

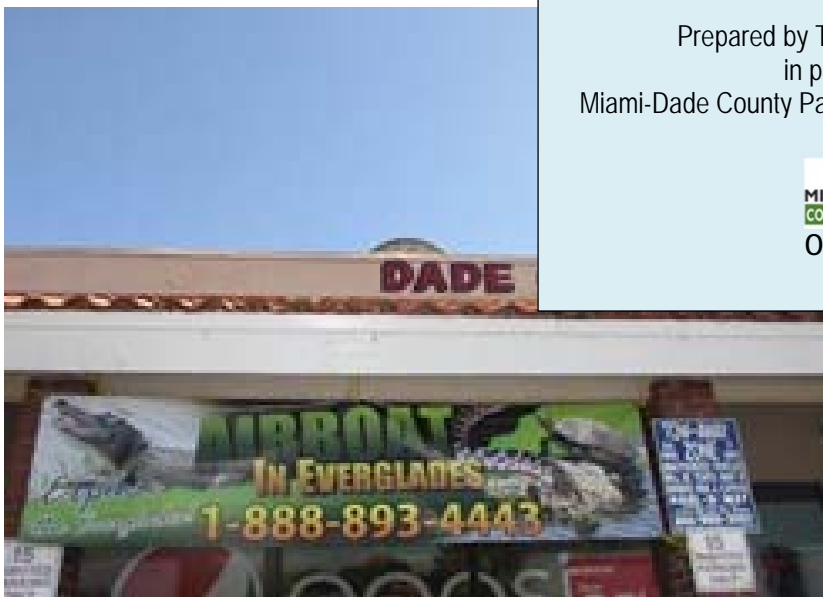


# Miami-Dade County Western Greenway RECOMMENDATIONS REPORT

Prepared by The Trust for Public Land  
in partnership with  
Miami-Dade County Parks Recreation and Open Spaces



October 2014



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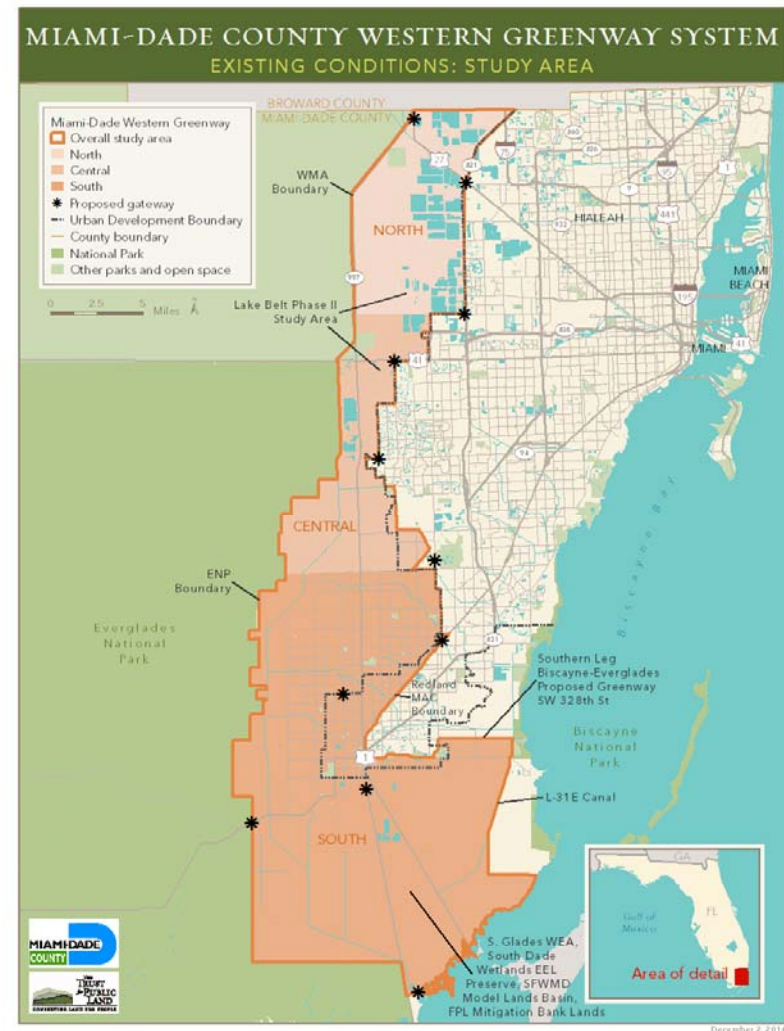
## A Western Greenway System for Miami-Dade County

### Recommendations Report October 2014

TPL collaborated with the Miami-Dade County Parks Recreation and Open Spaces (MDC-PROS) Department to determine implementation strategies for realizing the Western Greenway vision, as described in the county's Parks and Open Space Master Plan (2008). The effort included collaborative mapping, research, analysis, and on-site reviews.

The work was made possible through generous contributions from Elizabeth Ordway Dunn Foundation, George Batchelor Foundation, Doris Duke Charitable Foundation, Anonymous Donor, and NASA (via a grant to the University of Georgia College of Environment and Design).

Supporting materials for the Western Greenway Project are at: <http://www.tplgis.org/StoryMaps/WesternGreenway>  
For more information, contact Brenda McClymonds, TPL, at 305-667-0409, [Brenda.McClymonds@tpl.org](mailto:Brenda.McClymonds@tpl.org), or MDC-PROS at 305-755-7800.



## **Background: Project Management and Technical Advisory Team**

### **Project Core Team**

A Project Core Team was assembled to guide and coordinate developing implementation strategies. Core team members included key staff from MDC-PROS and TPL. Core team members:

[Maria Nardi](#), Planning and Research Division Chief, MDC-PROS  
[Joe Webb](#), Planning Section Supervisor, MDC-PROS  
[Alissa Turteltaub](#), Western Greenway Project Manager, MDC-PROS  
[Mark Heinicke](#), Senior Park Planner, MDC-PROS  
[Brenda McClymonds](#), Senior Program Director, Trust for Public Land  
[Breece Robertson](#), National GIS Director, Trust for Public Land  
[Brenda Faber](#), Consultant to The Trust for Public Land  
[Kathy Blaha](#), Consultant to The Trust for Public Land

### **Technical Advisory Team**

[Joe Maguire](#), Natural Areas Manager, MDC-PROS  
[Bibi Oung](#), GIS Technical Support, MDC-ITD  
[Karen Grassi](#), GIS Technical Support, MDC-ITD  
[Clare Sibori](#), GIS Applications, MDC-ITD  
[Eric Silva](#), Assistant Director, MDC-RER (Development Services Division)  
[Mark Woerner](#), Ass't. Director, MDC-RER (Metropolitan Plng)  
[David Henderson](#), Bicycle Pedestrian Administrator, M-D MPO  
[Cynthia Guerra](#), Environmentally Endangered Lands Program Director, RER-DERM



[Maria Valdes](#), Water and Sewer Department, MDC-WASD  
[Ray Palmer](#), Real Estate Section Leader, SFWMD  
[Jerry Krenz](#), Planner, SFWMD  
[Jason Smith](#), Land Manager, SFWMD  
[Fred Herling](#), Supervisory Planner, Everglades National Park  
[Elsa Alvear](#), Resource Manager, Biscayne National Park  
[Rosanna Rivero](#), Professor, University of Georgia College of Environment and Design  
[Ning Chen](#), Graduate Student, University of Georgia College of Environment and Design  
[Roger Messer](#), Dir. of Environmental Support & Admin, Florida Power and Light  
[Donna Fries](#), Water Use Efficiency Section, MDC Water and Sewer Dept.  
[Heather Palmateer](#), Assistant to Mayor and Council, City of Homestead  
[Teresa Olczyk](#), County Extension Director, U. of Florida/IFAS  
[Donna Zoeller](#), US Army Corps of Engineers  
[Jeff Long](#), Florida Power and Light, Real Estate Group



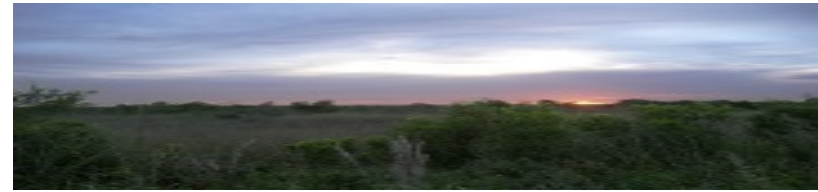
## Technical Advisory Team

A Technical Advisory Team (TAT) was formed to provide expert review and advice regarding implementation strategies for the Western Greenway including regional objectives, appropriate data sources, implementation priorities, design rationale, trail segment profiling, and project deliverables. TAT members were identified by the core team, and included representatives from the organizations below.

- Miami-Dade County, Dept. of Regulatory and Economic Resources (DERM)
- South Florida Water Management District (SFWMD)
- Everglades National Park
- Biscayne National Park
- Miami-Dade County, Information Technology Department (ITD), GIS
- University of Georgia, College of Environment and Design

The Technical Advisory Team participated in three workshops:

1. Technical Advisory Team Kickoff Meeting – January 13, 2014
2. Analysis Framework Review – April 10, 2014
3. Partnership Opportunities & Constraints Session – June 5, 2014



## Key recommendations from the TAT Meetings:

- Explore corridor joint-use and management opportunities
- Enhance public education on shared use and multiple benefits of a Western Greenway corridor
- Continue biodiversity and habitat protection
- Provide support for climate change and hazard mitigation
- Define a transition zone from urban areas to the Everglades
- Provide linkages to key municipal, county, state, and federal recreation destinations
- Provide multi-modal alternatives for visitors to access and explore the Western Greenway
- Encourage economic development, including exposure and development of agricultural tourism

The TAT also emphasized the importance of working within the context of the Miami-Dade County Parks and Open Space Master Plan Principles, including a focus on Equity, Access, Beauty, Seamlessness, Sustainability (including environmental, social, and economic sustainability), and Shared Benefits that best leverage tax payer dollars.

# miami-dade parks

parks and open space system master plan

principles					
Equity	Access	Beauty	Seamlessness	Sustainability	Multiple Benefits
Every resident should be able to enjoy the same quality of public facilities and services regardless of income, age, race, ability or geographic location	every resident should be able to safely and comfortably walk, bicycle, drive and/or ride transit from their home to work, school, parks, shopping and community facilities	every public space, including streets, parks, plazas and civic buildings, should be designed to be as aesthetically pleasing as possible and to complement the natural and cultural landscape	every element of the County, including neighborhoods, parks, natural areas, streets, civic centers and commercial areas, should be connected without regard to jurisdiction	every action and improvement of the Park System, including facilities, programs, operations and management, should contribute to the economic, social and environmental prosperity of the County	every single public action should generate multiple public benefits to maximize taxpayer dollars

A June 2014 work session was conducted with key land management partners within the Western Greenway study area to explore linkage opportunities and constraints for connecting the Western Greenway along the western border of the county. Participants included representatives from South Florida Water Management District, US Army Corp of Engineers, Florida Power and Light Company, Miami-Dade County Parks Recreation and Open Spaces Department, Miami-Dade County Environmentally Endangered Lands Program, Miami-Dade County Water and Sewer Department, and The Trust for Public Land.

Participants provided detailed feedback on the suitability of publicly-owned/managed properties and easements for potential greenway partnerships. The SFWMD-managed canal system along the far western edge of the study area, including the L30, L31, C113, and C111 canals, was identified as the best opportunity for a primary backbone to the Western Greenways Initiative.

A complete summary of TAT meeting notes can be found in Appendix A.



## Current Conditions Summary

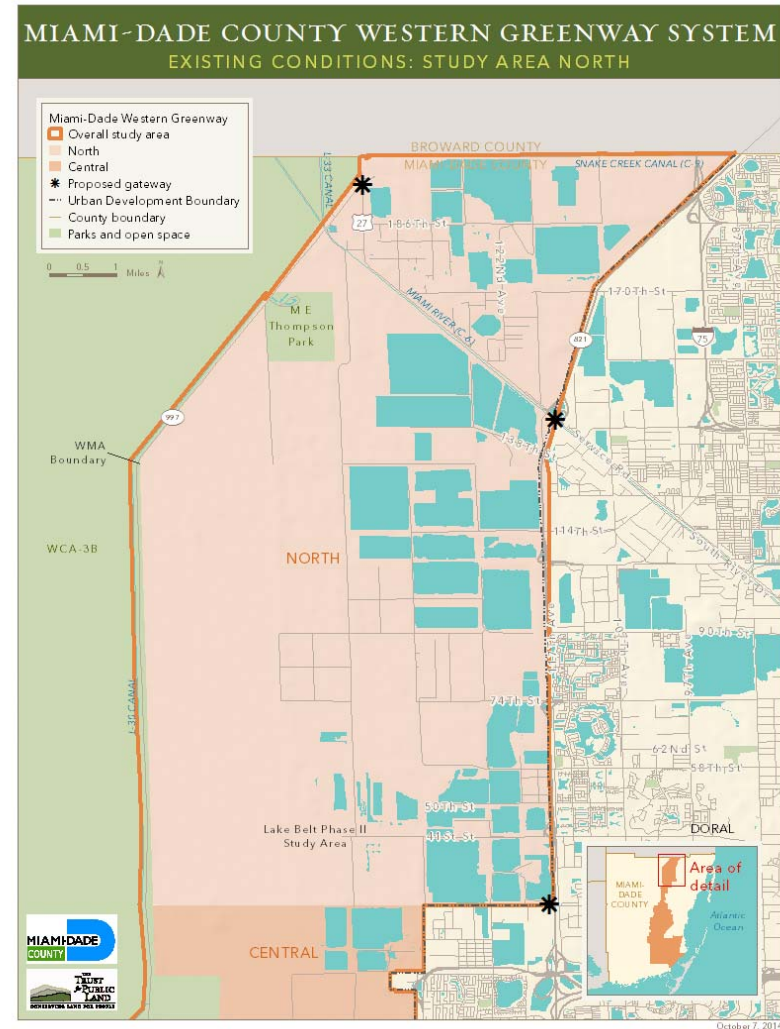
To create a strategy baseline, a *Current Conditions* analysis was completed that identifies the current conditions of the Western Greenway study area. The analysis reviewed the history, cultural character, hydrology, flora and fauna, ownership, and land use of each of the three distinct regions of the Western Greenway study area: North, Central, and South. A summary of analysis report findings is below.

### North Region

The North region of the Western Greenway study area, known as the Lake Belt Area, encompasses the Rock Mining Zoning Overlay (RMZO) and the Northwest Wellfield. The area is critical to the economy and ecology of Miami-Dade County. The limestone resources are one of the largest deposits of accessible high quality rock remaining in Florida, outside of the Everglades and not constrained by urbanization.

The importance of the Lake Belt Area to the citizens of Florida has been recognized by the Florida Legislature, which mandated the development of the Miami-Dade County Lake Belt Plan – Phase I and Phase II, which focused on balancing limestone mining interests and environmental concerns and identified strategic active and passive recreation opportunities featuring a network of freshwater lakes and wetlands.

The North region of the Western Greenway study area is dominated by privately owned lands, making up 62% of the land area. The State of Florida owns 24% of the land, followed by the County (7%), utility (3%) and Federal ownership (2%).



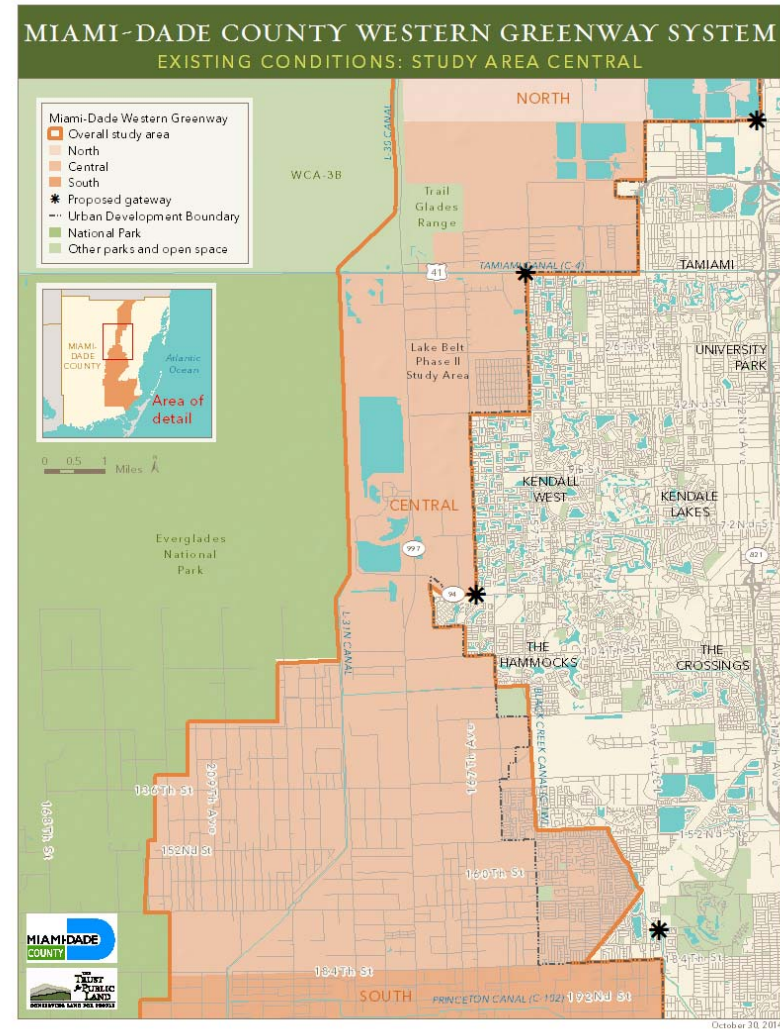


## Central Region

The Central region of the Western Greenway study area serves as the gateway to State and Federal lands, including the Everglades, and is characterized by its transition from suburban to rural land uses. There are a number of businesses that provide recreational and cultural activities for residents and tourists, including the Miccosukee Indian Gaming casino, Everglades Air Boat Tours, and Trail Glades Range.

The Central region of the Western Greenway study area is dominated by privately owned lands, making up 74% of the land area. The State of Florida owns 10% of the land, followed by the Federal government (8%), the County (3%), utility ownership (3%) and Tribal ownership (2%).

A key focal area for connecting the Western Greenway Central Region to the larger region is the proposed River of Grass Greenway (ROGG), running roughly parallel to the Tamiami Trail (U.S. 41) from Krome Avenue to C.R. 92 (San Marco Road). This section of the ROGG will be a hard-surfaced 12-14 foot wide corridor (separated from the highway) suitable for a range of non-motorized recreation activities such as bicycling, walking, bird-watching, photography, fishing, and general enjoyment of the greater Everglades natural area. The ROGG will extend west, to connect a broad region of destinations, possibly extending as far as the outskirts of Naples/Marco Island.



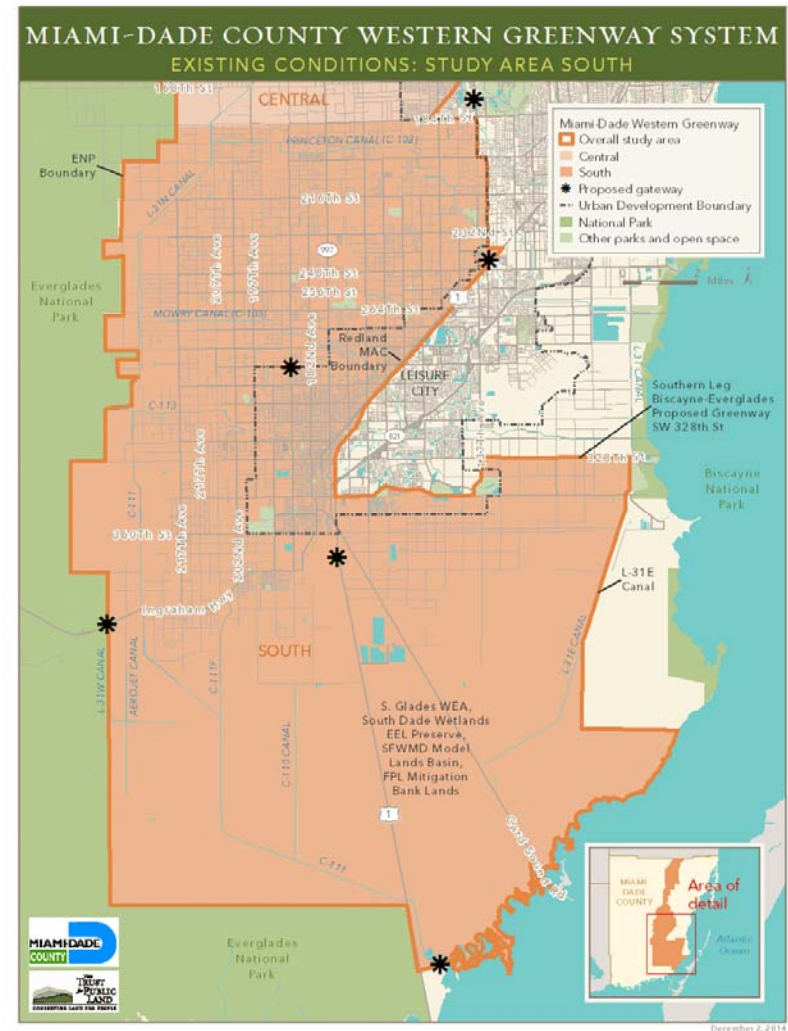


## South Region

The Southern region of the Western Greenway study area is characterized primarily by its agricultural and rural land uses. There are a large number of wholesale and retail greenhouses and a variety of tropical fruit businesses unique to Miami-Dade County. With access points to Biscayne Bay and Everglades National Parks and the Florida Keys, there is an opportunity to offer visitors world-class recreational destinations.

The 2002 Miami-Dade County Agriculture and Rural Lands Study recommends developing agri-tourism in the region. The Study suggests that agri-tourism may be appropriate for small farms, especially smaller tropical fruit operations and organic farms that operate without pesticides and chemicals. The 1993 Redlands Preservation and Tourism Plan proposes ways to increase Redland's accessibility to tourists in a way that complements the agricultural community by combining a number of activities that promote education of historic architecture and landscapes, the agricultural functions of the region, and more passive forms of recreation.

The other significant defining feature of the study area's south region is the South Dade Wetlands. Consisting of over 55,000 acres of Everglades prairie, tree islands and mangroves, approximately 18,000 acres have been acquired protected and maintained by the Miami-Dade County Environmentally Endangered Lands (EEL) Program and the South Florida Water Management District. The South Dade Wetlands provide an important ecological connection between Everglades National Park and Biscayne National Park, and provides critical habitat for numerous wading birds, migratory birds, reptiles, amphibians and mammals, including numerous state and federally listed species.



## **Priorities Assessment and Study Guidance**

A *Priorities Assessment* for the Western Greenway study area was performed by The Trust for Public Land (TPL) National GIS Team. The assessment was performed using TPL's "Greenprint" model framework.

The Greenprinting approach blends scientific data with stakeholder-derived goals to help guide strategic decisions about resource protection and greenway connectivity. It is an award-winning computer modeling process and framework that has been used and validated in over 50 locations across the United States.

Greenprinting was used to develop the Western Greenway Priorities Assessment based on the project's three goals. The mapping results follow on the next pages.

The three over-arching goals for the Western Greenway were identified based on priorities set forth for the Greenway as part of the Parks Open Space System Master Plan (OSMP) adopted by the Board of County Commissioners in 2008:

- Provide Recreation Access
- Promote Agricultural-Tourism
- Protect Natural Resources and Climate Resilience

Each goal was characterized using detailed spatial criteria as outlined below. Best available data sources were sought out for each criterion to provide spatial prioritization for each goal, including innovative vegetation density data derived by University of Georgia College of Environment and Design's NASA DEVELOP

Program<sup>1</sup> (See Appendix D for a summary of the land cover/land use classification methods and results). The following maps depict priority areas for each goal (the darker the red, the higher priority for the associated goal).

A detailed description of data sources and analysis methodology is provided in Appendix B. Full-size maps of all assessments can be found in Appendix E.

These priority areas guided the identification of proposed greenway linkages for the Western Greenway. Proposed linkages are displayed on each map to illustrate alignment with identified priorities.

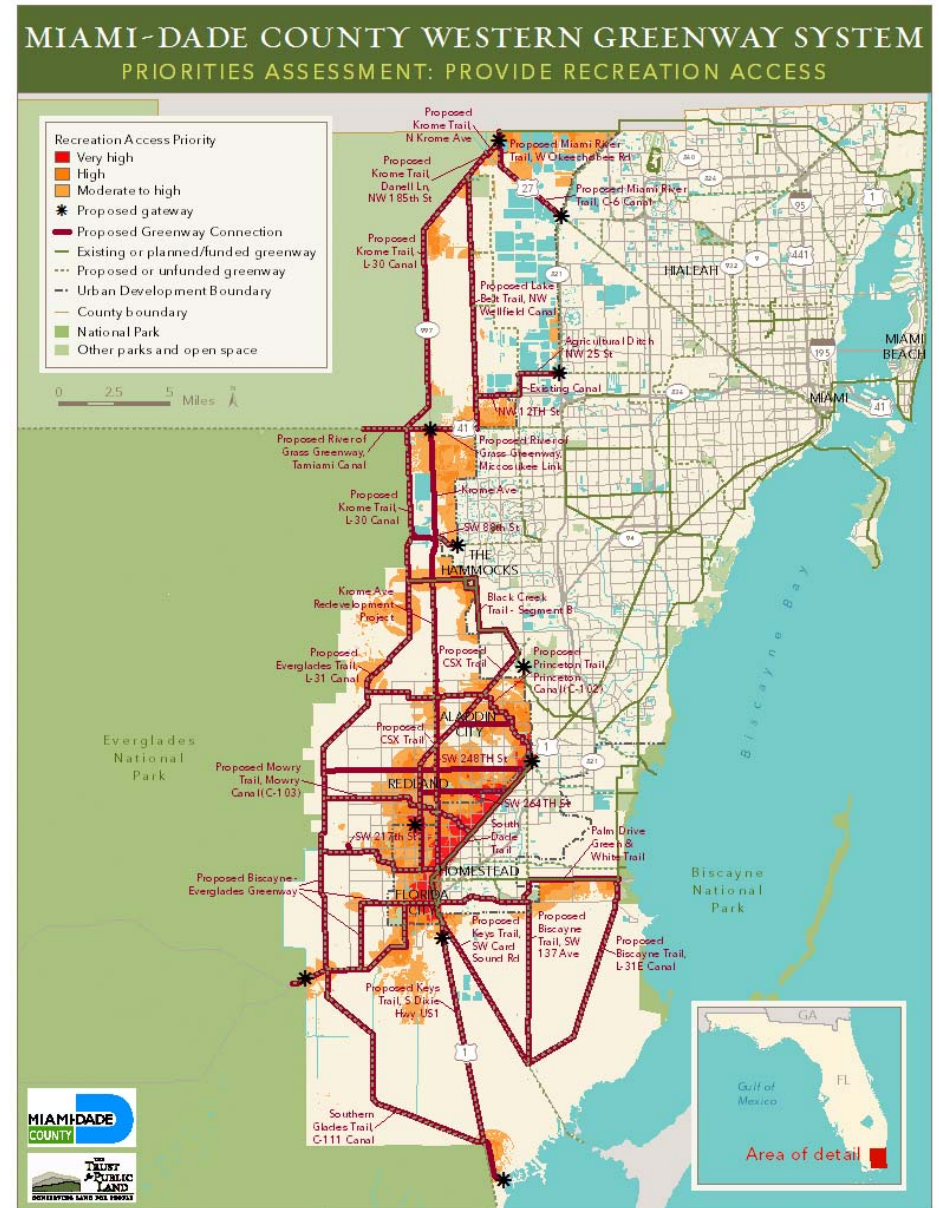
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<sup>1</sup> NASA DEVELOP National Program, University of Georgia Summer 2014, Miami-Dade Ecological Forecasting: Utilizing NASA Imagery and GIS Modeling for the Design and Implementation of the Miami-Dade Western Greenway in Miami-Dade County, South Florida.

## Goal: Provide Recreation Access

### Spatial Criteria Considered:

- Existing Parks & Natural Areas
- Natural Land Cover
- Proximity to Water Access Opportunities
- Proximity to Existing Recreation Destinations
- Proximity to Birding and Wildlife Viewing
- Proximity to Historical and Cultural Areas
- Proximity to Water Features
- Proximity to Community Facilities
- Proximity to High Recreational Demand
- Proximity to Existing and Future Trails

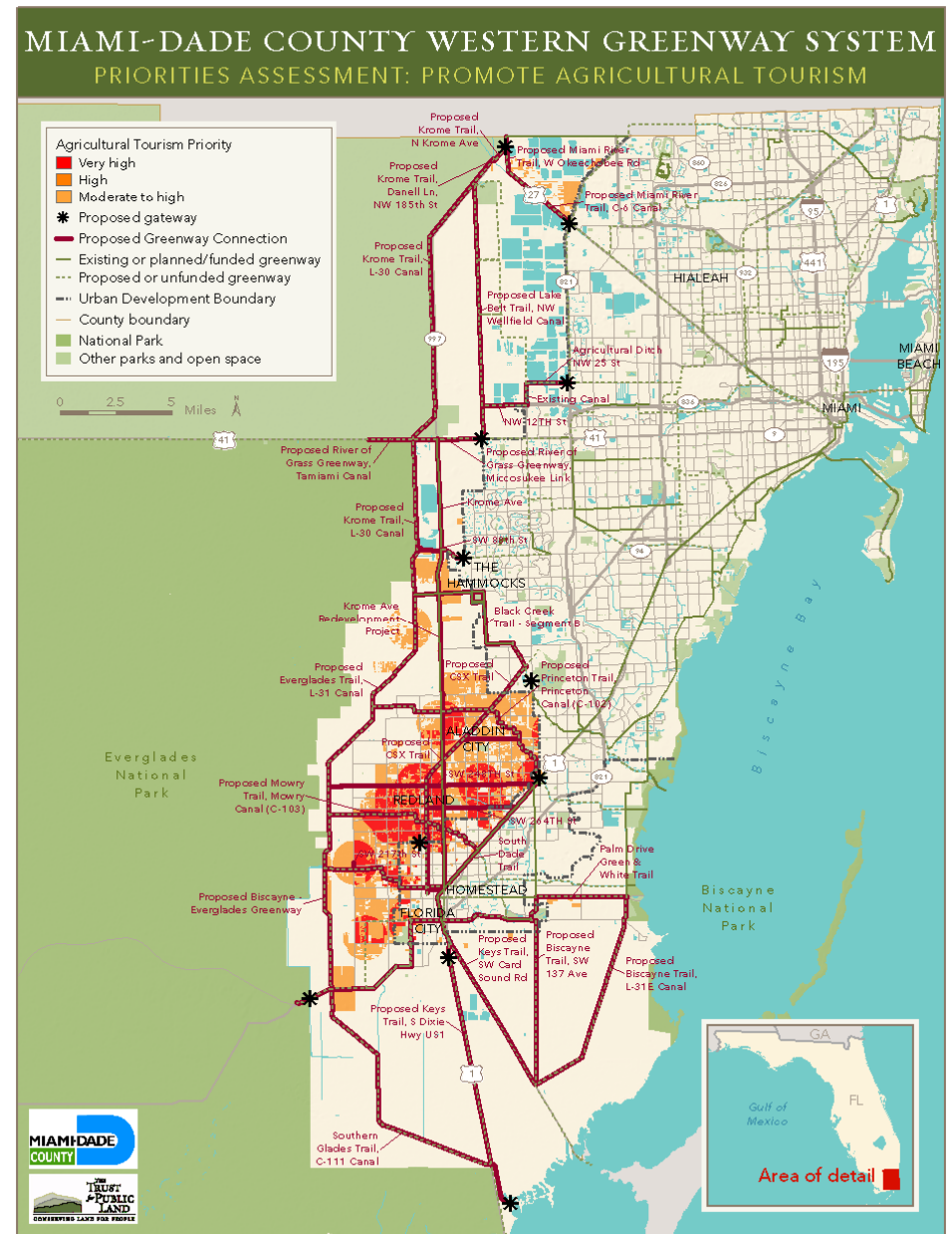


October 7, 2014

## Promote Agricultural-Tourism

Spatial Criteria Considered:

- Proximity to Agricultural-Tourism Destinations
- Existing Agricultural Lands
- Agricultural Zoning

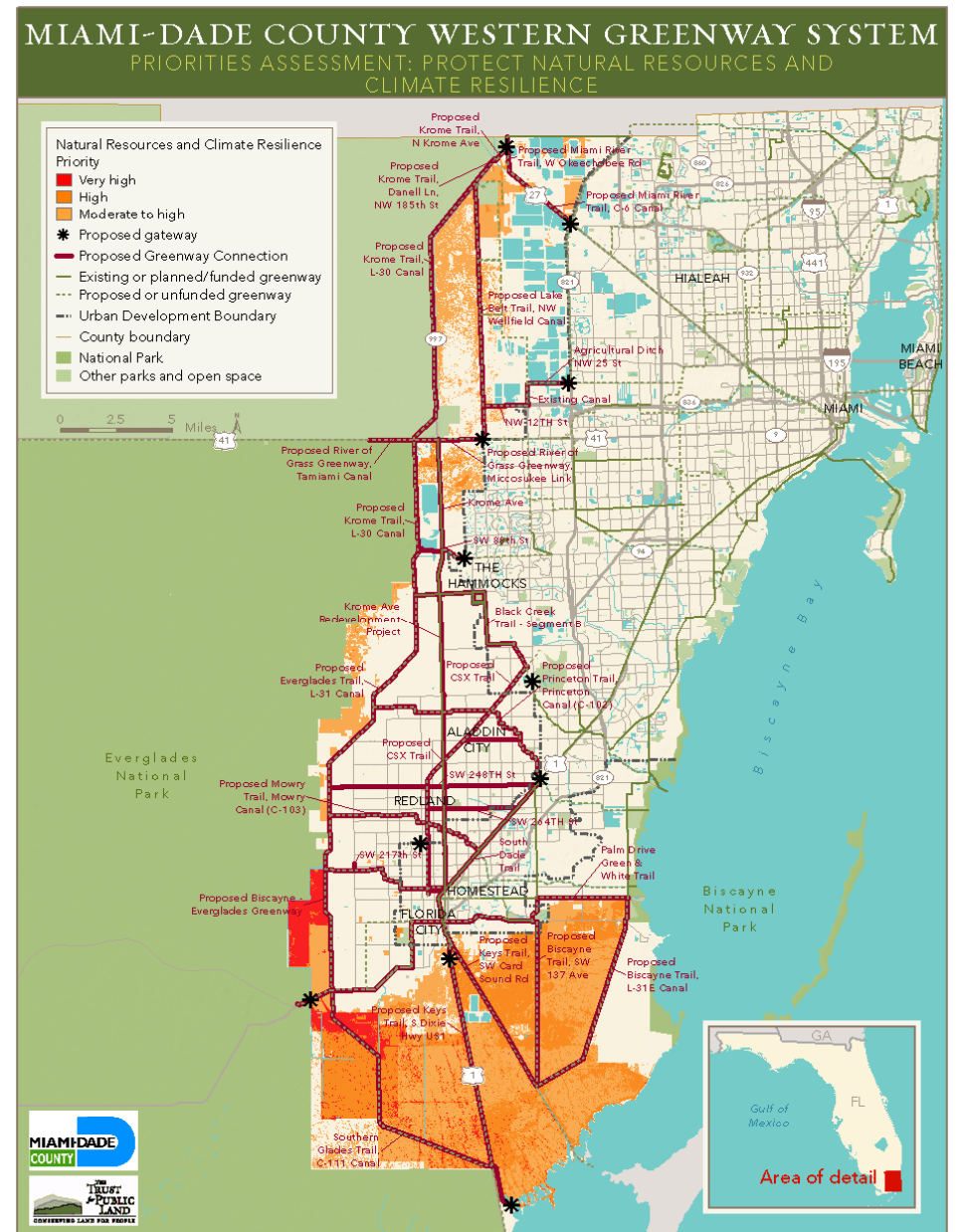




## Protect Natural Resources and Climate Resilience

Spatial Criteria Considered:

- Climate Resilience and Hazard Mitigation
- Habitat and Biodiversity Protection
- Vegetation Communities
- CERP Project Boundaries



## Gateways and Destinations

While the proposed greenway system itself is undeniably important – and the Priorities Assessment identified those key areas where a greenway would provide benefit and link to the vision of the OSMP – there is another equally vital component to creating the greenway that is often overlooked – the gateway communities and destinations that can enliven the corridor. As diverse as this extended greenway is, its gateways and destinations will play a critical role in attracting users and creating a viable greenway.

Recognizing the significance of this two-way relationship between the greenway and its gateways and destinations, the project team identified a series of important links based on criteria developed. *Gateways* were defined as areas of interest within the County, located near and along the greenway trails and road system that could inform trail users they are entering an area of significance. *Destinations* are points of interest with unique natural, cultural and historic resources that can be opportunities for day visits as well as overnight camping.

### Gateway: Definition and Purpose

- Entry point to the Western Greenway connecting a major destination (ex: Everglades National Park, South Dade Wetlands, Broward County, etc.)
- A transitional or threshold area that brings two contexts together
- Site to site variations with different scales of intervention such as information kiosks, amenities, parking area, signage, visitor center

- Opportunity for education
- Multi-modal transportation hub – trailheads, shuttle stops
- Viewing areas

Eleven gateways were identified in reviewing the greenway study area. See the Western Greenway website for detailed descriptions of each proposed gateway.

1. Northern Lake Belt Region (near Okeechobee Road and Krome Avenue)
2. Miami River Headwaters (US Hwy.27 & NW 118<sup>th</sup> Ave)
3. Beacon Trail (NW 25<sup>th</sup> St. and Florida Tpke Ext)
4. River of Grass Greenway/Miccosukee Link (SW 8<sup>th</sup> Street and SW 157<sup>th</sup> Avenue)
5. West Kendall Trail (88<sup>th</sup> Street and SW 167<sup>th</sup> Ave)
6. Zoo Miami /Future Black Creek Trail (SW 137<sup>th</sup> Ave)
7. Redlands East Gateway (S. Dixie Hwy, Homestead)
8. Redlands Visitor Center (SW 288<sup>th</sup> Street, Homestead)
9. Everglades National Park and South Dade Wetlands Preserve (S.R. 9336, Homestead)
10. South Dade Wetlands (Miami-Dade EEL Program)
11. Florida Keys (site TBD)



## Proposed Greenway/Gateway Pilot Project

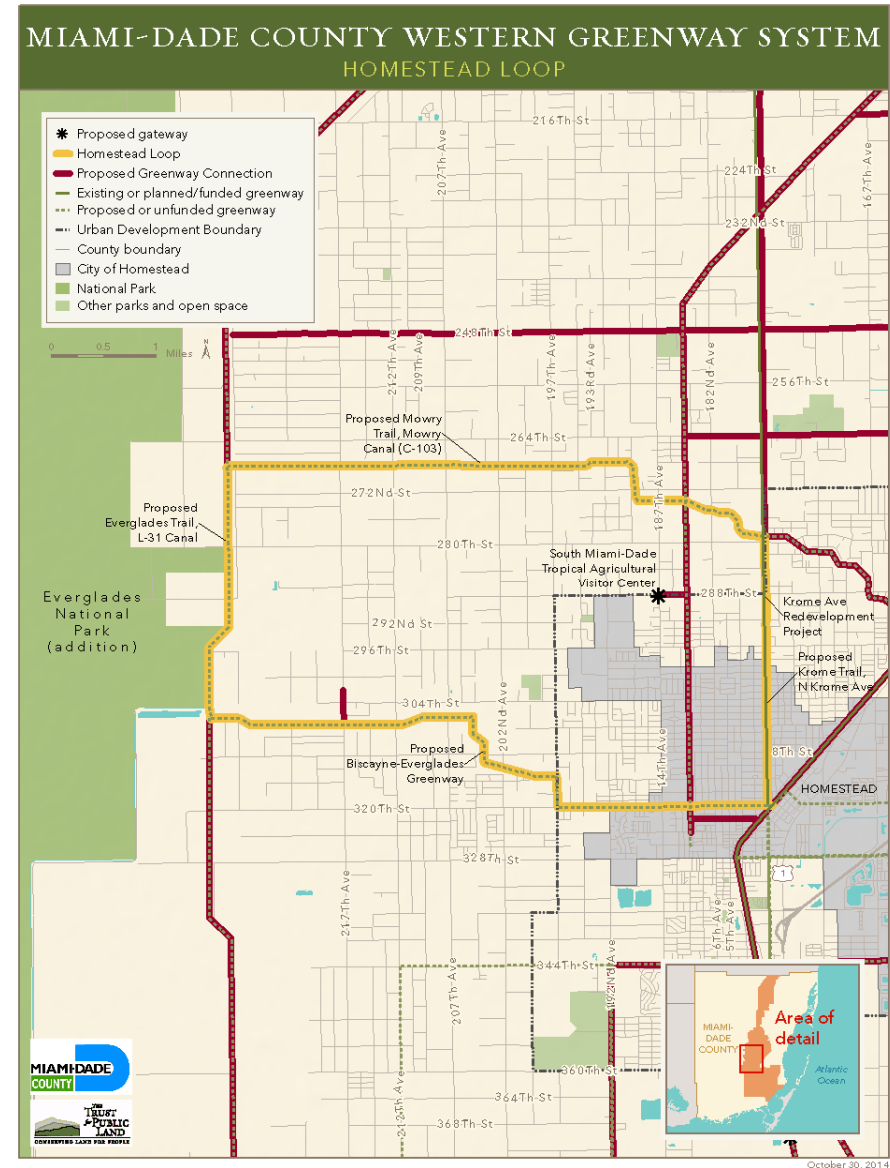
The TAT identified many opportunities to create partnerships in and around the proposed gateways and priority areas that could help to raise the profile of the project and jump-start its construction.

One option and opportunity for developing a pilot project is to use the SFWMD canal system and existing greenway plans around Homestead to develop a pilot project.

Homestead is suggested as a good gateway for a pilot project because it is likely to be welcoming of a partnership effort toward a trails vision that they have already embraced. Usership is also likely to be higher in a community already aimed at tourists and providing services and a network of trails to meet their needs.

The loop option proposed uses the L-31 canal as a north-south corridor stretching between the northern proposed Mowry Trail and southern section of the proposed Biscayne-Everglades trail. Such a loop would create a 15-mile walking or bicycling trail that could easily be accessed from various places. The city of Homestead has also created a bus trolley to take visitors from their downtown to both national parks.

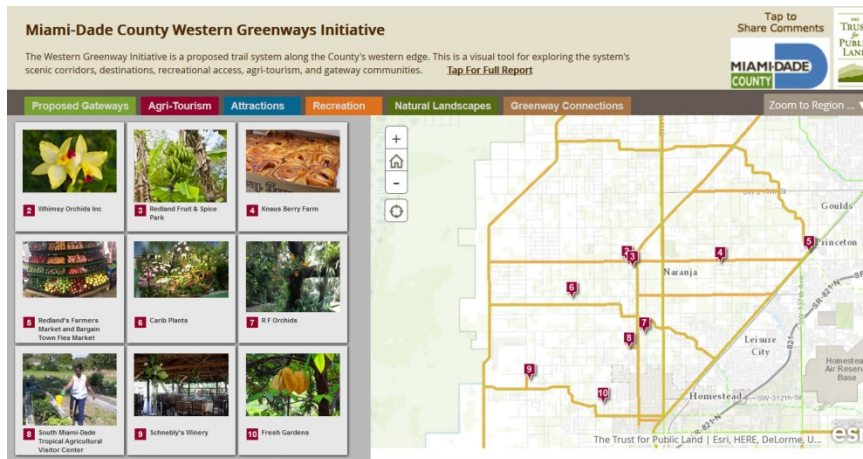
Transportation dollars are already flowing to Krome Avenue where a shared use path is being constructed in conjunction with road work to form a potential eastern boundary to the loop. Trailheads could be developed in the downtown area close to services – where the city is currently investing \$26 million to improve and enliven the downtown – or at the South Miami-Dade Tropical Agriculture Visitor Center, which would welcome the connection.





## The Western Greenway Website

A key component of the Western Greenway project was to provide a visual tool for exploring proposed gateways, agricultural tourism destinations, attractions, recreation opportunities, natural landscapes, and potential greenway connections. An online website was produced using ERSI's *story map technology* to aggregate information into a more compelling case for the greenway system.



The Western Greenway website is an interactive tool that combines an interactive map, text and photos to convey information and tell a story or share information about the Western Greenway study area in such a way as to provide an online tour of the region. For example, the website provided good detail for developing the option of a pilot project in and around Homestead.

The website highlights opportunities around the proposed gateways, destinations and priorities identified in the three study sub-areas to help devise a work plan for implementing the greenway vision. Lessons learned from studying existing conditions, local interest in the greenway, physical opportunities for constructing rest stops and from studying other greenway examples around the country were used to build the website.

The website not only provides a glimpse of the area but it acts as an online gathering place intended to share a vision that will inspire visitation, collaboration, and partnerships for the Western Greenway System. It is a key tool for the County in providing an expanded vision for the project and showing opportunities for partnership and linkages to other projects.

The site will also be an opportunity to market the idea of the project and attract partners and stakeholders who see its potential for advancing a host of related goals and objectives for the region. The development of such teams and “communities of practice” will draw supporters to visually articulate what is special about their location and encourage and help to build a constituency for the project.

Lastly the website is a project development tool with detailed profiles of each proposed corridor and connection including implementation opportunities and constraints.

To access the website, use the link:

<http://www.tplgis.org/StoryMaps/WesternGreenway/>

Once on the site, choose a tab across the top to explore proposed gateways, destinations, and proposed greenway connections. Tap on a photo on the left or tap on the map to the right to get detailed information about features and attractions.

Click on any trail segment, and tap the “Details” link for a detailed profile of implementation opportunities and constraints.

The screenshot displays the 'Miami-Dade County Western Greenways Initiative' website. At the top, there is a header with the title and a brief description: 'The Western Greenway Initiative is a proposed trail system along the County's western edge. This is a visual tool for exploring the system's scenic corridors, destinations, recreational access, agri-tourism, and gateway communities.' A 'Tap For Full Report' link is also present. To the right of the header are logos for 'MIAMI-DADE COUNTY' and 'THE TRUST for PUBLIC LAND', along with a 'Tap to Share Comments' button.

Below the header is a navigation bar with several tabs: 'Proposed Gateways', 'Agri-Tourism', 'Attractions', 'Recreation', 'Natural Landscapes', and 'Greenway Connections'. A 'Zoom to Region ...' dropdown menu is located on the right side of this bar.

The main content area is divided into two sections. On the left is a grid of nine thumbnail images, each with a number and a title: 3 Proposed Everglades Trail, L-31E Canal; 4 Proposed Biscayne - Everglades Greenway - Western Leg; 13 Proposed Princeton Trail; 14 SW 216 Street Connector; 15 Proposed CSX Trail; 16 SW 248th Street Connector; 17 SW 246th Street Connector; 18 Proposed Mowry Trail; and 19 Proposed Krome Trail, II Krome Ave. On the right is a map showing the proposed greenway routes in orange and yellow. A pop-up window titled 'South Dade Trail' is overlaid on the map, providing details: 'This 9 mi section of the South Dade Trail runs along the South Miami-Dade Busway. This trail rides along the right-of-way of the former Florida East Coast Railroad, which connected major cities down the east coast of Florida.' The pop-up includes a photo of people cycling and a 'Details >>' link.

At the bottom of the map, there is a footer with the text: 'The Trust for Public Land | Esri, HERE, DeLorme, U... esri'.

Zoom in to a region of interest on the map. Zoom closer for a detailed aerial view of the landscape.

### Miami-Dade County Western Greenways Initiative

The Western Greenway Initiative is a proposed trail system along the County's western edge. This is a visual tool for exploring the system's scenic corridors, destinations, recreational access, agri-tourism, and gateway communities. [Tap For Full Report](#)

Tap to Share Comments

MIAMI-DADE COUNTY

THE TRUST FOR PUBLIC LAND

Proposed Gateways Agri-Tourism Attractions Recreation Natural Landscapes Greenway Connections Zoom to Region ...

10 Seminole Theatre

14 Homestead National Parks Trolley Stop

15 Homestead Town Hall Museum

Esri, HERE, DeLorme, MapmyIndia, © OpenStreet...



## Achieving the Vision for a Western Greenway System

In order to develop a set of objectives and an implementation strategy for the project, the core team reviewed its collected data: the results of its current conditions research, the GIS-based land use priorities assessment, local interviews, site visits, and additional analysis of transportation and economic development projects in the study area.

The team also looked elsewhere to case studies of greenway projects around the country to better understand their development, management and governance. Out of this analysis four overall objectives and a series of implementation strategies and next steps were developed to realize the greenway system.

1. **Lead the Way:** Leverage the vision for this greenway with a pilot project on existing public land that demonstrates a new model for partnership-led project work and confirms its feasibility.
2. **Brand and Promote the Trail:** Create a compelling vision and an identity for the trail that is linked to goals of health, recreation and conservation and economic development.
3. **Establish Trail Stewardship Partners:** Identify segments for the trail plan – think systematically – to attract dedicated constituencies and partners for each segment; clearly define their roles around your goals. Rely on their passion to help implement the project.

4. **Create a Guiding Framework:** Create a framework and principles for design, operating and management that can guide the work of the department and its partners. Be a servant leader, facilitating others to help in developing the trail.

The Western Greenway System is a big vision. Its implementation not only represents a large addition in trail mileage but also a cultural change in how the county can collaborate to complete the project.

Two project phases need persuasive and effective leadership. First is the critical conceptual phase, when leaders are needed to inspire people about a vision of what could be achieved and what the trail design should look like. Second is the implementation phase, which requires political savvy, diplomacy, determination, and instincts for getting things done – more easily accomplished in partnership.

The case studies that were reviewed provide a number of lessons for this project. (A summary of the case study research can be found in Appendix C.) Looking at their example, the County has some enormous advantages in approaching this project: a system of publicly-owned levees with existing recreational use; transportation capital construction of shared use paths in the study area; locally-based leadership with a common vision for shared use paths and a belief in their economic benefit; tourism advocates who see the greenway as an asset to their vision; and, trail advocates who understand the multiple benefits of the proposed project.





It will be important for the county to continue to lead especially at the early stages of implementation; but it must also facilitate a team that can over time implement and manage identifiable segments and stages. Consider this effort not as a single project but a complex of distinct trail segment projects that lots of people are encouraging to grow toward each other – trail growth motivating more trail growth.

A more detailed set of recommendations and implementation strategies follow summarized simply by four ideas: create a compelling vision; segment the trail corridors to attract dedicated constituencies and partners; rely on their passion to implement; and, create a guiding framework for design, operations and management.

## Greening the Western Boundary - A Western Greenway System Vision

### Achieving the Vision: FOUR Objectives

- |  |   |
|--|---|
| 1.) Lead the Way                             | Leverage the <i>Parks and Open Space System Masterplan</i> vision with a pilot project on existing public land that demonstrates a new model for partnership-led project work and confirms its feasibility.           |
| 2.) Brand and Promote the Trail              | Create a compelling vision and an identity for the trail that is linked to trail goals of health, recreation, conservation and economic development.  |
| 3.) Establish Trail Stewardship Partnerships | Break up the trail plan into segments - think systematically – to attract dedicated partners and constituencies for each segment; clearly define their roles and rely on their passion to help implement the project. |
| 4.) Create a Guiding Framework               | Create a framework and principles for design, operating and management that can guide the work of the department and its partners. Be a servant leader facilitating others to help in developing the trail.           |

### Background

The Western Greenway is part of the Parks Open Space System Master Plan (OSMP) adopted by the Board of County Commissioners in 2008. It is proposed as a spine for creating a system of connected greenway trails and recreational destinations along the County's western edge. The Greenway is expected to provide the following:

- Scenic corridors to connect the Lake Belt area in the north with the Southern Glades WMA to the south;
- New fresh water lakes and beaches for canoeing, kayaking, fishing, swimming, and other passive resource-based recreation activities;
- Agri-tourism opportunities for residents and visitors to experience the unique rural and natural character of the region; and
- Scenic gateways to State, Federal (Everglades National park) and County natural lands and to the city.

Collectively the Western Greenway System will be a continuous recreation corridor connecting over two dozen municipalities and unincorporated neighborhoods in western Miami-Dade County with parklands, unique urban environmental features, cultural resources and historic landmarks. Local residents and visitors will be able to bike, hike, roller blade, fish, picnic, watch for birds and other wildlife, undertake environmental education activities, find solitude and enjoy nature, host community festivals and meet friends and neighborhood residents along the trails.

**OBJECTIVE 1 - LEAD the Way**

**RECOMMENDATION**

Create a dedicated division in the department to manage greenways and trails.

**CONTEXT**

Most greenways have at least one dedicated staff. Typical duties include carrying out plan goals, applying for funding, overseeing the safety and operations of greenway facilities, updating maps and marketing materials, proposing future alternative routes, and working with adjacent communities to coordinate linkages; this staff member also plays a liaison and spokesperson role working with the community and nonprofits on education, volunteer programs and events.

**PRECEDENCE/CASE STUDY**

The 36-mile NW Arkansas Razorback trail is supported by a trail manager and a trail crew of three. The 17.5-mile Swamp Rabbit Trail is supported by one trail manager and the department's park maintenance team. Volunteers are used for routine trail maintenance including an Adopt-a-Trail program in Arkansas. In Roanoke four jurisdictions share the cost of a greenways coordinator and match their capital dollars against each other.

**KEY MESSAGE**

The trail project needs leadership in order for it to move to high gear. The lead can come from either the public or private sector – but whoever takes the lead also takes others as partners. A dedicated staffer can facilitate a team of agency staff, nonprofit advocates, volunteers, municipalities and funders to leverage project implementation. There are no more P3s but increasingly P5s!

Support the creation of a new county-wide greenways focused nonprofit.

At least three models of governance structure for trails planning and operation exist, differing in level of government involvement, strength of control, and relationships across jurisdictions. Public-private partnerships, where a nonprofit can provide a coordinating function, are common in many of them.

Pathfinders for Greenways in the Roanoke Valley was incorporated as an NGO in 1997 to involve citizens in greenways. They have been particularly effective in building and maintaining natural surface trails. They donate 3-5,000 hours of volunteer service each year and have purchased over \$60,000 worth of trail building equipment.

A nonprofit partner for the Western Greenways could share the leadership role with County staff playing advocacy and organizing roles, and helping to fundraising and market the project. A private partner can also help with ongoing accountability, equity issues, public engagement and responsiveness to opportunity to ensure continued public support.

Use the current Mayor's Greenway and Bicycle Facilities Coordinating Work Group more strategically to mobilize supporters and forward the Western Greenway initiative among others.

Grassroots support is key in creating momentum for a trails movement. A mayor's belief in a specific project increases its chance for survival and ultimate success; particular organizations can also provide strong leadership. The slogan for Chicago's Openlands Project is revealing: "Building Green Leaders, Supporting Green Spaces."

The Red Rock Ridge and Valley trail system is essentially a series of projects being developed by different groups where each effort is encouraging another: different segments pushing toward one another, connecting and taking off toward other segments. Trail growth is motivating more trail growth thanks to a mobilized team effort.

There is a difference between working with nonprofit advocacy groups and other organized citizens groups on the one hand and actively soliciting the public's opinions on the other. Involving individual citizens is critical especially in the start-up phase and pilot project work where the County can demonstrate the feasibility of a collaborative approach.



## OBJECTIVE 1 - LEAD the Way, Cont'd.

<u>RECOMMENDATION</u>	<u>CONTEXT</u>	<u>PRECEDENCE/CASE STUDY</u>	<u>KEY MESSAGE</u>
Secure an agreement with the SFWMD for constructing and managing a trail on the C-111 levee for creating the main spine of the system.	Construct stretches of the trail that require the least capital investment in order to get something on the ground. Build localized constituencies around do-able project phases; e.g., start with a section of the proposed spine on the L-31 or C-111 levees and target complete construction by 2016 - acknowledging their trail surface requirements. Designate it as the first step in building the “main highway” of the greenway system and leverage your investment to attract others to connect. As the first project takes shape, it will pave the way for others to make connections and drive new partnerships and funding sources.	The purpose of the Razorback Greenway is to connect Northwest Arkansas communities through a “main spine” which will facilitate future trails connections in and out of the six cities that align the trail. Birmingham’s Rotary Club chapter is spearheading the Rotary Trail project, which has an estimated cost of \$3.5 million and will link the Razorback Greenway system to the city's business district. The Rotary Plan is an example of trail planners' "Our One Mile" initiative to get communities and developers interested in their particular piece of their corridor and to promote the piece’s benefits to them.	Many communities possess a legacy of corridors and open, public land that can form the foundation for a new vision. This historic element, e.g., levees in Miami-Dade County, is visible for many of the cases studied; capitalizing on it is one important key to success. Enhance the existing relationship and shared mission around recreation with the SFWMD with a framework for clear design, development and operating guidelines that will make each link in the system easier to implement.
Facilitate a <i>multi-agency approach</i> to developing the W-G trail system by engaging other departments (transportation, transit, planning, tourism) in a collaborative policy framework to implement and help with project funding.	Corridors can emphasize a range of priorities—from recreation to transportation to community enrichment. Increasingly they are embracing multiple objectives. Address complementary policies and funding streams in transportation, neighborhood revitalization, tourism, economic development, and biodiversity protection, among others, by working with a multi-agency approach to corridor development.	The Chicago Park District is involving almost all city agencies in the completion of the 3-mile Bloomingdale Trail, a new commuter and recreational greenway. In Fayetteville, Ark. a 9-member city crew within the Transportation Division is dedicated to building trails. Charlotte-Mecklenburg County, NC blends its parks and greenway team with its water management team to focus on stormwater.	Increased innovation and collaboration in some cities transcended the traditional boundaries that agencies set for themselves. To get the highest level of cooperation and collaboration among agencies, it will take time to build and strengthen staff's personal relationships of peers. Start with the transportation agencies as every case study showed funding from transportation sources.
<i>Work with nearby municipalities</i> to incorporate the trail plan into their long range plans so as to reflect current conditions and facilitate coordination. Make the official route and side trails part of local comprehensive plans.	Begin these efforts with current Parks Charter members – the <i>Parks and Open Space Masterplan South Florida Coalition</i> . Start with Homestead to build a model for what these partnerships can look like.	The greenways masterplan for NW Arkansas was the start of a new model for how trails and green infrastructure could shape sustainable development and guide local land use plans.	Homestead has named itself a gateway community to the national parks and embraced its history as a bicycling destination, spending \$26M on their downtown and working on the Biscayne-Everglades Trail. Given their commitment to trails, they are a likely partner.

## OBJECTIVE 2 - BRAND the Trail

### RECOMMENDATION

Encourage a slightly broader set of goals for the trail system that will resonate with broader countywide quality of life objectives. Consider such goals as health and fitness, purposeful non-motorized transportation, and generating economic activity, e.g., tourism.

Create an identity and a compelling vision for the trail.

Turn the idea of the Western Greenway into the *Western Greenway System*.

### CONTEXT

Link to a broader community vision to be relevant, e.g., health, tourism, quality of life. Red Rock Ridge and Valley is making its case on pragmatic terms: around trails development follows and so do jobs and businesses. Trails foster exercise, an argument that opens the door for anti-obesity funding from the CDC. Promoting jobs and public health - everyone embraces these goals.

Develop a 'brand' and marketing plan; create a map that includes, with their agreement, local businesses, institutions, churches, etc. to show community links and commercial opportunities.

There is no cohesive network of trail spanning the western part of the county. Many of the existing plans – South Dade for example – are well developed and discussed. To give strength to these separate plans TPL has endeavored to connect the varied plans and propose an updated, unified conceptual *greenway network*.

### PRECEDENCE/CASE STUDY

The Jefferson County Department of Health (JCDH) funded the creation of the Red Rock Ridge and Valley Trail System plan (Birmingham) and continues to support implementation in order to provide communities with safe, accessible places to engage in physical activity. The Swamp Rabbit Trail was leveraged by a \$1M grant from a local hospital system to brand the trail for health and recreation.

Open houses drove design and branding for the NW Arkansas Razorback Trail. Creating their plan took months of community outreach to "...impose order on decades of chaotic smaller and competing efforts, and to extract cooperation out of self-interest."

Connect the Circuit is an ambitious plan to complete a 720-mile web of bike trail throughout the Philadelphia region. The NGO operates as a collaborative playing a middleman type of role — devising the plan, advocating for more funding and prioritizing the gaps. Locally, there is a growing recognition that without being connected, independent bike paths have less value.

### KEY MESSAGE

A newly released study led by a team of University of Miami researchers shows that urban sprawl may be a health hazard for residents in west Miami-Dade County who tend to walk less and, as a result, may face greater health risks. Link to the growing constituencies along the trail corridor who see bicycling trails as a tourism and economic development opportunity.

Leverage existing relationships with health providers and other philanthropic partners to fund a series of next steps including additional community outreach, a branding and marketing plan.

Reinforce connectivity as an underlying criterion in trail planning and design. Focus on projects that will change users' view of the system and the destinations it allows them to access. Work more closely with other trail stakeholders to systemize the different visions for all the county's trail projects. Should the Western Greenway be part of a bigger vision – a grand circle around the county?

## OBJECTIVE 3 - ESTABLISH Park Stewardship Partnerships

### RECOMMENDATION

Complete community outreach that leverages a SFWMD agreement with a planning framework that includes: a vision and values statement; community-based trail objectives; design guidelines; and a set of distinct segments.

Start with working with the bicycling community. Focus on long stretches of off-road publicly owned land for trails – and tie them together with on-road bicycle and pedestrian facilities. Design and market the greenway system as both a recreational resource and as transport to other recreational resources.

Once an agreement for the main spine is completed, engage key stakeholders within each sub-area of the corridor to study opportunities for linkages to the spine that connect proposed gateways and destinations.

### CONTEXT

In order to attract community comments and volunteer partners develop materials, maps and a vision for initiating outreach, constituency-building, communications and a shared vision. Capture community interest and channel individuals into defined roles on a task force, with the new nonprofit or as on-site trail advocates and stewards.

In order to be successful a major civic project needs a lot of partners – each with defined roles. Not just partnerships but collaboration: build a coalition with broad-based constituents; if you are unable to form an effective partnership, you are unlikely to succeed

Use the plan framework as a marketing tool to engage and cooperate with municipalities, organizations and businesses who can help with construction of the trail.

### PRECEDENCE/CASE STUDY

Houston used its HUD Regional Sustainability award to begin outreach for their Bayou Trails system. Over \$100k was spent on community engagement to help draft a set of design and implementation guidelines for the project. The Quality of Life Coalition and the Greater Houston Partnership helped to lead the campaign.

The Swamp Rabbit Greenway has found that customer service is key to building a loyal constituency; networking and stakeholder meetings with adjacent landowners - especially business owners - and trail users goes on constantly. They look for economic impact all the time. “...I have over 3000 names on my email list and I communicate with all of them with regular updates...”

Swamp Rabbit Trail staff find that a sense of community-based ownership can create “trail magic” – “...people just do stuff for us.” People see the parks dept. as a facilitator for others' making things happen. The county's trail staffer has lunch regularly with city staff and other key players to keep up with local plans and projects related to the trail and to create a working relationship.

### KEY MESSAGE

This stage takes a lot of outreach, communication and networking, asking key questions such as what do you like, what don't you like, do you want to stay engaged, and how can you help. Segment outreach by sub-area for community discussions to incrementally further develop the vision and a set of values to guide the project.

The current reconstruction of Krome Avenue into Homestead provides a great opportunity to claim the new shared use path as a link in a loop around Homestead using SFWMD levees to complete. Work with Bike305 on surface issues, signage and trailheads. Work with the city of Homestead to brand the downtown sections for pedestrians as well as bicyclists with destinations for services.

Rarely, if ever, is the initiator of a trails project its sole implementer. Partnerships are inevitable and necessary at all stages of trail development. Nurturing these coalitions is sometimes difficult, but always imperative. Funding is a critical element in any big capital project but staff time and outreach can often leverage what's not in the budget.

## OBJECTIVE 4 - CREATE a Guiding Framework

### RECOMMENDATION

Devise a consistent management and design protocol. Consider adapting the *Miami-Dade County Trail Design Guidelines and Standards: Ludlam Trail Case Study* for wider use. Work with SFWMD to streamline design and permitting process to set the stage for additional links.

### CONTEXT

*The Miami-Dade County Trail Design Guidelines and Standards: Ludlam Trail Case Study* provides general guidelines for non-motorized urban shared-use trails and paths throughout Miami-Dade County. Adapt the document for broader use by local government, neighborhood association, business and other volunteer trail development groups.

### PRECEDENCE/CASE STUDY

The O&M Plan for the Razorback acknowledges that managing partners may have their own O&M strategies; but a key to a sustainable quality greenway over the length of the corridor will be a consistency of standards, cooperation and coordination amongst the stakeholders and building enduring partnerships engaging both public and private sector leadership. Clear design guidelines are making it easy for communities to construct and connect.

### KEY MESSAGE

Over time the *Mayor's Greenway and Bicycle Facilities Coordinating Work Group*, county staff and/or nonprofit trails advocate can help in institutionalizing design and management guidelines that will make clearer roles for partners in both the construction and operating phases of the project. MDC-PROS Parks Charter partners have indicated an interest in trails and trail connections. This a good starting place for creating a design framework.

Develop a funding strategy that links the development of the Western Greenway System to quality of life.

Funding is critical but seldom the main obstacle. Community-driven compelling vision can drive a successful collaboration and funding strategy. Assemble a funding strategy that pair funders with the trail vision. Almost every trail studied has a vision that includes: health and recreation, economic development, including tourism, and transportation.

The success of the Swamp Rabbit Trail has led to a provision in a voter referendum for a 1-cent sales tax for roads to include improvements for the trail. Include the whole trail system in transportation plans. Every trail studied used federal and state transportation dollars to construct their trails. Many trails use hospitality tax funding since trails attract tourism.

The department currently has good relations with the University of Miami Health System, North Miami Children's Hospital, the Health Foundation, AvMed, FDOT District 6, Biscayne National Park and Everglades National Park. Homestead Hospital has been a provider in Homestead for forty years and now operates under the umbrella of Baptist Hospital. A number of funders exist with focus areas related to communities along the proposed trail, e.g., Ocean Reef Community Foundation, Florida Gas. Longer term, continue to explore transportation funds for capital expenses as well as hospitality tax dollars.



## OBJECTIVE 4 - CREATE a Guiding Framework, Cont'd.

### RECOMMENDATION

Map what you have; show what you want.

### CONTEXT

The value of an overall vision, and its accompanying illustrations, cannot be overstated in trails planning. The best maps are spatially explicit in depicting hubs and connecting corridors. Flexible boundaries can be helpful since it is difficult to design the trail without considering adjacent built space.

### PRECEDENCE/CASE STUDY

The Swamp Rabbit Interactive Map was inventoried, photographed and developed by the City of Greenville to aid everyone interested in experiencing the Swamp Rabbit Trail - from users to trail developers. The map is especially content-rich inside the City of Greenville — featuring trail amenities and points of interest, as well as considerations for a safe experience. Photos, IPIX 360 degree images, and audio are available at select locations. This web map is accessible from all types of devices - smart phone apps - and operating systems.

### KEY MESSAGE

An interactive map that is ground-truthed to existing conditions can raise awareness for the trails, link users with the most convenient and appropriate trails and help define the needs to build out the network. The online story map is a great first step in mapping and visualizing a trail system. Use it strategically to attract partners who can help in identifying gaps and opportunities for linkages.

Demonstrate accomplishments with good facts; annual report cards.

One of the Houston Bayou project's key deliverables was the benefit study endorsed by the Greater Houston Partnership in 2008. Linked together the Houston Bayous project is expected to pay big dividends as the report estimated a combined economic return at \$70 million per year. Of that, \$10 million is expected to accrue annually from increased property values near the new parks and trails, and improved business attraction and retention. Another \$10 million is expected to come from enhanced water quality and reduced flooding. Finally, the expected increase in exercise and physical fitness is valued at \$50 million annually.

Studies in the first two years of trail operation showed that in Traveler's Rest - "Trail Town" - the Swamp Rabbit Trail turned the town around completely in 4 years, prompting \$4M in downtown streetscape improvement and the \$2M in trail construction that leveraged a quadrupling of businesses; sales went up anywhere from 30 to 85%.

Counting users and measuring their economic impact is the best tool for determining a trails return on investment - and it is never too early to start. What is the number of users needed to pay for the trail, what is their business impact and what is the payback period for investments. MDC-PROS should consider a partnership with tourism or economic development partner to study and promote the trails economic benefits to the community.

## Short Term Recommendations

1. Develop a departmental staffing and action plan that dedicates one staff person for getting started on Western Greenway implementation strategies.
2. Keep the ball rolling – create some momentum – use this report and the various greenways working groups to attract partners and supporters to leverage implementation strategies.
3. There are pilot projects that can begin immediately on a small scale – with all involved knowing that it will take a decade or more to realize the full vision.
4. Begin negotiations with SFWMD regarding an agreement for developing and designating the main spine of the trail system.
5. Begin discussions with Homestead regarding a partnership initiative to create a loop trail linking to and from their city as a demonstration project.
6. Explore ways to market the trail with brand development: A clear identity that makes it recognizable and special with a big enough vision to encompass all three sections of the trail spine.
7. Consider a health-related partner. Build on the department's good relations with the University of Miami Health System, North Miami Children's Hospital, the Health Foundation, and AvMed.
8. Work with TPL to study the creation of a nonprofit trails partner – a private partnership that can help to move this effort along with assistance around marketing, fundraising, operations and programs.
9. Discuss consideration of a voter referendum and interest in dedicated funding from this and other sources including hospitality taxes.
10. Look at ways to measure the economic impact of the trail system before/after it gets on the ground.



## **Appendices**

- A. Technical Advisory Team Meeting Notes
- B. Priorities Assessment Criteria Matrix,  
Methodology & Data
- C. Case Study Matrix
- D. University of Georgia/NASA project
- E. Full-size Maps

**MEETING NOTES: Western Greenway Kickoff– Technical Advisory Team**

January 13, 2014, 12:00 – 4:00 pm

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**Participants**

Miami-Dade, Department of Regulatory and Economic Resources

- Eric Silva, Mark Woerner, Cynthia Guerra

South Florida Water Management District (SFWMD)

- Jason Smith, Ray Palmer, Jerry Krenz

Everglades National Park

- Fred Herling

Biscayne National Park

- Elsa Alvear

Miami-Dade, Information Technology Department

- Bibi Oung, Karen Grassi, Clare Sibori

Miami-Dade Parks, Recreation, and Open Spaces Department

- Maria Nardi, Joe Webb, Alissa Turtletaub, Mark Heinicke, Joe Maguire

University of Georgia, College of Environment and Design

- Rosanna Rivero

The Trust for Public Land

- Breece Robertson, Brenda McClymonds, Holly Elwell, Lindsay Withers,
- Brenda Faber, Kathy Blaha



## Meeting Objectives

- Share a common vision for the Western Greenway.
- Develop strategies for implementation of the Western Greenway.
- Create a framework for prioritizing corridor routing and connections.
- Identify data and resources that should be considered for implementation.
- Determine action items and next steps.

## Western Greenway Implementation Strategies Project – Overview

- A partnership between Miami-Dade County PROS and The Trust for Public Land
- Will help advance the concept for the Western Greenway from vision to implementation
- Approach and timeline:

TASK	TIMELINE
Current Conditions Analysis	January 2014
Priorities Analysis for Corridor Routing	January 2014 – July 2014
Trail Segment Profiling	August 2014 – November 2014
Community Engagement and Outreach (funding pending)	November 2014
Implementation Plan and Action Strategies	November - December 2014

- Project funders:
  - > Elizabeth Ordway Dunn Foundation
  - > George Batchelor Foundation
  - > Doris Duke Charitable Foundation
  - > Anonymous Donor
  - > NASA (via grant to UGA College of Environment and Design)

## Shared Vision for the Western Greenway

The Western Greenway establishes a connected system of greenway trails and recreational destinations along the County’s western edge that provides the following:

- Scenic corridors to connect the Lake Belt area in the north with the Southern Glades WMA to the south
- New fresh water lakes and beaches for canoeing, kayaking, fishing, swimming, and other passive resource-based recreation activities.
- Agricultural-tourism opportunities for residents and visitors to experience the unique rural and natural character of the region

- Scenic gateways to State, Federal (Everglades National park) and County natural lands and to the city.

The Western Greenway will:

- Provide a transition from urban areas to the Everglades, as a key component of the Livable Communities Process launched by Miami-Dade County in 2006.
- Reflect three distinct regions along the western edge of the County: north, central, and south.
- Incorporate recreation, tourism (including ag-related), resource protection, and educational opportunities.
- Feature “gateways” that connect the Western Greenway with neighboring jurisdictions, parks, natural lands, and key destinations across the county.

## **Desired Outcomes for the Western Greenway (brainstorming results)**

### Partnerships

- Partner with SFWMD to provide recreational connectivity via district lands where feasible:
  - > No access near pumps and other on-site infrastructure
  - > Access will be limited during construction and repair periods
  - > Must insure public safety
  - > Limited to non-motorized forms of recreation
- Collaborate with U.S. Army Corps of Engineers (USACE) to determine potential for greenway access as part of water quality and flood protection projects, as needed
  - > SFWMD can assist with coordination with USACE: SFWMD owns/manages the land, USACE constructs the flood management facilities
  - > Example: possible use of L31 canal and levee system for non-motorized trails (L31 canal is along western boundary of greenway)
  - > Example: hunting and hiking area north of Ingraham Highway – boundaries and access change to accommodate project work
  - > Establish management partnerships and protocols
- Partner with Florida Power & Light (FPL) on potential shared use of existing and proposed transmission corridors
  - > Western transmission line project alignment is under consideration by governor and cabinet. Several alignments have been proposed.
- Collaborate with Miami-Dade Water and Sewer (WASD) to identify opportunities and constraints
  - > Must insure protection and security of well heads and pipe areas
  - > Incorporate results of current modeling efforts to identify areas vulnerable to development and flooding issues.
- Collaborate with Miami-Dade Agricultural Program (including PDR Program for protection of agricultural lands)
  - > Charles La-ePradd is contact person

- Collaborate with NPS on joint uses of free shuttle service such as the recently established Homestead National Parks Trolley shuttle service between Everglades National Park and City of Homestead and Biscayne National Park.

#### Education

- Enhance public education on shared use and multiple benefits
- Increase greenway participant understanding of water linkages between western part of county to the health of the bay (explore incorporation of EPAs “Raindrop” tool)

#### Biodiversity and Habitat Protection

- Provide connectivity for habitat
- Provide seepage management from the Everglades
- Protect winged-bird habitat
- Protect threatened and endangered species
- Preserve ecosystem function and ecological services

#### Water Quality Protection

- Provide groundwater and surface water protection

#### Climate Change and Hazard Mitigation

- Mitigate the impacts of climate change
  - > Build upon the recommendations and adaptation strategies identified by the Southeast Florida Regional Climate Change Compact in its Regional Climate Change Action Plan
  - > Seek out opportunities for climate mitigation in identified Adaptation Action Areas

#### Transition from Urban Areas to the Everglades

- Develop the Western Greenway to provide a transition from the urban areas of Miami-Dade County to the Everglades

#### Linkages

- Provide linkage and access to River of Grass Greenway and the Biscayne-Everglades Greenway Trail
- Provide linkage to South Dade Wetlands Preserve – promote & enhance passive recreation opportunities and public appreciation
- Provide linkages from the northern areas of the County to destinations in the south

#### Alternative Transportation

- Provide multi-modal alternatives for visitors to access and explore the Western Greenway, its destinations of interest, and gateways
  - > Example: Free shuttle service recently established between Everglades National Park and City of Homestead (Homestead National Parks Trolley)
  - > Gateways could become multi-modal transportation hubs

#### Economic Development

- Provide for Agri-tourism business development

## **Methodology and Tools**

### Corridor Routing Priorities

- Consider multiple objectives, opportunities, and barriers
- Identify corridors that
  - > maximize benefits and opportunities
  - > while ensuring connectivity to gateways and destinations

### Trail Segment Profiling

- Characterize identified corridors by segment.
- Include cross-disciplinary design criteria from above and additional implementation metrics for each segment such as
  - > cost, ownership, alignment with regional plans
  - > partnerships (MOU and easement opportunities)
  - > acquisition options, timing, funding strategies
- Provide online mapping tools to query and explore implementation strategies.
- Supplement with operational strategies (development banks, policy changes, pilot sites, new procedures)

Will incorporate cutting edge analysis based on recent research and innovation:

- TPL Greenprint methodologies
  - > Suitability
  - > Preference
- NASA Satellite Imagery
  - > Land Use Change Patterns
  - > Tree Canopy
  - > Impervious Surface
- LUCIS Model for Smart Land Use Analysis (Univ of Florida & Univ of Georgia)
  - > Conflict Anticipation
- CircuitScape (Univ of California, Santa Barbara, TPL)
  - > Corridor Connections
- TPL Greenprint methodologies
  - > Interactive mapping
  - > Segment profiling

## **Technical Advisory Team (TAT)**

### Purpose

- Different from a stakeholder group.
- Provide expert review and advice regarding design, data input, rationale, outcomes, and mapping.



### Responsibilities

- Verify the completeness and appropriateness of implementation criteria
- Recommend best available data sources
- Help insure that defensible science is used for all analysis and assumptions

### Time Commitment:

- Meet 3 to 4 times January – July 2014 (conducted via web meetings)
- One-on-one phone and email communication as required

## **Current Conditions Analysis – Additional Data and Reports (brainstorming results)**

### Approach

- Conduct an inventory of maps, studies and reports pertaining to the western portion of Miami-Dade County.
- Collect and map data to show intersections and commonalities between plans.
- Identify best practices for greenway implementation used in other areas of the United States, highlighting acquisition and development strategies, as well as management tools and techniques utilized by local government agencies.
- Synthesize information for use as a reference tool by Miami-Dade County staff and elected officials.

### Recommended Additional Data and Reports (see attached document for initial list)

- Southeast Florida Regional Climate Change Compact - Adaptation Action Areas
- Southeast Florida Regional Climate Change Compact - Regional Climate Change Action Plan
- Southeast Florida Regional Climate Change Compact – 3<sup>rd</sup> Technical Report on Greenhouse Gas baseline inventory
- Comprehensive Development Master Plan
- Redlands Comprehensive Tourism and Preservation Plan
- Long Term Ecological Network – FL International University
  - > Considers groundwater, vegetation, etc. L
  - > Look for wading bird populations/habitats and foraging grounds used by the birds.
  - > Peter Frederick at university will have this (<http://www.wec.ufl.edu/faculty/frederick/>)
- Central Everglades Planning Project (CEPP) and CERP
- Rock Mining Overlay Zoning (ROZA) Ordinance
- South and North Dade Greenways Plans
- Environmental tax statement – appendix
- Everglades NP Environmental Impact Statement for FPL corridor
  - > will have wading bird assessments – covers entire area over to Biscayne Bay
- Draft General Management Plan for Everglades NP
- Cutler Bay NPS Office – SF Inventory and Monitoring Network
  - > Good resource for ecological data
  - > contact is Matt Patterson

- SFWMD Gate and Structure map (to help with conflicts with pump stations)
- MDX Proposal for Turnpike Extension
- MPO Long Range Transportation Plan
- Miami-Dade County Sea-Level Modeling
  - > WASA and storm water management
  - > Virginia Walsh
- South Florida (Dade County) Park Coalition
- Miccosukee Preservation Lands and Planning Activities
  - o Bibi can provide boundaries
- West Kendall Charrette and Master Plan
  - > Workshop to be held February 2014
- FIU and Doral/Sweetwater Plan
- Bike “305” Compiled Bike Master Plans
- Potential Redlands Incorporation
  - > Bibi can provide map for proposed annexed and incorporated areas
- Chambers of Commerce and Visitor/Convention Bureaus – county resource
- Institute for Regional Conservation (IRC) –vegetation maps
- Natural Areas Management Plan
- Lake Belt Plan
- Miami-Dade County Trail Benefits Study: Ludlam Trail Case Study
- Miami-Dade County Trail Design Guidelines and Standards:Ludlam Trail Case Study
- Black Creek Trail - Segment B Planning and Feasibility Study
- Biscayne-Everglades Greenway Preferred Corridor Plan

## **Gateways and Destinations (brainstorming results)**

### Gateway: Definition and Purpose

- Entry point to the Western Greenway connecting a major destination (ex: Everglades National Park, South Glade Wetlands, Broward County, etc.)
- A transitional or threshold area that brings two contexts together
- Will vary from site to site with different scales of intervention such as info booths, amenities, parking area, signage, visitor center
- Opportunity for education
- Multi-modal transportation hub – trailheads, shuttle stops
- Viewing areas

### Suggested Gateways (clockwise from the north)

1. Broward – Dade County Line
  - > northern gateway to Lake Belt Region

2. US Highway 27
  - > Miami River headwaters
  - > proposed extension to Miami River Trail
3. NW 25<sup>th</sup> Street
  - > proposed Beacon Trail
  - > airport linkage via express bus from Multi-Modal Inter-Modal Center (MIC)
4. 8<sup>th</sup> Street
  - > linkage to Miami core to the east
  - > linkage to River of Grass Greenway to the west
5. 88<sup>th</sup> Street
  - > striking transition from urban to rural
  - > proposed West Kendall Trail
6. 184<sup>th</sup> Street
  - > Black Creek Trail
  - > potential connection to Miami Zoo
7. 248<sup>th</sup> Street or Silver Palm
  - > entry to heart of historic Redland
  - > many historic buildings
  - > potential bird viewing area within Western Greenway
8. Biscayne – Everglades Greenway
  - > entrance to Everglades NP and Chekika
  - > entry point to South Dade Wetlands Preserve: The greenway should exploit every opportunity to make the SDW Preserve a gateway or destination. The SDW Preserve is the largest county effort to protect a vast expanse of the historic Everglades ecosystem that now connects Everglades and Biscayne National Parks.
  - > connection via 217<sup>th</sup> (western-most paved road in Dade County)
  - > partnership opportunity at Sparrow Fields (SFWMD property)
  - > scenic with big farms and winery
  - > connection to City of Homestead
9. Homestead Bayfront Park
  - > entrance to Biscayne NP
10. River of Grass Greenway
  - > western gateway to Western Greenway

Destinations (in addition to sub-bullets under Suggested Gateways above)

- South Dade Wetlands Preserve
- Bird Drive Basin
  - > Wetland Setting
  - > Potential board walk
  - > Possible place for wildlife viewing tower or blind
- Florida Trail Riders Association destinations

- Great Florida Birding Trail Destinations
- Natural areas in Mary Krome Park
- Anderson’s Corner General Store (cultural/historic)
- Additional agri-tourism sites within the Redlands area
- Freshwater lakes in the northern, former rock mining area
- Biscayne and Everglades National Parks

Potential Connections

- 217<sup>th</sup> western-most paved road in Dade County
- Krome Avenue (N-S key road)
- Aviation property in the C-9 basin
- 19<sup>th</sup>
- Partnerships with rock mining operations (see Lake Belt Plan)
- Princeton Canal

Barriers and Constraints

- Foraging areas for wood storks, Snail Kite area, Gun range (near 8<sup>th</sup> street)
- Moving east to west limited by canal

**Corridor Routing Priorities (brainstorming results)**

(organized by Parks and Open Space Master Plan Principles)

Equity:

- Census/demographic data (income, age, etc)
  - > Pop Density
  - > Children
  - > Low Income Households
  - > Cross-county recreation access equity
- Use RER (Regulatory Economic Resources) to obtain additional Census data

Beauty:

- Tree cover
- Archeological sites (non-sensitive sites)
- Geologically significant sites
- Water features
- Viewsheds
  - > as per water pumping periods
  - > viewsheds of birds during wet periods
  - > viewsheds of alligators during dry periods
- 168th St south – project is pending

- Fishing hubs along canals
- Undisturbed Parks natural areas and MDC Environmentally Endangered Lands Preserves
- Offsite mitigation areas (there is an existing map)
- Connected farmland (for viewing/visiting)
- Better viewing experiences along canal (ex. SW 217), rather than along Krome Ave
- Consider FP&L line. Two corridor options being considered (both are on County basemap):
  - > L31 and SW 8 St
  - > Pennsuco area: the FP&L easement is the only planned easement and is being restored
- Sawgrass (view issue?)
- Shuttle line from Homestead to Key Biscayne
- American Birding trail (educational information)
- Equestrian trails
- Lake Belt slurry wall/levy (bird watching experience opportunity)

Seamlessness (in addition to connections between Biscayne NP, Everglades NP, the Keys, Broward County, River of Grass, SDW Preserve)

- Existing bike paths
- Proposed bike paths
- Existing greenways
- Water Mgmt's full connection of ownership/easements
- Sewer easements
- Railroad lines (including active; i.e. Florida East Coast)
- Ludlam trail (rail with trail)
- Bird drive area (a lot of private land; includes water and sewer easements)
- Location of rock mine at approx. Kendall and WG boundary (point noted on large County basemap)
- FP&L line that runs down western side (that would not interfere with mining operations)
- Lake Belt slurry wall/levy (right now they are clearing levy of exotics); could be a worthwhile corridor; close to FP&L line (between levy and Krome, and western edge of mining); will remain natural wetlands to collect seepage.
- FIU land at 157th Ave, south of State ( "Eco hub"; the county was supposed to have use of this land)
- Consider management issues at trailheads: trash collection, parking, etc.
- Miccosukee land
- Miami-Dade County mud levee(s)
- DEP lands

### Sustainability

- Environmental Sustainability
  - > Wetland protection
  - > Vegetative community protection



- > Habitat (diversity, transition zones, connectivity)
- > Biodiversity
- > Green space
- > Water quality
- > Protected species
- > Ecosystem function
- > Fire management
- Social Sustainability
  - > Cultural resources
  - > Historic resources
  - > Recreation access, including passive recreation
  - > Healthy lifestyles
  - > Interpretational and educational opportunities
  - > School involvement (amenities to support school groups, alignment with state-standard curriculum)
- Economic Sustainability ... destinations that:
  - > Promote economic growth
  - > Promote redevelopment
  - > Leverage project funding
  - > Increase tourism (eco-tourism, agri-tourism)
  - > Mitigate impacts
  - > Provide financial incentives to local businesses
  - > Create jobs
  - > Provide for joint maintenance of lands and facilities
  - > Encourage partnerships
  - > Adventure cycling
  - > Marketing

Multiple Benefits (best leverage tax payer \$\$)

- Flood Management
- Habitat Protection and Restoration
- Drinking Water Quality Protection
- Joint Maintenance
- Joint Projects (utility corridors, water/sewer, SFWMD, USACE)
- Enhance property values
- Public access
- Ecosystem Services
- (see also Miami-Dade Greenway criteria)

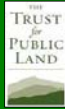
## **Concerns (brainstorming results)**

- Safety issues locations (crime, accidents, etc)
- Privately-owned lands (gaps in connectivity and amenities)
- Lack of natural areas
- Lack of passion for the Western Greenway project
- Lack of funding
- Lack of support from local officials – no champions
- Multi-use of trail (off road)
- Corridors of invasiveness (potential seed dispersal)
- Horse use (don't allow hay)
- Management of greenways is big commitment

## **Next Steps**

- Distribute and review meeting notes
- Complete Current Conditions analysis
- Create framework for corridor prioritization – review with Technical Advisory Team

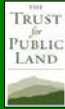
APPENDIX B



Miami-Dade Western Greenway Implementation Strategies Assessment

Priorities Assessment - Model Criteria  
September 22, 2014

Goal	Criteria	Criteria Weights	Methodology	Data (Description, Date)	Data Source
Provide Recreation Access		Equally weighted	<p style="text-align: center;"><i>Principles and Desired Outcomes: Access, Equity, Education</i></p> <p style="text-align: center;"><i>Ensure an accessible, diverse and balanced system of passive and active recreation opportunities that promote safety, security and healthy lifestyles.</i></p> <p style="text-align: center;"><i>Ensure the equitable distribution of park, recreation and conservation open spaces for all communities in the region.</i></p> <p style="text-align: center;"><i>Ensure community stewardship of park, recreation, and conservation open spaces by fostering educational and recreational programming, civic art, volunteerism and support of philanthropic and grassroots organizations.</i></p> <p style="text-align: center;"><i>(South Florida Parks Coalition)</i></p>		
	Existing Parks	10%	This model classifies existing parks. Included are municipal, county and national parks.  Existing parks are classified as 5, the highest priority.	2013 City Parks 2013 County Parks 2013 National Parks	Miami-Dade GIS Portal
	Natural Landcover	10%	This model prioritizes areas that exhibit healthy, natural vegetation.  Areas with natural landcover were extracted from the 2012 Cooperative Land Cover dataset by excluding all modified landuse types. Areas with natural landcover were then prioritized on a scale of 0-5 based on the density and health of the vegetation as indicated by the 2014 Vegetation Density and Health analysis provided by University of Georgia, College of Environment and Design. The results were scored using a scale of 0-5, with 5 being highest priority for vegetation health and density, as follows: 5: Very Dense Vegetation 4: Urban Forest Vegetation 3: Low Density Vegetation	2014 Vegetation Density and Health  2012 Cooperative Land Cover	University of Georgia, College of Environment and Design, NASA DEVELOP Internship  Florida Natural Areas Inventory (FNAI)
	Proximity to Water Access Opportunities	10%	This model prioritizes areas that are in close proximity to identified water access locations including lakes, canals, marinas, fishing locations and other designated access points. The results were scored using a scale of 0-5, with 5 being highest priority for recreation access, as follows: 5 : < 0.5 miles 3 : 0.5 - 1 miles 0 : all others	Water Access Locations: Fishing, Swimming, Canoe, Boating, Marinas  Freshwater Lakes, Canals  2014 Suitable Public Lands for Fishing, Boating, Swimming  Airboat Launch Sites, Motor boat launches	Miami Dade County Parks, Recreation and Open Spaces, NPS  Miami-Dade GIS Portal  Miami Western Greenway Locations matrix (under development)  SFWMD
	Proximity to Existing Recreation Destinations	10%	This model prioritizes areas that are in close proximity to existing recreation destinations including campgrounds, tourist attractions, tourist destinations and other attractions.  The results were scored using a scale of 0-5, with 5 being highest priority for recreation access, as follows: 5 : < 0.5 miles 3 : 0.5 - 1 miles 0 : all others	2013 Destinations 2013 Attractions Campgrounds Tourist Attractions  2013 Cultural Venue locations	Miami Dade County Parks, Recreation and Open Spaces      Miami-Dade GIS Portal
	Proximity to Birding and Wildlife Viewing	10%	This model prioritizes areas that are in close proximity to wildlife viewing areas including popular birding locations.  The results were scored using a scale of 0-5, with 5 being highest priority for recreational interest, as follows: 5 : < 0.5 miles 3 : 0.5 - 1 miles 0 : all others	Great Florida Birding Trail Destinations, Tropical Audubon Locations, Ebird Hotspots,	TPLGIS digitized locations from: <a href="http://www.tropicalaudubon.org/">http://www.tropicalaudubon.org/</a> <a href="http://ebird.org/">http://ebird.org/</a> <a href="http://floridabirdingtrail.com">http://floridabirdingtrail.com</a>
	Proximity to Historical and Cultural Areas	10%	This model prioritizes areas that may provide educational exposure to historical and cultural areas including historic buildings, structures, cemeteries, and archeological sites. Due to the sensitivity of this data, exact locations were not used. Rather, the relative density of historic and cultural places of interest was derived by counting the number of these features within 1 mile radius.  The results were scored on a scale of 0-5, with 5 being highest priority for recreational interest, as follows:  11 - 18 sites within 1 mile radius = 5 6 - 10 sites within 1 mile radius = 4 1 - 5 sites within 1 mile radius = 3	2014 Archeological sites 2014 Historic bridges 2014 Historic cemeteries 2014 National Register of Historic Places 2014 Historic structures 2014 Resource groups (historical districts, archaeological districts or building complexes)	Miami-Dade GIS Portal  Florida Division of Natural Resources
	Proximity to Water Features	10%	This model prioritizes areas that are in close proximity to water features including lakes, canals, streams and other designated water features.  The results were scored on a scale of 0-5, with 5 being highest priority for recreational interest, as follows: 5 : < 0.5 miles 3 : 0.5 - 1 miles 0 : all others	2012 Waterbodies 2010 Streams 2012 Canals 2009 Lakes	Miami-Dade GIS Portal
	Proximity to Community Facilities	10%	This model prioritizes areas that are in close proximity to community facilities including Metro Mover Stations, bus stops, Metro Rail Stations, Libraries, public and private schools, colleges, and adult living facilities.  The results were scored on a scale of 0-5, with 5 being highest priority for recreational access, as follows: 5 : < 0.5 miles 3 : 0.5 - 1 miles 0 : all others	2013 County Public Libraries 2012 Municipal Public Libraries 2013 Public Schools 2013 Private Schools 2012 Colleges and Universities 2013 Adult Living Facilities 2013 Bus Stops 2013 MetroRail Stations 2013 MetroMover Stations	Miami-Dade GIS Portal
	Proximity to High Recreational Demand	10%	This model prioritizes the areas with higher population densities within a 1 mile radius.  The results were scored on a scale of 0-5, with 5 being highest priority for recreational demand.	2010 Population Density	US Census, ESRI



## Miami-Dade Western Greenway Implementation Strategies Assessment

Priorities Assessment - Model Criteria  
September 22, 2014

Goal	Criteria	Criteria Weights	Methodology	Data (Description, Date)	Data Source
	Proximity to Existing and Future Trails	10%	This model prioritizes areas within close proximity of existing, funded, and/or future funded trails and greenways.  The results were scored on a scale of 0-5, with 5 being highest priority for existing or planned greenway access, as follows: 5 : < 0.5 miles 3 : 0.5 - 1 miles 0: all others	2013 Greenways	Miami Dade County Parks, Recreation and Open Spaces
Promote Agricultural-Tourism		Equally weighted	<i>Principles and Desired Outcomes: Economic Development, Education Ensure high standards of design excellence, innovation and beauty to support economic, social and environmental sustainability of the region.  Ensure the preservation, protection and enhancement of cultural resources to sustain landscapes and their historical and heritage features. (South Florida Parks Coalition)</i>		
	Proximity to Agricultural-Tourism Destinations	33%	This model prioritizes areas that are within close proximity to existing agricultural-tourism destinations including fruit stands, florists, nurseries, wineries, and Redland Tropical Trail destinations.  The results were scored on a scale of 0-5, with 5 being highest priority for agricultural tourism, as follows: 5 : < 0.5 miles 3 : 0.5 - 1 miles 0: all others	Fruit farms, vegetable farms/stands, ornamental horticulture, wineries, and other existing commercial entities.  Redland Tropical Trail Destinations	MDPR IFAS Miami-Dade County Extension  redlandtrail.com
	Existing Agricultural Lands	33%	This model prioritizes areas that include existing agricultural landuses, including groves, row and field cropland, pasture, horse training and stables, fallow, plant nurseries, fish farms, farm storage areas, and other agriculture.  Areas with any of these landuses were scored as high priority for agricultural tourism.	2012 Cooperative Land Cover 2013 Existing Landuse (LUMA)	Florida Natural Lands Inventory Miami-Dade GIS Portal
	Agricultural Zoning	33%	This model prioritizes areas that are currently zoned for agriculture. These areas were scored as high priority for agricultural tourism.	2014 Zoning	Miami-Dade GIS Portal
Protect Natural Resources and Climate Resilience		Equally weighted	<i>Principles and Desired Outcomes: Water Quality Protection, Habitat Protection, Hazard Mitigation, Climate Resilience, Urban to Everglades Transition, Education Ensure the preservation, protection and enhancement of ecological resources to sustain and preserve biodiversity and the environmental health of the region. (South Florida Parks Coalition)</i>		
	Climate Resilience and Hazard Mitigation	25%	This model prioritizes areas with higher risk of flooding. The incorporation of NOAA inundation estimates for future sea-level rise scenarios is under development.  The results were scored on a scale of 0-5, with 5 being highest priority for resource and climate resilience protection.	2013 Natural Floodplains (ver 4)  2012 Sea Level Rise and Inundation Projections and Confidence Levels  Climate Adaptation Action areas (not yet established for Miami-Dade County)	FNAI GIS Portal  NOAA Coastal Service Center  Miami-Dade PWWM
	Habitat and Biodiversity Protection	25%	This model prioritizes lands for habitat and biodiversity protection. Considerations included designated Environmentally Endangered Lands (EEL) Lands, identified ecological greenways from Florida Natural Areas Inventory (FNAI), Rare Species Habitat from FNAI, and Landscape Integrity priorities from FNAI.  The results were scored on a scale of 0-5, with 5 being highest priority for habitat protection.	2013 Miami-Dade Environmentally Endangered Lands (EEL) Lands  2013 Florida Ecological Greenways Network (v4) 2013 Rare Species Habitat Conservation Priorities (v4)  2011 Landscape Integrity CLIP 2.0	Miami-Dade Regulatory and Economic Resources (RER) Department  FNAI GIS Portal
	Vegetation Communities	25%	This model prioritizes areas that exhibit healthy, natural vegetation and/or under represented natural communities.  Areas with natural landcover were extracted from the 2012 Cooperative Land Cover dataset by excluding all modified landuse types. Areas with natural landcover were then prioritized on a scale of 0-5 based on the density and health of the vegetation as indicated by the 2014 Vegetation Density and Health analysis provided by UGA.  This result was then combined with under represented natural communities as identified by FNAI, using global rankings for prioritization as follows:  G1 = 5 G2 = 4 G4 = 3	2014 Vegetation Density and Health  2012 Cooperative Land Cover  2013 Under-represented Natural Communities (v4)	University of Georgia, College of Environment and Design, NASA DEVELOP Internship  Florida Natural Areas Inventory (FNAI)
	CERP Project Boundaries	25%	This model prioritizes areas identified for Consolidated Everglades Restoration Projects (CERP).  The results were scored on a scale of 0-5, with 5 being highest priority for habitat protection, based on the CERP Data sub-type designation as follows: Expedited Project = 5 CERP Project = 4 CERP Study Area = 3	Consolidated Everglades Restoration Projects	DEP Division of Environmental Assessment & Restoration

## APPENDIX C

### **Miami-Dade County Western Greenway System**

#### *Case Study List*

Swamp Rabbit Trail    Greenville, SC

Razorback Greenway    Fayetteville, AR

Roanoke Valley System    Roanoke, VA

Red Rock Trails    Birmingham, AL

Bayou Greenways    Houston, TX

*When printing, print this 4-page table on legal-size paper for easier reading.*



## Miami-Dade County Western Greenway System

### Case Study Summaries

	<i>Trail size and characteristics</i>	<i>Governance and leadership</i>	<i>Mission and goals of the trail</i>	<i>Trail development and operations history</i>	<i>Partnerships-Goals, roles and agreements</i>	<i>Budget and staff of support organization</i>	<i>Usership, programs, outreach</i>	<i>Measures of success</i>	<i>Strengths and challenges</i>	<i>Other</i>
Swamp Rabbit, SC	17.5 multi-use paved rail-trail.	Greenville County Recreational District; completed comprehensive greenway master plan in 2010. In 2013 District merged with county. District officials say the district's tax base was being eroded due to annexation by municipalities within the county, many of which provide recreation services of their own.	Enhance bicycle and pedestrian connectivity ; Improve the quality of life in Greenville County by developing a greenway network designed to promote active lifestyles, community strength, alternative transportation, and incentivize corporate involvement in developing trails; stimulate tourism; connect to regional trails; protect natural lands; generate economic activity.	2007: Passage of a county hospitality tax for recreation and tourism generates \$2 Million for the Swamp Rabbit.The Greenville Hospital System partners with city for \$1 million. Construction starts on the <i>Greenville Hospital System Swamp Rabbit Tram Trail</i> .	GHS money used for health and wellness messaging. Furman University linked to trail and invested \$150K.	In 2013 District had \$20M budget with about 50% spent on park and trail development. 2014 will be first year of merged district/county with new department of parks, recreation, and tourism. According to Houck, the existing Swamp Rabbit cost an average of \$200,000 per mile to develop, including pavement, signage and crosswalks.	George Hincapie resides in Greenville; first stretch dedicated to him in 2008. City leads once a month tour. Local businesses offer discounts. Annual events - e.g., 5k run. 400,000+ annual users; local businesses have seen sales rise from 30 to 85%.	Swamp Rabbit Green developed in vacant building with 5 trail-centric businesses. Most businesses on Greenville's new Swamp Rabbit Trail saw 30-85 percent increases in sales after the trail opened in 2011. Five new businesses decided to open as a result of the trail being built and/or changing location(s).	Planted tree 'roundabouts' at street crossings. Individuals, corporations can 'own' sections of the trail. Cross-marketed with coffee maker who donates percentage.	
Razorback Greenway, AR	36 mile bicycle & pedestrian corridor, primarily off-road, shared-use concrete and asphalt trail that links the cities of Bella Vista, Bentonville, Rogers, Lowell, Springdale, Johnson and Fayetteville.	Full build out of the Northwest Arkansas Razorback Regional Greenway is expected to cost approximately \$38 million. Cities taking lead on some trails. In Fayetteville, 2006 sales tax referendum approved by voters for 2.1 million in trail development. Additional 1.5 million annual funding from CIP local sales tax revenue	National model for active transportation, green infrastructure, healthy living, sustainable economic development, & public-private partnerships	In 2010 Walton Family Foundation led public outreach with support for better community mobility. Five day workshop including field days and mapping. Regional planning agency took the lead. Ten-phased project. ROW secured by combination of donations and acquisitions. Trailheads, public art, signage paid for with other public/private funding, e.g., TCSP funding. 2012 Groundbreaking. Designated TMA in 2012 allowing access to MAP-21 funds - \$450K in 2013 and	Cities maintain membership on a regional committee of agencies and jurisdictions along the greenway to adopt, establish, and implement a uniform program of trail management. The O&M plan for the greenway provides baseline information for tasks.	The Walton Family Foundation provided funding for planning and design. NW Arkansas Council is a private NGO committed to sustaining and improving NW Arkansas as a great place to live and work. The Council added one staffer as regional trail coordinator to help promote, program and increase usage on the trails. The Fayetteville Natural Heritage Association supports trail development. Many local trail associations exist.	Public involved in logo, branding; project website; project newsletter; Facebook page. Public open house meetings for each section. New regional bike and ped plan with over 800 participants driving new sources of funding. Citizens driving new alternative transportation plans in each city, e.g. 9 member staff in Fayetteville dedicated to building, maintaining trails.	The trail links six downtown areas; three major hospitals; nearly two dozen public and private schools; the NorthWest Arkansas Community College; the University of Arkansas; three corporate hqtrtrs; the Crystal Bridges Museum of Art, historic sites, parks, and playgrounds; shopping/comm. developments; and thousands of residential areas.	Developing organizational structure and funding partners. Started with Tiger II grant (\$15M) and State transportation funding. Walton Family Foundation matched with \$15M. Local cities committed to O&M costs as match to grant. Project began with transportation planning process that included regional trails as a key component.	The first two construction phases of the project connected existing segments of the greenway. Stormwater management plan for portions of trail with both sewer and green infrastructure.

	<i>Trail size and characteristics</i>	<i>Governance and leadership</i>	<i>Mission and goals of the trail</i>	<i>Trail development and operations history</i>	<i>Partnerships-Goals, roles and agreements</i>	<i>Budget and staff of support organization</i>	<i>Usership, programs, outreach</i>	<i>Measures of success</i>	<i>Strengths and challenges</i>	<i>Other</i>
Roanoke Valley, VA	26 miles of greenways with bicycle/pedestrian trails have been built in the Roanoke Valley, with additional hubs of natural surface trails at Mill Mountain, Carvins Cove, and Read Mountain. The update to the Roanoke Valley Greenway Plan in 2007 provides for 35 routes that will provide linkages throughout the Roanoke Valley	The greenway program is a regional partnership between four local gov'ts. They established a Greenway Commission and adopted the greenway plan into their Comp plans; they fund the office of Greenway Coordinator on a per capita basis, match capital grants, oversee planning and construction, and provide staff time and in-kind services for greenway construction and management.	The purpose of the Roanoke Valley Greenway Commission is to promote and facilitate coordinated direction and guidance in the planning, development, and maintenance of a system of greenways through the Roanoke Valley. The Commission has a \$100K budget and Pathfinders about a \$50K annual budget for operations.	The Roanoke Valley, Virginia greenway program arose in 1995 as a citizen initiative to improve quality of life in the region. The City of Roanoke, Roanoke County, Salem and the Town of Vinton established the Roanoke Valley Greenway Commission in 1997 with the signing of an Intergovernmental Agreement.	Greenway founders set up Pathfinders for Greenways, Inc. to involve volunteers in g'way development. Pathfinders provides a forum for involvement of volunteers, coordination of work days, greenway promotional events, and fund raising. Pathfinders have been particularly effective in building and maintaining natural surface trails. They donate 3-5,000 hours of volunteer service each year and have purchased over \$60,000 worth of trail building equipment	Regional Surface transportation funding annually contributes to trail building goals.	Estimated 300K+ users. The Greenway Commission has established important formal and informal connections to state and federal agencies, including the Blue Ridge Parkway allowing them to work cooperatively to develop and maintain trails on and connecting to Parkway facilities. Greenway Commission members and staff have been active with state agencies such as the Department of Conservation and Recreation, Department of Forestry, Department of Transportation, and Department of Game and Inland Fisheries.			
Red Rock Trails, AL	The Red Rock Ridge and Valley Trail System will eventually connect more than 750 miles of combined greenways, waterways, and trails. The master plan proposes over 200 miles of shared-use greenways and trails along six main corridors, as well as over 600 miles of street-based bicycle and pedestrian pathways that will connect the corridors with surrounding areas.	The strategy for actualizing the system also has a name: the Our One Mile Plan, an initiative to get communities and developers interested in their particular piece of their corridor, to promote the piece's benefits to them.	The purpose of the trails plan is to develop a feasible and "ground-truthed" master plan for greenways and bicycle and pedestrian infrastructures that will promote active and healthy living, use of alternate modes of transportation, and protect regional waterways.	The Jefferson County Department of Health (JCDH) funded the creation of the Red Rock Ridge and Valley Trail System plan and continues to support implementation in order to provide communities with safe, accessible places to engage in physical activity. In addition to financially supporting the creation of the trail, the Community Foundation of Greater Birmingham (CFGB) also helped to coordinate the local fundraising effort.	Freshwater Land Trust (FWLT) works as primary partner. In 2010, they, under the Jefferson County Department of Health and the Health Action Partnership, received funding through a Centers for Disease Control "Communities Putting Prevention to Work" grant to develop a greenway master plan for Jefferson County, Alabama.	The FWLT, a non-profit, has seven full-time employees, one part-time employee and is governed by a 15-member board of directors. The regional planning council has agreed to incorporate the Trail System Master Plan into its Long Range Transportation Improvement Program (TIP), thus making all trails eligible for Surface Transportation Program (STP) and Congestion Mitigation and Air Quality (CMAQ) funding.	In January, 2014 The first 29 miles of the Red Rock Ridge and Valley Trail System was completed. The project was funded by a TIGER grant. On the first Tuesday of every month, a TV channel celeb walks a one-mile stretch of the corridor. To obtain planning input, the "Our One Mile" team organized over forty stakeholder meetings with a diverse array of organizations and individuals throughout Jefferson County to discuss important destinations and prospective trail routes. An online "virtual" stakeholder meeting was created on the FWLT web site to capture public input.		The Red Rock Ridge & Valley Trail System Master Plan is designed as a tool for municipalities and cooperating organizations, supplying all the information needed to apply for grants to fund the site design and construction of trail segments. Existing greenways and bicycle-pedestrian master plans at the municipal level were carefully incorporated into the Red Rock Ridge & Valley Trail System Master Plan.	FWLT held an open competition to name the trail system.

	<i>Trail size and characteristics</i>	<i>Governance and leadership</i>	<i>Mission and goals of the trail</i>	<i>Trail development and operations history</i>	<i>Partnerships- Goals, roles and agreements</i>	<i>Budget and staff of support organization</i>	<i>Usership, programs, outreach</i>	<i>Measures of success</i>	<i>Strengths and challenges</i>	<i>Other</i>
Bayou Greenways, TX	Bayou Greenways will develop connected green corridors with hike and bike trails along the bayous of the greater Houston area. When complete, the project will have added 4,000 acres of new, equitably distributed green spaces that will also aid in flood control and storm water quality enhancement, and 300 miles of continuous, all-weather hike and bike trails.	City of Houston and Houston Parks Board 2013 agreement to partner on design, construction and maintenance.	Outcomes: <u>Equitable Distribution</u> -- continuous greenspaces and amenities along all stretches of bayous <u>Places for Houstonians to connect</u> , meet, recreate, and celebrate. <u>Accessibility</u> -- maximizing physical and visual access to the bayou greenways. <u>"Houstonness"</u> – celebrating the variety of each individual bayou while creating a cohesive identity for Houston Bayou Greenways as a whole. Respect for the natural setting and ecological significance of the bayou corridors.		Houston Parks Board will manage the design and construction of the trails over the life of the project. A 2013 agreement also provides for transparency and accountability. All construction plans, trail alignments and design of trails and/or trail related facilities are subject to HPARD approval. All construction contracts are subject to approval by City of Houston Legal and General Services Departments. HPB has hired a greenway maintenance manager.	The Houston Parks Board, a 501 (c) (3) non-profit organization, was created in 1976. The Board is made up of 26 volunteer board of directors and 7 full-time staff members, and works with the City of Houston, Harris County Precincts, Harris County Flood Control District, other NGOs and numerous community groups.	When completed, 6 out of 10 Houstonians will live within a mile and half of one of the bayou trails.	Bayou Greenways 2020 is estimated to cost \$480 million and is being funded through a unique public-private partnership. In November 2012 Houston voters approved a major bond referendum providing \$166 million in parks funding, \$100 million of which is dedicated to Bayou Greenways 2020. The bond passed with 68% of the votes – the most positive referendum in the city's history. The private community will provide a dollar for dollar match.	\$70 million each year in projected annual benefits: (1) \$10 million in economic health benefits (enhanced property values and company talent relocation and retention); (2) \$10 million in environmental health benefits (flood/runoff reduction and enhanced water quality); (3) \$50 million in physical and mental health benefits (recreation use value).	Rich and Nancy Kinder announced plans to donate \$50 million to the project late in 2013. It is the largest donation in the history of the Parks Board. To date, an additional \$21 million has been committed with significant gifts by Houston Endowment Inc., The Wortham Foundation, Inc., The Fondren Foundation, the Brown Foundation, and individual donors.

## NASA DEVELOP National Program

University of Georgia  
Spring 2014

# Miami-Dade Ecological Forecasting

Utilizing NASA Earth Observations to Enhance Corridor Prioritization  
and Design Plans for the Western Greenway Corridor in  
Miami-Dade County, South Florida

## Summary of Land Cover/Land Use Classification Map Methods and Results

A Land Cover Classification Analysis was performed by the NASA Develop team<sup>1</sup> at the University of Georgia, using NASA's Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER), 15 m. resolution satellite imagery. Given the variability in land-use profiles in different parts of the study region (i.e. eastern = mostly urban, western = mostly agricultural, southern = mostly wetlands) the area was divided into four areas to be classified separately. A combination of methods, including Normalized Difference Vegetation Index (NDVI) and Principal Components Analysis was performed using ArcGIS and ENVI software. The NDVI calculations were determined by assigning thresholds based on vegetation index value ranges that were classified following natural breaks. Accuracy assessment was performed by generating 771 ground control points through stratified random sampling in ArcGIS, then comparing the classified image and ground truth image at these points. United States Department of Agriculture (USDA) 2010 1-meter resolution aerial photo imagery was used as the ground truth dataset. This was the closest available dataset to the ASTER imagery date. The error matrix produced an overall accuracy of 84%) and a Kappa coefficient of 0.81.

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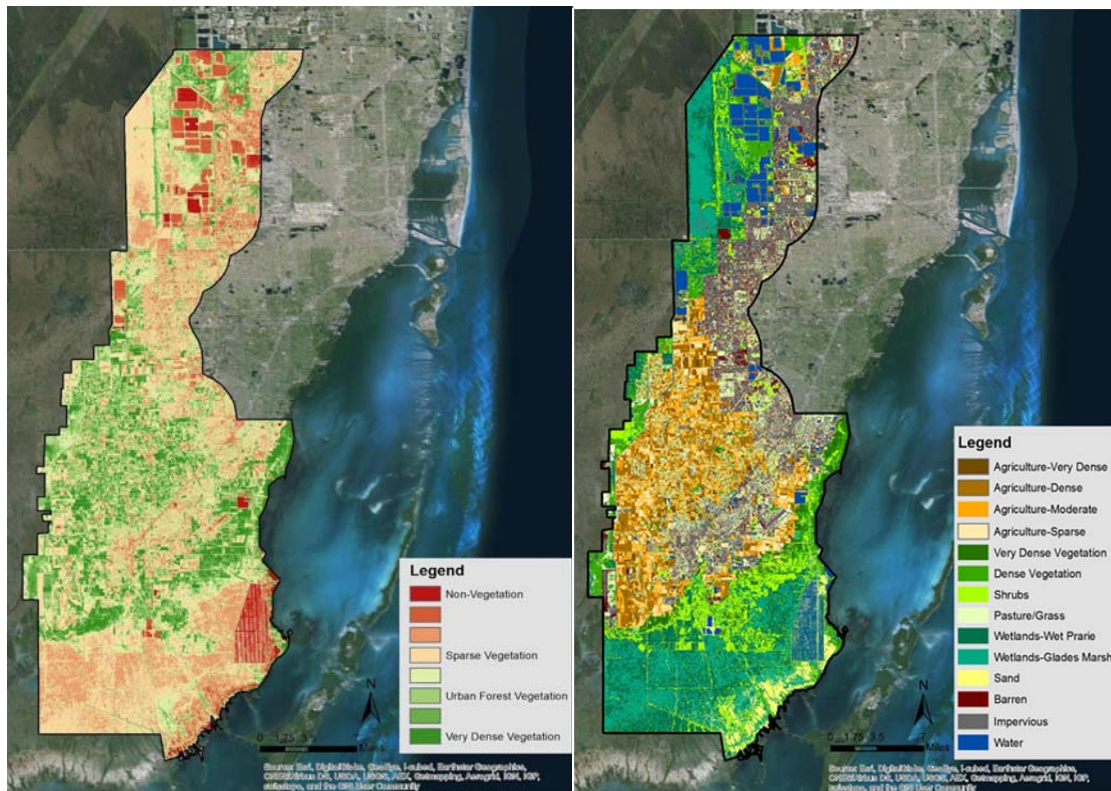
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The resulting map (shown in figure below), shows a total of 14 land cover classes, based on land cover/land use and density, that were used in the analysis as an indicator of vegetation and land cover, for the Protection of Natural Resources and Climate Resilience.



### Fieldwork Observations

To further assist with Greenway planning efforts, the team members made field observations of the sites that were designated by the proposed Western Greenway model. The proposed routes and points of interests were later discussed through direct conversations between team members and project partners. To assess the model's effectiveness, team members photographed and took notes of the locations for potential gateways and public access points into Environmentally Endangered Lands. The observations made were collected and later summarized into a Trail Analysis map (see Figure 5), these information also helped to created an online story map's natural landscape category (see Figure 6), giving public an essential virtual tour of the greenway.



Figure 5. Trail Analysis Map



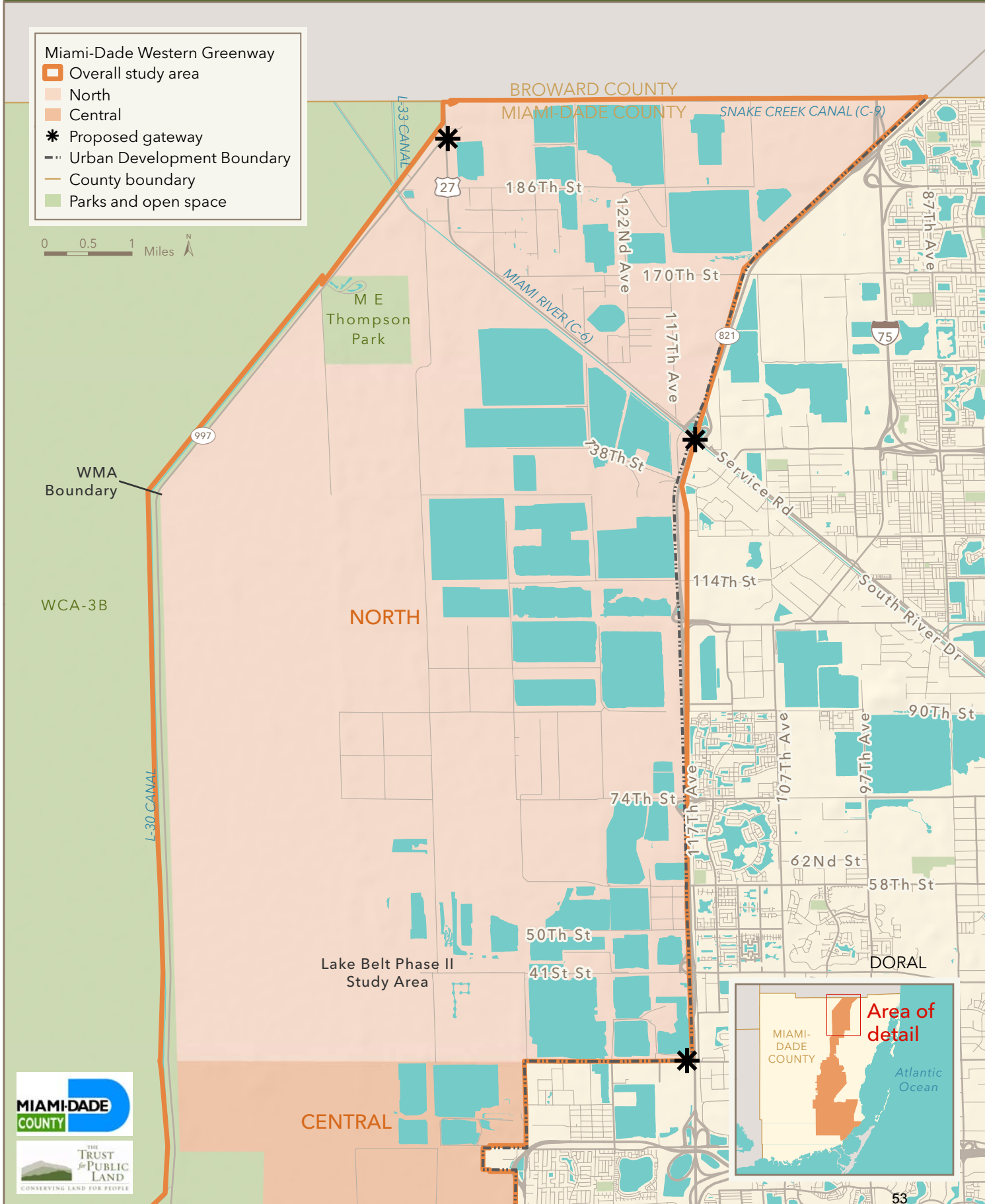


# MIAMI-DADE COUNTY WESTERN GREENWAY SYSTEM

## EXISTING CONDITIONS: STUDY AREA NORTH

- Miami-Dade Western Greenway
- Overall study area
- North
- Central
- Proposed gateway
- Urban Development Boundary
- County boundary
- Parks and open space

0 0.5 1 Miles

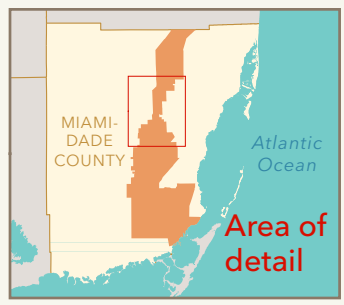




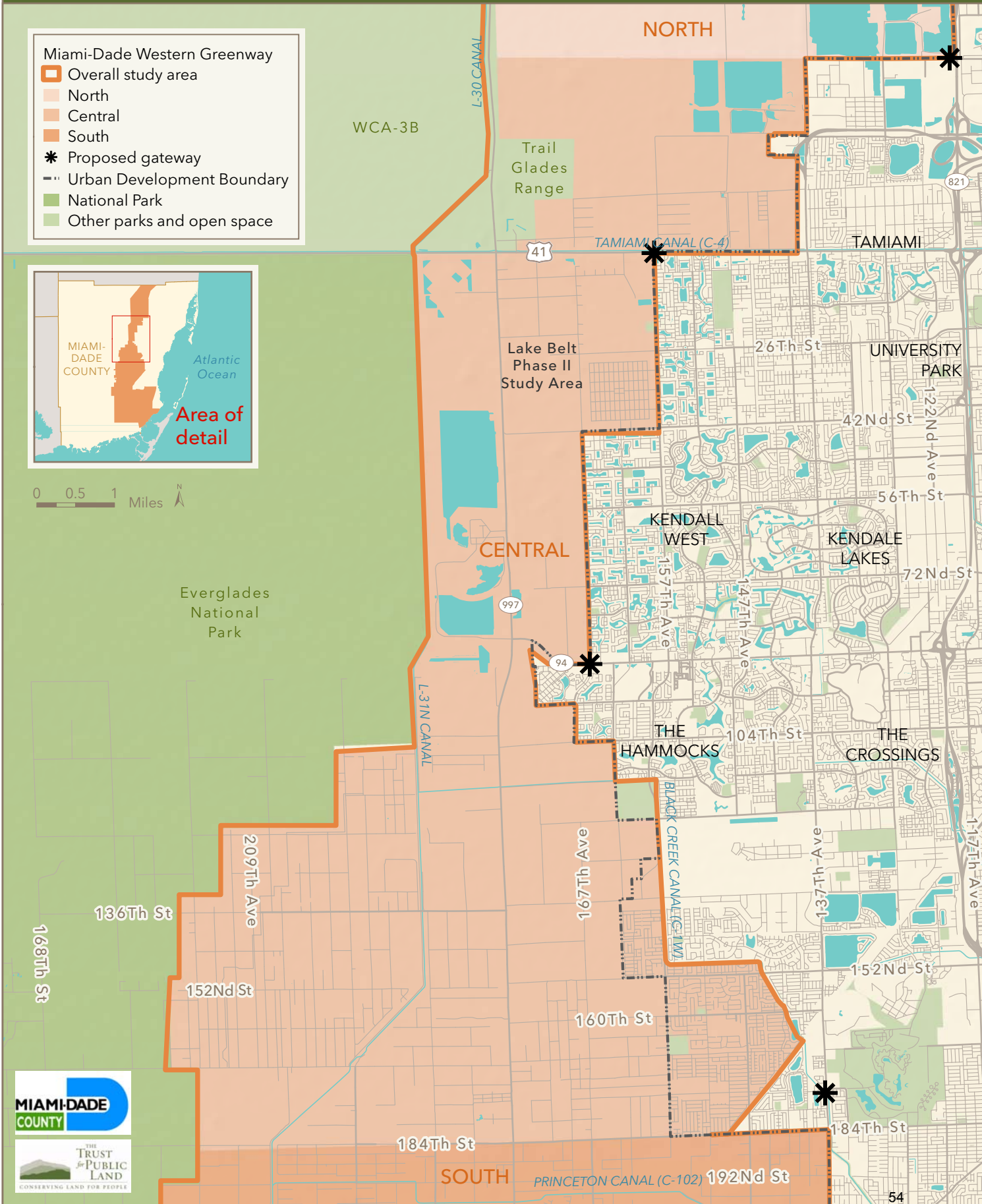
# MIAMI-DADE COUNTY WESTERN GREENWAY SYSTEM

## EXISTING CONDITIONS: STUDY AREA CENTRAL

- Miami-Dade Western Greenway
- Overall study area
  - North
  - Central
  - South
  - Proposed gateway
  - Urban Development Boundary
  - National Park
  - Other parks and open space



0 0.5 1 Miles







# MIAMI-DADE COUNTY WESTERN GREENWAY SYSTEM

## PRIORITIES ASSESSMENT: PROVIDE RECREATION ACCESS

### Recreation Access Priority

- Very high
- High
- Moderate to high
- \* Proposed gateway
- Proposed Greenway Connection
- Existing or planned/funded greenway
- Proposed or unfunded greenway
- Urban Development Boundary
- County boundary
- National Park
- Other parks and open space

0 2.5 5 Miles



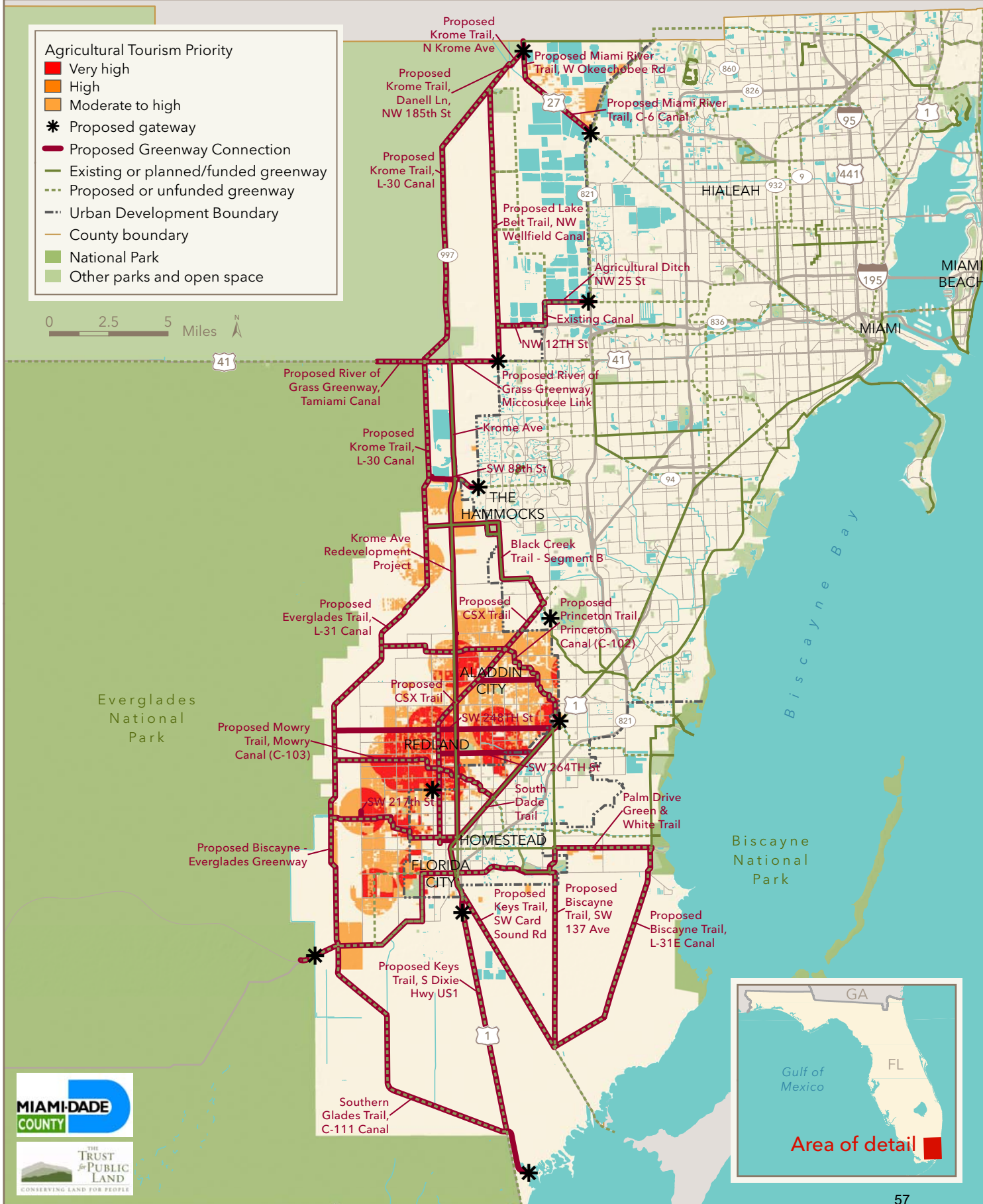
# MIAMI-DADE COUNTY WESTERN GREENWAY SYSTEM

## PRIORITIES ASSESSMENT: PROMOTE AGRICULTURAL TOURISM

### Agricultural Tourism Priority

- Very high
- High
- Moderate to high
- \* Proposed gateway
- Proposed Greenway Connection
- Existing or planned/funded greenway
- Proposed or unfunded greenway
- Urban Development Boundary
- County boundary
- National Park
- Other parks and open space

0 2.5 5 Miles





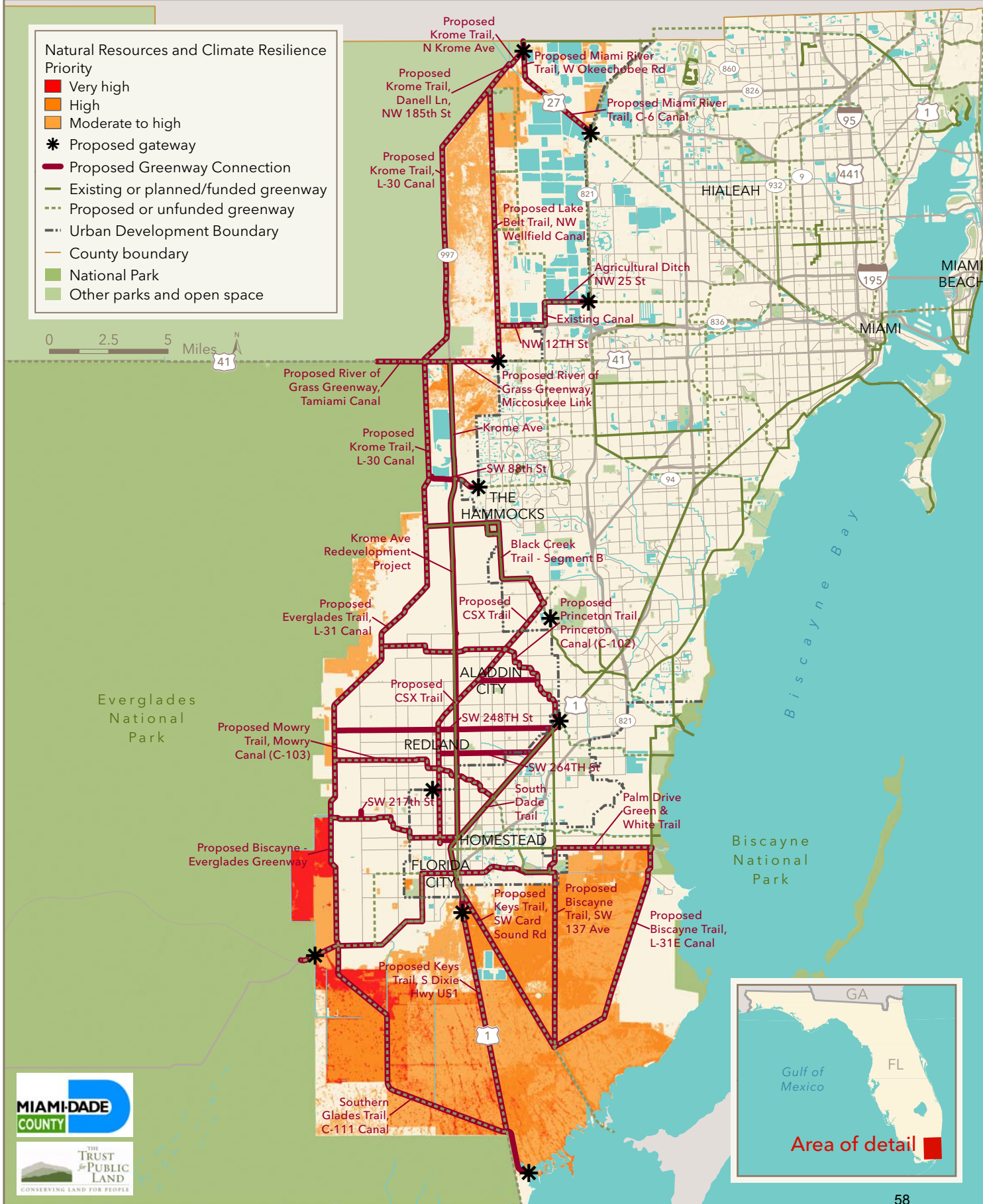
# MIAMI-DADE COUNTY WESTERN GREENWAY SYSTEM

## PRIORITIES ASSESSMENT: PROTECT NATURAL RESOURCES AND CLIMATE RESILIENCE

### Natural Resources and Climate Resilience Priority

- Very high
- High
- Moderate to high
- \* Proposed gateway
- Proposed Greenway Connection
- Existing or planned/funded greenway
- Proposed or unfunded greenway
- Urban Development Boundary
- County boundary
- National Park
- Other parks and open space

0 2.5 5 Miles



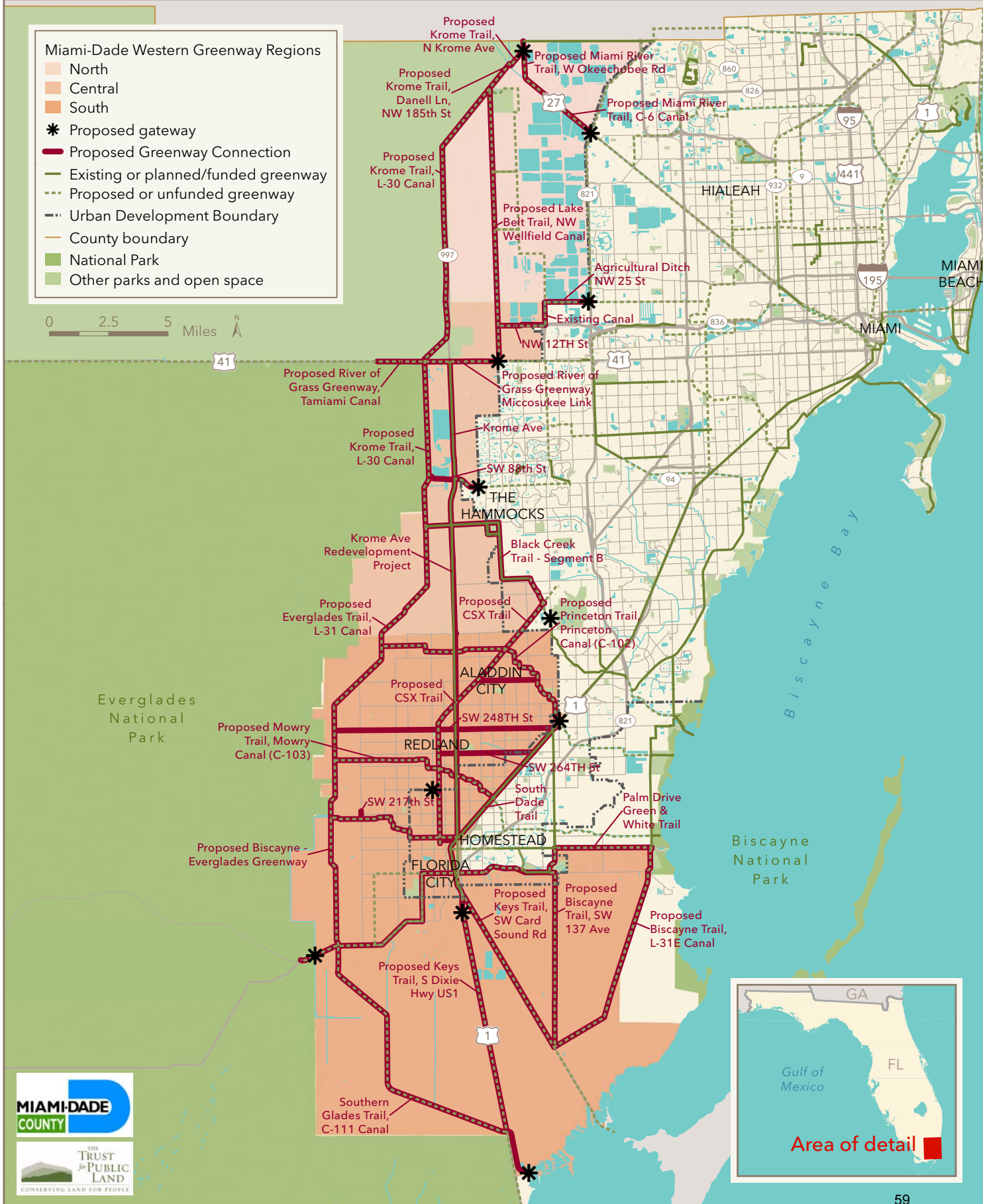
# MIAMI-DADE COUNTY WESTERN GREENWAY SYSTEM

## STUDY AREA AND PROPOSED ROUTING

### Miami-Dade Western Greenway Regions

- North
- Central
- South
- \* Proposed gateway
- Proposed Greenway Connection
- Existing or planned/funded greenway
- Proposed or unfunded greenway
- Urban Development Boundary
- County boundary
- National Park
- Other parks and open space

0 2.5 5 Miles



# MIAMI-DADE COUNTY WESTERN GREENWAY SYSTEM HOMESTEAD LOOP

- \* Proposed gateway
- Homestead Loop
- Proposed Greenway Connection
- Existing or planned/funded greenway
- - - Proposed or unfunded greenway
- - - Urban Development Boundary
- - - County boundary
- City of Homestead
- National Park
- Other parks and open space

