing pipe sizes are unknown. It is suggested that a survey of these areas be completed to determine this information before proceeding further.

An increase in pipe size typically increases the discharge from a site requiring compensating storage. Storage capacity may not be available in some of these areas. Finding a location within the basin to provide compensating storage may require an evaluation of a larger extent within the basin. It must be demonstrated that the additional discharge does not negatively impact neighboring areas within the basin. This evaluation would be completed during final project design.

System maintenance is vital for proper functioning of storm systems. Municipalities and the County should review the written procedures prepared for National Pollutant Discharge Elimination System (NPDES) MS4 permit compliance, to confirm that sufficient inspection and maintenance activities are scheduled for these problem areas.

With input from County staff an option for each of the problem areas has been selected for further evaluation. **Figures 6-1 through 6-5** show the selected improvement options for areas B1, P1, S1, S2 and U1.

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Figure 6-1: Proposed Improvements for Priority Problem Area B1

SECTION 6.0 - DRAINAGE

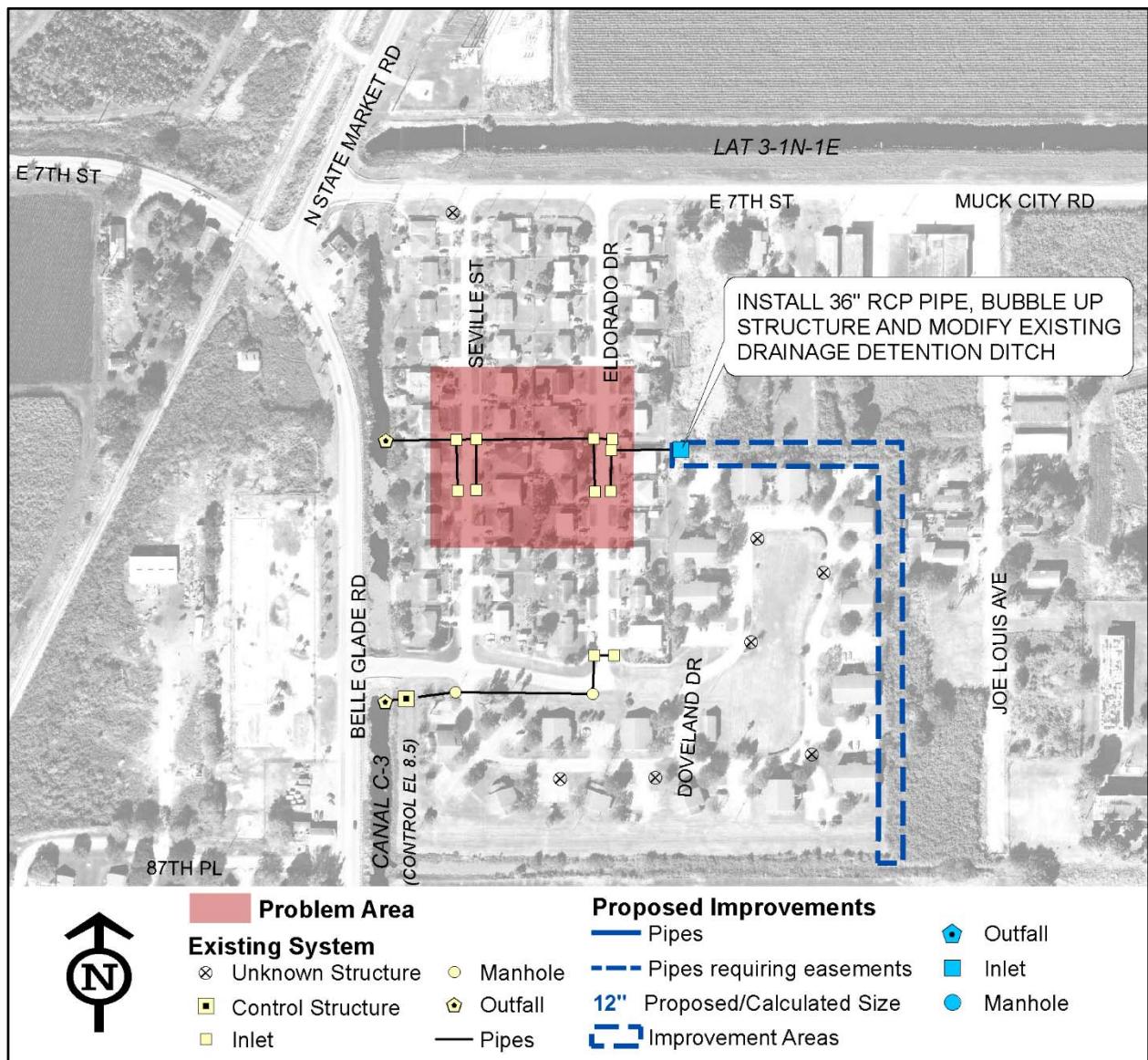


Figure 6-2: Proposed Improvements for Priority Problem Area P1

SECTION 6.0 - DRAINAGE

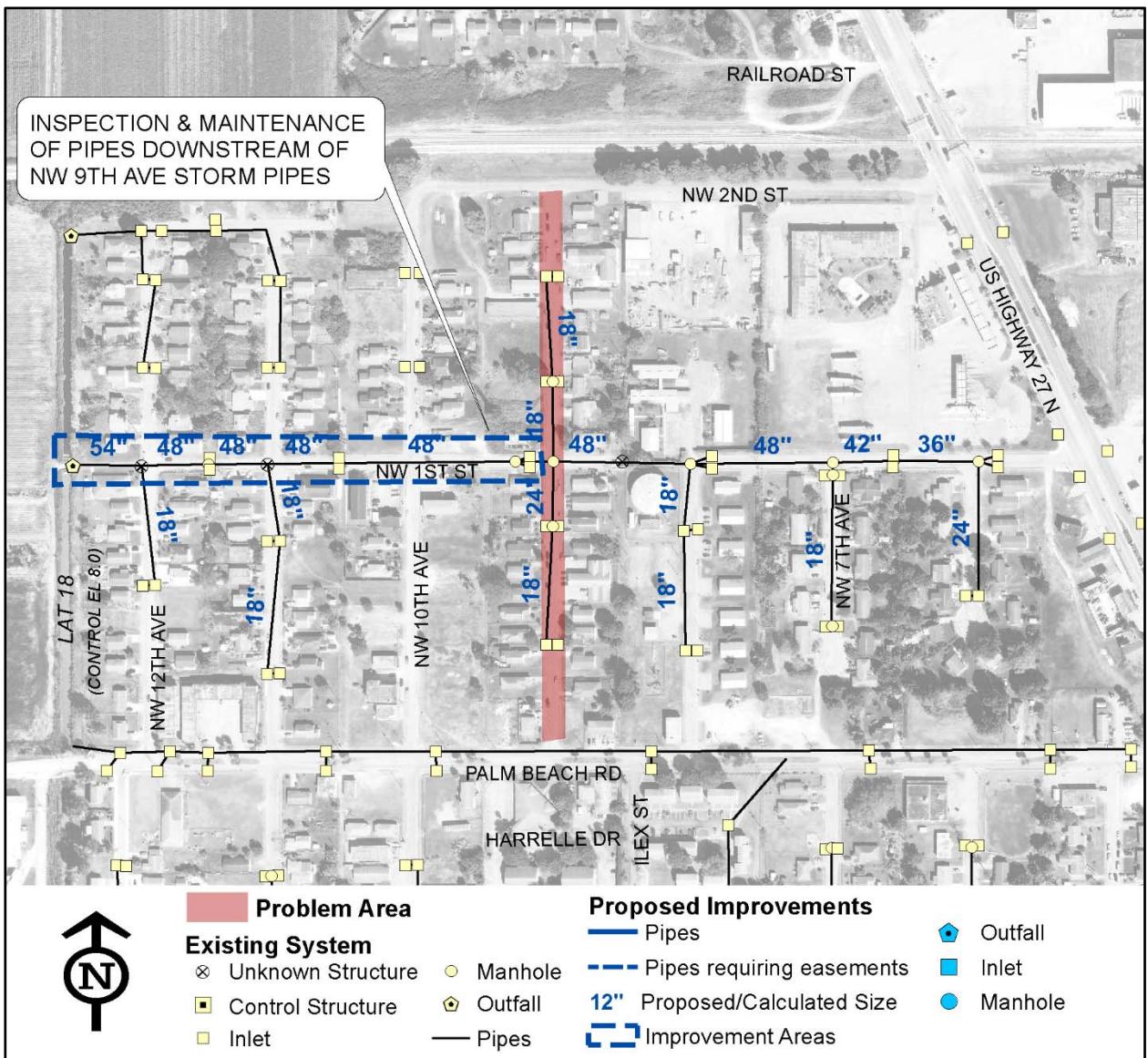


Figure 6-3: Proposed Improvements for Priority Problem Area S1

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Figure 6-4: Proposed Improvements for Priority Problem Area S2

SECTION 6.0 - DRAINAGE

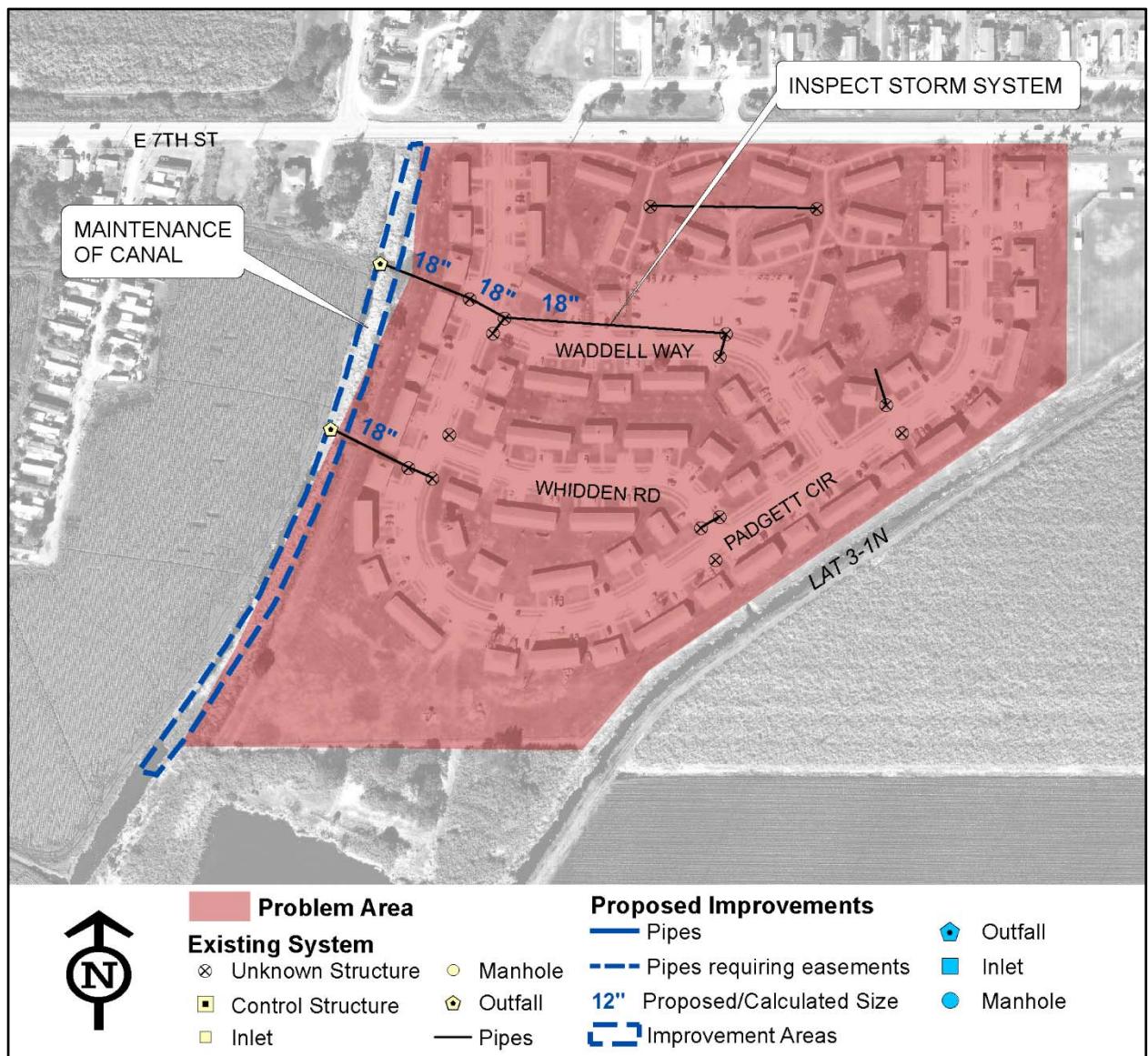


Figure 6-5: Proposed Improvements for Priority Problem Area U1

SECTION 6.0 - DRAINAGE

**Table 6.1** shows the conceptual level cost estimates for the selected solution alternative for each of the identified problem areas.

**Table 6.1**  
Conceptual-Level Cost Estimate for  
Palm Beach County Glades Region Master Plan Drainage Element

Summary	
Item	Total <sup>(1)</sup>
AREA B1 (Option 1)	\$1,121,200.00
AREA S1 (Option 1)	\$ 37,800.00
AREA P1(Option 2)	\$ 146,000.00
AREA S2 (Option 1)	\$ 715,300.00
AREA U1	\$ 132,800.00
<b>TOTAL AMOUNT</b>	<b>\$2,153,100.00</b>

<sup>(1)</sup> Cost includes Engineering and Surveying



## Section 7.0 Transit

### 7.1 Introduction and Scope

To fulfill the objectives of the GRMP, PalmTran contracted with the Center for Urban Transportation Research (CUTR) at the University of South Florida (USF) to conduct a Glades Region Master Transit Plan. This study will entail a system assessment of the Palm Tran existing fixed route(s) 40, 47 and 48 bus schedules in the Glades Region.

### 7.2 Planning Framework

Utilizing Trapeze scheduling software to examine different scenarios, scheduling strategies such as peak/off peak travel times and schedule frequency will be tested to increase fixed route scheduling efficiency of the selected Glades routes and any proposed new route to serve the proposed Intermodal Logistics Center (ILC). The goals of the project in priority order are to provide a solution to serve the ILC with fixed route bus service that improves reliability, service efficiency, service effectiveness, and customer satisfaction.

This project is expected to produce the following outcomes/benefits:

- Additional and improved fixed-route bus service in the Glades Region for working commuters, providing frequent and well-located access to employment centers.
- Connectivity between bus routes for ease of transfers and efficient travel patterns for riders through a transfer center with coordinated bus schedules.
- Customer convenience with bus stop amenities to include shelters, benches, and ADA accessible boarding/alighting areas.

### 7.3 Existing Conditions Assets and Programs

The study examined existing transit mobility in the Glades Region and documented service routing, frequency, span, and service hours for the following:

- PalmTran Routes 40, 47 and 48
- Local Transit Service in Belle Glade – The Belle Glade Express

A series of data collection and reporting activities were undertaken to inform the assessment of existing services in the Glades Region. Data analyzed included:

- Runcuts and Reliefs
- Annual Revenue Hours
- Primary Travel Corridors
- Transfer Locations
- Daily Departures at Transfer Locations
- Existing Ridership
- Current Transit Travel Times

## 7.4 Key Issues, Methods, Analyses and Results

### 7.4.1 Glades Region Master Plan Scenarios for Mobility

One primary task for reorienting service in the Glades Region is to determine a primary transfer center uniting Belle Glade, Pahokee, West Palm Beach, and the ILC. CUTR has developed two scenarios to address a regional master transit plan for the Glades area focusing on the future ILC:

- Scenario I: West Tech as primary transfer center; and
- Scenario II: The Intermodal Logistics Center as primary transfer center.

The scenarios incorporate new express routes, increased frequency on existing routes, and expansion of the span of service to routes serving the Glades area.

#### Scenario I – West Tech as Primary Transfer Center

Scenario I focuses on West Tech, located on S.R. 715, as the main transfer center for all routes serving the Glades area. Route 47 would be re-routed to serve West Tech and Routes 40, 48, and the local Glades routes, and will provide service 365 days a year from 5:00 a.m. until 11:00 p.m. The ILC would be served with 20 minute frequencies by Routes 47 and 48. An additional 12,152 revenue hours and an additional two buses for each route would be needed to provide this improved frequency and span of service.

Route 40, which currently serves the West Palm Beach Intermodal Center (ITC) to Belle Glade via the Mall at Wellington Green (MWG), would discontinue serving from the ITC to MWG and would operate 20 minute service, 365 days per year from 5:00 a.m. until 11:00 p.m., between MWG and West Tech. An additional 23,300 revenue hours and four additional buses would be needed to enhance this service. The routing for Route 43 with service from Palm Tran's Intermodal Transit Center (ITC) to the MWG would continue, but the span of service and frequency would be consistent with the other routes serving the Glades area. An additional 12,150 revenue hours and two additional buses would be required to enhance the Route 43.

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Finally, a new route with express/limited stop service from the ITC to West Tech would operate with 20 minute frequencies from 5:00 a.m. until 11:00 p.m. Nine new buses and 51,200 revenue hours would be needed to provide this service. The cost for this service would be approximately \$13.4 million and require a total of 19 additional buses. Scenario I route configuration is shown in **Figure 7-1**.

### **Scenario II – Intermodal Logistics Center as Primary Transfer Center**

Scenario II focuses on the ILC as the main transfer center for all routes serving the Glades area. Route 47 and 48 routing would be extended in this scenario to serve the ILC and would provide service 365 days a year from 5:00 a.m. until 11:00 p.m. and serve the ILC with 20 minute frequencies. An additional 13,140 revenue hours and two additional buses for each route would be needed to provide this service.

As in Scenario I, Route 40 would discontinue service between the West Palm Beach ITC but would serve from the MWG to the ILC 365 days per year from 5:00 a.m. until 11:00 p.m. with 20 minute frequencies. An additional 26,280 revenue hours and four additional buses would be needed to increase this service. The routing for Route 43 with service from Palm Tran's ITC to the MWG would remain the same but the span of service and frequency would be consistent with the other routes serving the Glades area. An additional 13,140 revenue hours and two additional buses would be required to provide this enhancement to Route 43.

Finally, as in Scenario I, a new route with express/limited stop service from the ITC to the ILC would operate with 20 minute frequencies from 5:00 a.m. until 11:00 p.m. Nine new buses and 59,130 revenue hours would be needed to provide this service. The cost for this service would be approximately \$15.2 million and a total of 19 additional buses. Scenario II route configuration is shown in **Figure 7-2**.

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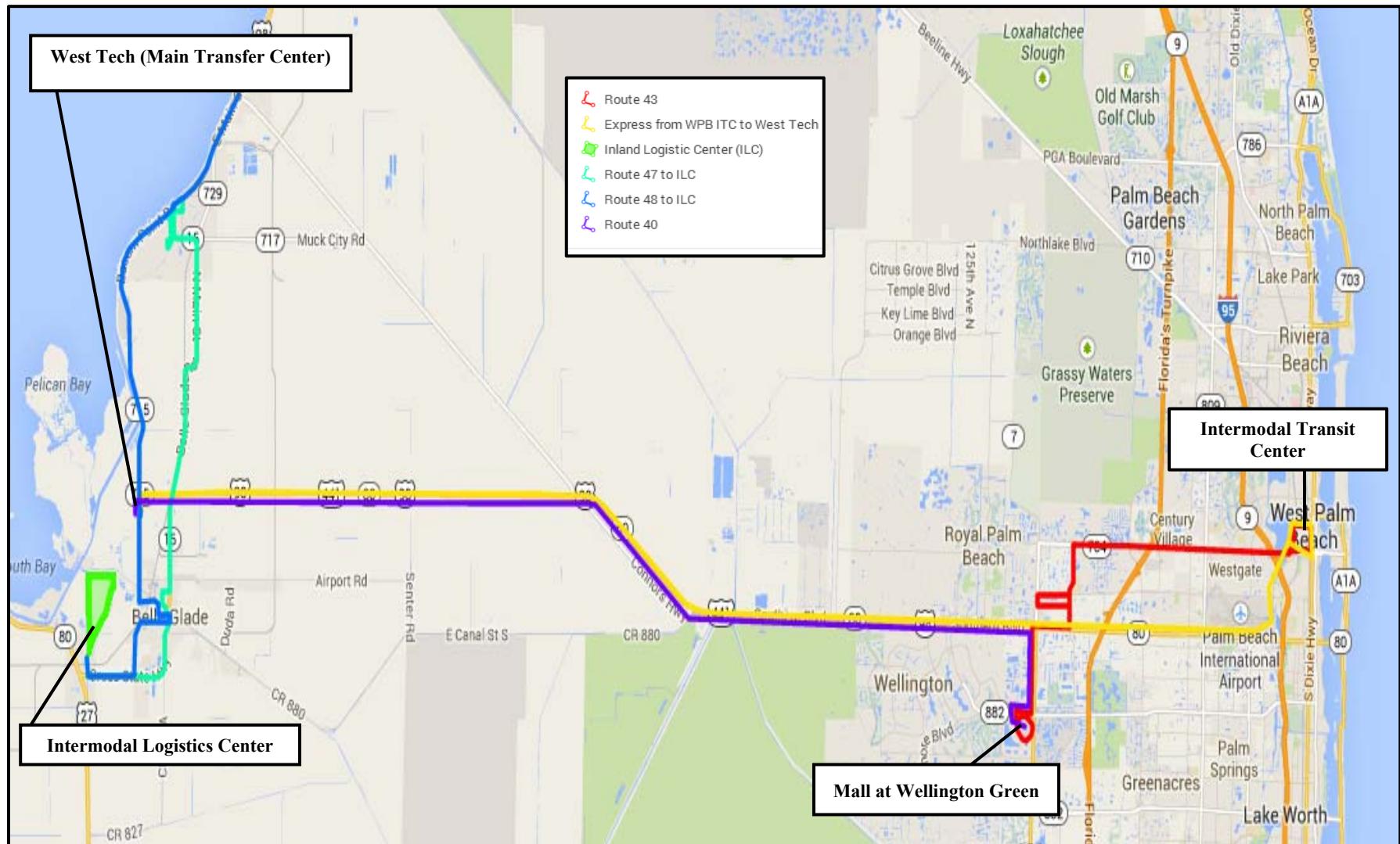
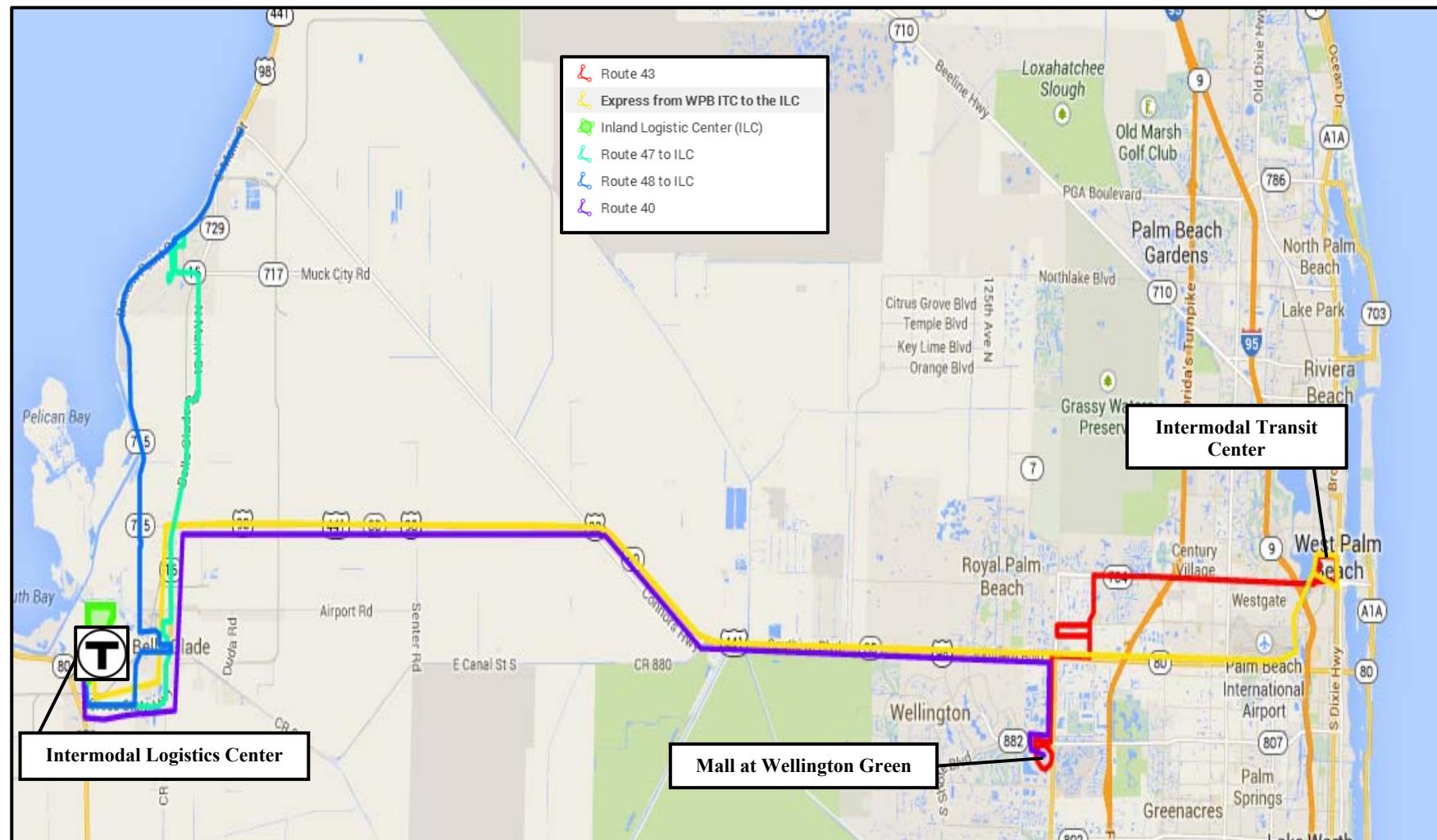


Figure 7-1: Scenario I Map

## SECTION 7.0 TRANSIT



**Figure 7-2: Scenario II Map**

## 7.5 Recommendations / Implementation Plan

Ultimately, Scenario II is the recommended option with all services transferring at the ILC. The cost of this scenario may require phases of implementation. CUTR is recommending a phased approach based on improvements, not on timelines.

- Phase I – truncate the Route 40 at MWG and commence new service from the ITC to the ILC
- Phase II – make frequency and span improvements to the Routes 47 and 48
- Phase III – make frequency improvements to the Route 43 to supplement service between the ITC and the MWG.

### 7.5.1 Implementation Phases

**Table 7.1** displays the cost of implementation for Phase I, Phase II and Phase III of Scenario II.

**Table 7.1**  
**Implementation Costs for Phases I, II and III**

Description	Current Annual Revenue Hours	Additional Vehicle Requirement	Net New Annual Service Hours	Annual Operating Costs
<b>Phase I</b>				
Truncate Route 40 at Mall at Wellington Green while increasing frequency to 20 minute service from Mall at Wellington Green to Intermodal Logistics Center	20,295	4	26,280	\$3,206,160
Create new route – direct express/limited stop connection between Intermodal Transit Center to Intermodal Logistics Center	N/A	9	59,130	\$7,213,860
<b>Subtotal</b>	<b>20,295</b>	<b>13</b>	<b>85,410</b>	<b>\$10,420,020</b>
<b>Phase II</b>				
Increase frequency on route 47 to 20 minute service, extend southern terminus to the Intermodal Logistics Center	19,009	2	13,140	\$1,603,080
Increase frequency on route 48 to 20 minute service, extend southern terminus to the Intermodal Logistics Center	15,682	2	13,140	\$1,603,080
<b>Subtotal</b>	<b>34,691</b>	<b>4</b>	<b>26,280</b>	<b>\$3,206,160</b>
<b>Phase III</b>				
Increase frequency on route 43 to one bus every 20 minutes from Intermodal Transit Center to Mall at Wellington Green	25,984	2	13,140	\$1,603,080
<b>Subtotal</b>	<b>25,984</b>	<b>2</b>	<b>13,140</b>	<b>\$1,603,080</b>
<b>GRAND TOTAL</b>	<b>80,970</b>	<b>19</b>	<b>124,830</b>	<b>\$15,229,260</b>

### 7.5.2 Scenario I as Backup

If for some reason Scenario II cannot be implemented as proposed, **Table 7.2** outlines the elements and costs to implement Scenario I.

**Table 7.2**  
**Implementation Costs for Scenario I (as Backup)**

Description	Current Annual Revenue Hours	Additional Vehicle Requirement	Net New Annual Service Hours	Net New Annual Operating Costs
Truncate Route 40 at Mall at Wellington Green (MWG) while increasing frequency to 20 minute service from MWG to West Tech (main transfer center)	20,295	4	23,314	\$2,844,308
Increase frequency on Route 43 to one bus every 20 minutes from ITC to MWG	25,984	2	12,152	\$1,482,544
Create new route – direct express/limited stop connection between ITC to West Tech	N/A	9	51,219	\$6,248,718
Increase frequency on Route 47 to 20 minute service, extend southern terminus to the ILC extend to West Tech (main transfer center)	19,009	2	12,152	\$1,482,544
Increase frequency on Route 48 to 20 minute service, extend southern terminus to the ILC	15,682	2	12,152	\$1,482,544
<b>Totals</b>	<b>80,970</b>	<b>19</b>	<b>110,989</b>	<b>\$13,540,658</b>



## Section 8.0 Roadway Alignment

### 8.1 Introduction and Scope

In order to support the overall GRMP, Civil Design, Inc. (CDI) was contracted by the Palm Beach County (PBC) Department of Engineering and Public Works Roadway Production Division to perform an analysis of proposed alignments to serve as a bypass route around the cities of Belle Glade and South Bay and to serve the proposed Intermodal Logistics Center (ILC). The purpose of this study is to identify and develop alternative alignments for this area and to provide a recommendation for the final roadway alignment in order to minimize costs, impacts to properties and impacts on the environment.

### 8.2 Planning Framework

CDI was contracted by PBC to conduct a study to evaluate connecting the existing Hooker Highway from its present terminus at SR 715 through the ILC while intersecting the proposed Ave. E and ultimately terminating at US 27 in South Bay. After extensive meetings with PBC, the proposed road north of the ILC commencing at SR 715 is to be considered a rural highway with a design speed of 55 MPH along with a 220' right-of-way. The road commencing at the ILC and heading southwest and ultimately terminating at US 27 is to be an urban highway section with 45 MPH design speed with a 120' right-of-way. Avenue E is a 120' right-of-way with a design speed of 45 MPH commencing at its terminus at SR 715 and extending through the ILC and terminating at the future Hooker Highway. **Figure 8-1** shows the layout described above.

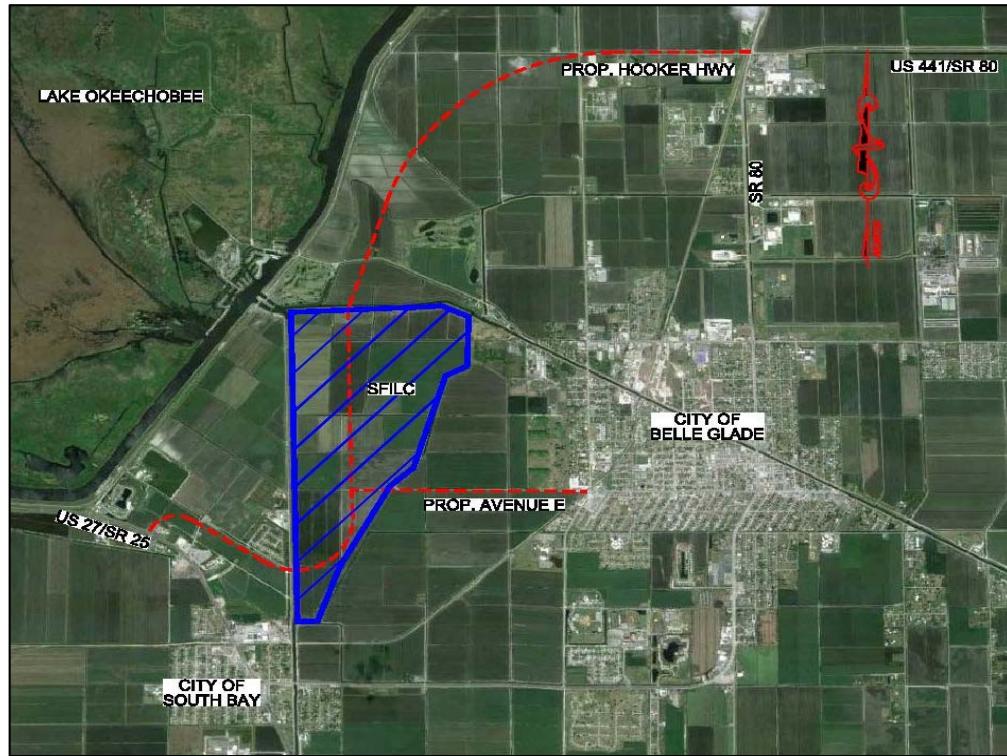


Figure 8-1: Proposed Roadway Alignments Analyzed

## 8.3 Key Issues, Methods, Analyses, and Results

### 8.3.1 Alignment Analysis

Roadways will be designed in accordance with the latest edition of the Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways (Florida Green Book), FDOT Design Standards and Palm Beach County Thoroughfare Road Design Procedures.

The design study consisted of three different proposed alignments for each of the roadway sections surrounding the ILC (North Hooker Highway, South Hooker Highway and Avenue E). The primary basis for each of these alignments is the location of the ILC. The Hooker Highway alignments are to pass through the ILC from the north and out the southwest portion of the ILC and Avenue E will connect to the existing Avenue E extension in the City of Belle Glade. The North Hooker Highway alignments begin at the Hooker Highway SR 715 terminus and continue to the North property line of the proposed ILC. The South Hooker Highway alignments begin at the north property line of the ILC and are terminated at Highway US 27 northwest of Fire Station No. 74 and NW 4th Street, both terminating at existing full median openings on US 27 for a future signalized intersection. The Avenue E alignments begin at the terminus of existing Avenue E and continue through the ILC with a west terminus at the

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proposed Hooker Highway. The alignment lengths include all of the right of way up to the boundary line of the proposed ILC. Locations for all alignments were coordinated with the proposed site plan for the ILC.

### 8.3.2 Drainage Impacts and Permitting

The stormwater management facilities for the proposed project will be designed in accordance with the East Beach Water Control District (EBWCD), South Shore Water Control District (SSWCD), South Florida Water Management District (SFWMD) and Palm Beach County Engineering Department (PBCED) regulations and requirements.

The proposed roadways will require drainage permits from EBWCD, SSWCD and SFWMD. Drainage system design for both the water management aspects as well as the collection conveyance system will require approval of the Palm Beach County Engineering Department. Florida Department of Environmental Protection (FDEP) permits for National Pollutant Discharge Elimination System (NPDES) construction activity will be required.

### 8.3.3 Environmental Analysis

The three alignments generally transect existing, active agricultural lands. Based on previous project experience in the Glades Region, these lands are known to contain muck and organic soils. Further, due to the nature of farming operations, these soils tend to contain high nutrient and arsenic levels. Based on the alternatives, no one alignment is deemed less suitable than the other for soils properties. These generalities will need to be confirmed via site specific soils testing and Phase I reports once an alignment is adopted.

A formal wetland determination was conducted for the proposed alignment routes. As the routes are generally located in active agricultural areas, there are no obvious jurisdictional wetland areas observed via the aerial overlay. Further, based on the alternatives, no one alignment is deemed less suitable than the other for potential impacts or required mitigation. These generalities will need to be confirmed via site specific surveys and determinations once an alignment is adopted.

## 8.4 Recommendations/Capital Improvements Plan

### 8.4.1 Alignment Recommendations

Various alternatives were evaluated and are included in the full report. Recommended alternatives are discussed below.

#### North Alignment

Several factors were considered in developing a recommended North Alignment. The safety for the north takes into account the angle with West Lake Avenue and the super-elevation of each of the curves. Alternative C gives the angle between West Lake Ave and the proposed

## SECTION 8.0 ROADWAY ALIGNMENT

Hooker Highway closest to 90 degrees while maintaining the shortest distance between the ILC and the Hooker Highway terminus. Alternative C provides no impact to existing structures and would minimize the number of “sliver” pieces required for right-of-way acquisition.

The cost analysis for Alternative C was compared to the cost of the other alternatives and was found to be approximately \$1-2 million less than Alternates A or B. The environmental impacts have little effect on the recommendation of this alignment alternative.

### **South Alignment**

Several factors were considered in developing a recommended South Alignment. Alternative E provides the best alignment connecting the southwest portion of the ILC to existing US 27. Alternative E provides connection to US 27 at the existing Palm Beach County Fire Rescue Station 74 in South Bay, Florida, while maintaining the least amount of curves in the alignment.

The cost analysis for Alternative E was compared to the cost of the other alternatives and was found to be less than Alternates D or F. Alternative E will require the smallest (stormwater) lake of the considered alternatives.

### **Avenue E Alignment**

The recommended Avenue E Alignment is Alternative G. This alternative requires only one minimal deflection and is centered on the existing right of way. Cost differences for the three alignments are negligible. All of the alignments require the same (stormwater) lake size and are equally safe, maintaining anywhere between 88 degree and 90 degree intersection with the proposed Hooker Highway through the ILC.

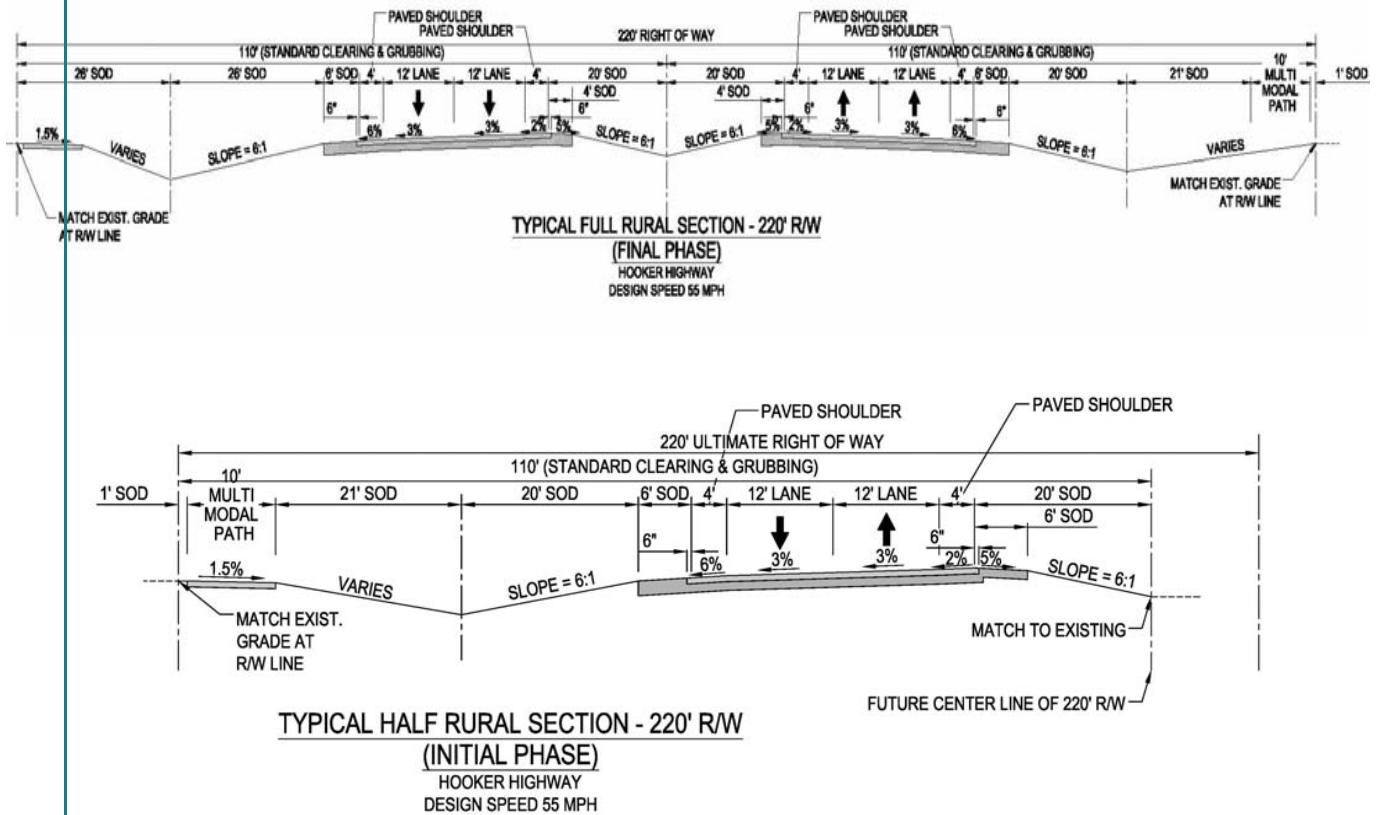
### **8.4.2 Hooker Highway and Avenue E Phasing**

The proposed roadways in this study are to be completed in two phases. The half-sections are to be completed first; once the half-sections meet capacity then the second half of the full section will be constructed.

### **North of ILC – Hooker Highway**

The proposed roadway to the north of the ILC is to have a design speed of 55 MPH with the proposed design sections and design elements below:

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**Table 8.1** includes the design elements, standards and sources for the Hooker Highway north of ILC.

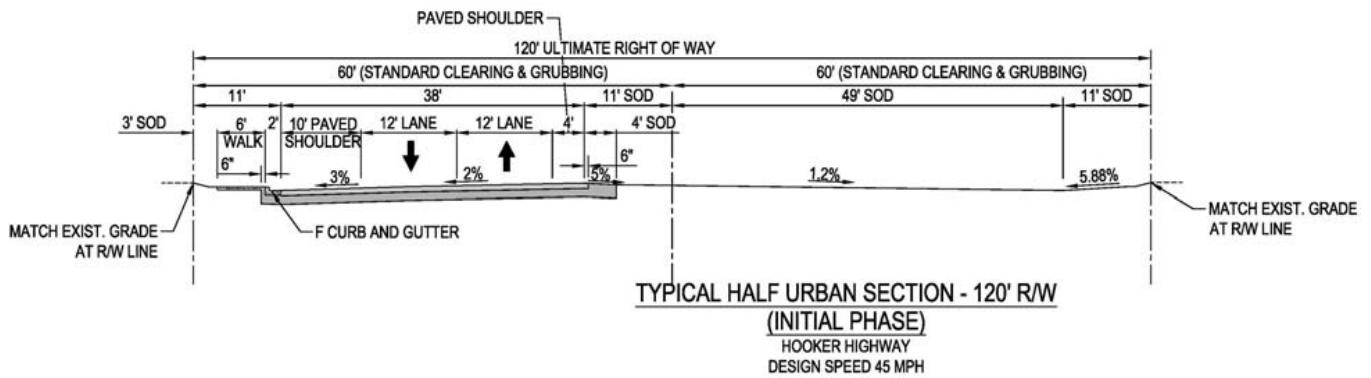
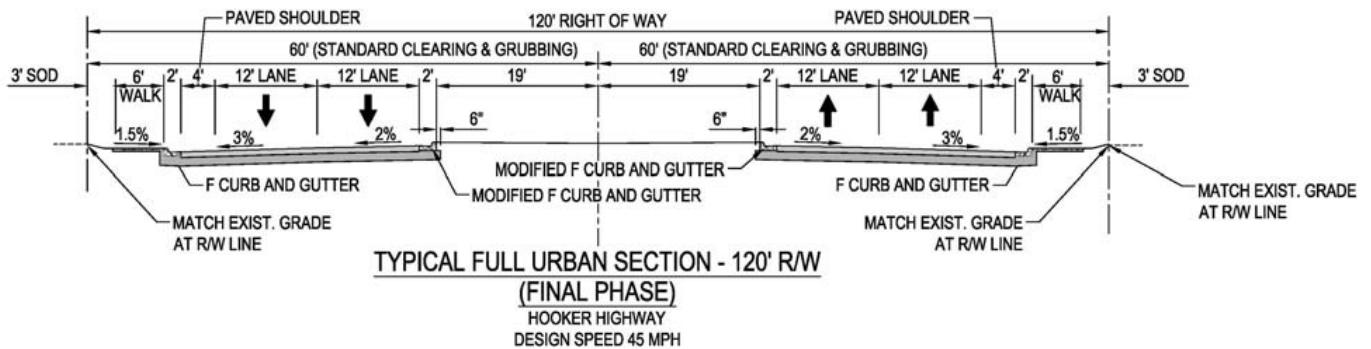
**Table 8.1**  
Roadway and Design Elements - Rural Highway North of ILC

	Design Elements	Design Standard	Source
General	Design Speed	55 MPH	
	Lane Width	12 Feet	P.B.C. Design Standards
	Shoulder Width	10 Feet (4 Paved)	P.B.C. Design Standards
	Clear Zone	24 Feet	Table 3-12 (Greenbook)
	Multimodal Path Width	10 Feet	P.B.C. Design Request
	Minimum Median Width	40 Feet	Table 3-11 (Greenbook)
Horizontal Alignment	Maximum Curve Radius ( $e=0.05$ )	2,865 FT	FDOT Index 510
	Maximum Degree of Curve ( $e=0.05$ )	$2^{\circ}0'0''$	FDOT Index 510
	Maximum Curve Radius ( $e=0.0$ )	11,460 FT	FDOT Index 510
	Maximum Curve Radius ( $e=0.0$ )	$0^{\circ} 30'$	FDOT Index 510

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**Within and South of ILC – Hooker Highway**

The roadway section through and to the southwest of the ILC is to have a design speed of 45 MPH with the proposed design section below:



**Table 8.2** includes the design elements, standards and sources through and southwest of ILC.

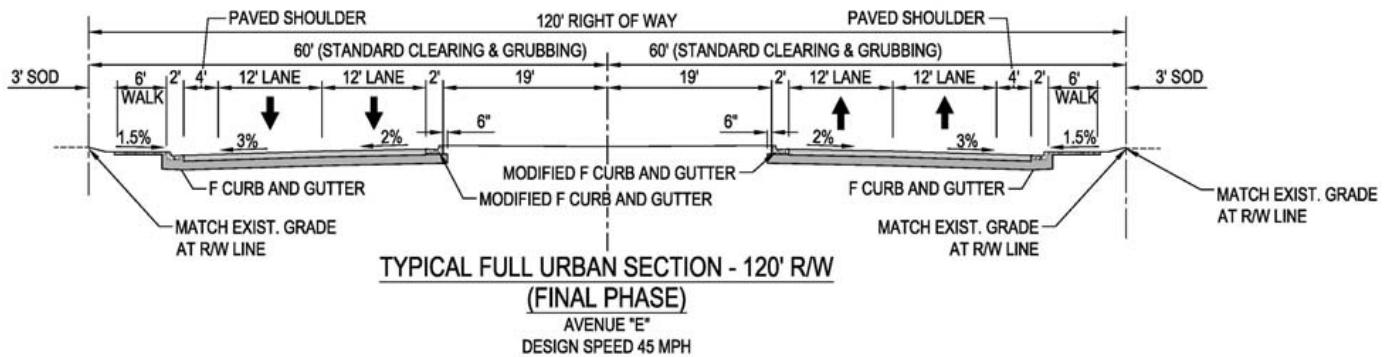
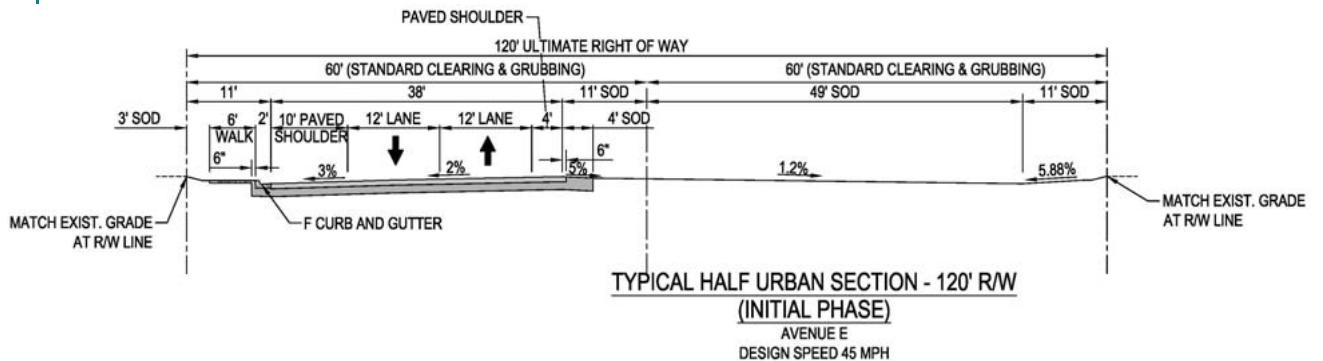
SECTION 8.0 ROADWAY ALIGNMENT

**Table 8.2**  
**Roadway and Design Elements - Urban Highway Through and Southwest of ILC**

Design Elements		Design Standard	Source
General	Design Speed	45 MPH	
	Lane Width	12 Feet	P.B.C. Design Standards
	Shoulder Width	10 Feet (4 Paved)	P.B.C. Design Standards
	Clear Zone	4 Feet	Table 3-12 (Greenbook)
	Multimodal Path Width	10 Feet	P.B.C. Design Request
	Minimum Median Width	15.5 Feet	Table 3-11 (Greenbook)
Horizontal Alignment	Maximum Curve Radius ( $e=0.05$ )	694 FT	FDOT Index 511
	Maximum Degree of Curve ( $e=0.05$ )	8°15'0"	FDOT Index 511
	Maximum Curve Radius ( $e=0.0$ )	2,083 FT	FDOT Index 511
	Maximum Curve Radius ( $e=0.0$ )	2° 45' 0"	FDOT Index 511

### Avenue E

Avenue E is to have a design speed of 45 MPH with the proposed design section below:



**Table 8.3** includes the design elements, standards and sources for Avenue E.

**Table 8.3**  
**Roadway and Design Elements - Avenue E**

Design Elements		Design Standard	Source
<b>General</b>	Design Speed	45 MPH	
	Lane Width	12 Feet	P.B.C. Design Standards
	Shoulder Width	8 and 10 Feet	P.B.C. Design Standards
	Clear Zone	4 Feet	Table 3-12 (Greenbook)
	Multimodal Path Width	6 Feet	P.B.C. Design Request
	Minimum Median Width	15.5 Feet	Table 3-11 (Greenbook)
<b>Horizontal Alignment</b>	Maximum Curve Radius (e=.05)	694 FT	FDOT Index 511
	Maximum Degree of Curve (e=.05)	8°15'0"	FDOT Index 511
	Maximum Curve Radius (e=0.0)	2,083 FT	FDOT Index 511
	Maximum Curve Radius (e=0.0)	2° 45' 0"	FDOT Index 511

**Table 8.4** includes the opinions of probable construction cost (including engineering, surveying, and right-of-way acquisition) for the recommended alignment alternatives.

**Table 8.4**  
**Summary of Engineer's Opinion of Probable Costs**

Description	Cost <sup>(1)</sup>
<b>North Blue Alignment Alternative C Full Section</b>	
Construction Cost	\$22,340,371.06
Right-of-Way Acquisition Cost	\$2,759,488.00
<b>Subtotal</b>	<b>\$25,099,859.06</b>
<b>South Blue Alignment Alternative E Full Section</b>	
Construction Cost	\$8,816,736.85
Right-of-Way Acquisition Cost	\$444,691.00
<b>Subtotal</b>	<b>\$9,261,427.85</b>
<b>Avenue E Blue Alignment Alternative G Full Section (Includes Inside ILC)</b>	
Construction Cost	\$9,796,202.87
Right-of-Way Acquisition Cost	\$926,048.00
<b>Subtotal</b>	<b>\$10,722,250.87</b>
<b>TOTAL</b>	<b>\$45,083,537.78</b>

<sup>(1)</sup> Includes Engineering and Surveying



## Section 9.0 Roadway and Railroad Improvements

### 9.1 Introduction and Scope

The Palm Beach County Department of Economic Development and Sustainability (DES) has undertaken the task of developing the master plan for the Glades Region of Palm Beach County, with funding provided by a Community Challenge Planning Grant from the U.S. Department of Housing and Urban Development (HUD). DES designated a portion of the funding for an inventory of the existing roadway conditions (and needed improvements), future roadway needs with and without the planned Intermodal Logistic Center (ILC) and a study of the feasibility of extending railroad lines to the Glades Region.

The Palm Beach County Engineering and Public Work's Traffic Division was responsible for determining the long range traffic impacts of the Intermodal Logistic Center (ILC) on the Glades Region, and performed a macro review of the existing roadways and railroads in the region.

### 9.2 Existing Conditions

#### 9.2.1 Review of Existing Roadways

The Traffic Division, in coordination with the Palm Beach County Roadway Production Division, completed a review of the existing roadway conditions in the Glades Region. Although, the current long range analysis does not identify any capacity related issues with the existing roadway network, there are extensive existing deficiencies associated with the existing conditions of the roadways. Specifically, the problems are primarily due to the presence of muck within the roadway limits. Maps 1 through 18 of the full report (see Appendices) show the existing conditions of the major roadway in the Glades Region.

### 9.3 Key Issues, Methods Analyses, and Results

#### 9.3.1 2035 Long Range Traffic Study

The Palm Beach County Traffic Division, in coordination with the Metropolitan Planning Organization (MPO), contracted with Leftwich Consulting Engineers, Inc. (Consultant) to evaluate the potential long range roadway impacts of the proposed ILC. The evaluation was based upon various factors including, but not limited to, the existing land use of the ILC, the extension of Hooker Highway through the ILC site, the extension of Avenue E to Hooker Highway, and estimated ILC employees.

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There are various 2035 traffic models available that may be utilized for long range traffic forecasting. Recently, the MPO and Florida Department of Transportation (FDOT) updated the 2035 South East Regional Planning Model (SERPM) to reflect the latest Palm Beach County land use data, therefore the 2035 SERPM model was determined to be the preferred model available to evaluate the long range traffic forecast for the ILC.

Utilizing the SERPM, a new traffic analysis zone (TAZ) was created for the ILC. The new TAZ incorporated 3,000 employees, generating approximately 8,100 daily trips. Additionally, two (2) new roadway links were added to the model roadway network, the westward extension of Avenue E to the ILC site and the extension of Hooker Highway through the ILC site connecting to US-27. The SERPM model was run under the 'select zone' scenario to evaluate how the model was distributing the ILC traffic and to evaluate the 2035 traffic volumes with and without the ILC. The model's traffic distribution pattern for the ILC was satisfactory and generally reflected the ILC traffic distribution pattern in the 'Intermodal Logistics Center LUPA' report prepared by Kimley-Horn and Associates in June 2010.

As with all models, the 2035 model outputs are validated in coordination with the consultant and through a process that requires comparing the model outputs with future traffic forecasts using straight line growth factors that are based on historical growth and engineering judgment. Additionally, consideration was given to the diversion of traffic that may be created with the extension of Avenue E and Hooker Highway to the regional roadway network.

Based upon the various factors and long range assumption noted above and in the model, including the extension of Avenue E and Hooker Highway through the ILC site, the existing roadway links are within capacity. Although the need for the widening of existing roadways is not identified at this time, the character of the roadway will be significantly impacted by the increase in vehicle and truck traffic.

In addition to evaluating the roadway links, various intersections were also analyzed utilizing Synchro software. Based on the increase in traffic volume, the lack of existing turn lanes and other factors such as the geometric configuration of certain intersections, the following intersections were determined to be deficient and require significant improvements when the ILC is developed.

**Table 9.1** summarizes intersections needing improvement and the estimated costs associated with each.

**Table 9.1**  
**Proposed Intersection Improvements and Cost Estimates**

Intersection	Proposed Needed Improvement	Estimates Costs*
SR-715 and SW Avenue E	Addition of NB and EB left turn lanes and SB right turn lane.	Included in the cost of Avenue E extension
SR-715 and Hooker Highway	Addition of NB and EB left turn lanes and SB right turn lane.	\$600,000
SR-80 and CR-880	Addition of NB right turn lane	\$100,000
US 27 (SR-80) and Hooker Highway / PBC Fire Station #74	Addition of SB right turn lane and traffic signal	Included in the cost of Hooker Highway extension

*\*Estimated costs include design construction and CEI services. The cost estimates do not include the removal of muck, if required. Additional detailed geotechnical evaluations are recommended to further define construction costs.*

### 9.3.2 Recommended Roadway Improvements and Alternative Solutions

The single most important issue associated with addressing the roadways in the Glades Region is the presence of muck within the roadway limits. There are various options and/or alternatives to address the muck, such as:

- Removal of the muck (de-mucking) and replacing it with approved back fill material
- Surcharging the existing muck
- Construction of a geo-grid

Each option noted above has its benefits and issues, therefore a thorough geotechnical evaluation is recommended for the various roadways affected. The evaluation will identify the limits of the muck and determine the most cost feasible options available to address the issue.

In many instances the mitigation of the muck soils may not be feasible, due to either cost or constructability, therefore the leveling and overlay of the existing roadway was also evaluated. The cost associated with the leveling and overlaying of the existing roadway is significantly less than the costs to mitigate the muck and reconstruct the roadway. However, if the muck is not removed, the roadway will continue to prematurely fail and require continuous leveling and overlay. The frequency of the leveling and overlay would be determined by the deterioration of the structural capacity of the roadway ("waffling" of the asphalt) due to various factors including but not limited to the depth of the muck, traffic volumes and truck traffic. **Table 9.2** identifies Glades Region roadways that had a fair and/or poor condition and/or base rating and the associated costs to reconstruct the roadways utilizing geo-grid and the costs to level and overlay the roadway.

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**Table 9.2**  
**Estimated Repaving / Reconstruction Cost**

Road Name	From	To	Base Condition	Road Condition	Approximate Length (Miles)	Estimated Repaving Costs	Estimated Reconstruction Costs
<b>CR-880</b>	SE Ave E/MLK Blvd.	SR-80/20 Mile Bend	Poor	Good/Fair	19.0	\$3,600,000	\$102,600,000
<b>Avenue E*</b>	SR-715	E Canal Street South	Fair/Poor	Fair	1.7	\$575,000	\$12,900,000
<b>Canal Street South</b>	SR-715	SE Ave E/MLK Blvd	Poor	Poor	1.7	\$305,000	\$9,200,000
<b>Gator Blvd</b>	SR-80/Main St.	Hatton Hwy	Poor	Good/Fair	7.0	\$1,275,000	\$37,800,000
<b>Hatton Hwy</b>	SR-700/US-98	Gator Blvd	Poor	Poor	8.0	\$375,000	\$43,200,000
<b>Hooker Hwy</b>	SR-715	SR-80/US-441/Main St.	Fair	Fair	1.0	\$175,000	\$5,400,000

*\*The estimated reconstruction costs for Avenue E are based upon the reconstruction of the urban section and mitigation of the muck. The feasibility of mitigating the muck and maintaining access to the adjacent business is questionable. Therefore, further evaluation of the constructability of improvements to Avenue E is required.*

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For example, Hooker Highway from SR 715 to SR 80/US 441/Main Street will experience an increase in traffic with the extension of Hooker Highway through the ILC site, therefore the reconstruction of the existing road may be desired. The reconstruction of the roadway would also include upgrading the road to the latest County standards, including but limited to the addition of paved shoulders and the installation of guardrail, if required. The estimated cost to reconstruct the approximately one (1) mile of Hooker Highway is \$5,400,000 and the estimated cost to level and overlay the existing asphalt (of the same) is approximately \$175,000. Several factors should be considered in determining if the roadway should be reconstructed or overlayed, such as the function of the roadway as it relates to the overall grid system servicing the Glades Region, the geotechnical evaluation and the feasibility and costs associated with the reconstruction of the roadway.

In summary, the completion of a thorough geotechnical evaluation of the various roadways is recommended to identify the scope and mitigation options associated with the presence of muck soils. The geotechnical evaluation is critical in further detailing the cost and constructability of roadway improvements. Additionally, identifying the timing, location and level of development in the Glades Region would be beneficial in determining the prioritization of the various roadway improvements.

### **9.3.3 Existing Glades Area Rail Network**

The Florida Department of Transportation commissioned the US-27 Multimodal Planning and Conceptual Engineering (PACE) Study to determine the feasibility of a rail corridor generally following the US-27 corridor from the Homestead Extension of the Florida Turnpike in Miami-Dade County to the Palm Beach/Hendry County line. The purpose of the rail corridor is to meet South Florida's growing transportation needs for freight and passenger movement associated with the potential development of inland logistic centers in Palm Beach County, Glades County and St. Lucie County. The study consisted of approximately 72 miles of roadway on US-27 and reviewed existing traffic conditions, travel demand created by the proposed inland logistics centers, and multimodal alternatives.

South Florida is served by three (3) freight railroads, the FEC Railway, the CSX Railroad and the South Central Florida Express (SCFE). The FEC and CSX railways run mainly through Palm Beach County's urban areas. The FEC Railroad carries freight and is the corridor for the proposed All Aboard Florida passenger rail service between Miami and Orlando. The CSX Railroad carries freight and is the corridor for the TriRail commuter rail service and Amtrack. The SCFE is owned and operated by U.S. Sugar and runs mainly around the southern and eastern perimeter of Lake Okeechobee. Additionally, the SCFE has multiple rail spurs along the main track servicing the agriculture lands adjacent to Lake Okeechobee.

### **9.3.4 Future Glades Area Rail Network**

The development of a new rail corridor along US-27 would connect the Port of Miami with the

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SCFE railway and provide a reliever for the FEC and CSX railways, located mostly along the coast, and divert some long haul truck traffic to the new rail corridor.

The PACE Study concluded a new railroad corridor is feasible within the US-27 right of way. There are multiple constraints and/or issues that would have to be addressed such as the limited right of way width of US-27 in the South Bay area, intersection configurations, adjacent canals and major drainage control structures. The estimated cost of the development of a US-27 railroad is approximately \$1.2 billion.

The PACE Study sets the stage for future studies and includes key issues that may be used to assist with determining the final railroad location. The study also encourages continued monitoring and evaluation of travel demand on US-27, the development of Intermodal Logistic Centers and the growth of Port of Miami.



## Section 10.0 Land Planning

### 10.1 Introduction and Scope

The Community Challenge Planning Grant (CCPG) was awarded to Palm Beach County by the Department of Housing and Urban Development (HUD). The Grant was utilized to fund the project, known as the Glades Region Master Plan (GRMP), to serve as a guiding blueprint to enhance economic competitiveness focusing on major employment centers. As part of the project team, the Planning, Zoning and Building Department (PZB) participated in the development of the GRMP. The scope of services required the Planning and Zoning Divisions to: participate in periodic meetings with all of the stakeholders; provide data and support to the partners and stakeholders; participate in the Treasure Coast Regional Planning Council workshops with each of the Glades communities; develop strategies to implement the findings of the GRMP; and prepare Comprehensive Plan amendments needed to implement the Master Plan.

### 10.2 Planning Framework

PZB staff participated in periodic meetings with partners and stakeholders of the project. County staff joined efforts to review the existing conditions in the Glades Urban Service Area and review policies and land development regulations to develop guidelines where the County could address the livability principals: promoting affordable housing; enhancing economic competitiveness; supporting existing communities; coordinating policies and leveraging investments; valuing communities and neighborhoods; and providing more transportation choices.

County staff reviewed the existing conditions as well as the existing Comprehensive Plan policies related to the Glades Region. Staff developed a number of policies to include in the Comprehensive Plan based on the findings of the GRMP, relative to land use and associated plans and regulations. Additionally, County staff provided the following deliverables:

- A comprehensive data report to establish current conditions, included in Exhibit 1 of the full report (see Appendices).
- Concepts for the County's Comprehensive Plan Amendment Round 15-2 for preparation of amendments for the unincorporated area, needed to implement the GRMP.
- A sample land development regulation for the cities to consider which could be used to address and enhance economic development within the city limits.

Based on data analysis and public input, the primary challenge by far is the lack of economic opportunity and growth in this region. Through these efforts, County staff anticipates that the GRMP will be a guide for the Glades area to help increase economic development; create employment opportunities for the Glades communities; and serve as a comprehensive document to secure funding for significant infrastructure projects in the Glades.

### 10.3 Existing Conditions

The Glades Urban Service Area is generally located west of the Conservation areas in the Glades Tier and includes both incorporated and unincorporated areas. The incorporated areas include: City of Belle Glade, City of South Bay, and City of Pahokee. For more detailed demographic data, see Exhibit 1 of the full report (in Appendices).

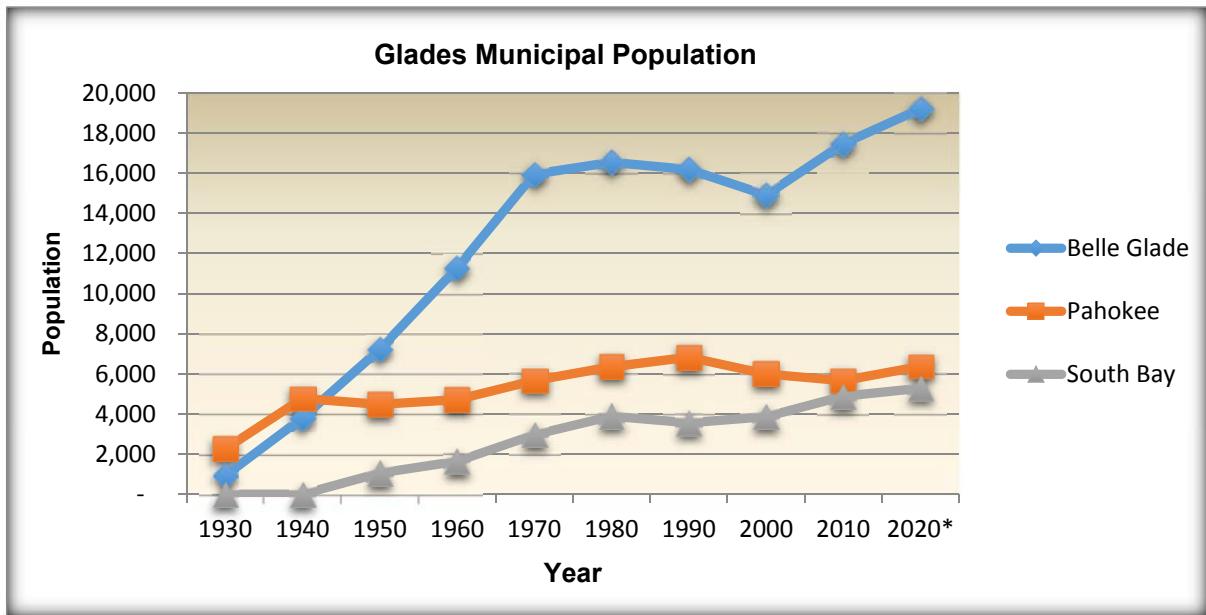
**Population:** The total population in the Glades Urban Service Area is approximately 33,000 residents (28,000 incorporated and 5,000 unincorporated). According to the Bureau of Economic and Business Research (BEBR), population in the Glades area has been mostly level, with a slight incline between 2000 and 2010, while the rest of the County has seen a significant increase in population. Opportunities for significant growth currently exist in the unincorporated lands as these future land use designations could accommodate significantly more residential development. **Table 10.1** and **Figure 10-1** below show the population trends from 1930 through 2010, with a population projection through 2020 for each of the cities.

**Table 10.1**  
**Population Trends - Glades Cities**

Area	1930	1940	1950	1960	1970	1980	1990	2000	2010	2020*
<b>Belle Glade</b>	926	3,806	7,219	11,273	15,949	16,535	16,177	14,906	17,467	19,201
<b>Pahokee</b>	2,256	4,766	4,472	4,709	5,663	6,346	6,822	5,985	5,649	6,359
<b>South Bay</b>	-	-	1,050	1,631	2,958	3,886	3,558	3,859	4,876	5,275

Source: 1930 through 2010 - Census Data

\*2020 Source - Projection based on 2010 Census and BEBR 2012 Estimates



**Figure 10-1 Population Trends / Projections for Glades Region Cities**

**Household Income:** The median household income in the Glades Urban Service Area is lower than the rest of the County. The weighted average of the median household incomes is \$30,315 for the 13 Census block groups in the Glades Urban Service Area, from the American Community Survey 2008-2012. There has been a decrease in the median household income for most of the Glades area since the Census in 2000. The cost of living has increased while the quality of housing has decreased with the occurrence of multiple hurricanes, a lack of new housing development, and aging of the existing housing stock.

**Economic Conditions:** Economic growth has been negative as job opportunities have decreased. The Glades Urban Service Area has not experienced the economic development that other areas of the County have, with limited employment opportunities for the population in the area. Economic growth has been stagnant and is primarily driven by a single industry: agriculture. In recent years, focus on this region has increased in the hopes of increasing economic growth.

Large-scale restoration projects have been started or approved, including the purchase of lands for Everglades' restoration. An Intermodal Logistics Center in the region was also approved and is still in the process of moving towards development. The Glades Urban Service Area provides many tourism opportunities. Lake Okeechobee Scenic Trail Overlay is beneficial to the area. Several efforts adjacent to the Scenic Trail include: improvements to Belle Glade marina, enhancement of Torrey Island, and the renovation of the Pahokee Marina.

**Employment Conditions:** Many local, regional and state facilities in the Urban Service Area exist near or within the cities. These include state penitentiaries, government offices, the Belle Glade regional hospital, two local airports and regional water supply facilities. However, job opportunities have declined as increased mechanization of agricultural production has reduced workforce demands, and little private investment has occurred to generate new job opportunities.

Based on the American Community Survey 2008-2012, the overall unemployment rate for the Glades area, including Lake Harbor and Canal Point, is 20%. This unemployment rate is high compared to other areas of Florida, but has significantly decreased from 2009 when unemployment was at an all-time high. This is compared to 6.1% for the County as a whole. The lack of job opportunities contributes to high rates of poverty which in turn lead to disinvestment throughout this region. Unemployment is an aggravating factor in the effort to improve quality of living.

**Land:** The Glades Urban Service Area is surrounded by agricultural production. This use is regarded as having both environmental benefits and disadvantages. Recent efforts to secure large tracts of land for water control and environmental restoration has been viewed as a potential boon to the region, creating new jobs and tourist opportunities, while at the same time leading to a loss of acreage in active agricultural production and a resultant job loss.

County staff compared the existing land uses (how the land is being used currently) and future land uses (how the land is able to develop) as designated in each local government's comprehensive plan, including that of the County. Existing land uses are heavily tilted towards agriculture, institutional and government. The Future Land Use designations, however, are primarily residential, with current densities allowing for approximately 80,000 residential units.

**Table 10.2** shows the distribution of acres that are built, un-built, non-buildable and other government lands. This developable category was assigned to each parcel within the Glades Urban Service Area. This category is based on an assessment of each individual parcel of land's existing land use compared to the parcel's future land use designation adopted by the applicable local government.

**Table 10.2**  
**Glades Urban Service Area**  
**Land Distribution in Acres**

	Total GUSA	Unin- corporated	Belle Glade	Pahokee	South Bay
<b>Built</b>	4,170.04	1,154.83	1,973.19	649.90	392.12
<b>Un-built<sup>1</sup></b>	13,968.25	12,284.26	504.55	899.99	279.44
<b>Non-Buildable<sup>2</sup></b>	1,511.91	262.01	6.76	1,134.50	108.64
<b>Other Gov't Lands<sup>3</sup></b>	6,035.38	5,342.27	195.03	201.20	297.89
<b>TOTAL</b>	<b>25,686.58</b>	<b>19,043.37</b>	<b>2,679.53</b>	<b>2,885.59</b>	<b>1,078.09</b>

Source: PBC Planning Division Existing Land Use 2013 Dev13

<sup>1</sup>Un-built: Unbuilt with Future Land Use of Residential, Commercial, Industrial, Institutional, Mixed Use

<sup>2</sup>Non-buildable: Water, Rights-of-Way, Conservation and Agriculture

<sup>3</sup>Government Owned: District lands, Government Facilities and other government-owned lands

**Tables 10.3 through 10.5** provide information regarding existing and future land use and zoning designations in the Glades Urban Service Area.

**Table 10.3**  
**Generalized Future Land Uses (FLU) Glades Urban Service Area**

FLU Generalized	No. of Parcels	Map Acres	Units	Res Impact
Residential Low	1,385	4,943.68	1,182	10,351
Residential Medium	3,859	11,152.22	6,171	66,567
Residential High	720	980.38	2,407	6,600
Agriculture	60	1,469.64	61	169
Commercial	1,092	706.22	1,032	42
Conservation	1	173.64	-	-
Industrial	280	4,385.29	180	-
Institutional	88	1,354.30	161	-
Recreation/Open Space	24	84.86	-	-
Utilities/Transportation	4	217.90	-	-
Water	9	218.45	-	-
<b>TOTAL</b>	<b>7,522</b>	<b>25,686.58</b>	<b>11,194</b>	<b>83,729</b>

Source: Existing Land Use (EXLU) 2013

**Table 10.4**  
**Generalized Zoning Designations Glades Urban Service Area**

<b>Zoning Generalized</b>	<b>No. of Parcels</b>	<b>Map Acres</b>	<b>Units</b>	<b>Res Impact</b>
Single Family Residential	3,015	1,738.42	3,259	1,500
Multi-Family Residential Medium	1,316	587.78	2,692	1,041
Multi-Family Residential High	941	650.33	2,743	1,783
Residential Transitional	1	3.14	0	25
Residential Planned Unit Development	193	129.64	176	414
Agricultural Residential	141	4,854.59	65	23,761
Agricultural	168	2,242.93	54	2,482
Agricultural Production	256	13,192.99	522	52,108
General Commercial	575	329.55	481	262
Commercial High Intensity Office	54	34.29	57	4
Community Commercial	506	282.94	902	55
Neighborhood Commercial	18	48.52	11	0
Multiple Use Planned Development	1	50	0	0
General Industrial	207	350.39	29	129
Light Industrial	67	177.36	196	20
Institutional and Public Facilities	26	323.12	0	0
Public Ownership	37	690.59	7	145
<b>TOTAL</b>	<b>7,522</b>	<b>25,686.58</b>	<b>11,194</b>	<b>83,729</b>

**Table 10.5**  
**Existing Land Uses (EXLU) Glades Urban Service Area**

<b>EXLU Generalized</b>	<b>No. of Parcels</b>	<b>Map Acres</b>	<b>Units</b>	<b>Res Impact</b>
Res. Single Family	3,827	1,147.66	3,836	245
Res. Multi-Family	697	565.62	5,554	-
Res. Mobile Home	447	251.70	1,461	-
Agriculture	338	14,558.81	4	79,668
Conservation	1	173.64	-	-
Districts	28	401.24	-	-
Parks and Recreation	27	375.30	-	-
Commercial	444	256.17	275	-
Industrial	161	318.22	-	39
Institutional	186	820.63	6	2
Government	133	5,434.35	57	360
Utilities/Transport	73	627.38	-	-
Vacant	1,156	692.94	1	3,415
Water	4	62.92	-	-
<b>TOTAL</b>	<b>7,522</b>	<b>25,686.58</b>	<b>11,194</b>	<b>83,729</b>

Source: EXLU2013

## 10.4 Key Issues, Methods Analyses and Results

In an effort to identify and discuss possible scenarios related to the scope of services for the GRMP, this section provides information on specific County land development regulations and processes that the municipalities may take into consideration. Currently, there are three Overlays: the Glades Area Overlay (GAO); the Westgate Community Redevelopment Area Overlay (WCRAO); and the Infill Redevelopment Overlay (IRO) in which the Board of County Commissioners adopted flexible regulations to encourage development and redevelopment in the unincorporated properties. The following summarizes the purpose and intent of each Overlay, some of which are not specific to the Glades but may be applicable to the Glades:

### 10.4.1 Glades Area Overlay (GAO)

The GAO provides flexibility in the range of uses and property development regulations allowed in specific areas of the Glades Tier, and to accommodate uses, which, if deemed appropriate, will increase job opportunities and improve the economic vitality of the area. In addition, the GAO provides a set of regulations that recognize the character of the area.

### 10.4.2 Infill Redevelopment Overlay (IRO)

The IRO provides optional development regulations to facilitate revitalization of commercially designated lands in the Urban/Suburban Tier of the County. The intent is to allow the

incremental retrofit of commercial corridors and isolated land uses with sustainable development that creates a sense of place, improves streetscapes and successfully integrates into the surrounding community.

The Unified Land Development Code (ULDC) offers property development incentives that will encourage developers, property or business owners to utilize the IRO (e.g. reduced setbacks and parking ratios, increased Floor Area Ratio (FAR), and flexible landscaping regulations) to maximize the efficient use of property. The IRO promotes non-residential and residential mixed use; respects market realities, industry trends, and property rights; and, establishes an expedited review process.

#### **10.4.3 Westgate Community Redevelopment Area Overlay (WCRAO)**

The Westgate Community Redevelopment Agency (WCRA) was created to remove blighted conditions, enhance Palm Beach County's tax base, improve living conditions, and preserve areas of low and moderate cost housing in the WCRAO.

The use of community redevelopment powers enables the Board of County Commissioners (BCC) and the WCRA to make public improvements that encourage and enhance investment while providing neighborhood stability, preventing continuation of inefficient and incompatible land use patterns, and assisting revitalization and rehabilitation of older commercial and residential areas in the Westgate/Belvedere Homes area.

The WCRAO encourages development and redevelopment of the Westgate/Belvedere Homes area through regulatory incentives; arresting deterioration of property values; preserving and protecting existing, viable affordable housing; providing opportunity for the future development of affordable housing; implementing the 2004 Westgate/Belvedere Homes Community Redevelopment Plan (WCRA Plan); providing for mixed use development; and providing for increased residential densities and commercial intensities, without amendment to the WCRA Plan.

Generally, the WCRAO and IRO encourage the application of Smart Growth and Form Based Coding principles. The design principles are to ensure a more predictable built form, while achieving enhanced streetscape and pedestrian realm. In turn, the developers/business owners will have more flexible development options.

### **10.5 Recommendations and Improvements**

The Comprehensive Plan acknowledges the cities' planning efforts, recognizes the different nature of the Glades and has policies to promote economic growth in the unincorporated areas of the Glades. To further this effort, County staff will include additional policies in the County's Comprehensive Plan to promote and support the GRMP within the 15-2 Amendment Round.

The County will research and develop a staff report to recommend updates to the Comprehensive Plan to support the following:

- GRMP: Acknowledge the Glades Region Master Plan as the guiding plan applied to the Glades Urban Service Area in the Comprehensive Plan.
- Flexible Regulations: Work with the communities in the western areas to assist in the development of local regulations that will create incentives for new development. A sample description of a Planned Development District as a potential incentive of development within the incorporated area is included in the Appendices. There are opportunities within cities to react quickly to development that may not be as possible in the unincorporated areas. This sample district is intended to encourage the implementation of innovative land planning and site designs that create enhanced living and working environments by providing flexible land use and design regulations. This district would allow small to large-scale areas to be developed with a variety of residential types and nonresidential uses that may contain both individual building sites and common property, which are planned and developed as a unified district. Smaller local governments within Palm Beach County have successfully utilized this approach to accommodate development.
- Historic Resources: Develop regulations to encourage the preservation and rehabilitation of properties with the potential for historic designation and develop policies to continue protecting historic resources. Economic Development in the Glades area may be enhanced through historic preservation and heritage tourism efforts to preserve and celebrate the Glades history, place and culture. There are large archaeological sites located close to Lake Okeechobee and East of Canal Point. These include the second largest archeological site in Florida, a ceremonial complex that was used from about 500 B.C. until A.D. 1650. The County's Comprehensive Plan has a Historic Element with many policies encouraging historic resources in the County and may be enhanced with additional policies encouraging these efforts in the Glades area.
- Outdated Policies: Remove or revise outdated policies in the Comprehensive Plan on tasks that were already accomplished in the Glades.
- Economic Growth: Provide policies with additional flexibility to promote economic growth in the Glades. In addition, the County will continue to work with the property owner of the Intermodal Logistics Center, located within the unincorporated area in the Glades Urban Service Area, to prepare the site for development. In 2014, the County processed two Comprehensive plan amendments.
- Annexation Strategies: Provide the Glades cities with possible annexation strategies within their future annexation areas. This includes coordinating with the cities to prioritize areas in need of annexation and redevelopment. These efforts can help to ensure sound urban development and accommodation of growth, ensure the efficient

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provision of urban services to areas that become urban in character, and ensure that areas are not annexed unless municipal services can be provided to those areas.

- Coordination: Develop policies to encourage and promote intergovernmental coordination between all of the local governments and agencies.
- Density Review: Review the residential and non-residential densities and intensities, including evaluating the consistency between the unincorporated future land use and the unincorporated zoning designations.
- Technical Assistance: Provide technical assistance to the Glades Communities through Interlocal Agreement(s). This includes providing localized neighborhood planning assistance to unincorporated areas such as Canal Point and providing planning services that coincide with the GRMP to the cities in areas of neighborhood planning and citizen participation.
- Joint Government Regulations and Process: Encourage the Municipalities and Unincorporated County to jointly establish a clear vision with goals and solutions to foster investment in logical development patterns for the Glades Region. Once clear goals and solutions are established, examine the existing regulations of each municipality and the County. The joint governments could evaluate existing incentives and obstacles to development in the area, and explore ways to enhance the incentives and address the obstacles with new or revised regulations. This will increase the efficiency and effectiveness of local governments, striving for a more uniform approach for development application review and approval processes.
- County's Development Options for Consideration: Consider the overlay provisions previously noted, which were established to provide development incentives in specific areas of the County. These incentives include, but are not limited to a less restrictive approval process and more flexible property development regulations. Consideration will be given to amending the Glades Area Overlay to allow specific areas of flexibility as previously noted.

The County has applied to HUD for a “no cost” extension to allow PZB to complete its tasks (specifically 8.6 – 8.10) associated with the GRMP. Regardless of whether the extension is granted, these tasks will be completed by August 2015. This additional time will allow the grantee to conduct and achieve adequate outreach and obtain input from representatives of traditionally marginalized communities, which is critical to the completion of other plan elements and studies and directly affects the regulatory tools to be developed and recommended by PZB. It also affects the ability to schedule public approval and adoption hearings. HUD deemed public outreach and participation to be a critical part of the GRMP planning process.

## SECTION 10.0 LAND PLANNING

As such, this GRMP report is being submitted to HUD prior to Tasks 8.6 – 8.10 being completed. Once completed, the regulatory amendments will become part of the County's Comprehensive Plan and Unified Land Development Codes.



## Section 11.0 Implementation Plan

Implementation of the Glades Region Master Plan is expected to consist of the execution of the recommendations identified within the various study elements, and/or timely and appropriate modifications to those recommendations as conditions change moving forward. The recommended activities can be subdivided into three general categories: Policies, Programs, and Capital Improvements. Some of these activities constitute a single event, while others may be recurring or ongoing. Lastly, timing of events may be important (priority, phasing, precedent). The list below and **Table 11.1** shows the summarized recommendations.

Implementation Plan Policies and Programs include:

- Acknowledge Glades Region Master Plan as the building plan applied to the Glades Urban Service Area in the Comprehensive Plan (near term, single event)
- Develop policies to continue protecting historic resources (near term, single event)
- Remove or revise outdated policies (near term, single event)
- Provide policies with additional flexibility to promote economic growth in the Glades resources (near term, single event)
- Develop policies to encourage and promote intergovernmental coordination between local governments and agencies resources (near term, single event)
- Work with communities in western areas to assist with local regulations that will create incentives for new development (near term, ongoing)
- Provide the Glades cities with possible annexation strategies within their future annexation areas (near term, ongoing)
- Review the residential and non-residential densities and intensities (near term, ongoing)
- Provide technical assistance to the Glades Communities through Interlocal Agreement(s) (near term, ongoing)
- Encourage the Municipalities and Unincorporated County to jointly establish a clear vision with goals and solutions to foster investment in logical development patterns for the Glades Region Master Plan area (near term, ongoing)
- Multiple additional short and longer term policies and programs addressing:

SECTION 11.0 IMPLEMENTATION PLAN

- Low Economic Diversity
- Small Business Development / Entrepreneurship
- Tourism

**Table 11.1**  
**Proposed Implementation Capital Improvement Activities**

Improvement Category	Capital Cost	
	Near Term	Long Term
Water	\$47,379,000	\$5,950,000
Wastewater	\$45,343,750	\$18,310,750
Drainage	\$2,153,100	\$0
Transportation <sup>(1)(2)</sup>	\$37,065,000	\$21,335,000
<b>Totals</b>	<b>\$131,940,850</b>	<b>\$45,595,750</b>

<sup>(1)</sup> Excludes annual Transit costs of approximately \$15.2M – See Section 7, Table 7.1

<sup>(2)</sup> Repaving costs utilized in lieu of reconstruction; assume recurring requirement – See Section 9, Table 9.2.

It should be noted that these activities are based on the best available information at this time, and it is expected that the implementation plan will evolve and be modified accordingly as additional information becomes available and conditions change.