I-95/SR 9 Interchange at 45th Street

Project Development and Environment (PD&E) Study

(Mile Post 31.040)

Palm Beach County, Florida

FPID No.: 436519-1-22-01 | FAP No.: 0951-682-1 | ETDM No.: 14225

CULTURAL RESOURCE ASSESSMENT SURVEY

August 2017

Prepared for:
Florida Department of Transportation
District Four

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016 and executed by FHWA and FDOT.

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Prepared for:

Florida Department of Transportation
District Four

Palm Beach County, Florida

Prepared by:

Janus Research

August 2017

EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT), District Four, is currently conducting a Project Development and Environment (PD&E) Study that proposes improvements to SR 9/I-95 from South of 45th Street to North of 45th Street (Mile Post 31.040), Palm Beach County, Florida. The project limits of this report include the I-95 interchange at 45th Street. The intersections on 45th street that were studied extend from Village Boulevard to N. Congress Avenue. The objective of this cultural resource assessment survey (CRAS) was to identify cultural resources and assess their eligibility for listing in the National Register of Historic Places (National Register) according to the criteria set forth in 36 CFR Section 60.4.

This assessment complies with Section 106 of the *National Historic Preservation Act (NHPA) of 1966* (Public Law 89-665, as amended), as implemented by 36 CFR 800 -- *Protection of Historic Properties* (incorporating amendments effective August 5, 2004); Stipulation VII of the *Programmatic Agreement among the Federal Highway Administration (FHWA), the Advisory Council on Historic Preservation (ACHP), the Florida Division of Historical Resources (FDHR), the State Historic Preservation Officer (SHPO), and the FDOT Regarding Implementation of the Federal-Aid Highway Program in Florida* (Section 106 Programmatic Agreement, effective March 2016); Section 102 of the *National Environmental Policy Act (NEPA) of 1969*, as amended (42 USC 4321 et seq.), as implemented by the regulations of the Council on Environmental Quality (CEQ) (40 CFR Parts 1500–1508); Section 4(f) of the *Department of Transportation Act of 1966*, as amended (49 USC 303 and 23 USC 138); revised Chapter 267, *Florida Statutes (F.S.)*; and the standards embodied in the FDHR's *Cultural Resource Management Standards and Operational Manual* (February 2003), and Chapter 1A-46 (*Archaeological and Historical Report Standards and Guidelines*), *Florida Administrative Code*. In addition, this report was prepared in conformity with standards set forth in Part 2, Chapter 12 (*Archaeological and Historic Resources*) of the FDOT *Project Development and Environment Manual* (revised, September 2016). All work also conforms to professional guidelines set forth in the *Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716, as amended and annotated).

Principal Investigators meet the Secretary of the Interior's Professional Qualification Standards (48 FR 44716) for archaeology, history, architecture, architectural history, or historic architecture. Archaeological investigations were conducted under the direction of James P. Pepe, M.A., RPA.

Historic resource investigations were conducted under the direction of Amy Groover Streelman, M.H.P.

No newly or previously recorded archaeological sites were identified within the archaeological area of potential effect (APE). Background research and a reconnaissance survey determined that the APE has a low probability for archaeological sites. Subsurface testing was not feasible within the archaeological APE due to the presence of existing pavement, sidewalks, landscaping, existing retention ponds and canal, berms, and buried utilities.

The historic resources survey resulted in the identification of one newly recorded historic resource. The Earman River Canal (C-17) (8PB17116) is considered eligible for inclusion in the National Register under Criteria A and C, in the areas of Community Planning and Development and Engineering.

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1 INTRODUCTION

At the request of the Florida Department of Transportation (FDOT), District 4, Janus Research, conducted a cultural resource assessment survey (CRAS) for SR 9/I-95 from South of 45th Street to North of 45th Street Project Development and Environment (PD&E) Study (Mile Post 31.040) in the City of West Palm Beach, Palm Beach County, Florida (FPID: 436519-1-22-01). The project limits of this report include the I-95 interchange at 45th Street. The intersections on 45th street that were studied extend from Village Boulevard to N. Congress Avenue. The PD&E study area is illustrated in Figure 1. The project area is located in Section 6 of Township 43 South, Range 43 East on the Riviera Beach (1946 Photorevised [PR] 1983) United States Geological Survey (USGS) quadrangle map. The objective of this CRAS was to identify cultural resources and assess their eligibility for listing in the *National Register of Historic Places* (National Register) according to the criteria set forth in 36 CFR Section 60.4.

This assessment complies with Section 106 of the *National Historic Preservation Act (NHPA) of 1966* (Public Law 89-665, as amended), as implemented by 36 CFR 800 -- *Protection of Historic Properties* (incorporating amendments effective August 5, 2004); Stipulation VII of the *Programmatic Agreement among the Federal Highway Administration (FHWA), the Advisory Council on Historic Preservation (ACHP), the Florida Division of Historical Resources (FDHR), the State Historic Preservation Officer (SHPO), and the FDOT Regarding Implementation of the Federal-Aid Highway Program in Florida* (Section 106 Programmatic Agreement, effective March 2016); Section 102 of the *National Environmental Policy Act (NEPA) of 1969*, as amended (42 USC 4321 et seq.), as implemented by the regulations of the Council on Environmental Quality (CEQ) (40 CFR Parts 1500–1508); Section 4(f) of the *Department of Transportation Act of 1966*, as amended (49 USC 303); revised Chapter 267, *Florida Statutes (F.S.)*; and the minimum field methods, data analysis, and reporting standards embodied in the FDHR's *Cultural Resource Management Standards and Operational Manual* (February 2003), and Chapter 1A-46 (*Archaeological and Historical Report Standards and Guidelines*), *Florida Administrative Code*. In addition, this report was prepared in conformity with standards set forth in Part 2, Chapter 12 (*Archaeological and Historic Resources*) of the FDOT *Project Development and Environment Manual* (revised, September 2016). All work also conforms to professional guidelines set forth in the *Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation*

(48 FR 44716, as amended and annotated) and Chapter 1A-46 (*Archaeological and Historical Report Standards and Guidelines*), *Florida Administrative Code*.

Principal Investigators meet the Secretary of the Interior's Professional Qualification Standards (48 FR 44716) for archaeology, history, architecture, architectural history, or historic architecture. Archaeological investigations will be conducted under the direction of James P. Pepe, MA, RPA, and historic resource investigations will be conducted under the direction of Amy Groover Streelman, MHP.

2 SUMMARY OF PROJECT

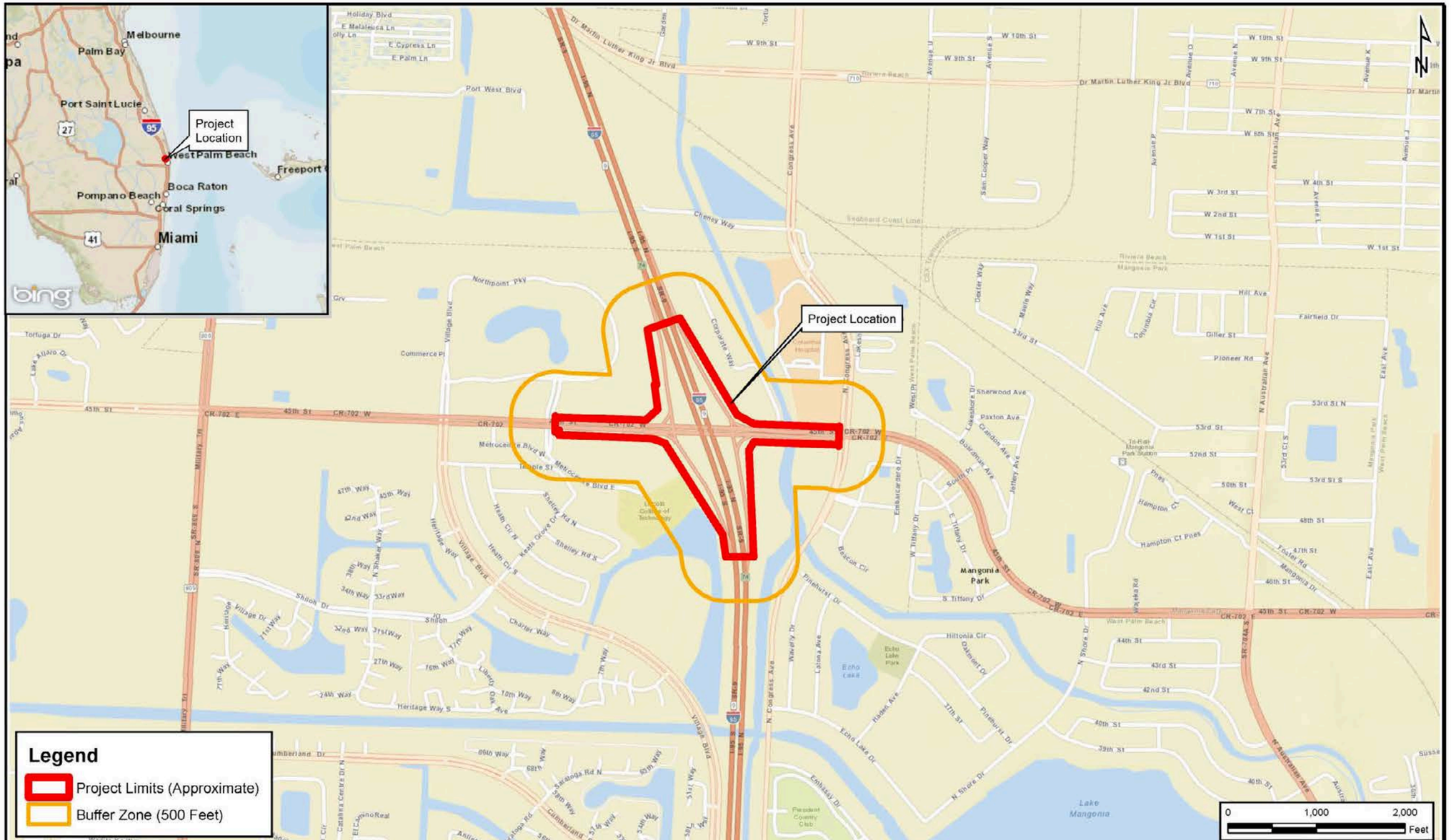
2.1 Project Description

This report contains information regarding the SR 9/I-95 from South of 45th Street to North of 45th Street Project Development and Environment (PD&E) Study (Mile Post 31.040). This project has been developed in compliance with Title VI of the Civil Rights Act of 1964 and other related federal and state nondiscrimination authorities. Neither the Florida Department of Transportation (FDOT) nor this project will deny the benefits of, exclude from participation in, or subject to discrimination anyone on the basis of race, color, national origin, age, sex, disability, or family status.

The FDOT, District Four is conducting a PD&E Study to identify short-term and long-term needs of I-95 and develop design concepts to address traffic spillback onto I-95, improve interchange operations, reduce congestion, and increase safety at the study interchange. This study will also consider Strategic Intermodal System (SIS) connector improvements needed within the project area and is consistent with plans for the I-95 mainline, including the potential extension of I-95 Express lanes through Palm Beach County. This proposed study will investigate alternatives to improve the overall operating conditions and enhance safety within the interchange.

The improvements to the I-95 Interchange at 45th Street will provide additional capacity for vehicles travelling east-west as well as operational improvements north-south through the interchange. Local and network connectivity for the City of West Palm Beach, the Town of Mangonia Park and Palm Beach County will be improved.

The 45th Street interchange of I-95 is a diamond interchange located in City of West Palm Beach, and in close proximity to the Town of Mangonia Park, and the City of Riviera Beach in North Palm Beach County, Florida (Figure 1). The intersections in the area of influence of the interchange are Village Boulevard and Northpoint Boulevard on the west and Corporate Way and North Congress Avenue on the east. The adjacent interchanges



Florida Deparment of Transportation District Four 3400 West Commercial Boulevard Fort Lauderdale, FL 33309	**I-95/SR-9 Interchange at 45th Street** Project Development and Environment Study FPID No.: 436519-1-22-01 ETDM No.: 14225	Title: Location Map	Figure: 1

are Blue Heron Boulevard interchange to the north (1.75 miles) and the Palm Beach Lakes Boulevard interchange to the south (2.80 miles). I-95 is a ten-lane divided interstate freeway providing four general purpose lanes and one high occupancy vehicle (HOV) lane in each direction. Auxiliary lanes are provided on both the northbound and southbound directions between 45th Street and Blue Heron Boulevard to the north. Within the study segment, I-95 passes over 45th Street on a bridge that accommodates ten lanes (Figure 2). I-95 is a designated SIS highway corridor. Both I-95 and 45th Street are designated as evacuation routes. 45th Street is a six-lane divided roadway with a raised landscape median within the vicinity of the I-95 interchange. Sidewalks are provided along both sides of 45th Street throughout the study area. Additionally, a bicycle lane is provided in both directions along 45th Street starting at the Harley Davidson entrance (west of I-95) to Corporate Way (east of I-95). There are two dedicated left-turn lanes in each direction to access the I-95 on-ramps and three through lanes in each direction. A single free-flow right-turn lane is provided on both eastbound and westbound along 45th Street to serve the I-95 on-ramps.

Figure 2 – I-95 at 45th Street

The land use adjacent to the interchange is mainly residential, commercial, institutional and industrial. Commercial and industrial uses are predominant on the west side of I-95, while commercial and healthcare properties are along the east side of I-95. The South Florida Rail Corridor (SFRC)/CSX Railroad passes under I-95 in this area approximately one mile northwest of the 45th Street interchange. The adjacent signalized intersections are: Village Boulevard and Northpoint Boulevard/Metrocentre Boulevard west of the I-95 southbound ramps, and Corporate Way and N. Congress Avenue east of the I-95 northbound ramps.

Improvement to the I-95 interchange at 45th Street is consistent with the Cost Feasible Plan of the Palm Beach County Metropolitan Planning Organization (MPO)'s 2045 Long Range Transportation Plan (LRTP). "*The purpose is to improve interchange operations and reduce congestion, reduce potential for traffic spillback onto I-95, and increase safety. The*

improvements are needed to ensure that the I-95 interchange will meet FDOT Level-of-Service standards through year 2040."

2.2 Background

The FDOT made improvements to the I-95 mainline in Palm Beach County in the 1990s and 2000s, adding a High Occupancy Vehicle (HOV) lane and auxiliary lanes from south of Linton Boulevard to north of PGA Boulevard. Minor interchange improvements were also made to eight of the existing 18 interchanges along this section of the corridor. At the time of the project, FDOT committed to re-examine the need for both short-term and long-term improvements at those interchanges that were not improved during the I-95 mainline project. FDOT District Four also identified the need to re-examine the 2003 I-95 Master Plan Study for Palm Beach County to develop new improvements to interchanges based on changes in traffic volumes and updated design standards since the Master Plan was developed.

A Concept Development Report (CDR) was prepared by the FDOT District Four Office of Planning and Environmental Management in August of 2014. The following are the recommendations identified for short-term and long-term improvements:

2.2.1 CDR Short-Term Improvements:

- Third southbound left-turn lane at the I-95 southbound ramp;
- Third northbound left-turn lane and third right-turn lane at the I-95 northbound ramp;
- Additional westbound through lane from Congress Avenue to the I-95 northbound ramps.

2.2.2 CDR Long-Term Improvements:

- Fourth through lane on eastbound 45th Street between Village Boulevard and Northpoint Boulevard;
- Fourth through lane on westbound 45th Street east of Congress Avenue;
- Fourth southbound left-turn lane at the I-95 southbound ramp;
- Fourth northbound left-turn lane at the I-95 northbound ramp.

Based on the benefits identified by the proposed improvements listed in the Concept Development Report, it was recommended that FDOT implement this package of proposed improvements to address operational and safety issues/deficiencies through 2040. Due to the proposed impacts and costs associated with the proposed improvements, a PD&E Study was recommended prior to design and project implementation.

2.3 Purpose and Need

The purpose of the study is to identify the short-term and long-term needs of I-95 and develop design concepts to address traffic spillback onto I-95, improve interchange operations, reduce congestion, and increase safety at the study interchange. This study will also consider SIS connector improvements needed within the project area and is consistent with plans for the I-95 mainline, including the potential extension of I-95 Express lanes through Palm Beach County.

Additional considerations for the purpose and need for this project include Capacity, Transportation Demand, Safety, Planning Consistency, Social Demands/Economic Development, Modal Interrelationships, and System Linkage.

Capacity

Traffic operational analyses were conducted at six study intersections on 45th Street to determine the existing delay and Level of Service (LOS).

During the AM and PM peak hours, the existing conditions (2016) are as follows for the following intersections on 45th Street [Name of intersection, overall LOS (AM/PM)]:

- Village Boulevard: (C/C)
- Northpoint Boulevard: (C/C)
- I-95 southbound ramps: (C/C)
- I-95 northbound ramps: (C/C)
- Corporate Way: (C/C)
- Congress Avenue: (C/D)

Operational analyses were conducted to evaluate for year 2040 No Build conditions (without roadway improvements) at the six intersections for AM and PM peak hours. The 2040 No Build conditions are predicted as follows: [Name of intersection, overall LOS (AM/PM)]:

- Village Boulevard: (D/D)
- Northpoint Boulevard: (D/D)
- I-95 southbound ramps: (F/C)
- I-95 northbound ramps: (F/D)
- Corporate Way: (C/B)
- Congress Avenue: (D/E)

Under the existing conditions scenarios, most of the intersections operate at LOS C. Under the project 2040 No Build conditions, most intersections operate at LOS D or worse. If no improvements are made by 2040, all intersections will experience excessive delays and queuing and operate below acceptable LOS standards (LOS D) during both the AM and PM peak periods.

Transportation Demand

According to the US Census, the county experienced a population growth from 1,320,134 in 2010 to 1,372,171 in 2013, representing an increase of 3.94%. Evaluating the population growth for the City of West Palm Beach, the City has grown from a population of 99,919 in 2010 to 102,436 in 2013 representing an increase of 2.52%. The population of Palm Beach County is projected to increase from 1,372,171 in 2013 to 1,715,300 in 2040 (US Census), representing an increase of 25%. The commercial areas along 45th Street and the new businesses taking advantage of areas designated as special impact zones will further increase the transportation demand along the proposed project area that will contribute to congested conditions. As the population of the county and city increases, developments in the county will continue to grow thereby increasing the amount of traffic. Improvements to the existing interchange is expected to provide mobility to the residents and commuters in this area.

Traffic Safety

The crash analysis results reveal that there was a total of 869 crashes on I-95 from Palm Beach Lakes Boulevard to Blue Heron Boulevard during the four study years (2011-2014). Of these 869 crashes, rear end crashes were the most common type of crash accounting for 37.5% of total crashes followed by sideswipe crashes accounting for 16.3% of total crashes. The 869 crashes included 1,671 vehicles. There were 627 injuries, 58 severe injuries and 10 fatalities. The average crash rate for the I-95 mainline segment within the study limits is 0.06 and is lower than the statewide average crash rate of 0.75 for similar interstate facilities. Summaries of the crash analysis are provided in Table 1.

Table 1: I-95 Crash Summary (2011 to 2014)

Crash Type	Number of Crashes				4-Year Total Crashes	Percent of Total	Mean Crashes Per Year
	Year						
	2011	2012	2013	2014			
Front to Rear (Rear End)	71	67	75	113	326	37.5%	81.5
Front to Front	2	0	1	4	7	0.8%	1.75
Angle	17	28	21	28	94	10.8%	23.5
Sideswipe, same direction	31	31	26	54	142	16.3%	35.5
Sideswipe, opposite direction	2	0	3	0	5	0.6%	1.25
Rear to Side	0	0	0	0	0	0.0%	0
Rear to Rear	0	0	1	0	1	0.1%	0.25
Other	54	60	73	79	266	30.6%	66.5
Unknown	5	5	4	14	28	3.2%	7
Total Crashes	**182**	**191**	**204**	**292**	**869**	**100.0%**	**217.25**

The crash analysis results reveal that there was a total of 174 crashes on 45th Street from Village Boulevard to Congress Avenue during the four study years (2011-2014). Of these 174 crashes, rear end crashes were the most common type of crash accounting for 48.3% of total crashes followed by angled crashes accounting for 25.9% of total crashes. The 174 crashes included 378 vehicles, 4 pedestrians and 2 cyclists. There were 164 injuries, 14 severe injuries and 1 fatality. The average crash rate for 45th Street within within the study limits is 2.72 and is lower than the statewide average crash rate of 3.20 for similar arterial facilities. Summaries of the crash analysis are provided in Table 2.

Table 2: 45th Street Crash Summary (2011 to 2014)

Crash Type	Number of Crashes				4-Year Total Crashes	Percent of Total	Mean Crashes Per Year
	Year						
	2011	2012	2013	2014			
Front to Rear (Rear End)	12	13	29	30	84	48.3%	21
Front to Front	1	4	0	3	8	4.6%	2
Angle	8	12	10	15	45	25.9%	11.25
Sideswipe, same direction	0	3	0	6	9	5.2%	2.25
Sideswipe, opposite direction	0	0	1	0	1	0.6%	0.25
Rear to Side	0	0	0	1	1	0.6%	0.25
Rear to Rear	0	0	0	0	0	0.0%	0
Other	2	0	5	4	11	6.3%	2.75
Unknown	12	0	0	3	15	8.6%	3.75
Total Crashes	**35**	**32**	**45**	**62**	**174**	**100.0%**	**43.5**

Plan Consistency

The Palm Beach County MPO 2040 Long Range Transportation Plan (LRTP) identified the I-95 at 45th Street Interchange as a Local Stakeholder Project Request. The Master Comprehensive Bicycle Transportation Plan (MCBTP) - Bicycle Facility Recommendation Map designates 45th Street, both east and west of the I-95 interchange, as a "Re-Stripe Candidate" and the Bicycle Needs Map designates 45th Street, both east and west of I-95 interchange, as "Enhanced Priority, Needs Improvement" (Bike LOS C). These designations will be taken into consideration during the PD&E phase such that the designated bicycle lanes can be provided whenever possible.

The FDOT Five-Year Work Program identifies a traffic operations project to install a new dynamic message sign (DMS) on 45th Street east and west of the I-95 interchange.

Social Demand and Economic Development

The Future Land Use Plan for the City of West Palm Beach (June, 2013) identifies the areas north of the interchange to be Industrial uses in a Special Impact Zone to the west of the interchange and Industrial, Conservation and Community Service to the east. Areas to the south of the interchange are identified to be Commercial in a Special Impact Zone and single family to the west of the interchange, and Conservation, Commercial in Special Impact Zone, and Single Family to the west. Special Impact Zones (SIZ) are areas where the City denotes

heighten site plan review and compatibility analysis to reduce potential land use incompatibilities. The proposed improvements on the I-95/45th Street interchange will improve mobility and support the economic development of the local businesses as well as stimulate major construction activities that will contribute to the economic growth within the area.

The Florida Division of Emergency Management designates specific routes that residents and visitors can use in case of emergency situations to vacate specific areas. Based on Palm Beach County's Evacuation Routes and Zones Map, 45th Street is classified as an evacuation route from SR 809 to SR A1A, which includes the section of 45th Street in the vicinity of I-95. Serving as part of the evacuation route network, I-95 and 45th Street play an important role in facilitating traffic movement during emergency evacuation periods. As the population of the County continues to increase, the proposed improvements on the I-95 and 45th Street interchange will enhance capacity and mobility for residents during evacuation.

Currently, along 45th Street are commercial properties consisting of retail and professional offices with a few industrial and non-residential properties. To the north are retail/offices such as North Village Square, Lockheed Martin, Boys & Girls Club, and various corporate plazas that house different commercial establishments. To the south are also mainly hotel and commercial and food establishments, and an educational facility, Lincoln College of Technology. There is a residential area in the southwest portion of the interchange.

Modal Interrelationships

Currently, there are sidewalks and crosswalks along both sides of 45th Street within the vicinity of the interchange; however, not all sidewalks and crosswalks meet the Americans with Disabilities Act (ADA) requirements. Bicycle lanes are currently provided along 45th Street from Corporate Way and continuing west through Village Boulevard, except for a missing section just east of Northpoint Boulevard. As part of the proposed improvements for the interchange, sidewalks and crosswalks within the limits of construction shall be upgraded to meet ADA standards. Bicycle lanes are recommended in conjunction with the recommended lane widening both east of Corporate Way as well as the missing section east of Northpoint Boulevard.

The Mangonia Park Tri-Rail Station is located on 45th Street, approximately 1.3 miles east of the I-95 interchange. The station provides 272 parking spaces and also provides a park-and-ride designated area. The Mangonia Park Tri-Rail Station is accessed by Palm Beach County Transit, Palm Tran, Routes 2, 31, and 33. 45th Street in the vicinity of the I-95 interchange is served by Palm Tran Route 31. Congress Avenue and 45th Street are also served by transit routes. 45th Street is designated as a SIS Connector from I-95 to the Tri-Rail Station. The proposed improvements on the I-95 and 45th Street interchange will improve access to the Tri-Rail Station thus encouraging ridership.

System Linkage

The proposed project at I-95 and 45th Street will help improve connectivity and capacity within the roadway network by addressing traffic spillback onto I-95 and improving interchange connections. The proposed project enhances mobility to the residential and commercial areas along 45th Street, which provides east-west access in North West Palm Beach and Palm Beach County.

The primary need of the project is to alleviate existing and future traffic congestion thereby improving safety at the interchange. Recent studies completed in the region such as the I-95 Interchange at 45th Street Interchange Concept Development Report completed in 2014 identified operational deficiencies at ramps, the terminal intersections, and the adjacent intersections. Existing observations also show increased truck traffic from I-95 to Congress Avenue heading to the Port of Palm Beach contributing to the congestions in the study area. If no operational and safety improvements are made within the interchange area, conditions will become progressively worse as traffic volumes continue to increase, thereby increasing the number of crashes and deteriorating access of this interchange.

3 ALTERNATIVES ANALYSIS

All concepts were evaluated and analyzed in order to select a recommended alternative. The concepts developed were further refined with the objective of elimination and reduction of impacts. The following describes the alternatives considered for this project.

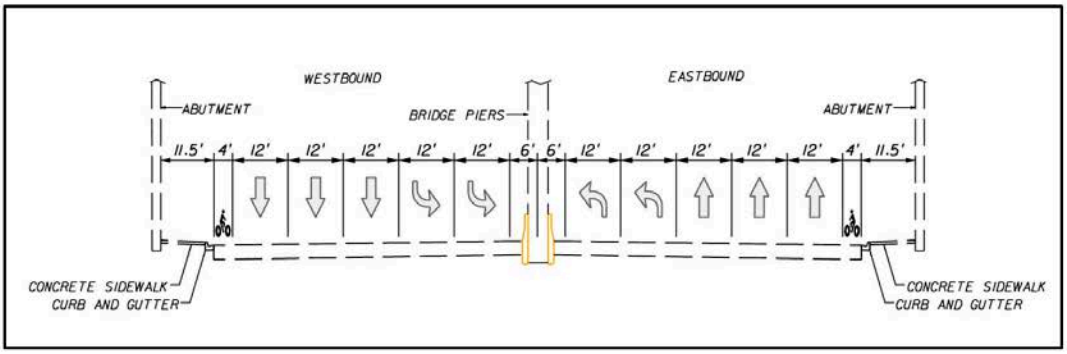
3.1 No Build Alternative

The No Build Alternative proposes to keep the existing interchange roadway network into the future without improvements. This alternative is considered to be a viable alternative during the public hearing and final selection phase to serve as a comparison to the study alternatives.

The 45th Street typical section within the project limits consists of a six-lane urban divided roadway with a raised landscaped median. There are two dedicated left-turn lanes to access the I-95 on-ramps and three through lanes in each direction underneath the I-95 overpass. The EB and WB lanes are separated by median containing a raised concrete barrier wall as well as support piers for the I-95 overpass. (Figure 3)

The No Build Alternative has a number of positive aspects, since it would not require expenditure of public funds for design, right-of-way acquisition, construction, or utility relocation. Traffic would not be disrupted due to construction, therefore, avoiding inconveniences to local residents and businesses. Also, there would be no direct or secondary impacts to the environment, the socio-economic characteristics, or community cohesion of the area.

However, the No Build Alternative fails to fulfill the purpose and need of the project. Operational and safety conditions within the interchange area will become progressively worse as traffic volumes continue to increase, thereby increasing the number of crashes and deteriorating access of this interchange.



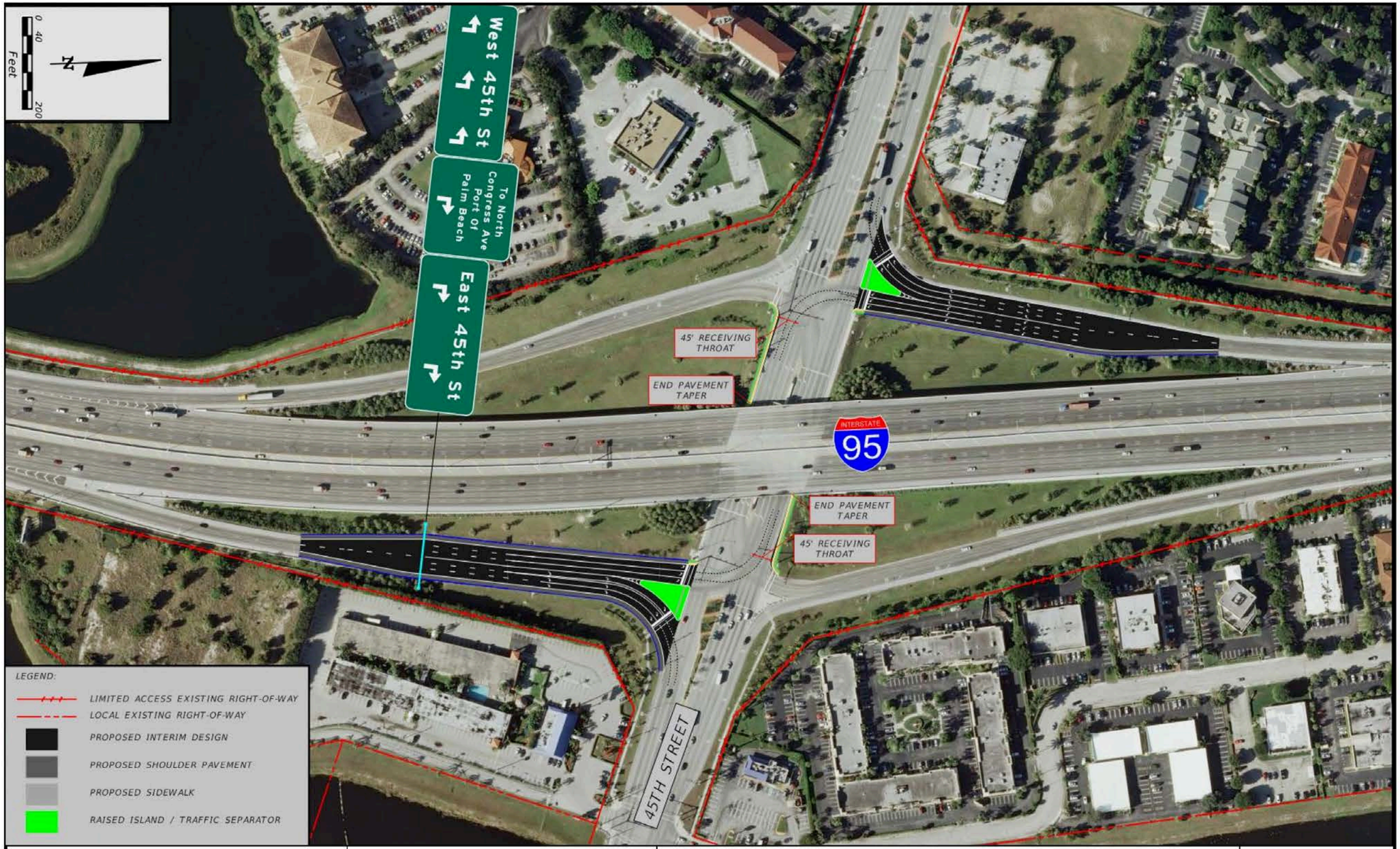
FDOT	I-95/SR 9 Interchange at 45th Street Project Development and Environment Study FPID No.: 436519-1-22-01 ETDM No.: 14225	TITLE: Existing Typical Section	FIGURE: 3

3.2 Transportation Systems Management and Operation (Figures 4 & 5)

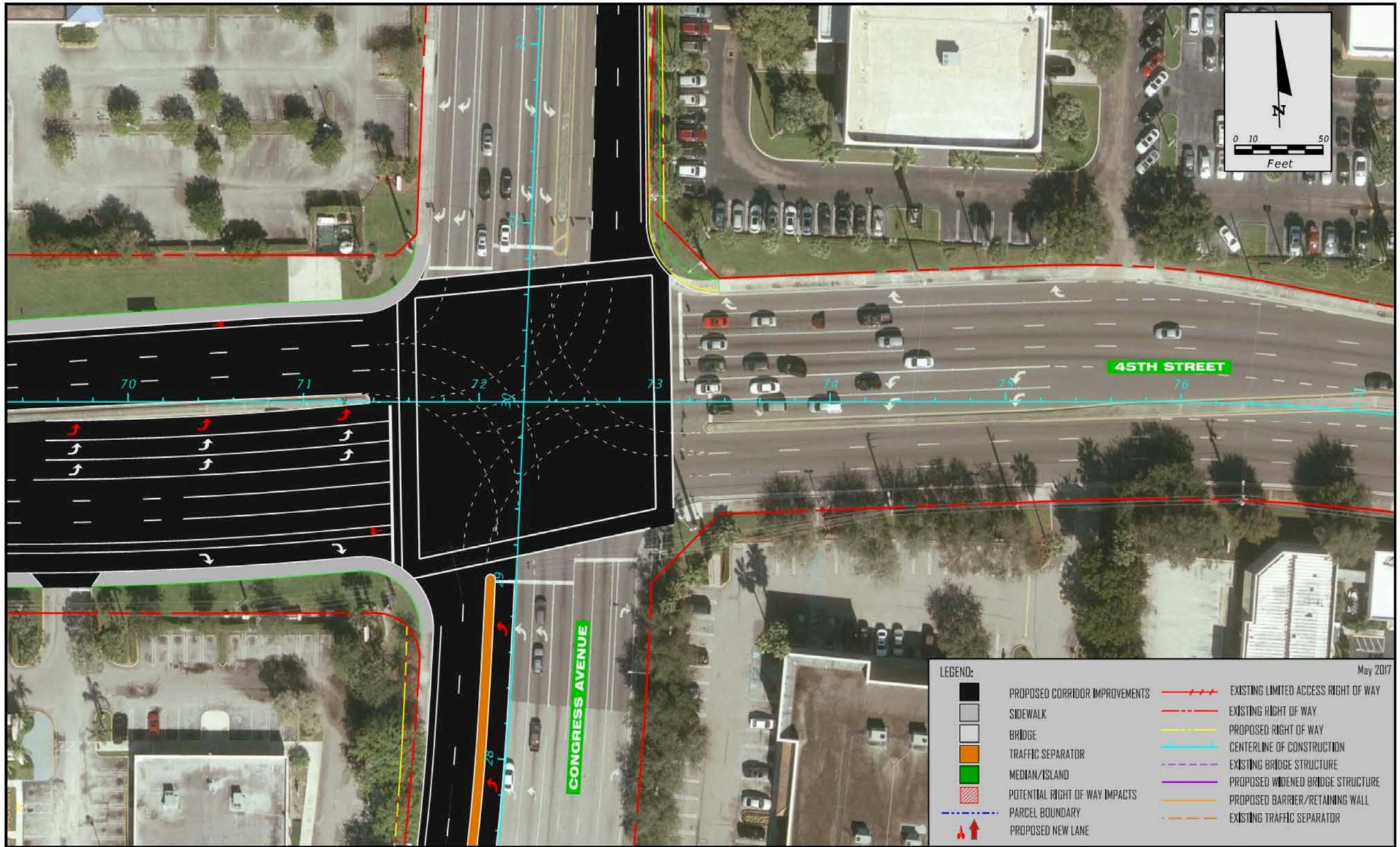
The Transportation Systems Management and Operations (TSM&O) alternative is comprised of minor improvement options that are typically developed to alleviate specific traffic congestion/safety problems, or to get the maximum utilization out of the existing facility by improving operational efficiency. TSM&O alternatives may include intersection improvements such as increasing turning radii, adding turn-lanes, increasing turn-lane lengths, or intelligent transportation system (ITS) enhancements such as closed circuit television (CCTV), dynamic message signs (DMS) with real-time driver information or signalization upgrades and/or optimization.

The proposed TSM&O options are as follows:

- Provide one additional right turn lane and one additional left turn lane at the I-95 southbound off-ramp intersection;
- Provide new overhead signage at the I-95 southbound off-ramp to indicate 3 lanes to East 45th Street and 3 lanes to West 45th Street;
- Provide one additional right turn lane and one additional left turn lane at the I-95 northbound off-ramp intersection;
- Provide new overhead signage at the I-95 northbound off-ramp to indicate 3 lanes to West 45th Street, 1 lanes to North Congress Avenue, and 2 lanes to East 45th Street;
- Provide travel information system;
- Develop signal system strategies.



FDOT Florida Department of Transportation District Four 3400 West Commercial Boulevard Fort Lauderdale, FL 33309	I-95/SR 9 Interchange at 45th Street Project Development and Environment Study FPID No.: 436519-1-22-01 ETDM No.: 14225	TITLE: TSM&O Improvements	FIGURE: 4



FDOT Florida Department of Transportation District Four 3400 West Commercial Boulevard Fort Lauderdale, FL 33309	INTERSTATE 95 I-95/SR 9 Interchange at 45th Street Project Development and Environment Study FPID No.: 436519-1-22-01 ETDM No.: 14225	TITLE: TSM&O Improvements	FIGURE: 5

3.3 Build Alternatives

All conceptual build alternatives were evaluated in a general manner and analyzed in order to select the recommended Build Alternative. The concepts developed were further refined with the objective of elimination and reduction of impacts. The engineering decisions to achieve this objective are thoroughly documented in the Preliminary Engineering Report.

3.3.1 Alternative 1 (Figures 6 & 7)

- Widen 45th Street to add one through lane in each direction from Northpoint Boulevard to Congress Avenue;
- Provide one bike lane in each direction from Northpoint Boulevard to Congress Avenue;
- Extend the eastbound to southbound on-ramp to start just east of Northpoint Boulevard;
- Provide one additional right turn lane and one additional left turn lane at the I-95 southbound off-ramp intersection;
- Provide new overhead signage at the I-95 southbound off-ramp to indicate 3 lanes to East 45th Street and 3 lanes to West 45th Street;
- Provide one additional right turn lane and one additional left turn lane at the I-95 northbound off-ramp intersection;
- Provide new overhead signage at the I-95 northbound off-ramp to indicate 3 lanes to West 45th Street, 1 lanes to North Congress Avenue, and 2 lanes to East 45th Street;
- Widen the existing bridge along 45th Street over the C-17 Canal to accommodate one additional through lane and one bike lane in each direction;
- Add one additional left turn lane from eastbound 45th Street to northbound Congress Avenue to provide triple left turns at the intersection;
- Add one additional left turn lane from northbound Congress Avenue to westbound 45th Street to provide triple left turns at the intersection;

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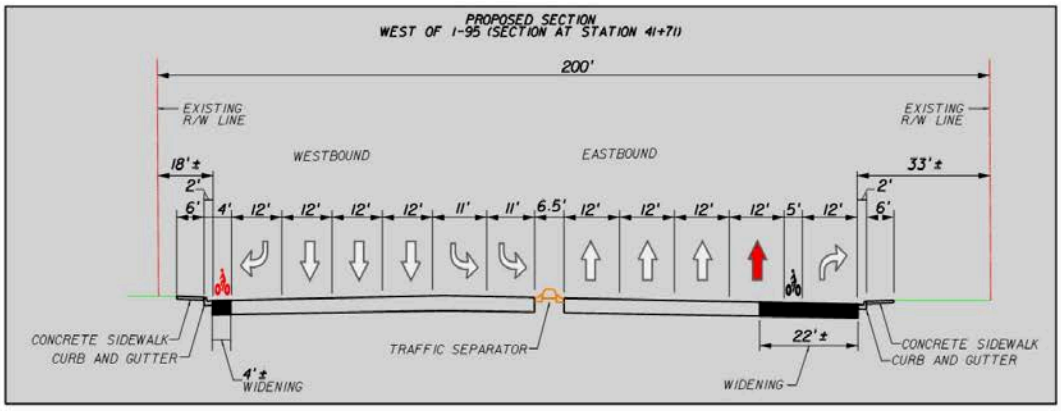
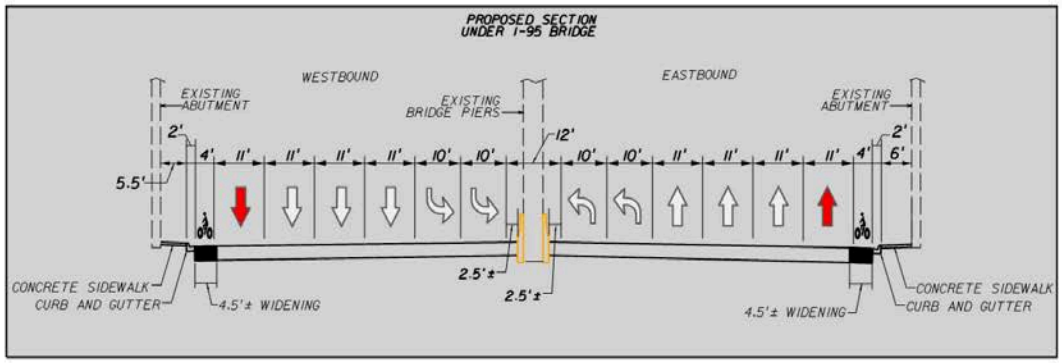
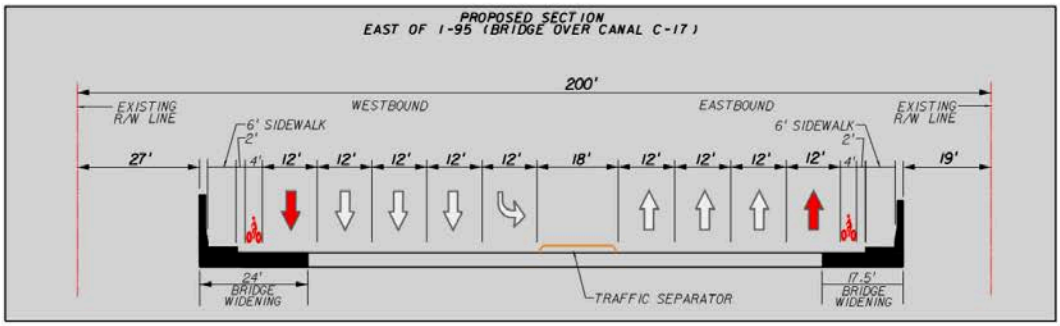
TITLE: Alternative 1 Improvements

FIGURE: 6







PROPOSED NEW LANE

FDOT	I-95/SR 9 Interchange at 45th Street Project Development and Environment Study FPID No.: 436519-1-22-01 ETDM No.: 14225	TITLE: Typical Section – Alternative 1	FIGURE: 7

- Restriped the existing 45th Street westbound right turn lane to a shared through and right;
- Provide travel information system;
- Develop signal system strategies.

3.3.2

3.3.3 Alternative 2 (Figures 8 & 9)

- Modify the existing Diamond Interchange to a Diverging Diamond Interchange (DDI) configuration, which provides 3 continuous through lanes through the interchange with 2 free flow left turn lanes into the I-95 on ramps;
- Provide one bike lane in each direction from Northpoint Boulevard to Congress Avenue;
- Extend the 45th Street eastbound to I-95 southbound on-ramp to start at Northpoint Boulevard;
- Provide one additional left turn lane at the I-95 southbound off-ramp intersection;
- Provide new overhead signage at the I-95 southbound off-ramp to indicate 3 lanes to East 45th Street and 2 lanes to West 45th Street;
- Provide one additional right turn lane at the I-95 northbound off-ramp intersection;
- Provide new overhead signage at the I-95 northbound off-ramp to indicate 2 lanes to West 45th Street, 1 lanes to North Congress Avenue, and 2 lanes to East 45th Street;
- Widen the existing bridge along 45th Street over the C-17 Canal to accommodate one bike lane in each direction;
- Add one additional left turn lane from eastbound 45th Street to northbound Congress Avenue to provide triple left turns at the intersection;
- Add one additional left turn lane from northbound Congress Avenue to westbound 45th Street to provide triple left turns at the intersection;
- Provide travel information system;
- Develop coordinated signal system strategies.

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Fort Lauderdale, FL 33309

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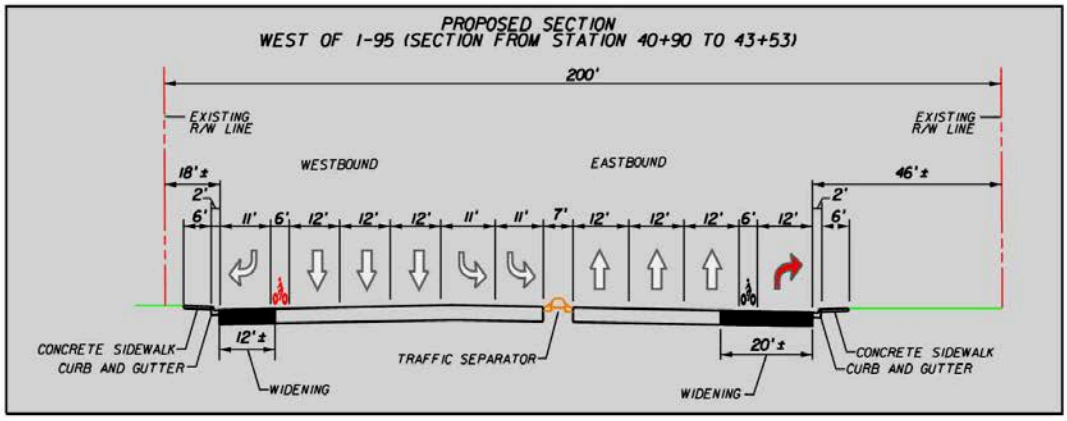
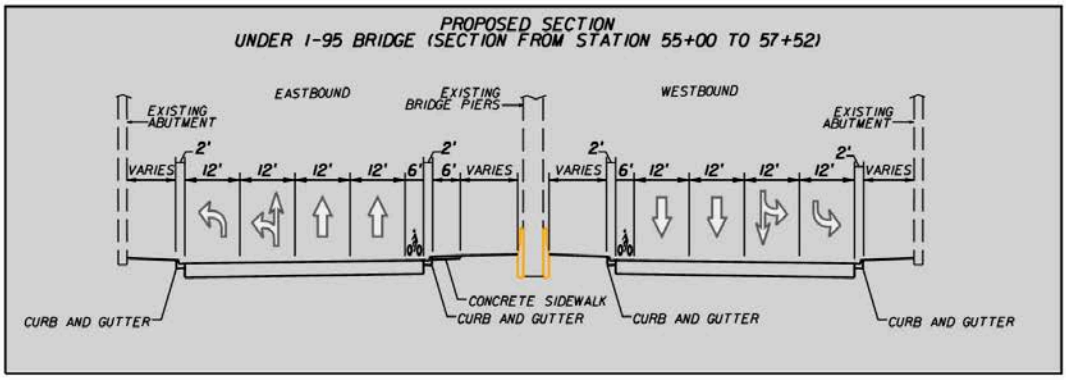
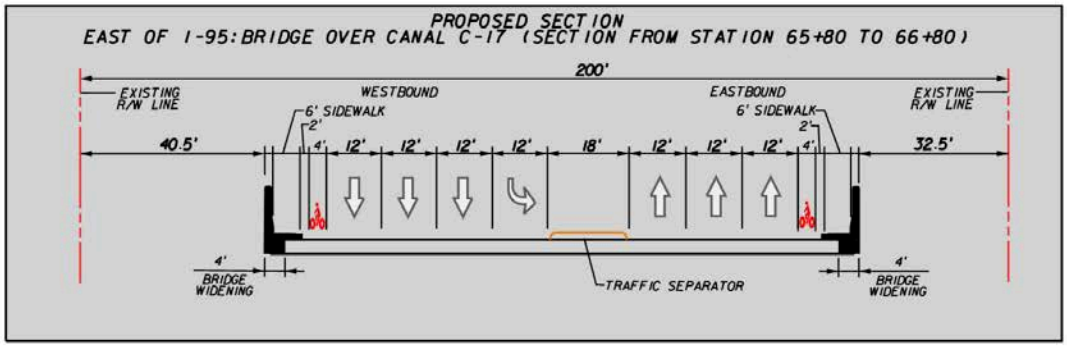
TITLE: Alternative 2 Improvements

FIGURE: 8







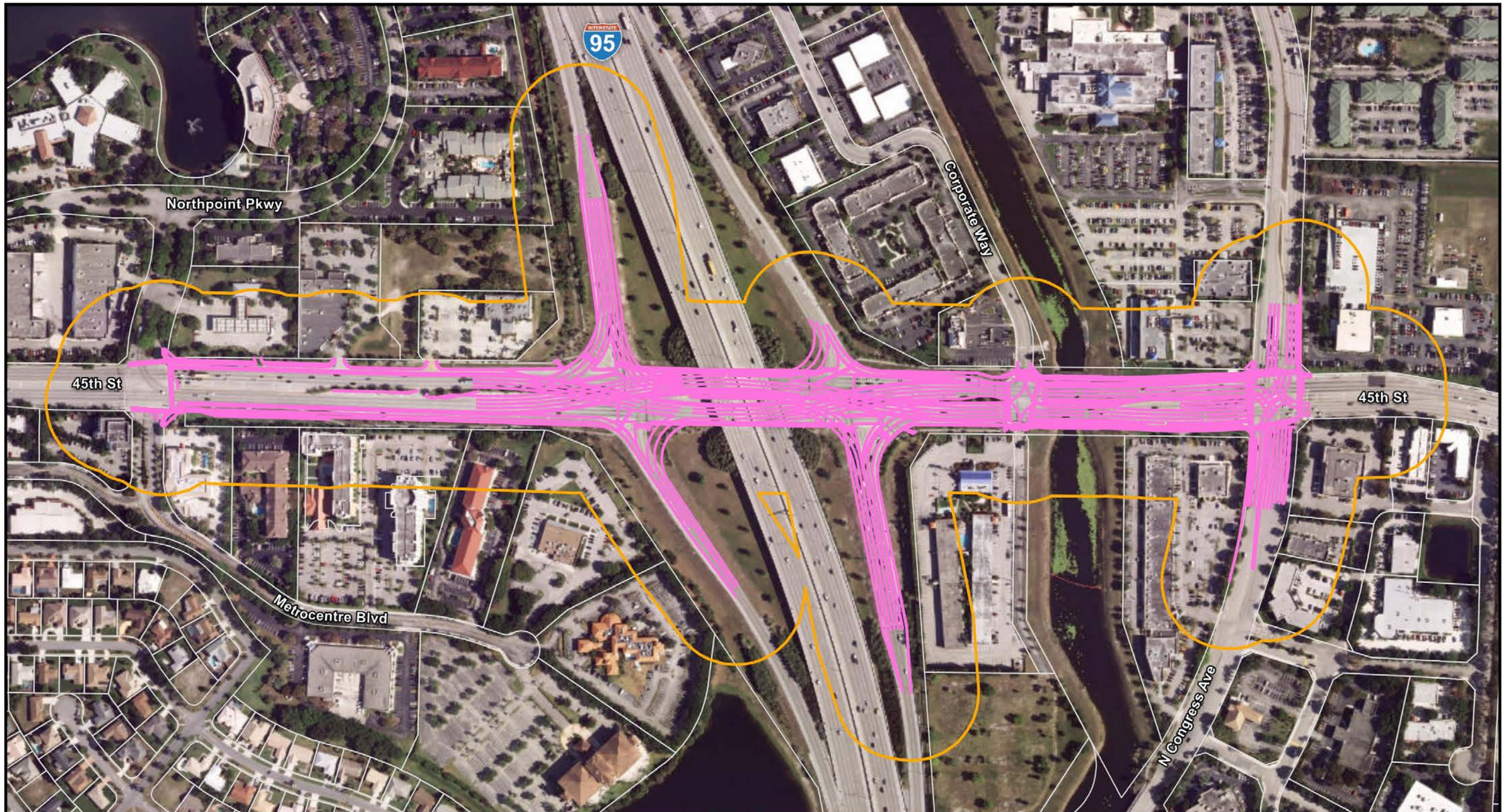
PROPOSED NEW LANE

FDOT	I-95/SR 9 Interchange at 45th Street Project Development and Environment Study FPID No.: 436519-1-22-01 ETDM No.: 14225	TITLE: Typical Section – Alternative 2	FIGURE: 9

4 PROJECT APE

According to 36 CFR 800.16(d), the APE is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist. The APE is influenced by the scale and nature of the undertaking as well as its geographical setting. The APE must include measures to identify and evaluate both archaeological and historical resources. Normally, archaeological and other below-ground resources will be affected by ground disturbing activities and changes in ownership status. Structural resources and other above ground sites, however, are often impacted by those activities as well as alterations to setting, access and appearance. As a consequence, the survey methodologies for these two broad categories of sites differ.

The archaeological APE focuses upon identifying and evaluating resources within the geographic limits of the proposed improvements and its associated ground disturbing activities within the proposed ROW. The archaeological APE, therefore, is confined to the footprint of the proposed project improvements and proposed ROW (Figure 10). The APE for historic resources took into consideration the scope of the proposed work and the developed urban nature of the project area. Therefore, the historic resources APE consists of the footprint of proposed project improvements and 200 feet from the footprint of the improvements. (Figure 10).



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Archaeological APE
Historic Resources APE

Palm Beach County
Meters: 0 50 100
Feet: 0 250 500

Title: Project APE

Figure: 10

5 ENVIRONMENTAL SETTING

Environmental and ecological factors through time have had a direct influence on the choice of occupation sites by precontact populations and early historic settlers. Therefore, factors such as geologic, hydrologic, and meteorological processes that may have affected the project APE and its biotic resources are important elements in the formulation of a settlement/subsistence model for precontact and early historic peoples.

5.1 Paleo-Environment and Macro-Vegetational Change

Although a comprehensive paleoenvironmental reconstruction is beyond the scope of this report, a brief description of the large-scale climatic and hydrologic conditions that have occurred since 31,050 BC is provided. This description is drawn primarily from the work of W. A. Watts (1969, 1971, 1975, and 1980) and Watts and Hansen (1988). Carbone (1983) has promoted the reconstruction of local paleoenvironments, or small-scale environmental change, with an effort towards developing regional paleoenvironmental mosaic landscapes. Vegetation and animals (including humans) either adapt to local areas (micro-habitats) or move to preferred locations. The descriptions given here provide some indication of the ecological context of precontact groups at different times, in particular the environmental limitations. However, these descriptions are general and cannot be used to reconstruct the microhabitats of the project APE.

Since the termination of the Pleistocene Epoch at the end of the Wisconsin glaciation, roughly 11,550 BC, Florida has undergone significant climatic and environmental change. Notable changes in climate and subsequently in flora and fauna required human groups to adapt to their surroundings. These adaptations resulted in cultural changes in their hunting/foraging strategies and seasonal migration patterns. Within the archaeological record, these changes can be observed by differences in settlement patterns, midden composition, refuse disposal patterns, and the kinds of stone tools or pottery made.

The first 5,000 years or so of the Holocene were marked by rapid rises in southern Florida sea levels. This inhibited the development of estuaries along the Gulf Coast and may have had the same impact on the Atlantic coast (Griffin 1988). However, even though sea levels were rising, they were still considerably lower than present levels. This, combined with low interior water tables, resulted in arid conditions for the interior of southern Florida (Watts 1983; Watts and Hansen 1988). The marshes and swamps for which southern Florida are famous had not yet been formed (Webb 1990).

At about 3050 BC, give or take 1,000 years, sea levels had risen to within a few meters of their current levels (Griffin 1988). Increased rainfall resulted in the formation of Lake Okeechobee, the Everglades, and other modern ecosystems (Watts and Stuiver 1980; Brooks 1984:38; Gleason et al. 1984:311). The relative sea level stability combined with freshwater discharge allowed for the development of coastal estuaries (Widmer 1988). It is probable that the Loxahatchee came into formation around this time. However, during its earliest history, the river probably ended in a flood plain or freshwater marsh. Eventually, rising sea levels caused tidal waters to flood this marsh, gradually transforming it into the Loxahatchee Estuary (McPherson et al. 1982). Around 750 BC, the rising sea level had slowed to the point that some modern beach ridges in southern Florida, like Cape Sable, began to form. Increased precipitation in the interior made cypress common in many areas, including the Big Cypress Swamp, and made droughts in the Everglades less common (Griffin 1988). The southern rim of Lake Okeechobee reached its maximum height about this time (Brooks 1984:38). Vegetation reached its present distributional patterning and estuaries were fully formed and supplied by enough freshwater drainage to become highly productive (Widmer 1988; Griffin 1988).

5.2 Regional Environment

The project APE is located within the Eastern Valley physiographic province (White 1970). The Eastern Valley is broad and flat, extending south a great distance from the St. Mary's Meander Plain (Scott 1978:10). The Eastern Valley features a long steep slope along the eastern edge of the Osceola Plain, starting as far north as Sanford and extending south until its terminus at Indiantown. Elevations for this region average around 6 meters to 14 meters (20 feet to 45 feet) above mean sea level with some areas as high as 21 meters (70 feet) above mean sea level. The southern end of the Eastern Valley serves as a transitional zone between the areas of higher relative relief in northern Florida and the flatter areas to the south (White 1970:110). Features associated with this province include the Everglades to the south, the Atlantic Ocean to the east, Lake Okeechobee to the west, and the Okeechobee and Osceola Plain to the northwest and north.

The Anastasia formation, composed of a lithified coquina of shells and sands and unlithified sands, underlie this area (Scott 1993). Outcrops of silicified limestone, or chert, which were often sought out by precontact peoples as raw material sources for the manufacture of stone tools, do not occur in this area (Lane et al. 1980). The closest known outcrops lie to the west along the Peace River in the central part of the state (Scott 1978; Upchurch et al. 1982).

Water resources consist of both ground and surface water. The principal groundwater aquifer is the Floridan, which occurs under artesian conditions with slowly permeable clays and sands forming a confining layer that effectively prevents the vertical movement of water from the surficial aquifer to the Floridan aquifer (Lane 1980). Surface sand deposits contain the surficial aquifer, which is recharged through local rainfall. Because of low hydraulic gradients, movement of water within this zone is very slow. Water is discharged from the aquifer through lateral seepage to streams or lakes, evapotranspiration, or movement downward to the Floridan aquifer where sinkhole development has breached the underlying confining layer of clay (Lane 1980; Lane et al. 1980)

5.3 Physical Environment of the Project APE

A review of the General Land Office (GLO) historic plat map (Florida Department of Environmental Protection [FDEP] 1859) and surveyor's field notes (FDEP 1858) was conducted to examine past environmental conditions within the vicinity of the archeological APE. The project area was within a large cypress swamp to the northwest of Lake Mangonia. The surveyors describe the area as 3rd rate cypress swamp and sawgrass marsh. Areas of 3rd rate pine were located to the east of the project area. No hammocks were illustrated on the plat maps or described in the surveyors' notes.

Aerial photographs from 1953, 1964, and 1968 (FDOT, Surveying and Mapping Office 2016; University of Florida, George A. Smathers Libraries 2016) were reviewed to examine land use within the vicinity of the archaeological APE during the 20th century. In 1953, the area was undeveloped swamp although 45th Street and the Seaboard Air Line (CSX) Railroad were present. Some cleared agricultural fields and structures were present to the west of the project area near Military Trail and residential areas were present along Australian Avenue to the east of the project area. By 1964, I-95 was under construction. The ROW south of 45th Street was cleared and prepared but the road had not yet been constructed. I-95 to the north of 45th Street had not been started. The C-17 Canal was present and the streets for subdivisions to the east of the project area were laid out with houses on some of the parcels. In 1968, I-95 had been constructed but the project area was still primarily undeveloped scrubby swamp. There was some clearing beginning in the area north of 45th Street to the east of the current location of Congress Avenue but no structures had been built.

The *Soil Survey of Palm Beach County Area, Florida* (United States Department of Agriculture [USDA] 1978) was reviewed to help determine the predevelopment environment, assess the level of modification, and identify natural features within the project corridor indicative of increased archaeological site potential. The project area is located within the Basinger soil association. This

association is found in broad, low wetlands that have scattered areas of slightly higher flatwoods and lower swampy and marshy areas (USDA 1978:7). Natural vegetation is southern bayberry, St. John's wort, broomsedge, bluestem, sand cordgrass, pineland threeawn, maidencane, and grasses. Slash pine, cabbage palm, and saw palmetto grow in higher areas. Cypress, sawgrass, and sedges grow in lower areas. Drainage characteristics and environmental association for each detailed soil type within the APE are included in Table 3.

Table 3: Characteristics of Detailed Soil Types within the Project APE

Drainage Characteristic	Soil Type	Environmental Association
Poorly drained	Basinger fine sand	This soil is found in broad, grassy sloughs. Natural vegetation is St. John's wort, slash pine, southern bayberry, scattered cypress, pineland threeawn, blue maidencane, broomsedge bluestem, and low panicums.
Very poorly drained	Basinger and Myakka sands, depressional	These soils are found in shallow depressions. Natural vegetation is St. John's wort, cypress, maidencane, needlegrass, sand cordgrass, and water tolerant grasses and sedges.
	Okeelanta muck	This organic soil is found in fresh water marshes and small, isolated depressions. Under natural conditions the soil is covered by water or the water table is within 10 inches for 6 to 12 months in most years. Natural vegetation is sawgrass, ferns, fireflag, maidencane, pickerelweed, with scattered willow, elderberry, southern bayberry, cypress, and custard apple.
Not Applicable	Arents-Urban Land Complex	The soils in this area are covered in sandy fill which was placed over low, wet areas for urban use. No natural vegetation is associated with these areas.

Source: USDA 1978: 11–14, 26

Currently, the project area consists primarily of existing pavement; curb and gutter; sidewalk; driveways; access drives; and grassy shoulder with buried utilities, junction boxes, overhead transmission line poles, and planted ornamentals. The level of development within the current project corridor has resulted in the removal of native vegetation.

6 PRECONTACT OVERVIEW

Native peoples have inhabited Florida for at least 14,000 years. The earliest cultural stages are pan-Florida in extent, while later cultures exhibited unique cultural traits. The following discussion of the precontact time period in the vicinity of the APE is included in order to provide a framework within which the local archaeological record can be understood.

6.1 Paleoindian Period (12,000–7500 BC)

The earliest period of precontact cultural development dates from the time people first arrived in Florida. The greatest density of known Paleoindian sites in Florida is associated with the rivers of northern and north-central Florida where distinctive lanceolate projectile points and bone pins have been found in abundance in and along the Santa Fe, Silver, and Oklawaha Rivers (Dunbar and Waller 1983). The majority of these have been found at shallow fords and river crossings where Native Americans presumably ambushed Pleistocene mammals. The bones of extinct species such as mammoth, mastodon, and sloth are commonly found preserved in the highly mineralized waters of the area's springs and rivers. Despite early claims to the contrary, present evidence strongly supports the contemporaneity of Paleoindians and these extinct mammals.

The climate of Florida during the late Pleistocene was cooler and drier, and the level of the sea was as much as 160 feet (49 meters) lower (Milanich 1994:38–41). Rising sea levels are assumed to have inundated many coastal sites dating to the Paleoindian and Early Archaic periods (e.g., Ruppe 1980; Goodyear and Warren 1972; Goodyear et al. 1980; Dunbar et al. 1988). It is difficult to determine the dependence of Paleoindian groups on estuarine and littoral resources because little is known of these submerged archaeological sites.

The prevailing view of the Paleoindian culture, a view based on the uniformity of the known tool assemblage and the small size of most of the known sites, is that of a nomadic hunting and gathering existence, in which now-extinct Pleistocene megafauna were exploited. Settlement patterns were restricted by availability of fresh water and access to high-quality stone from which the specialized Paleoindian tool assemblages were made. Waller and Dunbar (1977) and Dunbar and Waller (1983), from their studies of the distribution of known Paleoindian sites and artifact occurrences, have shown that most sites of this time period are found near karst sinkholes or spring caverns.

The majority of Paleoindian sites in Florida consist of surface finds. The most widely recognized Paleoindian tool in Florida is the Suwannee point, typically found along the springs and rivers of northern Florida. Other points, including Simpson and Clovis points, are found in lesser numbers. Other Paleoindian stone tools are known from the Harney Flats site (Daniel and Wisenbaker 1987:41–97), the Silver Springs site in Marion County (Neill 1958), and other northern Florida sites (Purdy 1981:8–32). These Paleoindian tools tend to be unifacial and plano-convex, with steeply flaked, worked edges (Purdy and Beach 1980:114–118; Purdy 1981). Bifacial and "hump-backed" unifacial scrapers, blade tools, and retouched flakes, including spokeshaves, have been found at these sites (Purdy 1981; Daniel and Wisenbaker 1987:62–81, 86–87). However, some tools are little more than flakes or blades that were struck from cores, used, and discarded (Milanich 1994:51).

By the end of the Paleoindian period, the climate had become warmer and wetter and it is possible that the modern wetlands of southern Florida began to emerge. Sea levels began a fairly rapid rise, shrinking the available land mass through coastal inundation. These dramatic climate changes, and possible pressure from Paleoindian hunters, led to the extinction of the Pleistocene megafauna and other species.

6.2 Archaic Period (7500–500 BC)

During the Archaic period, climate and sea levels gradually stabilized. The Archaic period is known for the adaptations made by Florida's earliest inhabitants to the modernizing climate and landscape. At the beginning of the Archaic, lifeways in Florida were quite similar to those of the preceding Paleoindian period. However, by the end of the Archaic, Florida's natives had developed more sedentary lifestyles, made many technological innovations, the most important of which was the invention of pottery, and began to differentiate themselves into distinct regional subcultures. Florida's Archaic is divided into Early, Middle, and Late sub-periods, each of which have recognized horizons that are limited to restricted geographic areas and/or times.

6.2.1 Early Archaic (7500–5000 BC)

With the wetter conditions that began about 8000 BC and the extinction of some of the Pleistocene animal species that helped to sustain earlier populations, Paleoindian subsistence strategies were no longer efficiently adapted to the Florida environment. As environmental conditions changed, surface water levels throughout the state increased and new locales became suitable for occupation. Early Archaic peoples might be viewed as a population changing from the nomadic Paleoindian subsistence

pattern to the more sedentary coastal- and riverine-associated subsistence strategies of the Middle Archaic period.

The settlement patterns and tools of Early Archaic people in Florida were initially very similar to those of the preceding Paleoindian period. Cultural changes began after about 8000 BC with changes in projectile-point types, specifically a transition from lanceolate to stemmed varieties. Beginning about 7500 BC, Paleoindian points and knives were replaced by a variety of stemmed tools, such as the Kirk, Wacissa, Hamilton, and Arredondo types (Milanich 1994:63).

Kirk points and other Early Archaic diagnostic tools are often found at sites with Paleoindian components, suggesting that Early Archaic peoples and Paleoindians shared similar lifeways (Daniel and Wisenbaker 1987:33–34). However, it appears that the distribution of Early Archaic artifacts is wider than that of Paleoindian materials. Sites having both Paleoindian and Early Archaic components have been found to be largely restricted to natural springs and the extensive perched water sources of northern Florida.

Most of what is known about Early Archaic subsistence comes from highly preserved materials recovered from the anaerobic muck of the Windover Pond site in Brevard County. The Windover analysis (Andrews et al. 2002) indicates that Early Archaic peoples utilized the fibers of sabal palm, saw palmetto, and other plants in the weaving of baskets and textiles. Windover also illustrates that at least some Early Archaic populations had developed an intensive exploitation strategy focused on inland aquatic resources supplemented by terrestrial game (Dickel and Doran 2002:54). However, since the site has no correlates, it is unclear how representative it is of other Early Archaic sites in southern Florida (Dickel 2002).

6.2.2 Middle Archaic Period (5000–3000 BC)

Throughout the Middle Archaic, environmental and climatic conditions would become progressively more like modern conditions, which would appear by the end of the period, circa 3000 BC. During this period, rainfall increased, surface water became much less restricted and, as a result, vegetation patterns changed. The Middle Archaic period is characterized by increasing populations and a gradual shift toward shellfish, fish, and other food resources from freshwater and coastal wetlands as a significant part of their subsistence strategy (Milanich 1994:75–84; Watts and Hansen 1988:310). Pollen evidence from Florida and south-central Georgia indicates that after about 4000 BC, a gradual change in forest cover took place, with oaks in some regions giving way to pines or mixed forests. The vegetation communities that resulted from these changes, which culminated by 3000 BC, are essentially

the same as those found in historic times before widespread land alteration took place (Watts 1969, 1971; Watts and Hansen 1988).

The Middle Archaic artifact assemblage is characterized by several varieties of stemmed, broad-blade projectile points. The Newnan point is the most distinctive and widespread in distribution (Bullen 1975:31). Other stemmed points of this period include the less common Alachua, Levy, Marion, and Putnam points (Bullen 1968; Milanich 1994). In addition to these stemmed points, the Middle Archaic lithic industry, as recognized in Florida, includes production of cores, true blades, modified and unmodified flakes, ovate blanks, hammerstones, “hump-backed” unifacial scrapers, and sandstone “honing” stones (Clausen et al. 1975; Purdy 1981). Additionally, thermal alteration, a technique in stone tool production, reached its peak during the Middle to Late Archaic periods.

Three common types of Middle Archaic sites are known in Florida (Bullen and Dolan 1959; Purdy 1975). The first are small, special-use camps, which appear archaeologically as scatters of lithic waste flakes and tools such as scrapers, points, and knives. These sites are numerous in river basins and along wetlands and probably represent sites of tool repair and food processing during hunting and gathering excursions (Milanich 1994:78). The second common site type is the large base camp. This type of site may cover several acres or more, and contains several thousand or more lithic waste flakes and tools. The third common type of site is the quarry-related site that occurs in localities of chert outcrops.

Middle Archaic sites are found in a variety of locations, including, for the first time, freshwater shell middens along the St. Johns River and the Atlantic Lagoon. Middle Archaic sites have been found in the Hillsborough River drainage northeast of Tampa Bay, along the southwestern Florida coast, and in South Florida locales such as Little Salt Spring in Sarasota County. In addition, Middle Archaic sites occurred throughout the forests of the interior of northern Florida (Milanich 1994:76).

Due to rising sea levels since the Middle Archaic, many sites dating to this period are now submerged beneath the waters of the Gulf of Mexico and Atlantic Ocean. One such site in St. Lucie County may be the Douglass Beach Midden (8SL17), from which artifacts predating the Late Archaic have been recovered (Murphy and Cummings 1990).

6.2.3 Late Archaic Period (3000–500 BC)

By the beginning of the Late Archaic, all of the modern physiographic regions and ecosystems of southern Florida were present in essentially their modern forms. This includes the entire Kissimmee-Lake Okeechobee-Everglades drainage system. Although the environment of southern Florida had achieved some sense of stability, the archaeological record of this period is much more dynamic.

Different ideas and perhaps, human populations, were moving into the area during this time. As a result, there is a great deal of variability between Late Archaic sites in central and southern Florida.

The one point upon which all researchers seem to agree is that, at the beginning of the Late Archaic, pottery had not yet been invented. How long this aceramic state persisted, what the earliest pottery types are and how they vary over space and time is a matter for considerable conjecture.

Until recently, variations of Bullen's chronology for the Late Archaic Orange culture in northeastern Florida were generally used for the Late Archaic in central and southern Florida. Using this scheme, fiber-tempered pottery, the earliest pottery type known for all of North America, was considered to be a marker for the pottery portion of the Late Archaic. The generally accepted chronological sequence for the Late Archaic was expressly unilineal, with plain (undecorated) fiber-tempered pottery, followed by decorated fiber-tempered pottery, replaced finally by plain pottery that was not tempered with fibers (Bullen 1954, 1955, 1972). It was also understood that sand was eventually added as a tempering agent to fiber-tempered pottery. As the Late Archaic progressed, the amount of sand temper was supposed to have increased while the amount of fiber temper decreased. Orange pottery tempered with both fiber and sand is sometimes referred to as "semi-fiber tempered." The application of this chronology to southern Florida seemed to indicate that most of the area, especially the Everglades, was sparsely settled during the Late Archaic due to the general absence of Orange pottery at sites (Griffin 2002:146-149; Widmer 1988:201-201).

The use of the "standard" fiber-tempered sequence for the Late Archaic in southern Florida eventually came into question by several researchers. Based on his research in southwestern Florida, Widmer (1988:68) hypothesized that the earliest sites there "include untempered chalky pottery and limestone-tempered pottery as well as the usual fiber-tempered Orange pottery." Austin (1997:136) states that the "identification of a true Orange Horizon in south Florida is debatable." He points out that, in the Kissimmee River Valley, pure fiber-tempered components are rare. Instead, what is more common is the presence of "semi-fiber tempered" pottery in the basal levels of middens, "often in association with thick St. Johns Plain or Sand-tempered Plain sherds, and overlying either culturally sterile sands, or sparse scatters of lithic artifacts" (Austin 1996, 1997:136). Both Widmer and Austin agree that semi-fiber tempered components at sites throughout southern Florida are "ephemeral" and soon replaced in the archaeological record by components consisting of exclusively sand-tempered pottery (Austin 1997:136; Widmer 1988:72-73).

Mike Russo has investigated the Joseph Reed Shell Ring on Jupiter Island (Russo and Heide 2002). Radiocarbon dates indicate that the site was constructed sometime between 3527-2746 CALYBP (Russo and Heide 2002:73). This confirms that the site dates to the Late Archaic period. However, no fiber-tempered pottery was recovered from the site. Instead, excavations yielded only chalky (possible early St. Johns Plain) and plain sand-tempered pottery. This is an earlier appearance for these types of pottery than has been predicted for southeastern Florida. Radiocarbon dates indicate that the chalky pottery appears at the Joseph Reed Shell Ring between 3500 and 3300 CALYBP whereas sand-tempered pottery is hypothesized to appear around 3280 CALYBP. Based on the evidence obtained from excavations at the Joseph Reed Shell Ring, Russo and Heide tentatively proposed a new chronology for the Late Archaic in southeastern Florida. A period labeled Late Archaic I is proposed that is marked by fiber-tempered and/or semi-fiber tempered plain pottery. During the next proposed period, Late Archaic II, only chalky ware pottery, possibly early St. Johns Plain, is predicted to occur. This is based on the earliest pottery-bearing levels from the Joseph Reed Shell Ring. The next proposed period, Late Archaic III, is distinguished by the presence of plain sand-tempered pottery along with the chalky pottery. This period is based on the latest levels from the Joseph Reed Shell Ring. Russo and Heide point out that this chronology is closest in resemblance to the chronology proposed by Widmer (1988) for southwestern Florida, suggesting, among other things, that non-fiber-tempered pottery was developed earlier in southern Florida than elsewhere in the state.

It is worth noting that all of these researchers mention in their Late Archaic chronologies the presence of St. Johns Plain, or plain “chalky ware” pottery. Specimens of this type are usually described as “thick” or “thick walled.” The same phenomenon has been mentioned for Late Archaic sites in the Everglades (Mowers and Williams 1972). Often, this pottery is described in reports as “early St. Johns Plain.”

Of perhaps equal interest to the reported early manifestations of St. Johns Plain are the early reports of Sand-tempered Plain pottery from some sites in southern Florida. In addition to the early examples of Sand-tempered Plain sherds from the Joseph Reed Shell Mound, early examples of this type are also reported from southwestern Florida. At the Mulberry Midden (8CR697), Sand-tempered Plain pottery was dated at about 3390 and 3430 CALYBP (Lee et al. 1993:46; dates recalibrated by Russo and Heide 2002). Dates for Sand-tempered Plain from Heineken Hammock (8CR231) are even earlier, ranging from 4000 to 4500 CALYBP (Lee et al. 1998; dates recalibrated by Russo and Heide 2002). Again, using the standard fiber-tempered sequence for southern Florida, Sand-tempered Plain pottery should not be present at such early dates, only fiber-tempered pottery.

Finally and importantly, it is now becoming clear that many of the ubiquitous faunal bone middens located in the interior wetlands of southern Florida date to Late Archaic times, despite the fact that many of them lack pottery of any kind. These sites are notoriously difficult to date because, not only do they often lack chronologically diagnostic artifacts, but most of the faunal bone at the sites lacks collagen, the datable material in bone samples sent to radiocarbon labs. Nevertheless, many sites clearly have aceramic components that underlie pottery-bearing strata, logically indicating that these aceramic components most likely date at least as far back as Late Archaic times. Indeed, a few radiocarbon dates have been obtained from some of these components, mostly from shell artifacts or ecofacts. For instance, Taylor's Head (8BD74) yielded a radiocarbon date of 4840 ± 210 CALYBP from an aceramic stratum that lay beneath pottery-bearing strata, although no fiber-tempered pottery was identified (Masson et al. 1988:346). Additionally, radiocarbon dates from the lower, aceramic stratum at the Francis Groves Midden/Muhley site (8BD2911) are reported as ranging from 3960-3630 CALYBP (Pepe and Elgart 2006), despite the fact that fiber-tempered pottery is known during this time elsewhere in Florida (Russo and Heide 2002:Figure 11). Ongoing research by the National Park Service in the Big Cypress National Preserve and Everglades National Park has also yielded dense aceramic faunal bone middens yielding radiocarbon dates between 4800 and 3500 CALYBP (Michael Russo, personal communication with James Pepe 2007; Schwadron 2006).

To explain this dichotomy between Late Archaic Everglades area sites that lack fiber-tempered pottery and large, coastal shell mounds that have abundant examples of early pottery, Pepe and Jester (1995:19) propose that there are two, distinct Archaic traditions in southeastern Florida. In this model, the fiber-tempered pottery tradition is largely a coastal phenomenon associated with shell mound building, while the aceramic Archaic or "Glades Archaic" is a more widespread tradition, perhaps giving rise to the distinctive regional culture of the Tequesta and their ancestors (Pepe 2000:29-32; Russo and Heide 2002:80; Wheeler et al. 2002:143-144).

Additionally, Austin suggests that the presence of "semi-fiber-tempered" pottery at sites in southern Florida may not actually date to the Late Archaic, but instead may signify the beginning of the subsequent post-Archaic Tradition (Austin 1997:138). In other words, Austin holds out the possibility that the ephemeral "semi-fiber-tempered" components in the basal levels of middens in southern Florida may better be incorporated into the initial periods of post-Archaic chronologies (i.e. Glades I Early, Okeechobee Basin I, etc.).

The preceding discussion illustrates that a lack of fiber-tempered pottery at a site in southern Florida does not necessarily mean that the site does not date to the Late Archaic. In fact, recent research

indicates that, at some sites or in some areas, the earliest pottery present may be Sand-tempered Plain or thick, chalky (St. Johns?) wares. Finally, Austin holds out the possibility that fiber-tempered pottery in southern Florida may not date to the Late Archaic at all, but instead, may be markers of the earliest post-Archaic expressions in the region.

6.3 Formative Period (500 BC–AD 1513)

The Formative Period is represented by changes in pottery and technology occurring throughout Florida. The specific changes in pottery traditionally used by archaeologists to mark the beginning of this period include the replacement of fiber-tempered pottery with sand-tempered, limestone-tempered, and chalky-paste ceramics. Three different projectile point styles (basally notched, corner-notched, and stemmed) also occur in some areas in contexts contemporaneous with these new ceramic types. This profusion of ceramic and tool traditions suggests population movement and social interaction between culture areas. The earliest known major occupations of southern Florida date to this period (Bullen et al. 1968; Sears 1982).

The regional diversity marking this period has been attributed to local adaptation to varied ecological conditions. It has been described archaeologically in terms of cultural periods based on variations in ceramic types. The ceramic tradition for southern Florida, characterized by sand tempered bowls with incurvate rims, is known as the Glades or Everglades cultural tradition.

6.3.1 Glades Cultural Tradition and East Okeechobee

The study area is located in what Milanich calls the “East Okeechobee subregion” of the Glades area (Milanich 1994:301) (Figure 11). Carr and Beriault (1984) and Wheeler (2000) call it the “East Okeechobee Area.” Pepe has provided a summary of the East Okeechobee and the archaeology of the Loxahatchee River (Pepe, Steele, and Carr 1998). This summary is included in the following discussion.

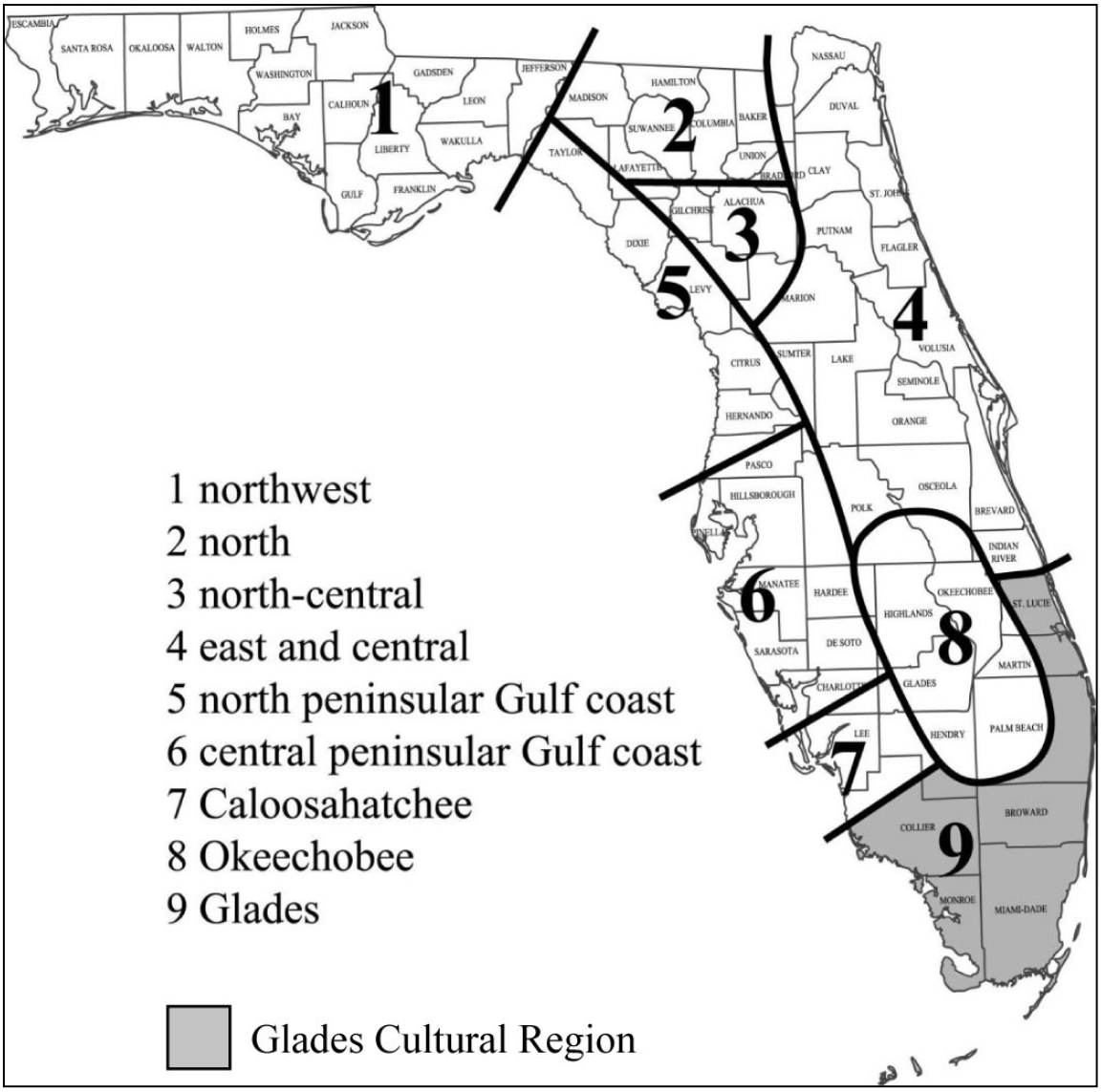


Figure 11 – Glades Cultural Region
(Source: Milanich 1994)

East Okeechobee ceramics are almost overwhelmingly without decoration of any kind until the arrival of St. Johns Check-Stamped. The numerous incised sand-tempered types that are used so successfully in the Everglades Area for relative dating of sites are almost completely absent from East Okeechobee, especially as one moves further north within the area. In general, the types Belle Glade Plain, Sand-tempered Plain, and St. Johns Plain and Check-stamped make up the bulk of all ceramic artifacts found, with Sand-tempered Plain being the most frequently recovered. Other types, such as Savannah Fine Cord-marked, Surfside Incised, Engelwood Incised, Opa Locka Incised, Dunn's Creek Red, Carrabelle Punctated, Little Manatee Zoned Shell Stamped, St. Johns Simple Stamped, Weeden Island Incised,

and Sarasota Incised have been recovered in very small amounts in the area and probably represent trade wares (Pepe in Pepe, Steele, and Carr 1998).

Non-ceramic artifacts that distinguish East Okeechobee are *Busycon* adzes and picks typical of the Indian River and St. Johns Areas (Wheeler 1993). Trade items occasionally recovered are also typical of these areas and include greenstone artifacts like celts and plummets. Bone artifacts, such as points and hairpins, are not uncommon and a few have been recovered that display incised decorations (Kennedy et al. 1993; Wheeler 1992a).

Burials that have been encountered and reported seem to show no general preference for burial type, such as primary, extended, bundle, etc. Isolated burials have been noted even in village midden contexts (Kennedy et al. 1993; Malcomb DuBois, personal communication 1994). However, it is probable that the lack of discernible temporal and spatial patterns is due to a lack of general evidence and research in the area (Pepe in Pepe, Steele, and Carr 1998).

Site types are generally oyster shell or black earth middens. Both villages and campsites have been located, with the largest sites being along the coast. Small coastal procurement sites also have been recorded. The Singer Island Site (8PB214), for instance, is located on a barrier island and seems to have served as both a site of procurement of sea turtles and other marine fauna and as a lookout point for the salvaging of shipwrecked European vessels (Dickel 1988). A variant of the shell midden, which can be called shellworks, is also known in coastal portions of Martin and Palm Beach Counties. For example, The Joseph Reed Mound (8MT13) is a shell ring located on Jupiter Island. Douglass (1881) also reported on suspected shellworks at Jupiter Inlet I (8PB34). Another type of shell midden present in East Okeechobee can be called shell scatters. Sand earthworks also have been occasionally noted, such as at the Riviera Complex mentioned earlier and possibly the Loxahatchee Earthwork Complex (8PB49) and Jupiter Inlet Complex (Douglass 1881). Sand burial mounds, such as the Highland Beach Burial Mound (8PB11), the Nebot Site (8PB219), the Palm Beach Inlet Mound (8PB29), Meghan's Mound (PB11550), Palm Beach 4 (8PB26) and 8PB4 of the Boca Raton Complex, are not uncommon and usually are associated with coastal village complexes. Some, such as the Highland Beach Mound, are, or were, quite extensive, containing large numbers of burials.

Almost all recorded habitation sites are located in what are, or once were, hardwood hammocks, coastal sites being located in tropical hammocks, and inland sites generally located in "low" hammocks. Several adaptive advantages associated with these ecosystems made them quite attractive to the native people of East Okeechobee and southern Florida in general. First, hammock vegetation especially that of low,

or "hydric," hammocks, produces a great amount of edible fruits and seeds (Ewel 1990). In addition, large numbers of potential game animals, including deer, are attracted to hammocks during mast (acorn) producing season. Low hammocks are usually tree islands surrounded by water or other ecosystems. Camping or living in such a place would allow easy access to drinking water and other ecosystems for foraging. Hammocks also are generally moist enough so that fires, especially campfires, would not have been a potential problem. Flooding would not have been a problem either, as hammocks usually occupy fairly high ground. Hammocks in their natural state are often free of underbrush or herbs of any kind. This would make movement easy and provide almost ready-made work and living areas. Finally, many hammock soils contain clay deposits, important for the manufacture of ceramic vessels (Pepe in Pepe, Steele, and Carr 1998).

Goggin's (1947) Glades chronology is not useful for East Okeechobee. Pepe (Pepe in Carr et al. 1995; Pepe in Pepe, Steele, and Carr 1998) has proposed a new chronology, specific to this area. It must be noted that the only radiocarbon dates recorded in the area have come from the Jupiter Inlet area and the following chronology is based mainly on sites in the Jupiter area. Thus, the chronology is most successfully applied to sites found along the Loxahatchee River.

East Okeechobee I (750 BC–ca. AD 800)

This period is characterized by the use of undecorated sand-tempered pottery, such as at the numerous sites along the upper Loxahatchee River (Carr, Steele, Pepe and Spears-Jester 1995; Kennedy et al. 1991; Kennedy et al. 1994; Pepe and Carr 1996a, 1996b; Pepe, Steele and Carr 1998; Pepe et al. 1998), and in basal levels of Jupiter Inlet I (8PB34) (Kennedy et al. 1993). Belle Glade Plain is a minor type. Other types of pottery are absent or make up only trace amounts of total assemblages from this period. It is important to note that this period is marked by an absence of St. Johns pottery. This seems to demonstrate a direct transition from the Glades Archaic rather than the Orange. These trends are in keeping with the Sand-tempered Plain tradition of most of southern Florida during this time (Pepe 1999).

As with the Glades Archaic, sites seem to be concentrated in the interior wetlands rather than on the coast. However, the upper Loxahatchee River sites seem to demonstrate that, unlike the earlier Glades Archaic, East Okeechobee I sites may be found along the upper reaches of rivers and streams. These sites probably represent camps that were occupied seasonally and not located in exactly the same place every year. This would explain the extended length and unevenly distributed middens of most of the upper Loxahatchee sites. Coastal sites such as Jupiter Inlet I were probably occupied seasonally as well during this time (Pepe in Pepe, Steele, and Carr 1998).

East Okeechobee II (ca. AD 800–ca. 1000)

This relatively short period is marked by the appearance of St. Johns Plain ceramics as documented at Jupiter Inlet I (8PB34) and Suni Sands (8PB7718). It is during this period that this area can finally be distinguished from the Everglades and Big Cypress Swamp due to an almost complete lack of decorated pottery in East Okeechobee and a relatively dramatic increase in such wares in the latter areas (Pepe 1999).

The noticeable lack of St. Johns ceramics in the interior sites mentioned for the last period testifies to a change in settlement patterns for East Okeechobee II. It appears that settlements in this period were concentrated along the coast for the first time (excepting earlier Orange settlements), probably on a permanent basis (Pepe in Pepe, Steele, and Carr 1998).

East Okeechobee III (ca. AD 1000–ca. 1500)

A radiocarbon date from Jupiter Inlet I (8PB34) indicates that the marker type for this period, St. Johns Check-Stamped, is first apparent at about AD 1000 (Kennedy et al. 1993). In all parts of East Okeechobee though, this period is marked by a substantial increase in the St. Johns ceramic series, until St. Johns Plain and St. Johns Check-Stamped eventually become the dominant types. Because of this, by about AD 1250, East Okeechobee cannot be distinguished ceramically from the Indian River District farther north along the Atlantic coast (Pepe 1999). The dramatic increase of the St. Johns series in East Okeechobee can be seen at the Riviera Site (8PB30) (Wheeler 1992b). East Okeechobee III ends with the appearance of European goods. A tentative date in line with other areas in southern Florida for sustained European contact would be circa AD 1500 (Pepe in Pepe, Steele, and Carr 1998).

East Okeechobee IV (ca. AD 1500–1700)

This period is marked by essentially the same ceramics as the previous period except for the addition of European goods. The St. Johns series is dominant and the Riviera Site (8PB30) (Wheeler 1992b) suggests that St. Johns Check-Stamped may actually be the most dominant ware. The tribe encountered in East Okeechobee by Europeans at this time was called the Jeaga. It is possible that the Jeaga were under the political dominance of the Calusa, a tribe centered on the southwestern coast of Florida (Fontaneda in True 1944). However, the large amounts of St. Johns pottery and other artifacts from the Indian River and St. Johns Areas in East Okeechobee sites during this time suggest at least cultural dominance by these northern areas instead. Jonathan Dickinson observed that the Jeaga were forced to hand over his shipwrecked cargo to the Ais, their neighbors to the north. Thus, it would seem that if the Calusa did exert any control over the Jeaga, it was minimal or sporadic and was not nearly

as strong as was that exerted by the Ais and perhaps the Timucua farther to the north (Pepe in Pepe, Steele, and Carr 1998).

7 HISTORICAL OVERVIEW

The following overview traces the historical development of the general project area from the Civil War and Post War Period (1861-1897) to the Modern Period (1950-Present). This beginning developmental time frame was selected because it coincides with the early settlement of present-day Palm Beach County. The intent of this historical overview is to serve as a guide to field investigations by identifying the possible locations of any resources within the project APE and to provide expectations regarding the potential historic significance of any such resources.

7.1 Civil War and Post War Period (1861–1897)

Although Florida was not involved in many Civil War battles, Union forces established control of the Florida coastline in 1863 (Miller 1990). A major contribution of the state during the war was the supply of beef to the Confederate Army by Florida cattlemen. Herds from as far south as central Florida were driven to railheads near the Georgia border. However, cattle ranchers discovered they could sell their herds in Cuba for a greater profit and began dealing with blockade-runners. The Union attempted to stop all shipping from Florida ports, but blockade-runners were too abundant. Cattle ranchers from all over Florida drove their cattle to Punta Rassa to be shipped to Cuba for payment in Spanish gold. Jacob Summerlin, a successful cattle rancher from the Fort Meade area, gave up his contract with the Confederate government to supply cattle and in 1863 teamed up with James McKay from the Tampa area. McKay, a successful and daring blockade-runner, supplied the schooners and Summerlin the cattle. It is not known how many cattle were shipped from the port during the Civil War. However, after the war as cattle continued to be shipped; it is reported that in the decade between 1870 and 1879, more than 165,000 head were shipped (Grismer 1949).

Florida suffered economic devastation at the Civil War's end and much of the state's agricultural production came to a halt (Miller 1990). Settlement increased slightly in central and southern Florida, but development was limited by a lack of transportation to the interior of the state and internal debt. Although the economy was in ruins, tax-supported public school and university systems were established. Some industries, such as lumbering, emerged during this period; however, despite some economic activity, the overall condition was hard for most Florida residents (Miller 1990). Following Reconstruction, Florida experienced economic growth, prosperity, and population expansion.

During the 1800s, the area that now makes up Palm Beach County was part of a much larger Dade County, which encompassed the land from the St. Lucie River all the way to the Keys. From the Jupiter

Lighthouse to Boynton Beach was called Lake Worth after the waterway. The area remained untamed until the 1870s, when settlements of Europeans were established in present-day Palm Beach County. H.F. Hammon was one of the first to file a homestead on present-day Palm Beach, followed by H.D. Pierce, who settled on Hypoluxo Island. Other significant pioneers to the area included L.W. Burkhardt, George Lanehart, and George and Richard Potter. Dr. Richard Potter was one of the area's first known physicians (n.a. 2005).

Captain Elisha Newton Dimick is considered the first permanent resident of the Palm Beach area; he built a house on the island of Palm Beach in 1876 (Federal Writers' Project 1939:230). Most of the early settlers took shelter on the eastern shore of Lake Worth, now the site of the Town of Palm Beach. These residents established farms on both sides of Lake Worth and cultivated primarily pineapples. Benjamin Lanehart, whose homestead included most of the current location of the City of West Palm Beach, was one of the early pineapple growers (Curl 1986:13–17, 26–27; Travers 1929:37).

At that time, what is now Singer Island was an extension of Palm Beach. Weather conditions periodically created narrow channels that could be used by small boats sailing between Lake Worth and the Atlantic Ocean, but there was no permanent connection between the two bodies of water. Local settlers, determined to dig an inlet, decided the best location was about one mile north of the modern entrance to the Port of Palm Beach. In 1877, 19 volunteers began digging the 300-foot channel by hand and completed the task within the year. The surge of salt water from the Atlantic resulted in a massive fish kill in Lake Worth, although the salinity leveled off and lake fishing eventually recovered (Maloney et al. 1998:5).

Between 1880 and 1893, the shores of Lake Worth gradually grew more civilized. On May 30, 1880, the Post Office Department assigned a post office to the Lake Worth area. During this time, the permanent population increased and the first winter tourists arrived (Curl 1986:21). In 1880, Captain Dimick opened the first hotel in the area, which was actually several rooms added onto his house; the hotel was called the Cocoanut Grove House. At the beginning of 1887, local residents felt they needed improved mail service, since the Lake Worth post office served such as large area. President Grover Cleveland designated another post office for Palm City, a name inspired by the abundance of palm trees in the area. Upon finding out there was another Palm City already in existence, the inhabitants decided Palm Beach would be the name of the new community (Curl 1986:23).

Frank L. Dimick, brother to Captain Dimick, purchased 80.24 acres in Palm Beach County in 1881. The following year, he conveyed the land to Judge Allen E. Heyser, the first settler in Riviera Beach, as well

as the first lawyer and county judge in Dade County (Brink 1976:3–4). The judge and his wife, Mattie Spencer Heyser, built a house which grew to become the Oak Lawn Hotel on the present site of the Port of Palm Beach. The Heysers also ran the Oak Lawn Post Office from the Oak Lawn Hotel. The area from Blue Heron Boulevard to south of the present Riviera Beach city limits became known as Oak Lawn (Brink 1976:6–7; Historical Society of Palm Beach County 2009a).

In the 1880s, interest in the resources of South Florida increased due in large part to people like Hamilton Disston and Henry B. Plant. By 1881, the State of Florida faced a financial crisis involving a title to public lands. On the eve of the Civil War, land had been pledged by the Internal Improvement Fund to underwrite railroad bonds. After the War, when the railroads failed, the land reverted to the State. Almost $1 million was needed by the state to pay off the principal and accumulated interest on the debt, thereby giving clear title.

Hamilton Disston, son of a wealthy Philadelphia industrialist, contracted with the State of Florida in two large land deals: the Disston Drainage Contract and the Disston Land Purchase. The Drainage Contract was an agreement between Disston and the State in which Disston and his associates agreed to drain and reclaim all overflow lands south of present-day Orlando and east of the Peace River in exchange for one-half the acreage that could be reclaimed and made fit for cultivation.

The Disston Land Purchase was an agreement between Disston and the State in which Disston agreed to purchase Internal Improvement Fund Lands at $0.25 an acre to satisfy the indebtedness of the fund. A contract was signed on June 1, 1881 for the sale of 4,000,000 acres for the sum of $1 million, the estimated debt owed by the Improvement Fund. Disston was allowed to select tracts of land in lots of 10,000 acres, up to 3,500,000 acres. The remainder was to be selected in tracts of 640 acres (Davis 1938:206–207). Before he could fulfill his obligation, Disston sold half of this contract to a British concern, the Florida Land and Mortgage Company, headed by Sir Edward James Reed (Tischendorf 1954:123).

Disston changed Florida from a wilderness of swamps, heat, and mosquitoes into an area ripe for investment. This enabled Henry B. Plant to move forward with his plans to open the west coast of Florida with a railroad-steamship operation called the Jacksonville, Tampa & Key West Railway. Through the Plant Investment Company, he bought up defunct rail lines such as the Silver Springs, Ocala & Gulf Railroad, Florida Transit and Peninsular Railroad, South Florida Railroad, and Florida Southern Railroad to establish his operation (Mann 1983:68; Harner 1973:18–23). In 1902, Henry Plant sold all

of his Florida holdings to the Atlantic Coast Line, which would become the backbone of the southeast (Mann 1983:68).

In August 1881, at the same time Disston's companies were beginning their work, the legislature granted a state charter to the privately-owned Florida Coast Line Canal & Transportation Company to construct a continuous waterway from the St. Johns River to Miami; the Florida East Coast Canal (today's Intracoastal Waterway) would provide a sheltered, inland passage for shallow-draft vessels. The charter granted the company 3,840 acres of land for every mile of canal built. Construction began in 1883 on a 5-foot-deep, 50-foot-wide, intracoastal channel connecting coastal bays, rivers, and lakes, including Lake Worth (Buker 1975:117). Although the canal company dredged almost continuously from 1883 until the 268-mile channel was completed in 1912, the firm's waterway operations were never successful. While the channel was still under construction, the company faced a formidable challenge from competing transportation interests expanding into South Florida (Buker 1975:120). Per tract book records, the Florida Coast Line Canal & Transportation Company purchased the land that includes the APE on September 24, 1890.

The history of the Earman River Canal (C-17), a segment of which is located within the APE, can be traced to Dimick's Ditch. Accounts differ as to the reason for the construction of Dimick's Ditch; however, there is consensus that it was hand dug by Captain Elisha Newton Dimick in cooperation with other early settlers Joseph Borman and George Lanehart (Historical Society of Palm Beach County 2009b; Hartman Berge 2014). In a 1962 interview, Joseph Borman, who would later become the first Town of Palm Beach marshal, recounted his experience digging Dimick's Ditch: "I worked in it all the winter of [18]97, cutting muck down that floated out into the lake" (Historical Society of Palm Beach County 2009b).

Several sources indicate that Dimick's Ditch was dug in relation to the construction of the Florida East Coast Canal (today's Intracoastal Waterway) to drain the sawgrass marsh for farming. The process of dredging the Florida East Coast Canal eliminated barriers that held water in the sawgrass marshes causing water levels to fall, and this draining exposed muck soils considered ideal for farming. As dredging neared Lake Worth, Dimick's Ditch was excavated to drain sawgrass marsh that was not in proximity of the Florida East Coast Canal, and then empty into Lake Worth (Palm Beach County Department of Environmental Resources Management and the Institute of Regional Conservation 1988:1-3, 1-4; Hartman Berge 2014; Historical Society of Palm Beach County 2009b).

In opposition, according to an October 4, 1931 newspaper article from *The Palm Beach Post*, Dimick's Ditch was dug out of necessity due to a heavy flood which endangered the FEC Railway (*The Palm Beach Post* 1931). The article states that through the efforts of Captain Dimick and FEC personnel, a direct outlet was cut into Lake Worth to alleviate the flooding; these efforts resulted in a ditch that extended west from the Lake Worth outlet to the FEC Railway trestle (*The Palm Beach Post 1931*).

Henry Morrison Flagler, one of the original founders of the Standard Oil Company, profoundly influenced the settlement and development of not only Palm Beach County, but the entire State of Florida. During this period, Flagler was establishing his fortune and paving the way to his railroad empire. Flagler was already a multi-millionaire from his "Robber Baron" days with Standard Oil and associate John D. Rockefeller. He had a vision for Florida and was the type of man that wanted things done his way, sparing no expense. His business, development, and transportation endeavors along the east coast of Florida in the late-nineteenth and early-twentieth centuries created hundreds of thousands of jobs, conquered vast expanses of untamed wilderness, and developed cities such as Daytona, Palm Beach, and Miami. He would spend a vast fortune of his own money in this massive expansion along Florida's east coast, and in turn many would profit from the creation of new towns and lavish hotel resorts, agricultural success in both the citrus and vegetable industries, and the impressive FEC Railway.

Before returning to New York in the spring of 1885, Flagler decided to leap head-first into the hotel industry. He decided to build a multi-million dollar luxury hotel that would be the jewel of the South, the Ponce De Leon. He purchased additional St. Augustine hotels, such as the Casa Monica Hotel, which he refurbished and renamed the Cordova. These hotels quickly became huge successes with many people flocking to Flagler's new winter resorts. Inspired by this success, he saw that there was money to be made by building future hotels and resorts southward along Florida's east coast.

To improve transportation, Flagler purchased and updated the Jacksonville, St. Augustine, and Halifax Railroad and the small St. John's Railroad. By 1890, Flagler had extended his railroad south from St. Augustine to Daytona, where he purchased a small hotel that he rebuilt and renamed the Ormand Beach Hotel. In an effort to further expand his railroad empire, Flagler chartered the Florida Coast & Gulf Railway in 1892 with the intention of providing a railroad from Jacksonville to the Gulf Coast; however, these plans changed later that year and the railroad was named the Jacksonville, St. Augustine & Indian River Railway Company; St. Augustine & Halifax River Railway Company; Palatka Bridge Company, and Jacksonville Bridge Company. With this contract, Flagler controlled a continuous line that spanned over 110 miles between Jacksonville and Daytona (Janus Research 2007:35).

As Flagler's railroad moved southward along the coast, a flood of land speculators began arriving in Florida to purchase land surrounding his endeavor. Flagler spent millions of his own money to construct this railroad, but in the process he obtained hundreds of thousands of acres of free land from the State of Florida for the ROW. Thousands of laborers surveyed and hacked their way through the wilderness at an amazing rate (Harner 1973:32-33, Janus Research 2007:35). From Daytona, Flagler pushed his railroad 15 miles south to New Smyrna, with passenger and freight service beginning in November of 1892. By January of 1893, his rail line had forged ahead to the wharf at Cocoa, and in early February, the railroad reached Rockledge, a distance of over 64 miles to Daytona. By May of 1893, the railroad had reached Eau Gallie, and in January of 1894, the line reached Ft. Pierce.

Flagler had visited the Palm Beach area in 1892, investigating a route to Miami in an effort to expand his Jacksonville, St. Augustine, and Indian River Railroad. When Flagler visited the area in 1892, it was known as Lake Worth and encompassed the entire area around the 22-mile-long lake though, the city by the same name would not exist for many years. He was interested in purchasing the small but profitable "Celestial Railroad" that traveled from Jupiter to the towns of Juno, Mars, and Venus. The beauty of the area and the warm tropical climate inspired Flagler to create an exclusive resort community on the island of Palm Beach. Flagler envisioned the resort as a paradise, an escape from overcrowded northern cities and urban development.

In 1893, Flagler tried to buy the Celestial Railroad and incorporate it into his Jacksonville, St. Augustine and Indian River Railway (the former name of name of the FEC Railway). Deeming the price of sale too high, Flagler instead bypassed the communities of Juno and Jupiter entirely with his railroad by February 1894 (Janus Research 2007:36). To accommodate Palm Beach's commercial activity, Flagler purchased property on the west shore of Lake Worth from Captain O.S. Porter and Louis Hillhouse. On this property Flagler established a town that would serve as the business district of Palm Beach (Curl 1986:23). In November 1893, Flagler filed the original plat for the Town of West Palm Beach. Dade County surveyor George Potter laid out the 48-block plat for Town of West Palm Beach, which extended east to west from Lake Worth to Clear Lake (Historical Society of Palm Beach County 2009c). The first lots in West Palm Beach were sold in February 1894 at auction from Flagler's not yet opened Royal Poinciana Hotel, and construction was soon underway (Historical Society of Palm Beach County 2009c). By March of 1894, Flagler's railroad reached the western shore of Lake Worth and the small settlement of West Palm Beach. On November 5, 1894, the new community voted to incorporate as a town (Curl 1986:49).

The first census, taken in 1895, recorded 1,192 persons living in West Palm Beach and listed the property value at $133,926. By 1900, West Palm Beach had electricity, a sewer system, water pumping station, paved streets, and telephone service (Curl 1986:46–48). Despite the advances, the town's population dropped to 564 residents. This decrease in population was attributed to the decline in construction activity, the freeze of 1894–1895, which destroyed the citrus industry, and nationwide recessions.

7.2 Spanish-American War Period/Turn-of-the-Century (1898–1916)

At the turn-of-the-century, Florida's history was marked by the outbreak of the Spanish-American War in 1898. As Florida is the closest state to Cuba, American troops were stationed and deployed from the state's coastal cities. Harbors in Tampa, Pensacola, and Key West were improved as more ships were launched with troops and supplies. "The Splendid Little War" was short in duration, but evidence of the conflict remained in the form of improved harbors, expanded railroads, and military installations (Miller 1990).

Much of the agricultural expansion along Florida's east coast during the first two decades of the twentieth century came as a result of an extensive swamp drainage program. A sustained program of land reclamation, one of Florida's so-called "Progressive Era" reform measures, added tillable fields to many communities along the southeast coast where wetlands and periodic flooding had prohibited development. Many Florida farmers and agricultural companies set up packinghouses and staked out extensive citrus groves and tomato farms on reclaimed land in South Florida. Other results of the early reclamation program included the settlement, incorporation and expansion of towns, creation of new county jurisdictions, and improved road systems (Historic Property Associates, Inc. 1997:8).

Governor Napoleon Bonaparte Broward initiated significant reforms in Florida's politics during this time period. Several of Broward's major issues included the Everglades drainage project, railroad regulation, and the construction of roads. During this time, railroads were constructed throughout the state and automobile use became more prevalent. Improved transportation in the state opened the lines to export Florida's agricultural and industrial products (Miller 1990). As various commodities such as fruits and vegetables were leaving the state, people were arriving in Florida. Some entered as new residents and others as tourists. Between 1900 and 1910, the state population increased from 528,542 residents to 752,619. Phenomenal population growth along the coast of South Florida and the change of the county seat from Juno to Miami resulted in the creation of Palm Beach County from Dade County, in 1909.

West Palm Beach was named the county seat (City of West Palm Beach Planning Department n.d.; Curl 1986:48).

In 1893, Oak Lawn became Riviera. In 1901, Charles N. Newcomb purchased and remodeled the hotel as his private winter home, called Riviera. Around 1910, Newcomb purchased 200 acres of land to the west of his home for the purpose of developing a resort community. The site of the future community was set between Lake Worth at the east, the FEC Railway tracks at the west, present-day 10th Street at the north, and present-day 14th Street at the south. The plat for Riviera was filed in 1913 and a series of auctions were held to sell the moderately priced lots. One of the arrivals in Riviera that year was Dorothy Halsey, a widow, and her daughter. From her home at the corner of Commercial Street and 13th Street, Mrs. Halsey operated the first grocery store in town. She also owned the only gasoline pump in Riviera. In 1915, Mrs. Halsey opened the post office, also out of her home, and served as postmistress. Mail services were transferred to West Palm Beach when the post office closed from 1918 to 1919; however, Mrs. Halsey reopened the Riviera post office in 1919 and resumed her role as postmistress until 1926 (Brink 1976:10–20).

In 1914, Captain George E. Andrews and Mr. T.T. Reese purchased the land east of the FEC Railway tracks near the Earman River Canal (C-17) to develop a community called Prosperity Farms (*The Palm Beach Post* 1931). Dimick's Ditch was modified into a larger canal as part of the development. In August 1915, a heavy rainfall induced a flood of the basin, which washed out a small opening in the canal that allowed for drainage. The result was a current of 21 feet per second that lasted two days and washed out both the railroad trestle and county bridges (*The Palm Beach Post* 1931). John Sites Earman, the first mayor of West Palm Beach when it incorporated in 1894, was living in the area at the time, and in realizing the danger presented by the flooding, stood guard with a servant through the night to stop railroad and vehicular traffic before reaching the breaches in the canal. Earman sent word of the catastrophe to the County Engineer by way of one of the cars he stopped. At the September 1915 meeting of the Board of County Commissioners, in recognition of his gallant effort, the County Engineer recommend that the name of the canal (known then as Sawgrass River) be changed to Earman River. The name Earman River was officially recognized on September 28, 1931 by the Board upon the death of John Sites Earman (*The Palm Beach Post* 1931).

The Port of Palm Beach was created when Florida legislature established a special taxing district in 1915 to fund the dredging of a channel to the Atlantic Ocean and the construction of a harbor and dock facility. Lake Worth Inlet was dredged in its present location in 1918; the inlet still serves as the entrance to the Port of Palm Beach. The inlet was originally four feet deep and capable of handling small coastal

schooners. By the 1920s, the depth had been increased to 16 feet and the port could accommodate ocean-going vessels (Maloney et al. 1998:5). The port's development helped spur a flurry of real estate speculation in the area.

7.3 World War I and Aftermath Period (1917–1920)

The World War I and Aftermath period of Florida's history begins with the United States' entry into World War I in 1917. Wartime activity required the development of several training facilities in the state, and protecting the coastlines was a priority at this time. Although the conflict only lasted until November 1918, the economy was boosted greatly by the war. For example, the war brought industrialization to port cities such as Tampa and Jacksonville, where shipbuilding accelerated. These cities also functioned as supply depots and embarkation points.

While Florida industrialization and agriculture flourished, immigration and housing development slowed during the war. Tourism increased as a result of the war in Europe, which forced Americans to vacation domestically. Tycoons such as Henry Flagler and Henry Plant were building the hotels and railroads for people desiring winter vacations in sunny Florida. These magnates took an interest in the improvements and promotion of Florida in an effort to bring in more tourist dollars. The end of the war marked a slight increase in population, and Flagler and Okeechobee counties were created at this time.

An indirect economic benefit of the war was an increase in agricultural production, as beef, vegetables, and cotton were in great demand (Miller 1990). Increased settlement and large-scale agricultural production proliferated in Palm Beach County (Historic Property Associates, Inc. 1997:8). In 1917, the completion of the West Palm Beach Canal provided access to inland farming areas and made West Palm Beach the shipping point for the county's agricultural products both by rail and by water (Curl 1986:90). In 1919, Charles Newcomb donated land on which the FEC Railway built a loading dock for the shipment of fish. The new facility spurred the construction of three fish houses, a barrel factory, and an ice plant, allowing fish to be frozen, packed, and shipped to the Northeast in refrigerated rail cars.

In 1919, West Palm Beach initiated changes in government which included the reorganization of the police department with Frank H. Matthews, the town marshal, being renamed police chief (Historical Society of Palm Beach County 2009c). In the same year, the first city hall was constructed and a city manager was hired.

7.4 Florida Boom Period (1920–1930)

After World War I, Florida experienced unprecedented growth. Many people relocated to Florida during the war to work in wartime industries or were stationed in the state as soldiers. Bank deposits increased, real estate companies opened in many cities, and state and county road systems expanded quickly. Earlier land reclamation projects created thousands of new acres of land to be developed. Real estate activity increased steadily after the war's end and drove up property values. Prices on lots were inflated to appear more enticing to out-of-state buyers. Every city and town in Florida had new subdivisions platted and lots were selling and reselling for quick profits. Southeastern Florida experienced the most activity, although the boom affected most communities in central and South Florida (Weaver et al. 1996:3).

On a daily basis, up to 20,000 people were arriving in the state. Besides the inexpensive property, Florida's legislative prohibition on income and inheritance taxes also encouraged more people to move into the state. The boom transformed the predominantly agricultural area into a resort destination. The mild winters, growing number of tourists, increased use of the automobile, and better roads prompted the boom. Dixie Highway, which stretched along the eastern coast, was completed at this time and connected South Florida to the rest of the nation. By 1920, West Palm Beach's population had risen to 8,659 residents and the town was now well established as Palm Beach County's commercial hub as well as a popular tourist spot for the middle class (City of West Palm Beach Planning Department n.d.) (Figure 12).

Figure 12 – Seaboard Air Line Employees Laying Track in West Palm Beach in 1924

Thousands of speculative homes and buildings were built during this time. Numerous developments were platted throughout the county, particularly along the coast in towns including West Palm Beach, Lake Worth, and Lantana. In addition, major office and commercial projects were erected. In 1925, the Palm Beach County School Board contracted architect William Manly King to design the new school building (Palm Beach County School Board Minutes January 1923–December 1925). In November 1925, the school board accepted the Shirk Construction Company's bid of $39,272 to build the one-story, four-room Riviera School. A temporary school held classes in the Riviera Town Hall until the new school opened in September 1926.

During this period, the federal government was formulating plans that would determine local development patterns for decades to come. The U.S. Department of Agriculture's Bureau of Public Roads, working in conjunction with the American Association of State Highway Officials, began preliminary planning for the national highway system in 1924. Like the earlier auto trails, the U.S. highways were laid out along existing intercity roads. State governments paid for road construction and upkeep along the designated routes. The federal government provided a unified numbering and signage system, but the newly designated U.S. highways did not receive preferential funding from the national government (U.S. Highways from U.S. 1 to U.S. 830 n.d.). A list of proposed routes was ready in late 1925; the final list was approved on November 11, 1926.

U.S. 1, extending from Fort Kent, Maine, on the New Brunswick border to Florida City, south of Miami, would become the primary north-south tourist route on the Eastern Seaboard. In northern Florida, the new highway generally followed the route of the earlier Dixie Highway and the FEC Railway, but south of Daytona Beach, U.S. 1 usually took a path closer to the coast (U.S. Highways from U.S. 1 to U.S. 830 n.d.). This was the case in Riviera, where highway planners designated Montreal Street as part of U.S. 1. The newly designated highway would become the main commercial thoroughfare in Riviera into the second half of the century. With the creation of the U.S. highway system, the Dixie Highway Association disbanded along with the other private auto trail associations. The Town of Riviera changed the name of Montreal Street to Dixie Highway and the original Dixie Highway along the FEC tracks was called Railroad Avenue.

The tracks of the CSX Railroad in proximity of the APE, were originally part of the extensive Seaboard Air Line Railroad, started in the 1880s, which consisted of numerous branches in Florida, Georgia, and North Carolina. In the early part of the 1920s, the Seaboard Air Line had a new president, S. Davies Warfield. When the railroad emerged from government control following World War I, it was not in particularly strong shape, along with most other Florida railroads. Warfield felt that the key to the railroad's success was expansion (Mann 1983). In 1923, the President of Seaboard Air Line Railroads, Mr. S. Davies Warfield, initiated a move to extend a line from the existing Coleman station in Sumter County, Florida to West Palm Beach, with the ultimate goal of connecting the line to Miami. After Warfield organized the quick purchase of over 160,000 acres of ROW, construction began on the West Palm Beach branch in the summer of 1924. Over 204 miles of nearly straight track from Coleman to West Palm Beach were completed the following fall of 1925 (Mann 1983).

The Boom period began its decline in August 1925. Ports and rail terminals were overflowing with unused building materials when the FEC Railway placed an embargo on freight shipments to South Florida. In addition, northern newspapers published reports of fraudulent land deals in Florida. The collapse of the Land Boom also brought about the demise of the Florida Coast Line Canal & Transportation Company. Although the company turned a profit in 1925, the corporation was in receivership by 1927 and the channel had fallen into disrepair. In January 1927, Congress adopted the River and Harbor Act authorizing the U.S. Army Corps of Engineers to dredge the Intracoastal Waterway from Massachusetts to Florida utilizing existing channels. In November 1927, the Florida legislature created the Florida Inland Navigation District to issue bonds and acquire the canal company's ROW in preparation for turning the private waterway over to the federal government. The Corps of Engineers finally took possession of the canal on December 11, 1929 (Buker 1975:117, 120–121).

In 1926 and 1928, two hurricanes hit southeastern Florida, killing hundreds of people and destroying thousands of buildings. When the 1928 hurricane (Figure 13) swept across Palm Beach County, thousands of people lost their lives in the storm and thousands of others were left homeless.

Real estate speculators pushing up land prices had a negative effect on the economy. When the Stock Market crashed in October 1929, Florida real estate was virtually worthless (Curl 1986:88; Palm Beach County Plats n.d.; Building Department, City of West Palm Beach n.d.). The 1929 Mediterranean fruit fly infestation that devastated citrus groves throughout the state only worsened the recession (Weaver et al. 1996:4). By 1930, Palm Beach County residents were left with damaged houses and businesses and little money to rebuild.

Figure 13 – Scene in West Palm Beach after the Hurricane of 1928
(Image courtesy the Florida Memory Project)

7.5 Depression and New Deal Period (1930–1940)

Florida suffered significantly during the Great Depression. Between 1929 and 1933, 148 state and national banks collapsed, more than half of the state's teachers were owed back pay, and a quarter of the residents were receiving public relief (Miller 1990). The Depression affected most areas of the state's economy. Beef and citrus production declined, manufacturing slowed, and development projects were stalled. Even the railroad industry felt the pressures of the 1930s, and had to reduce service and let go some personnel. In addition, the increasing use of the automobile lessened the demand for travel by rail.

The FEC Railway, which had been steadily losing profits since 1926, began retiring obsolete equipment and decreasing the number of trips to certain destinations or eliminating less traveled ones altogether. On September 1, 1931, the FEC, unable to generate enough revenue to support itself any longer, was placed under the control of W.R. Kenan Jr. and former U.S. Senator Scott M. Loftin, as receivers of the bankrupt company. Under the new receivership, the FEC would struggle for a couple of years before finally seeing a turnaround in 1934 as the country's economy began to stabilize and improve (Bramson 1984:107, 117; Janus Research 2007:43).

Coupled with the struggling railroad system, the demolition of Flagler's Royal Poinciana Hotel seemed to herald the end of an era. The hotel had been severely damaged in the 1928 hurricane, and business had never fully recovered; wealthy visitors these days seemed to prefer one of the many vacation cottages that had proliferated in the area, as the Royal Poinciana did not offer many modern conveniences, such as a bathroom in every room. Therefore, the Royal Poinciana Hotel was demolished in 1936 (McIver 1976:104; Janus Research 2007:43).

To combat the hard economic times, President Franklin D. Roosevelt initiated several national relief programs. Important New Deal–era programs in Florida were the Public Works Administration (PWA) and the WPA. The WPA was responsible for the construction of the airport in West Palm Beach. Between 1932 and 1935, the PWA provided emergency relief funds for improvements to the Intracoastal Waterway, creating more than 500 jobs in Florida (Buker 1975:123). The Port of Palm Beach was designated a federal port in 1933, and included in an expansion program. In 1935, the federal government took over maintenance of the port (Brink 1976:52). In Riviera, the wooden bridge to Singer Island was rebuilt in 1935, although no significant development would take place on the island until after World War II (Maloney et al. 1998:2). Fortunately, due to the warm weather and beautiful coastlines, the area still remained a vacation spot for northern visitors, so municipalities such as Palm Beach, Delray Beach, and Boca Raton recovered quickly from the Depression.

Toward the latter half of the decade, several government sponsored projects contributed to the revitalization of Palm Beach. The Palm Beach Main Post Office was built in 1937 on land that was donated to the town by the Florida East Coast Hotel Company (now the Breakers Hotel). Originally Addison Mizner had submitted a design for the post office, but the $200,000 dollar price tag on his design led the town to go with the design of Louis A. Simon (Tracy 1982:n.p.; Janus Research 2007:44). Around this time, Flagler's second railroad bridge was demolished in order to allow for another project, an automobile bridge that was dubbed the Flagler Memorial Bridge, located outside of the current project APE. The PWA partially financed the construction of the vehicular bridge to replace the railroad

bridge (Janus Research 2007:73).When the Flagler Memorial Bridge was constructed in 1937 and 1938, it was considered to be state-of-the-art. When the bridge was built, Royal Poinciana Way, planned as another PWA project, was also dramatically altered with the construction of a grand palm tree-lined median (Eckel 1988). The bridge cost $750,000 and opened on Friday July 1, 1938.

7.6 World War II and the Post-War Period (1940–1950)

During World War II, Florida became one of the nation's major military training grounds. The U.S. Army established Air Corps bases in West Palm Beach and Boca Raton, which helped revive the local construction industry. Before the war, tourism had been the state's major industry, but it was brought to a halt as tourist and civilian facilities were placed into wartime service. Hotels and private homes were used as barracks; in Riviera Beach, renamed from Riviera in 1942, servicemen stationed at nearby Camp Murphy were housed at Spanish Courts.

The influx of thousands of military personnel and their families increased industrial and agricultural production in Florida, and also introduced these new residents to the warm weather and tropical beauty of Florida. Railroads profited transporting servicemen, military goods and materials, but airplanes were becoming an increasingly important form of transportation, and Florida became a major airline destination. The highway system was also being expanded at this time. The State Road Department constructed 1,560 miles of highway during the war (Miller 1990).

At the conclusion of World War II, Florida's economy was almost fully recovered from the effects of the real estate bust and the Great Depression. Former military personnel found the local climate amenable and remained in Florida permanently after the war and many soldiers who had been stations in Florida chose to return to the area. These new residents greatly increased the population (Miller 1990). Tourism quickly rebounded and once again became a major component of the state's economy. The Port of Palm Beach returned to full operations and saw its revenues increase when ferry service to Havana was established in 1946.

From the end of World War II to the 1960s, Palm Beach County grew steadily (City of West Palm Beach Planning Department n.d.). A housing boom was once again evident as new residents erected homes in subdivisions that had been platted but left undeveloped through the real estate bust and Great Depression (City of West Palm Beach Planning Department n.d.).

7.7 Modern Period (1950–Present)

A new era of prosperity followed World War II and the general area of the APE experienced substantial growth as part of the Westward Expansion of West Palm Beach. This expansion began during the latter part of the 1950s, through the 1960s, and into the 1970s. In 1953 (Figure 14), the general area of the APE was sparsely developed; the Earman River Canal (C-17) extended past the FEC Railway trestle to the location of present-day Silver Beach Road. Excavation of the remaining portion of the Earman River Canal (C-17) is associated with the Westward Expansion of West Palm Beach.

Many years prior to the expansion, because of the population boom following the War, the City of West Palm Beach had been extending northward to the city line of Riviera Beach and southward to the city line of Lake Worth, leaving the City with limited potential for future growth. In an effort to improve the outdated sewer system to accommodate the influx of people, the City issued an $18 million-dollar bond for the purchase of the water plant and 20 square miles of wetlands (current Grassy Waters Preserve) from privately-owned Flagler Water Systems, in addition to 17,000 acres from the Flagler's Model Land Company, all located to the west of the City (Historical Society of Palm Beach County 2009d; Wright 1960).

To solve the issue of growth restriction, the City of West Palm Beach negotiated for the sale of 5,500 acres of land to a developer that would build houses to keep pace with the city's growth, about 2,400 new homes a year, essentially creating a city-within-a-city. The company to take on this massive project was the Perini Corporation of Massachusetts, headed up by Louis R. Perini, Sr. The development appears to have been conducted under Westward Developers Associates, Inc. Development of the Westward Expansion was such a monumental ordeal that even before the construction of homes began, the land company spent $9 million-dollars to prepare the area for development. The muck had to be moved and replaced with fill; acreage needed to be raised to prevent flooding; a new gravity feed canal had to be constructed west of the city; slum clearance needed to take place; construction of new highways, flood control, storm sewers, and drainage culverts and canals was necessary. (Historical Society of Palm Beach County 2009d; Wright 1960). Figure 15 is a rendering of the executive offices for the Westward Expansion.

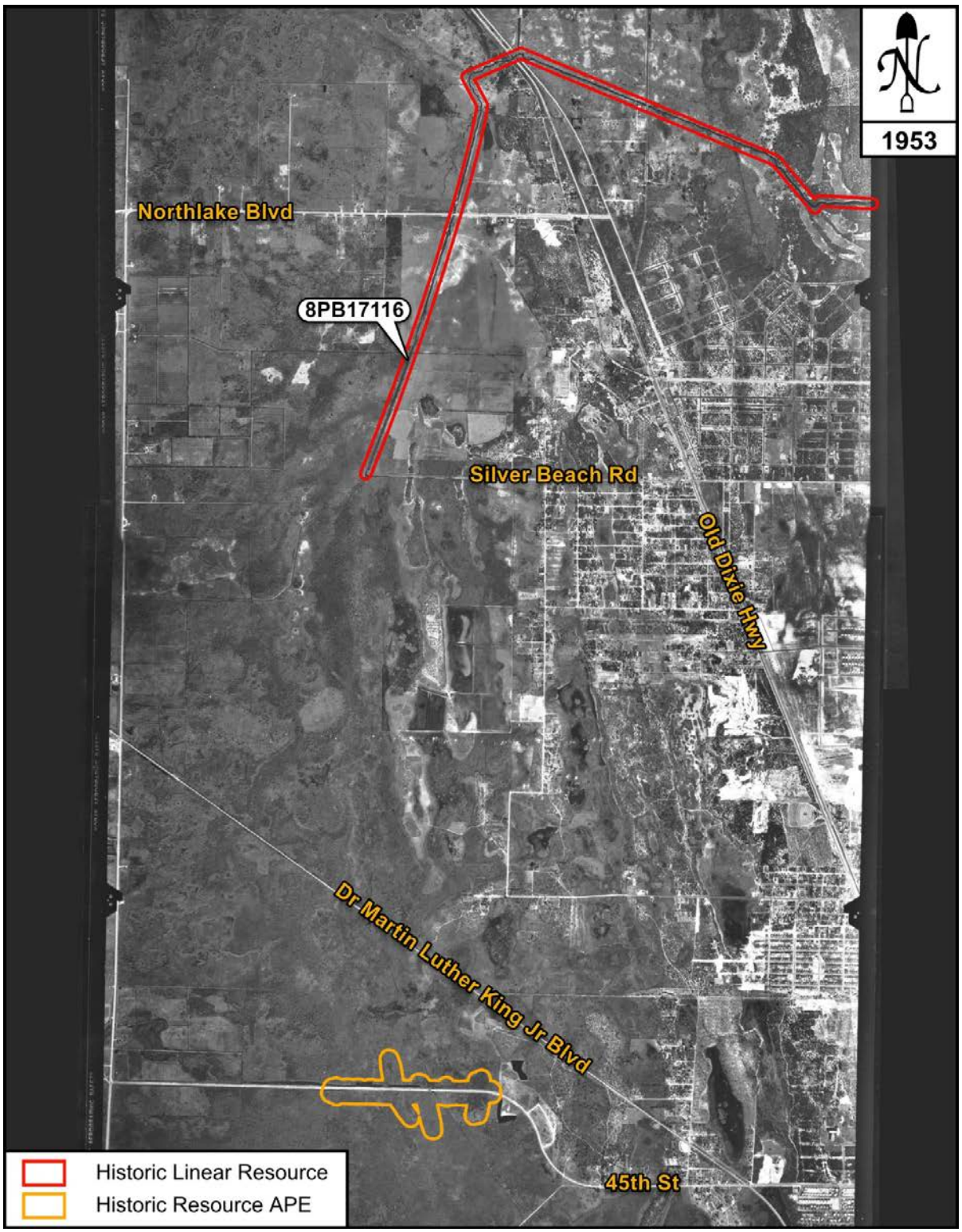


Figure 14 – A 1953 Aerial Photograph of the Historic Resources APE

Figure 15 – The Westward Expansion Executive Offices in West Palm Beach, date unknown (Courtesy of Florida Memory)

The Earman River Canal (C-17) was an integral component of the plan for the Westward Expansion, as it would provide flood protection and drainage for the basin, while also maintaining a groundwater elevation to prevent intrusion of salt water (U.S. Army Corps of Engineers [USACE] Jacksonville District and South Florida Water Management District [SFWMD] 2005:8). Excess water would be directed from the new "city" via smaller canals associated with the Perini project to the Earman River Canal (C-17), which in turn would carry the excess water out to the Intracoastal Waterway (Wright 1960). In 1955, the USACE completed the General Design Memorandum (GDM) for the Earman River Canal (C-17) and associated S-44 control structure (USACE Jacksonville District and SFWMD 2005:12). Between 1955 and 1964, the canal was extended from its former terminus (see Figure 14) south to approximately 1,200 feet past present-day 45th Street; S-44 was constructed east of present-day SR A1A Alternate; and the earlier portions of the canal were widened and straightened (Figure 16). It is unclear if the USACE was responsible for some or any alteration of the early portions of the Earman River Canal (C-17). During the post-War period, the canal was owned by the Central and Southern Florida Flood Control District, the predecessor to the SFWMD.

In 1955, before the expansion, the land of the C-17 Basin was unimproved pasture or in agricultural production with about 16% of the total area occupied or utilized; approximately 14% of this was dedicated to agricultural purposes and only about 2% to urban purposes. Comparatively, in 1967, after Perini had completed a fair amount of development (the project was not completed until the early

1970s), about 40% of the C-17 Basin was either occupied or utilized; approximately 38% of the land was dedicated to urban or semi-urban living and only about 2% to agriculture. Figures 16 and 17, 1964 and 1968 aerials of the canal, illustrate the substantial increase in development in proximity of the Earman River Canal (C-17), or one of the many secondary canal systems that developed during the period. Two of these canal systems are recorded within the Florida Master Site File (FMSF): the Earman River Relief Canal (8PB16285) and the Earman River Canal Branch (8PB16286).

By 1968, at least 20 major manufacturers had located to the C-17 Basin and many residential communities had developed or were in the process of development, such as Century Village, Palm Beach Gardens, and Roosevelt Gardens. The City mandated that Perini start with a housing development for African-Americans, partially in reaction to a University of Miami study from 1951 that characterized African-American neighborhoods in West Palm Beach as slums. Roosevelt Estates was established by Perini as a moderate-income African-American community between Lake Mangonia and Clear Lake; bisected by an extension of 12th Street that Perini renamed Palm Beach Lakes Boulevard (Central and Southern Florida Flood Control District 1968; Historical Society of Palm Beach County 2009d). Perini was also slated to commence construction in 1968 on a 131-acre development that included apartments, condominiums, recreation areas, and a small shopping plaza (Central and Southern Florida Flood Control District 1968).

Perini essentially made the expansion area buildable and then sold much of the land back to the City. Upon buying the land back, the City commenced on projects such as the 1963 Municipal Stadium, which brought in baseball spring training, and the 1967 West Palm Beach Auditorium (Historical Society of Palm Beach County 2009d). The Palm Beach Mall was constructed in 1967 and began to compete with the West Palm Beach historic commercial district on Clematis Street (Historical Society of Palm Beach County 2009d). Lion Country Safari also opened in 1967. The opening of Lion Country Safari generated tremendous interest on the part of residents, visitors to South Florida, and the media. The park developed into a popular and successful attraction (Lion Country Safari 1996–2015). The boundaries of Riviera Beach and Mangonia Park also expanded west into the C-17 Basin. The effects of Perini's Westward Expansion could still be felt during the 1980s. However, as the population and economic base continued to shift to western suburbs, the downtown and the older residential sections of the City began to experience a slow decline.

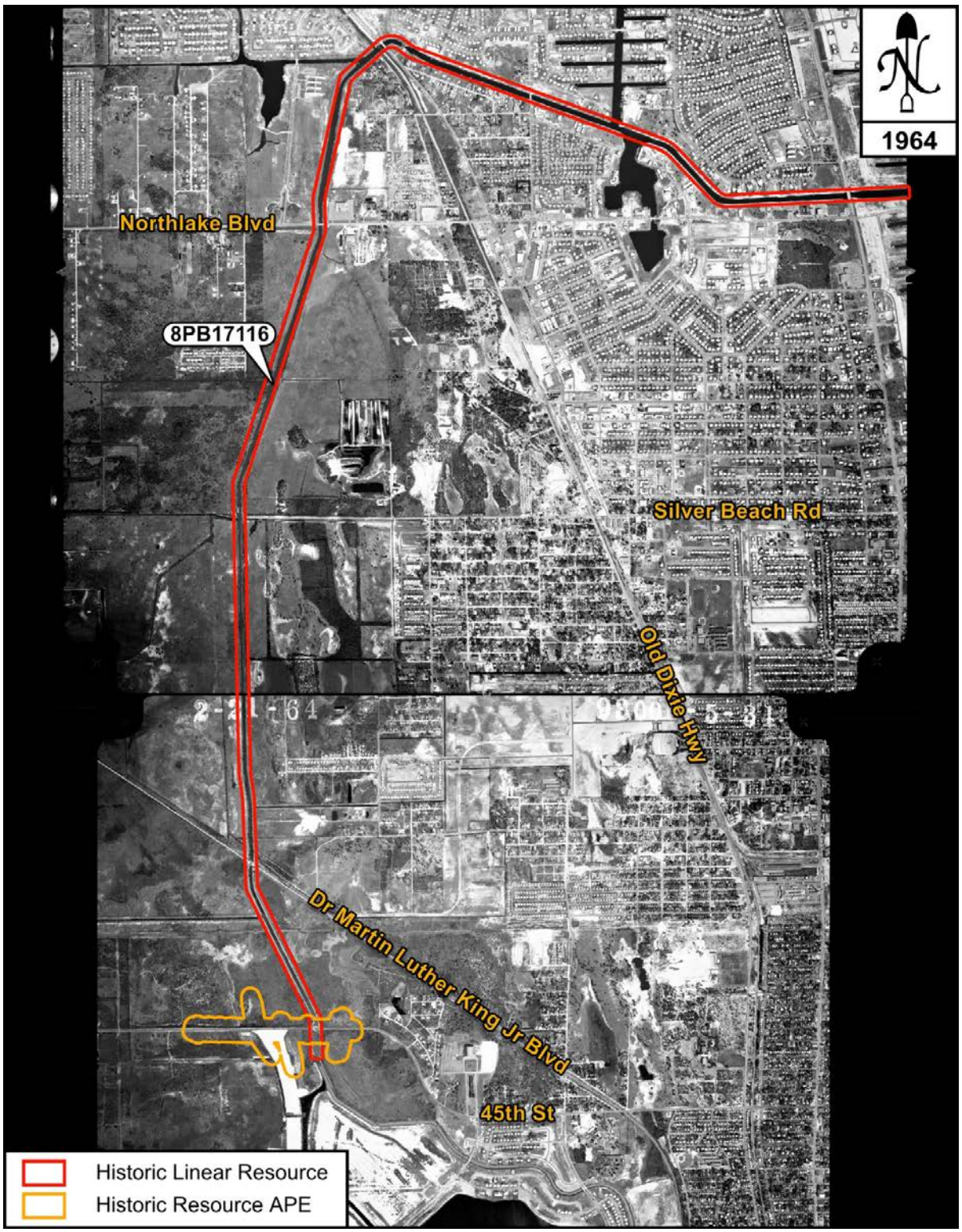


Figure 16 – A 1964 Aerial Photograph of the Historic Resources APE

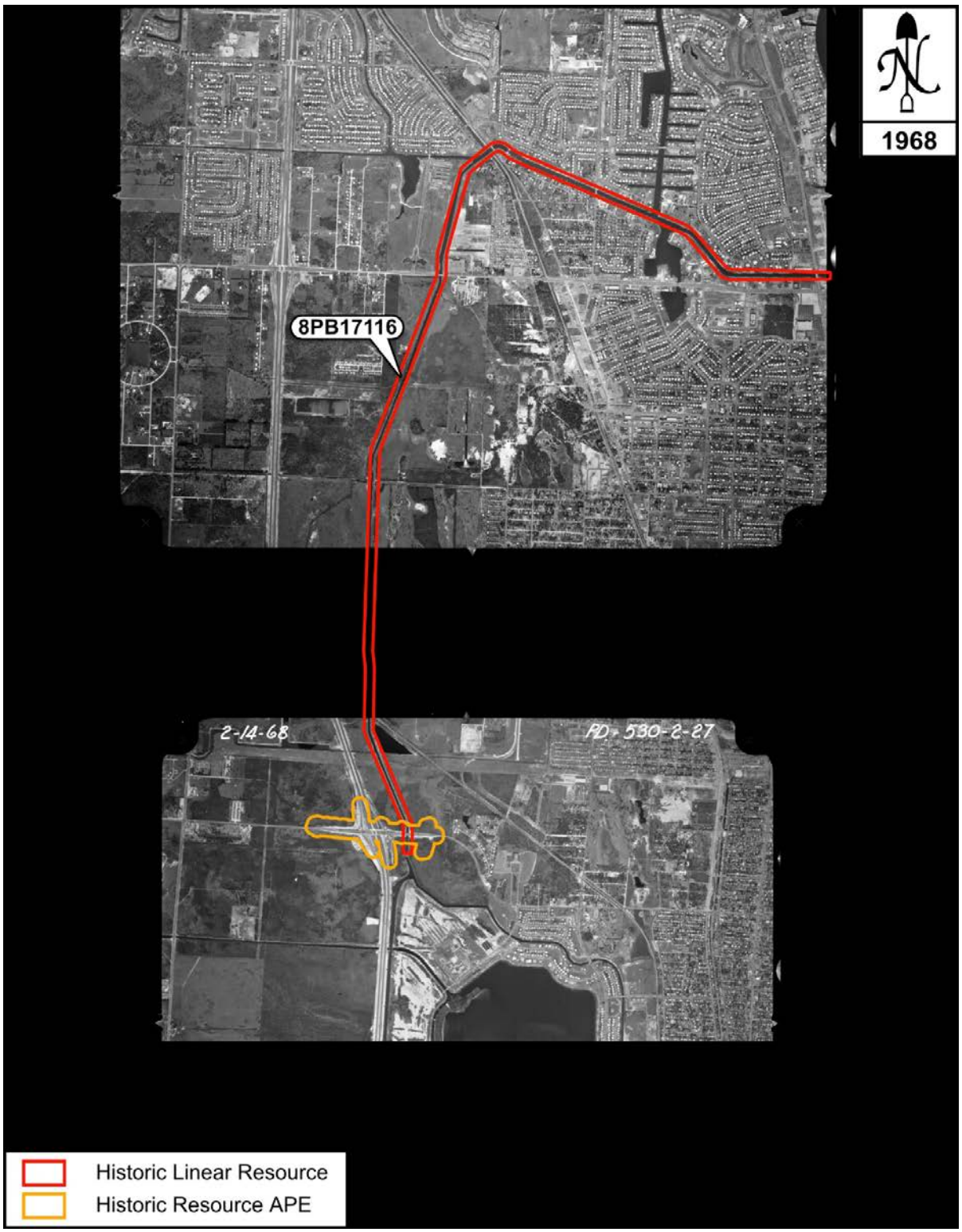


Figure 17 – A 1968 Aerial Photograph of the Historic Resources APE

Westward Expansion was also viewed as a solution to the increasingly complex traffic problems in West Palm Beach through its provision of north-south and east-west thoroughfares; SR 9/Florida's Turnpike was reconstructed between West Palm Beach and Miami (Wright 1960) and the first portion of I-95 in Palm Beach County was built in 1966 between Okeechobee Boulevard and 45th Street. I-95 was complete within the APE by 1968 (see Figure 17). The Interstate was completed from Palm Beach Gardens to Miami in 1976.

In 1967, the Seaboard Air Line Railroad was merged with its competitor, the Atlantic Coast Line Railroad, to form the Seaboard Coast Line Railroad. In 1971, the Seaboard Coast Line Railroad merged with the Louisville & Nashville Railroad to become the Seaboard System Railroad. These two railroads have been in common ownership by the Seaboard Coast Line Industries, whose entire railroad subsidiaries were known as the Family Lines System. Eventually, Seaboard Coast Line Industries merged with the Chessie System, creating the CSX Corporation, which combined the Family Lines System and the Seaboard System Railroad. In 1980, the Chessie units were merged into the Seaboard System Railroad, creating CSX Transportation (Mann 1983). The Tri-rail, South Florida's commuter rail service, was constructed in the early 1990s. This rail services shares ROW with the Seaboard Air Line (CSX) Railroad in the vicinity of the APE. The South Florida Regional Transit/Tri-rail Authority double-tracked the railroad corridor and added intermodal transit facilities along the line (Janus Research 2013).

A Survey Review Study was completed in 1975 that concluded the design discharge for the C-17 Basin should be for a 1–30 year storm for an urban area, rather than the 1–30 year storm for an agricultural area used in the original design. In order to make this alteration, which would increase the design discharge from 2070 cubic feet per second (CFS) to 3700 CFS, the Earman River Canal (C-17) needed to be enlarged and an additional gate added to the S-44 spillway. However, it was determined that the projected outcome of the proposed project was not financially worthwhile, and that USACE could not participate in the project. The project was never carried out, but some sections of the canal were enlarged under various free digging contracts. As off 1988, a proposal was made to only modify S-44 as necessary to carry 3700 CFS (Cooper and Lane 1988:15).

In 1993, West Palm Beach was featured in a 60 Minutes segment on urban decay. At the time, as much as 80% of downtown properties were vacant (West Palm Beach 2009). Interest in downtown West Palm Beach was slowly resurrected though, as West Palm Beach renovated and revitalized its historic downtown and began sponsoring "Clematis by Night," a venue which featured live music and street vendors. The events highlighted the downtown district and businesses once again filled the historic

storefronts. Interest in the historic residential neighborhoods increased as the extensive building stock was rediscovered. CityPlace, a large-scale venue that included shops, restaurants, a movie theater, and residences, opened in 2000. The New Urbanist, mixed-use development was constructed on the site of a blighted neighborhood historically known as Palm Beach Heights that had been cleared in 1989. The project area is illustrated on a current aerial photograph in Figure 18.

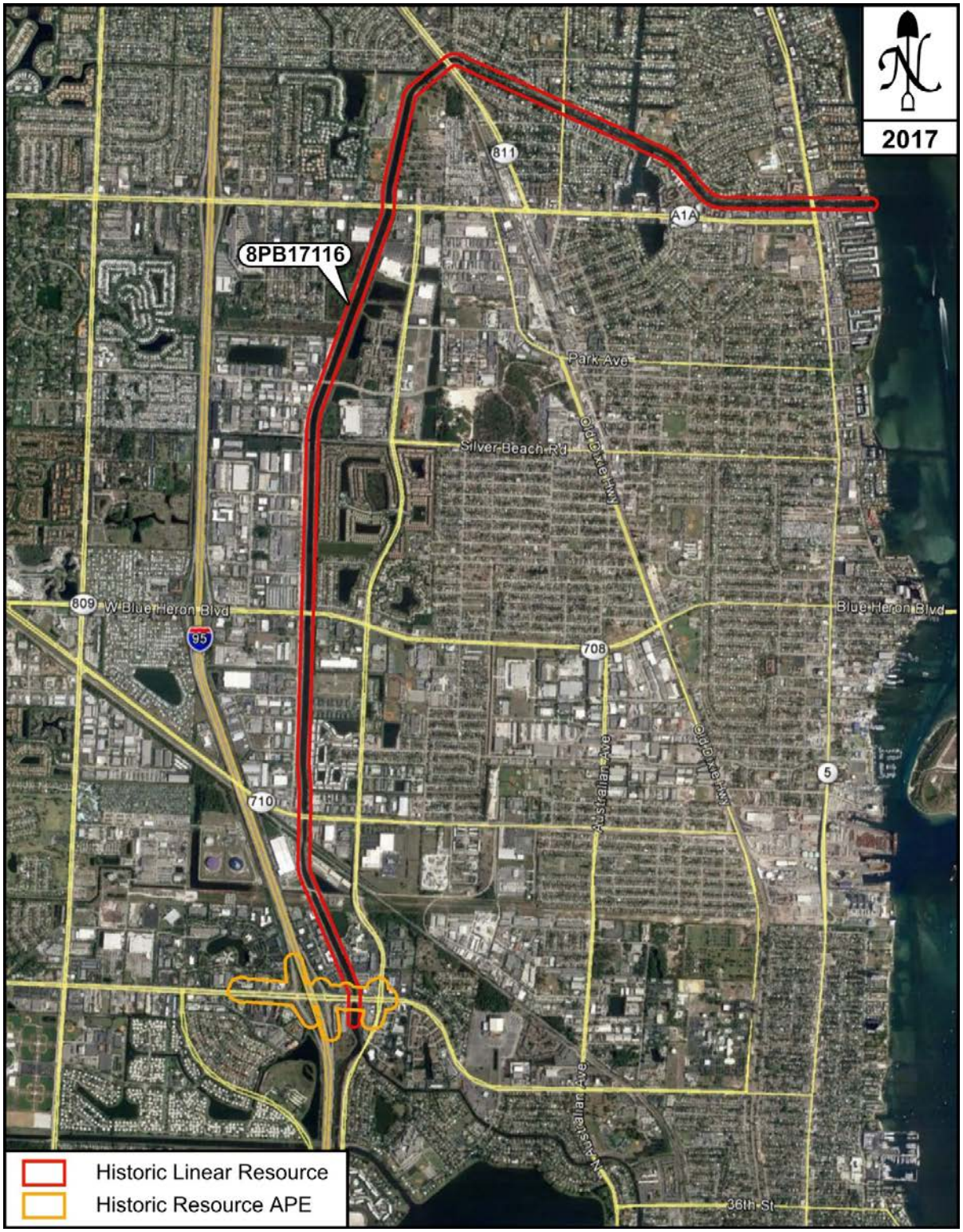


Figure 18 – A 2017 Aerial Photograph of the Historic Resources APE

8 FLORIDA MASTER SITE FILE SEARCH AND LITERATURE REVIEW

An archaeological and historical literature and background information search pertinent to the project study area was conducted in order to determine the types, chronological placement, and location patterning of cultural resources adjacent to the project corridor. This included a search of county and local site inventories, unpublished cultural resource management (CRM) reports, Palm Beach County Property Appraiser records, local historic designation records, and other relevant historical research materials.

Background research methods also included a search of the FMSF to identify cultural resources that are listed, eligible, or considered eligible for listing in the National Register and resources with potential or confirmed human remains.

The FMSF serves as an archive and repository of information about Florida's recorded cultural resources. It represents an inventory of resources for which available information exists and describes their condition at a particular point of time. Because the inventory of resources is not all-inclusive on a statewide basis, gaps in data may exist. The FMSF is an important planning tool that assists in identifying potential cultural resources issues and resources that may warrant further investigation and protection. It can be used as a guide but should not be used to determine the FDHR/SHPO official position about the significance of a resource.

8.1 Previously Conducted Cultural Resource Surveys

The FMSF search identified two previously conducted cultural resource surveys which intersected with or were within the project corridor (Table 4). No archaeological testing has been conducted within the current project APE during the previous surveys.

Table 4: Previous Surveys Conducted within or adjacent to the Project APE

FMSF Survey No.	Report Title	Author(s)	Publication Date
5928	A Preliminary Archaeological Survey of the City of West Palm Beach, Florida	Austin, Robert J.	2000
10257	Cultural Resource Reconnaissance Survey and Section 106 Review: Vertex-A Cellular Tower	Pracht, Jodi B., and Carrie Scupholm	2004

8.2 Previously Recorded Archaeological Resources

The FMSF search identified no previously recorded archaeological sites within one mile of the archaeological APE.

8.3 Previously Recorded Historic Resources

A search of the FMSF data identified no previously recorded historic resources within the historic resources APE.

8.4 Summary of Efficient Transportation Decision Making (ETDM) Agency Comments

The project was assigned a moderate degree of effect by the FDOT and FDHR. Since the project area had not been comprehensively surveyed, the agencies required that a comprehensive survey be conducted and that all cultural resources be documented and assessed for National Register eligibility. FDHR noted that only one previously recorded cultural resource was in the vicinity of the project area, the Australian Avenue Canal (8PB16070). The canal is not within the current project area. FDHR also noted that the 1968 aerial photographs show some early development around the project corridor with the construction of I-95.

9 PROJECT RESEARCH DESIGN AND SITE LOCATION MODEL

The background research and literature review, in conjunction with pertinent environmental variables, contributed to the formulation of project-specific field methods designed to locate and evaluate previously unrecorded archaeological sites within the project area. Four environmental factors are typically used to help predict site locations: distance to fresh (potable) water, distance to hardwood hammocks, topography, and soil type (soil drainage).

9.1 Precontact Archaeological Site Location Model

Fresh water is obviously an important resource, as the need for water is universal. This variable would have been of greater importance during the Paleoindian and Early Archaic periods (12,000–5000 BC) when the perched water system was more restricted. Before modern drainage the project area was within cypress swamps associated with Lake Mangonia. The study area ranges from 1.0 to 1.5 kilometers northwest of Lake Mangonia. The lake and the extensive wetlands surrounding the lake would have been the primary freshwater source.

Hardwood hammocks (hydric, mesic, or xeric) provide a variety of resources that would have been exploited by the aboriginal inhabitants of this region. Often, areas of higher relative elevation correspond with better-drained soils or the presence of hardwood hammocks (xeric and mesic). No hammocks were identified within the archaeological APE during the review of historic plat maps or aerial photographs.

The project area is relatively flat at an elevation of approximately 15 feet above sea level.

The characteristics of soils have been used successfully by several researchers in the formulation of predictive models for precontact site location. As mentioned previously, soils within the project area are poorly to very poorly drained

Based on the background research, the project area has low archaeological site potential. Before modern drainage the area was within cypress swamps and freshwater marshes.

9.2 Historic Archaeological Site Location Model

In Florida, historic period sites frequently co-occur with precontact archaeological sites. This is often the result of environmental conditions found desirable by both groups: better-drained upland knolls near transportation routes (i.e., historic trails and major rivers). GLO survey plat maps, surveyor's notes, and

historic aerial photographs were used to identify potential historic period sites. The review of historic plat maps and surveyors' notes did not identify any military forts, roads, encampments, battlefields, homesteads, or historical Native American villages or trails within the project area. The project area has a low probability for historic archaeological sites.

10 METHODS

10.1 Archaeological Field Methods

The archaeological field survey included a surface inspection consisting of a visual inspection of exposed ground to look for evidence of archaeological sites. Additionally, a careful surface inspection was undertaken in areas of minimal vegetation and/or upturned soil such as drainage ditches, recent clearings, and animal burrows. No subsurface testing could be conducted due to the presence of pavement, buried utilities, existing retention ponds and canals, and berms consisting of spoil material. Archaeological testing is not conducted near buried utilities as the area has been disturbed by the excavation of trenches for the utilities, there is concern for the safety of archaeological field teams, and potential for substantial fines if a utility is damaged.

Standard archaeological methods for recording field data were followed throughout the project. The location of buried utilities and other current environmental conditions were marked on aerial field maps of the project area (1 inch = 64 meters).

10.2 Historic Resources Field Methods

An historic resource assessment survey was conducted within the historic resources APE. The historic resource survey used standard field methods to identify and record historic resources. Any resource with features indicative of 1969 or earlier construction materials, building methods, or architectural styles were noted on aerial photographs and a USGS quadrangle map.

For each historic resource identified in the preliminary assessment, FMSF forms were completed with field data, including notes from site observations and informant interviews (Appendix A). The estimated date of construction, distinctive features, and architectural style were noted. All potential historic resources were photographed using a high-resolution digital camera. A log was kept to record the resource's physical location and compass direction of each photograph.

Each historic resource's individual significance was evaluated for its potential eligibility for listing in the National Register. Historic physical integrity was determined from site observations, field data, and photographic documentation.

10.3 Local Informants and Certified Local Government Coordination

Local informants may often provide valuable information which is otherwise not available through official records or library collections. The City of West Palm Beach is included on the February 24, 2017 list of Certified Local Governments (CLG) available on the FDHR website (FDHR 2017). On June 13, 2017, Ms. Friederike Mittner, City of West Palm Beach Historic Preservation Planner, was contacted via email by for input regarding the proposed project and local cultural resources. Ms. Mittner responded via email on June 13, 2017. She concurred with the findings of the current survey and did not have any concerns about the project.

11 RESULTS

11.1 Archaeological Results

No newly or previously recorded archaeological sites were identified within the archaeological APE. Subsurface testing was not feasible within the archaeological APE due to the presence of existing pavement, sidewalks, landscaping, existing retention ponds and canal, berms, and buried utilities (Appendix B). Background research identified no previously recorded archaeological sites within the archaeological APE and suggested a low archaeological site potential within the archaeological APE. The pedestrian survey of the archaeological APE confirmed the developed nature of the project corridor and confirmed the low potential for finding intact archaeological sites. Representative photographs showing the existing conditions of the project area are included for reference in Figures 19 to 21.

Figure 19 – Existing Pavement, Sidewalk, and Buried Utilities from Metrocentre Boulevard, Facing East

Figure 20 – Berm, Retention Pond, and Buried Utilities along Northbound Exit Ramp, Facing South

Figure 21 – Existing Pavement, Sidewalk and Buried Utilities from East of Congress Avenue, Facing West

11.2 Historic Resources Survey Results

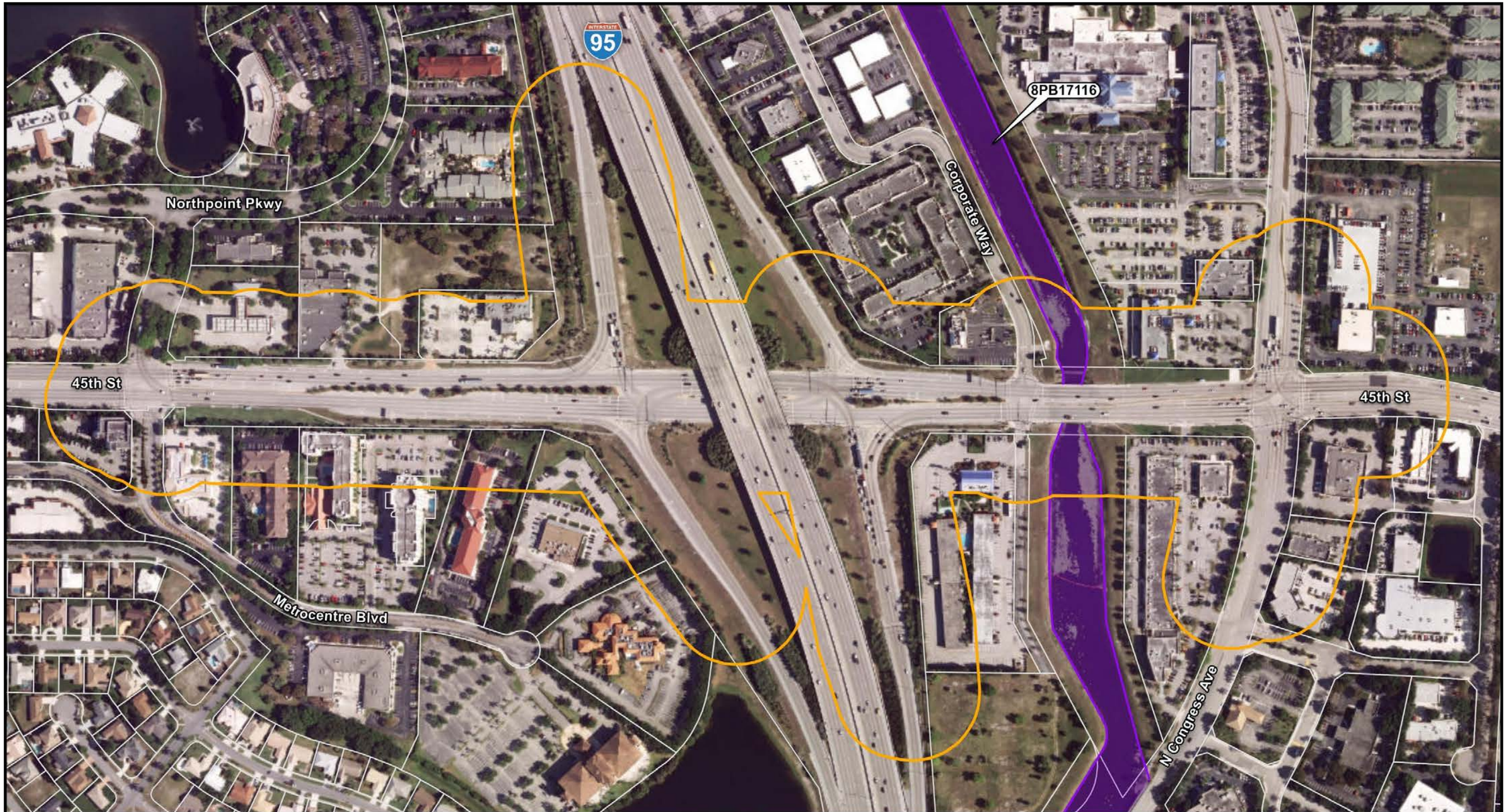
The historic resources survey resulted in the identification of one newly recorded linear resource, the Earman River Canal (C-17) (8PB17116). Figures 22-23 are current photographs of the segment of the canal within the APE and its location is illustrated on Figure 24. This resource is considered eligible for inclusion in the National Register under Criteria A and C, in the areas of Community Planning and Development and Engineering.

The Earman River Canal (C-17) retains considerable integrity of location, design, and materials. It has not been re-routed, disrupted, or substantially widened or thinned. Those slight enlargements conducted over the years by free digging contracts have not visually impacted the canal (see Figures 14, 16, 17, and 18). Additionally, the canal has not been severed from its associated waterways and continues to serve its historic function. Based on its demonstrated significance in Engineering, the Earman River Canal (C-17) appears to meet National Register Criterion C for listing. Although modified and extended as part of Westward Expansion, the canal began as an early important water management structure; the first segment was dredged roughly between 1897 and 1900 as Dimick's Ditch. The canal also appears to be associated with the first incarnation of the Intracoastal Waterway, the Florida East Coast Canal. By most accounts, Dimick's Ditch/the Earman River Canal was dredged to take advantage of the excellent quality soil for farming that the Florida East Coast Canal exposed. Further, the Earman River Canal (C-17) is an important main canal in western Palm Beach County.

Based on its demonstrated historical significance in Community Planning and Development in Palm Beach County, the Earman River Canal (C-17) also appears to meet National Register Criterion A for listing. The canal is associated with early area settlers: Captain Elisha Newton Dimick, Joseph Borman, and George Lanehart. The initial digging of Dimick's Ditch and the slightly later alteration (1914 to 1915) of the ditch into a main canal by Captain George E. Andrews and Mr. T.T. Reese, founders of Prosperity Farms, created land ripe for farming and development. Later, the Earman River Canal (C-17) was essential to Westward Expansion, providing the flood prevention and drainage that facilitated the development of the area beginning in the late 1950s, thereby helping to alleviate the growth problems placed on West Palm Beach and Palm Beach County by the post-World War II population boom.

Figure 22 – The Earman River Canal (C-17) (8PB17116) within the APE at the South Side of 45th Street, Facing Northeast

Figure 23 – The Earman River Canal (C-17) (8PB17116) within the APE at the North side of 45th Street, Facing North



Florida Department of Transportation
District Four
3400 West Commercial Boulevard
Fort Lauderdale, FL 33309

I-95/SR 9 Interchange at 45th Street
Project Development & Enviroment Study
FPID No.: 436519-1-22-01
ETDM No.: 14225

8PB000 Newly Recorded Historic Resource

Historic Resources APE

Palm Beach County

Meters: 0, 50, 100

Feet: 0, 250, 500

Title: Identified Historic Resources

Figure: 24

12 CONCLUSIONS

The objective of the CRAS for SR-9/I-95 from south of 45th Street to north of 45th Street PD&E Study, Palm Beach County, Florida was to identify cultural resources within the project APE and assess their eligibility for listing in the National Register according to the criteria set forth in 36 CFR Section 60.4. This CRAS also addresses ETDM agency comments requiring a comprehensive survey of the project area documenting all cultural resources and assessing their National Register eligibility.

No newly or previously recorded archaeological sites were identified within the archaeological APE. Subsurface testing was not feasible within the archaeological APE due to the presence of existing pavement, sidewalks, landscaping, existing retention ponds and canal, berms, and buried utilities. Background research identified no previously recorded archaeological sites within the archaeological APE and suggested a low archaeological site potential within the archaeological APE. The pedestrian survey of the archaeological APE confirmed the developed nature of the project corridor and confirmed the low potential for finding intact archaeological sites.

The historic resources survey resulted in the identification of one newly recorded historic resource, the Earman River Canal (C-17) (8PB17116). This resource is considered eligible for inclusion in the National Register under Criteria A and C, in the areas of Community Planning and Development and Engineering.

12.1 Unanticipated Finds

Although unlikely, should construction activities uncover any archaeological remains, it is recommended that activity in the immediate area of the remains be stopped while a professional archaeologist evaluates the remains. In the event that human remains are found during construction or maintenance activities, Chapter 872.05 of the Florida Statutes will apply and FDOT's *Standard Specifications for Road and Bridge Construction* require that all construction cease. Chapter 872.05 states that, when human remains are encountered, all activity that might disturb the remains shall cease and may not resume until authorized by the District Medical Examiner or the State Archaeologist. The District Medical Examiner has jurisdiction if the remains are less than 75 years old or if the remains are involved in a criminal investigation. The State Archaeologist has jurisdiction if the remains are 75 years of age or more.

12.2 Curation

Original site file forms (Appendix A), survey log sheet (Appendix C), and photographs are curated at the FMSF in Tallahassee, along with a copy of this report. Field notes and other pertinent project records are temporarily stored at Janus Research until their transfer to the FDOT storage facilities.

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Appendix A

FMSF Form

☒ Original
☐ Update

RESOURCE GROUP FORM
FLORIDA MASTER SITE FILE
Version 4.0 1/07

Site #8 PB17116
Field Date 4-28-2017
Form Date 6-6-2017
Recorder# 1

NOTE: Use this form to document districts, landscapes, building complexes and linear resources as described in the box below. Cultural resources contributing to the Resource Group should also be documented individually at the Site File. **Do not use this form for National Register multiple property submissions** (MPSs). National Register MPSs are treated as Site File manuscripts and are associated to the individual resources included under the MPS cover using the Site File manuscript number.

Check ONE box that best describes the Resource Group:

- ☐ **Historic district** (NR category "district"): buildings and NR structures only: NO archaeological sites
- ☐ **Archaeological district** (NR category "district"): archaeological sites only: NO buildings or NR structures
- ☐ **Mixed district** (NR category "district"): includes more than one type of cultural resource (example: archaeological sites and buildings)
- ☐ **Building complex** (NR category usually "building(s)"): multiple buildings in close spatial and functional association
- ☐ **Designed historic landscape** (NR category usually "district" or "site"): can include multiple resources (see *National Register Bulletin #18*, page 2 for more detailed definition and examples: e.g. parks, golf courses, campuses, resorts, etc.)
- ☐ **Rural historic landscape** (NR category usually "district" or "site"): can include multiple resources and resources not formally designed (see *National Register Bulletin #30, Guidelines for Evaluating and Documenting Rural Historic Landscapes* for more detailed definition and examples: e.g. farmsteads, fish camps, lumber camps, traditional ceremonial sites, etc.)
- ☒ **Linear resource** (NR category usually "structure"): Linear resources are a special type of rural historic landscape and can include canals, railways, roads, etc.

Resource Group Name Earman River (C-17) Canal Multiple Listing [DHR only] _____
Project Name CRAS I-95/SR 9 Interchange at 45th Street FMSF Survey # _____
National Register Category (please check one): ☐building(s) ☒structure ☐district ☐site ☐object
Linear Resource Type (if applicable): ☒canal ☐railway ☐road ☐other (describe): _____
Ownership: ☐private-profit ☐private-nonprofit ☐private-individual ☐private-nonspecific ☐city ☐county ☒state ☐federal ☐Native American ☐foreign ☐unknown

LOCATION & MAPPING

	Street Number	Direction	Street Name	Street Type	Suffix Direction
Address:					

City/Town (within 3 miles) West Palm Beach In Current City Limits? ☒yes ☐no ☐unknown
County or Counties (do not abbreviate) Palm Beach
Name of Public Tract (e.g., park) _____
1) Township 43S Range 43E Section 6 ¼ section: ☐NW ☐SW ☐SE ☐NE Irregular-name: _____
2) Township _____ Range _____ Section _____ ¼ section: ☐NW ☐SW ☐SE ☐NE
3) Township _____ Range _____ Section _____ ¼ section: ☐NW ☐SW ☐SE ☐NE
4) Township _____ Range _____ Section _____ ¼ section: ☐NW ☐SW ☐SE ☐NE
USGS 7.5' Map(s) 1) Name RIVIERA BEACH USGS Date 1983
2) Name _____ USGS Date _____
Plat, Aerial, or Other Map (map's name, originating office with location) _____
Landgrant _____
Verbal Description of Boundaries (description does not replace required map) Within the area of potential effect (APE), the canal extends for a total approximate distance of 720 feet between Corporate Way and Continental Drive in Section 6 of Township 43 South, Range 43 East.

DHR USE ONLY	OFFICIAL EVALUATION	DHR USE ONLY
NR List Date _____ ☐Owner Objection	SHPO – Appears to meet criteria for NR listing: ☐yes ☐no ☐insufficient info Date _____ Init. _____ KEEPER – Determined eligible: ☐yes ☐no Date _____ NR Criteria for Evaluation: ☐a ☐b ☐c ☐d (see *National Register Bulletin 15*, p. 2)	

RESOURCE GROUP FORM

Site #8 PB17116

HISTORY & DESCRIPTION

Construction Year: 1964 ☐approximately ☒year listed or earlier ☐year listed or later

Architect/Designer(last name first): Unknown Builder(last name first): Unknown

Total number of individual resources included in this Resource Group: # of contributing 2 # of non-contributing 1

Time period(s) of significance (choose a period from the list or type in date range(s), e.g. *1895-1925*)

1. Twentieth C American 3. _____

2. Modern (Post 1950) 4. _____

Narrative Description (*National Register Bulletin 16A* pp. 33-34; fit a summary into 3 lines or attach supplementary sheets if needed) See continuation sheet

RESEARCH METHODS (check all that apply)

☒FMSF record search (sites/surveys)	☐library research	☐building permits	☐Sanborn maps
☐FL State Archives/photo collection	☐city directory	☐occupant/owner interview	☐plat maps
☒property appraiser / tax records	☒newspaper files	☐neighbor interview	☐Public Lands Survey (DEP)
☒cultural resource survey	☐historic photos	☐interior inspection	☐HABS/HAER record search

☒other methods (specify) Aerial photographs

Bibliographic References (give FMSF Manuscript # if relevant) _____

OPINION OF RESOURCE SIGNIFICANCE

Potentially eligible individually for National Register of Historic Places? ☒yes ☐no ☐insufficient information

Potentially eligible as contributor to a National Register district? ☐yes ☒no ☐insufficient information

Explanation of Evaluation (required, see *National Register Bulletin 16A* p. 48-49. Attach longer statement, if needed, on separate sheet.) See continuation sheet

Area(s) of Historical Significance (see *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

1. _____ 3. _____ 5. _____

2. _____ 4. _____ 6. _____

DOCUMENTATION

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents

1) Document type All materials at one location Maintaining organization Janus Research

Document description photographs, field notes, maps File or accession #'s _____

2) Document type _____ Maintaining organization _____

Document description _____ File or accession #'s _____

RECORDER INFORMATION

Recorder Name Janus Research Affiliation Janus Research

Recorder Contact Information 1107 N. Ward St., Tampa FL 33607 / (813) 636-8200 / janus@janus-research.com
(address / phone / fax / e-mail)

Required Attachments

❶ PHOTOCOPY OF USGS 7.5' MAP WITH DISTRICT BOUNDARY CLEARLY MARKED

❷ LARGE SCALE STREET, PLAT OR PARCEL MAP WITH RESOURCES MAPPED & LABELED

❸ TABULATION OF ALL INCLUDED RESOURCES (name, FMSF #, contributing? Y/N, resource category, street address or township-range-section if no address)

❹ PHOTOS OF GENERAL STREETSCAPE OR VIEWS (Optional: aerial photos, views of typical resources) Photos may be archival B&W prints OR digital image files. If submitting digital image files, they must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital images must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

SITE NAME: Earman River Canal (C-17)

A. NARRATIVE DESCRIPTION OF SITE

The approximate 720 feet of this earthen canal within the project area of potential effect (APE) is situated between Congress Way and N. Congress Avenue in Section 6 of Township 43 South, Range 43 East on the Riviera Beach (1946 photorevised [PR] 1983) United States Geological Survey (USGS) quadrangle map, in Palm Beach County, Florida (Figures 1–2). In its entirety, the Earman River Canal (C-17) extends from the Intracoastal Waterway west to the Florida State Road (SR) A1A Alternate bridge and the Florida East Coast (FEC) Railway trestle over the canal, then south to the canal's terminus just beyond 45th Street. It is nearly seven miles in length and includes the S-44 spillway, which is not contained within the APE, but east adjacent of the SR A1A Alternate bridge. Approximately 1,200 feet south of 45th Street are two tributaries; one tributary flows north from the Palm Beach Mall to join the Earman River Canal (C-17), and the other drains the lands to the east of Lake Mangonia and Clear Lake (Cooper and Lane 1988:16). Several smaller canal systems flow into the Earman River Canal (C-17) that are controlled by various structures.

The canal from S-44 east to the Intracoastal Waterway is navigable, while the canal south of S-44 is not. To accommodate boat travel, a turning basin was dredged at the south side of the Earman River Canal (C-17) outside of the APE between the Prosperity Farms Road bridge and the SR 5/US 1 bridge. Additional bridges extend over the canal, including a CSX Railroad trestle. Florida Department of Transportation (FDOT) Bridge No. 934100 carries 45th Street over the canal within the APE. This bridge was originally constructed in 1966, but was reconstructed in 1983 (FDOT Office of Maintenance 1996-2017). The canal directly beneath the bridge is narrower, measuring approximately 60 feet in width. The canal widens north of the bridge to approximately 108 feet and south of the bridge to approximately 137 feet. Additional features of the canal include a non-historic and non-contributing metal water pipe that extends north of the bridge that is anchored by concrete piers, and a contributing metal weir located directly north of 45th Street. The weir definitively appears on 1964 aerials. Non-historic commercial development surrounds the current canal segment.

The Earman River Canal (C-17) encompasses several phases of construction over a long span of time and began as a ditch that was excavated roughly between 1897 and 1900; an outlet was dug at Lake Worth (today's Intracoastal Waterway) and the ditch was extended to the FEC Railway trestle. In 1914 or 1915, the ditch was modified into at main canal, most closely associated with the former Prosperity/Prosperity Farms community. Aerials from 1953 illustrate that the canal extended south from the FEC trestle and the full extent resembled a natural water feature; however, it is unclear when this portion was dredged. The remainder of the canal, including the current portion, was dredged between 1955 and 1964. It appears that the earlier portions of the canal were widened and straightened between these years, giving the canal its current man-made appearance.

SITE NAME: Earman River Canal (C-17)

Figure 1: The Earman River Canal (C-17) (8PB17116) within the APE at the South Side of 45th Street, Facing Northeast

Figure 2: The Earman River Canal (C-17) (8PB17116) within the APE at the North side of 45th Street, Facing North

SITE NAME: Earman River Canal (C-17)

The history of the Earman River Canal (C-17) can be traced to Dimick's Ditch. Accounts differ as to the reason for the construction of Dimick's Ditch; however, there is consensus that it was hand dug by Captain Elisha Newton Dimick, considered to be the first permanent resident of the Palm Beach area, in cooperation with other early settlers Joseph Borman and George Lanehart (Federal Writers' Project 1939:230; Historical Society of Palm Beach County 2009a; Hartman Berge 2014). In a 1962 interview Joseph Borman, who would later become the first Town of Palm Beach marshal, recounted his experience digging Dimick's Ditch: "I worked in it all the winter of [18]97, cutting muck down that floated out into the lake" (Historical Society of Palm Beach County 2009a).

Several sources indicate that Dimick's Ditch was dug in relation to the construction of the Florida East Coast Canal (today's Intracoastal Waterway) to drain the sawgrass marsh for farming. The process of dredging the Florida East Coast Canal eliminated barriers that held water in the sawgrass marshes causing water levels to fall, and this draining exposed muck soils considered ideal for farming. As dredging neared Lake Worth, Dimick's Ditch was excavated to drain sawgrass marsh that was not in proximity of the Florida East Coast Canal, and then empty into Lake Worth (Palm Beach County Department of Environmental Resources Management and the Institute of Regional Conservation 1988:1-3, 1-4; Hartman Berge 2014; Historical Society of Palm Beach County 2009a;).

In opposition, according to an October 4, 1931 newspaper article from *The Palm Beach Post*, Dimick's Ditch was dug out of necessity due to a heavy flood which endangered the FEC Railway (*The Palm Beach Post* 1931). The article states that through the efforts of Captain Dimick and FEC personnel, a direct outlet was cut into Lake Worth to alleviate the flooding; these efforts resulted in a ditch that extended west from the Lake Worth outlet to the FEC Railway trestle (*The Palm Beach Post 1931*).

In 1914, Captain George E. Andrews and Mr. T.T. Reese purchased the land east of the FEC Railway tracks near the Earman River Canal (C-17) to develop a community called Prosperity, or Prosperity Farms, as it is sometimes referred to (*The Palm Beach Post* 1931). Dimick's Ditch was modified into a main canal as part of the development. In August 1915, a heavy rainfall induced a flood of the basin, which washed out a small opening in the canal that allowed for drainage. The result was a current of 21 feet per second that lasted two days and carried out both the railroad trestle and county bridges (*The Palm Beach Post* 1931). John Sites Earman, the first mayor of West Palm Beach when it incorporated in 1894, was living in the area at the time, and in realizing the danger presented by the flooding, stood guard with a servant through the night to stop railroad and vehicular traffic before reaching the breaches in the canal. Earman sent word of the catastrophe to the County Engineer by way of one of the cars he stopped. At the September 1915 meeting of the Board of County Commissioners, in recognition of his gallant effort, the County Engineer recommend that the name of the canal (known then as Sawgrass River) be changed to Earman River. The name Earman River was officially recognized on September 28, 1931 by the Board upon the death of John Sites Earman (*The Palm Beach Post* 1931).

A new era of prosperity followed World War II and the general area of the APE experienced substantial growth as part of the Westward Expansion of West Palm Beach. This expansion began during the latter part of the 1950s, through the 1960s, and into the 1970s. In 1953 (Figure 3), the general area of the APE was sparsely developed; the Earman River Canal (C-17) extended past the FEC Railway trestle to the location of present-day Silver Beach Road. Excavation of the remaining portion of the Earman River Canal (C-17) is associated with the Westward Expansion of West Palm Beach.

Many years prior to the expansion, because of the population boom following the War, the City of West Palm Beach had been extending northward to the county line of Riviera Beach and southward to the county line of Lake Worth, leaving the City with limited potential for future growth. In an effort to improve the outdated sewer system to accommodate the influx of people, the City issued an $18 million-dollar bond for the purchase of the water plant and 20 square miles of wetlands (current Grassy Waters Preserve) from privately-owned Flagler Water Systems, in addition to 17,000 acres from the Flagler's Model Land Company, all located to the west of the City (Historical Society of Palm Beach County 2009b; Wright 1960).

To solve the issue of growth restriction, the City of West Palm Beach negotiated for the sale of 5,500 acres of land to a developer that would build houses to keep pace with the city's growth, about 2,400 new homes a year, essentially creating a city-within-a-city. The company to take on this massive project was the Perini Corporation of Massachusetts, headed up by Louis R. Perini, Sr. The development appears to have been conducted under Westward Developers Associates, Inc. Development of the Westward Expansion was such a monumental ordeal that even before the construction of homes began, the land company spent $9 million-dollars to prepare the area for development. The Everglades muck had to be moved and replaced with fill; acreage needed to be raised to prevent flooding; a new gravity feed canal had to be constructed west of the city; slum clearance needed to take place; construction of new highways, flood control, storm sewers, and drainage culverts and canals was necessary. (Historical Society of Palm Beach County 2009b; Wright 1960). Figure 4 is a rendering of the executive offices for the Westward Expansion.

SITE NAME: Earman River Canal (C-17)

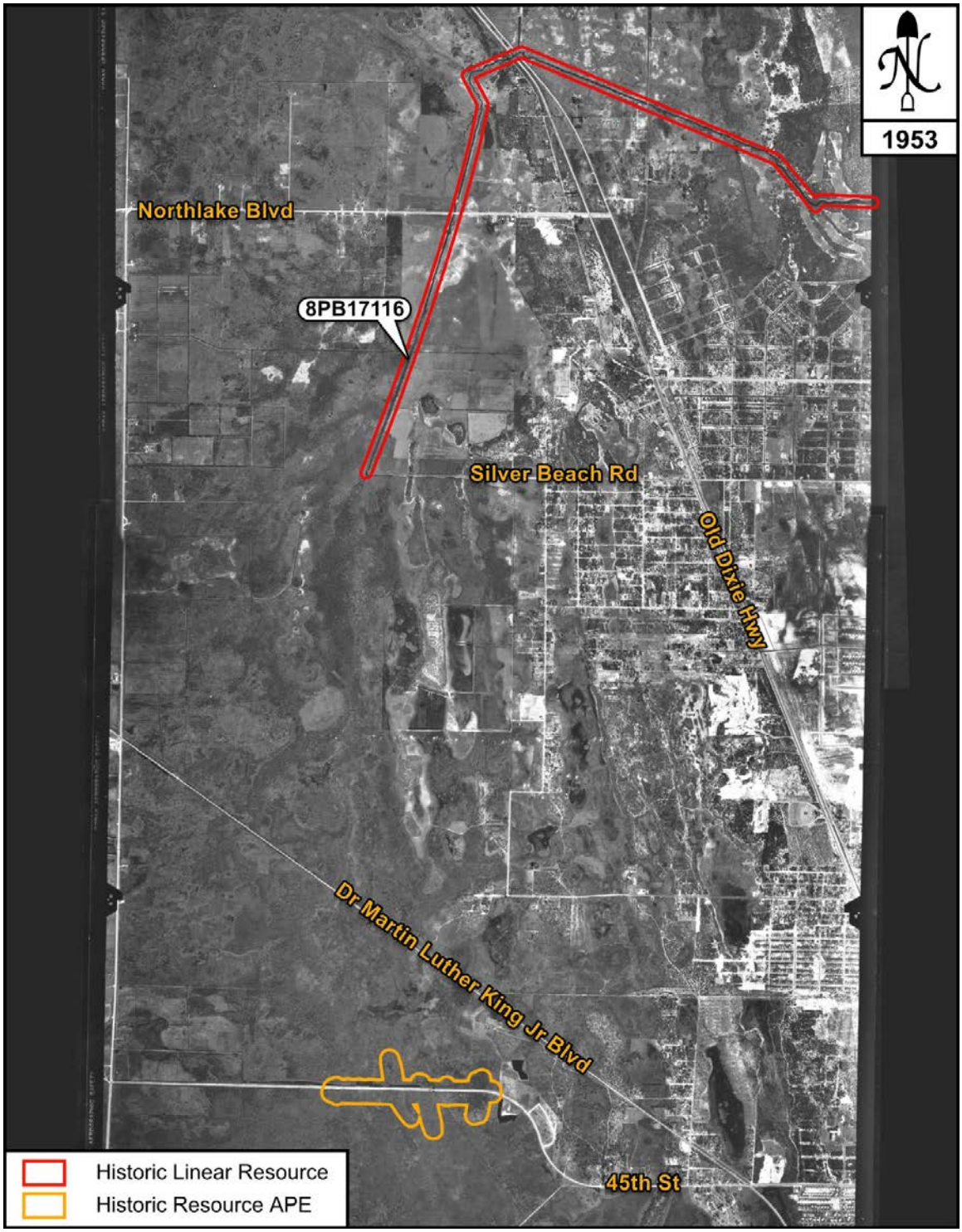

Figure 3: A 1953 Aerial Illustrating the Full Extent of the Earman River Canal (C-17)

Figure 4: The Westward Expansion Executive Offices in West Palm Beach, date unknown *(Courtesy of Florida Memory)*

The Earman River Canal (C-17) was an integral component of the plan for the Westward Expansion, as it would provide flood protection and drainage for the basin, while also maintaining a groundwater elevation to prevent intrusion of salt water (U.S. Army Corps of Engineers [USACE] Jacksonville District and South Florida Water Management District [SFWMD] 2005:8). Excess water would be directed from the new "city" via smaller canals associated with the Perini project to the Earman River Canal (C-17), which in turn would carry the excess water out to the Intracoastal Waterway (Wright 1960). In 1955, the USACE completed the General Design Memorandum (GDM) for the Earman River Canal (C-17) and associated S-44 control structure (USACE Jacksonville District and SFWMD 2005:12). Between 1955 and 1964, the canal was extended from its former terminus (see Figure 3) south to approximately 1,200 feet past present-day 45th Street; S-44 was constructed east of present-day SR A1A Alternate; and the earlier portions of the canal were widened and straightened (Figure 5). It is unclear if the USACE was responsible for some or any alteration of the early portions of the Earman River Canal (C-17). During the post-War period, the canal was owned by the Central and Southern Florida Flood Control District, the predecessor to the SFWMD.

SITE NAME: Earman River Canal (C-17)

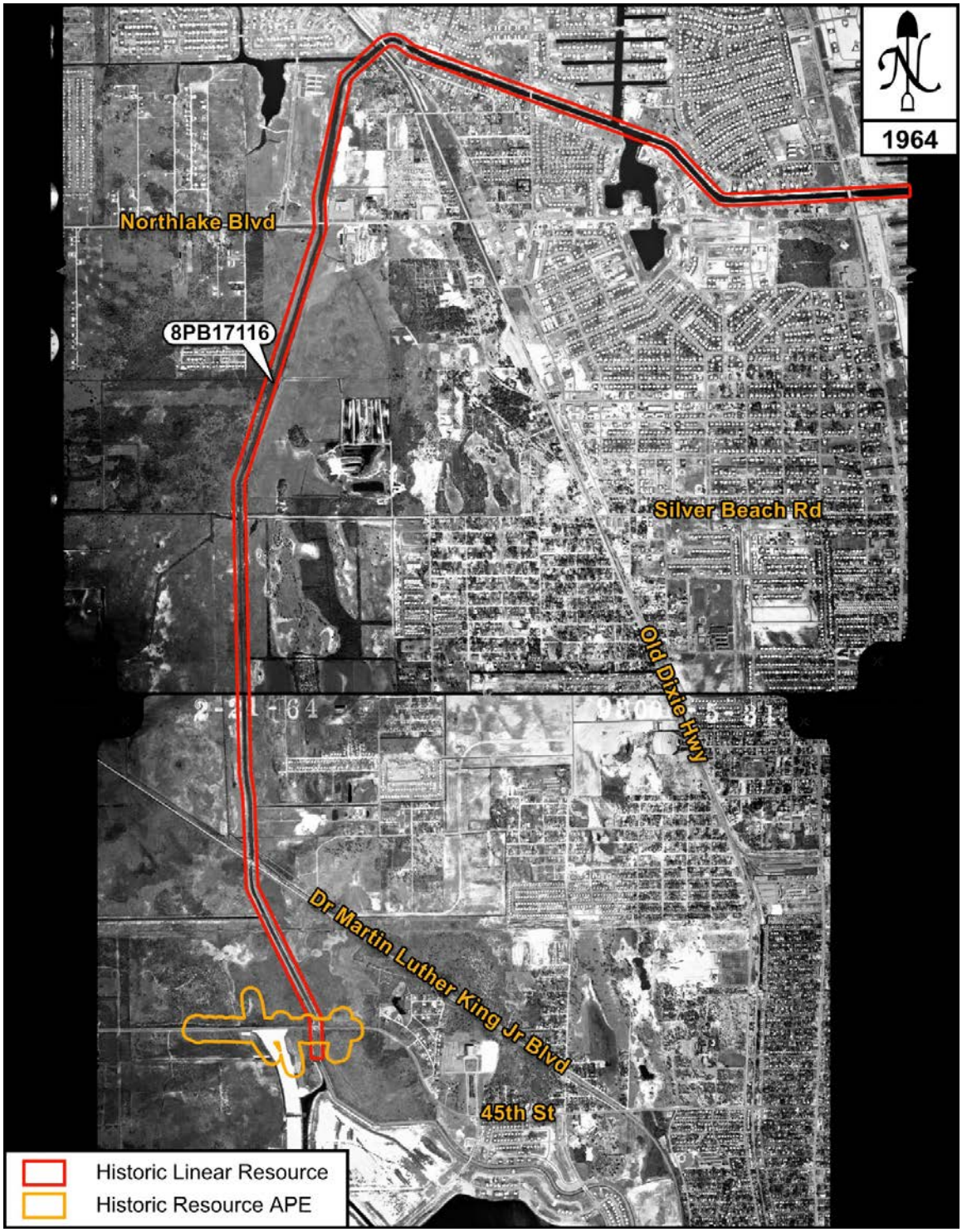

Figure 5: A 1964 Aerial Illustrating the Full Extent of the Earman River Canal (C-17)

In 1955, before the expansion, the land of the C-17 Basin was unimproved pasture or in agricultural production with about 16% of the total area occupied or utilized; approximately 14% of this was dedicated to agricultural purposes and only about 2% to urban purposes. Comparatively, in 1967, after Perini had completed a fair amount of development (the project was not completed until the early 1970s), about 40% of the C-17 Basin was either occupied or utilized; approximately 38% of the land was dedicated to urban or semi-urban living and only about 2% to agriculture. Figures 5 and 6, 1964 and 1968 aerials of the canal, illustrate the substantial increase in development in proximity of the Earman River Canal (C-17), or one of the many secondary canal systems that developed during the period. Two of these canal systems are recorded within the Florida Master Site File (FMSF): the Earman River Relief Canal (8PB16285) and the Earman River Canal Branch (8PB16286).

By 1968, at least 20 major manufacturers had located to the C-17 Basin and many residential communities had developed or were in the process of development, such as Century Village, Palm Beach Gardens, and Roosevelt Gardens. The City mandated that Perini start with a housing development for African-Americans, partially in reaction to a University of Miami study from 1951 that characterized African-American neighborhoods in West Palm Beach as slums. Roosevelt Estates was established by Perini as a moderate-income African-American community between Lake Mangonia and Clear Lake; bisected by an extension of 12th Street that Perini renamed Palm Beach Lakes Boulevard (Central and Southern Florida Flood Control District 1968; Historical Society of Palm Beach County 2009b). Perini was also slated to commence construction in 1968 on a 131-acre development that included apartments, condominiums, recreation areas, and a small shopping plaza (Central and Southern Florida Flood Control District 1968).

Perini essentially made the expansion area buildable and then sold much of the land back to the City. Upon buying the land back, the City commenced on projects such as the 1963 Municipal Stadium, which brought in baseball spring training, and the 1967 West Palm Beach Auditorium (Historical Society of Palm Beach County 2009b). The Palm Beach Mall was constructed in 1967 and began to compete with the West Palm Beach historic commercial district on Clematis Street (Historical Society of Palm Beach County 2009b). Lion Country Safari also opened in 1967. The opening of Lion Country Safari generated tremendous interest on the part of residents, visitors to South Florida, and the media. The park developed into a popular and successful attraction (Lion Country Safari 1996–2015). The boundaries of Riviera Beach and Mangonia Park also expanded west into the C-17 Basin. The effects of Perini's Westward Expansion could still be felt during the 1980s. However, as the population and economic base continued to shift to western suburbs, the downtown and the older residential sections of the City began to experience a slow decline.

SITE NAME: Earman River Canal (C-17)

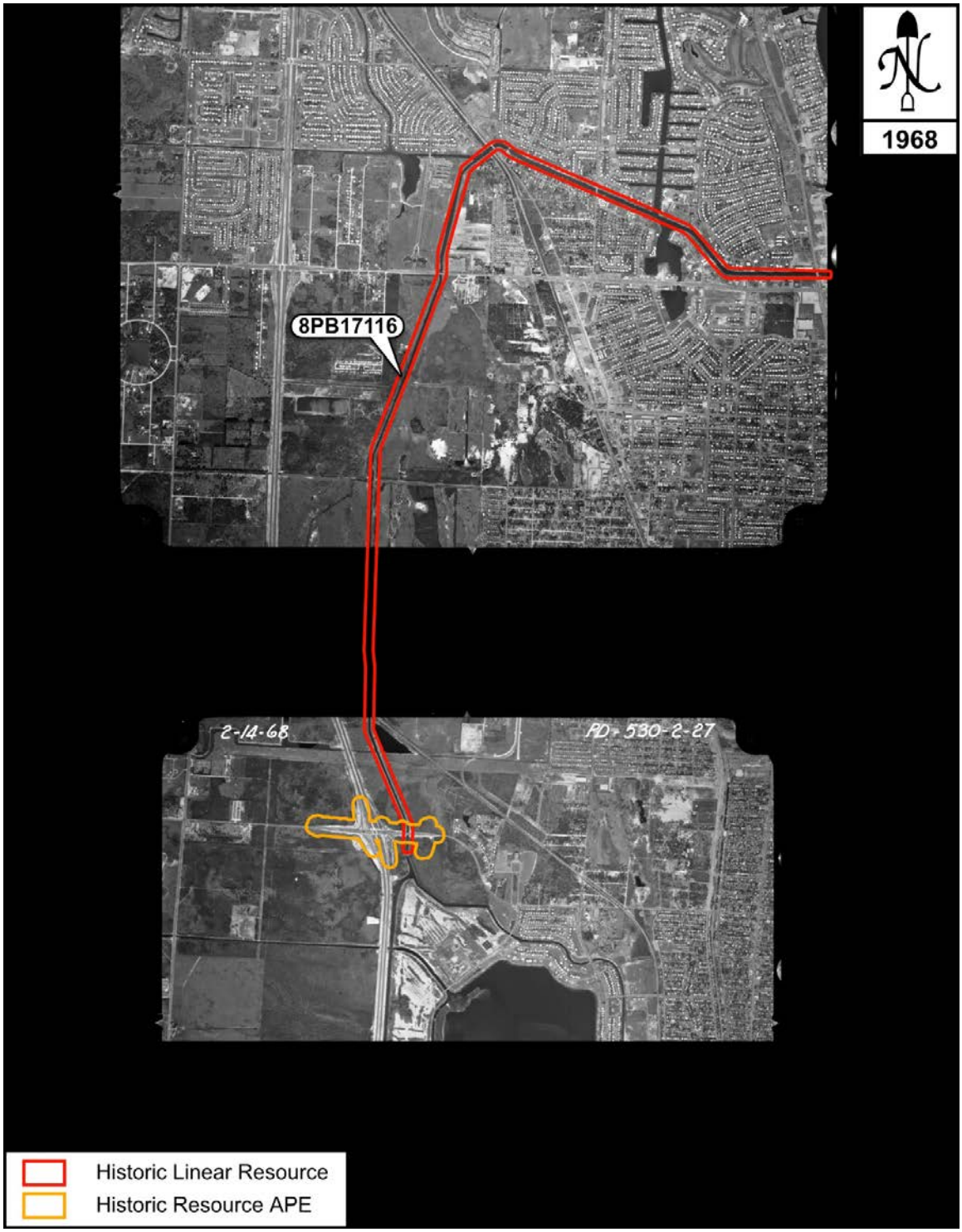

Figure 6: A 1968 Aerial Illustrating the Full Extent of the Earman River Canal (C-17)

Westward Expansion was also viewed as a solution to the increasingly complex traffic problems in West Palm Beach through its provision of north-south and east-west thoroughfares; SR 9/Florida's Turnpike was reconstructed between West Palm Beach and Miami (Wright 1960) and the first portion of I-95 in Palm Beach County was built in 1966 between Okeechobee Boulevard and 45th Street. I-95 was complete within the APE by 1968 (see Figure 6). The Interstate was completed from Palm Beach Gardens to Miami in 1976.

A Survey Review Study was completed in 1975 that concluded the design discharge for the C-17 Basin should be for a 1–30 year storm for an urban area, rather than the 1–30 year storm for an agricultural area used in the original design. In order to make this alteration, which would increase the design discharge from 2070 cubic feet per second (CFS) to 3700 CFS, the Earman River Canal (C-17) needed to be enlarged and an additional gate added to the S-44 spillway. However, it was determined that the projected outcome of the proposed project was not financially worthwhile, and that USACE could not participate in the project. The project was never carried out, but some sections of the canal were enlarged under various free digging contracts. As off 1988, a proposed was made to only modify S-44 as necessary to carry 3700 CFS (Cooper and Lane 1988:15).

B. DISCUSSION OF SIGNIFICANCE

The Earman River Canal (C-17) retains considerable integrity of location, design, and materials. It has not been re-routed, disrupted, or substantially widened or thinned. Those slight enlargements conducted over the years by free digging contracts have not visually impacted the canal (see Figures 3, 5, 6, and 7). Additionally, the canal has not been severed from its associated waterways and continues to serve its historic function. Based on its demonstrated significance in Engineering, the Earman River Canal (C-17) appears to meet *National Register of Historic Places* (National Register) Criterion C for listing. Although modified and extended as part of Westward Expansion, the canal began as an early important water management structure; the first segment was dredged roughly between 1897 and 1900 as Dimick's Ditch. The canal also appears to be associated with the first incarnation of the Intracoastal Waterway, the Florida East Coast Canal. By most accounts, Dimick's Ditch/the Earman River Canal was dredged to take advantage of the excellent quality soil for farming that the Florida East Coast Canal exposed. Further, the Earman River Canal (C-17) is an important main canal in western Palm Beach County.

Based on its demonstrated historical significance in Community Planning and Development in Palm Beach County, the Earman River Canal (C-17) also appears to meet National Register Criterion A for listing. The canal is associated with early area settlers: Captain Elisha Newton Dimick, Joseph Borman, and George Lanehart. The initial digging of Dimick's Ditch and the slightly later alteration (1914 to 1915) of the ditch into a main canal by Captain George E. Andrews and Mr. T.T. Reese, founders of Prosperity/Prosperity Farms, created land ripe for farming and development. Later, the Earman River Canal (C-17) was essential to Westward Expansion, providing the flood prevention and drainage that facilitated the development of the area beginning in the late 1950s, thereby helping to

alleviate the growth problems placed on West Palm Beach and Palm Beach County by the post-World War II population boom.

SITE NAME: Earman River Canal (C-17)

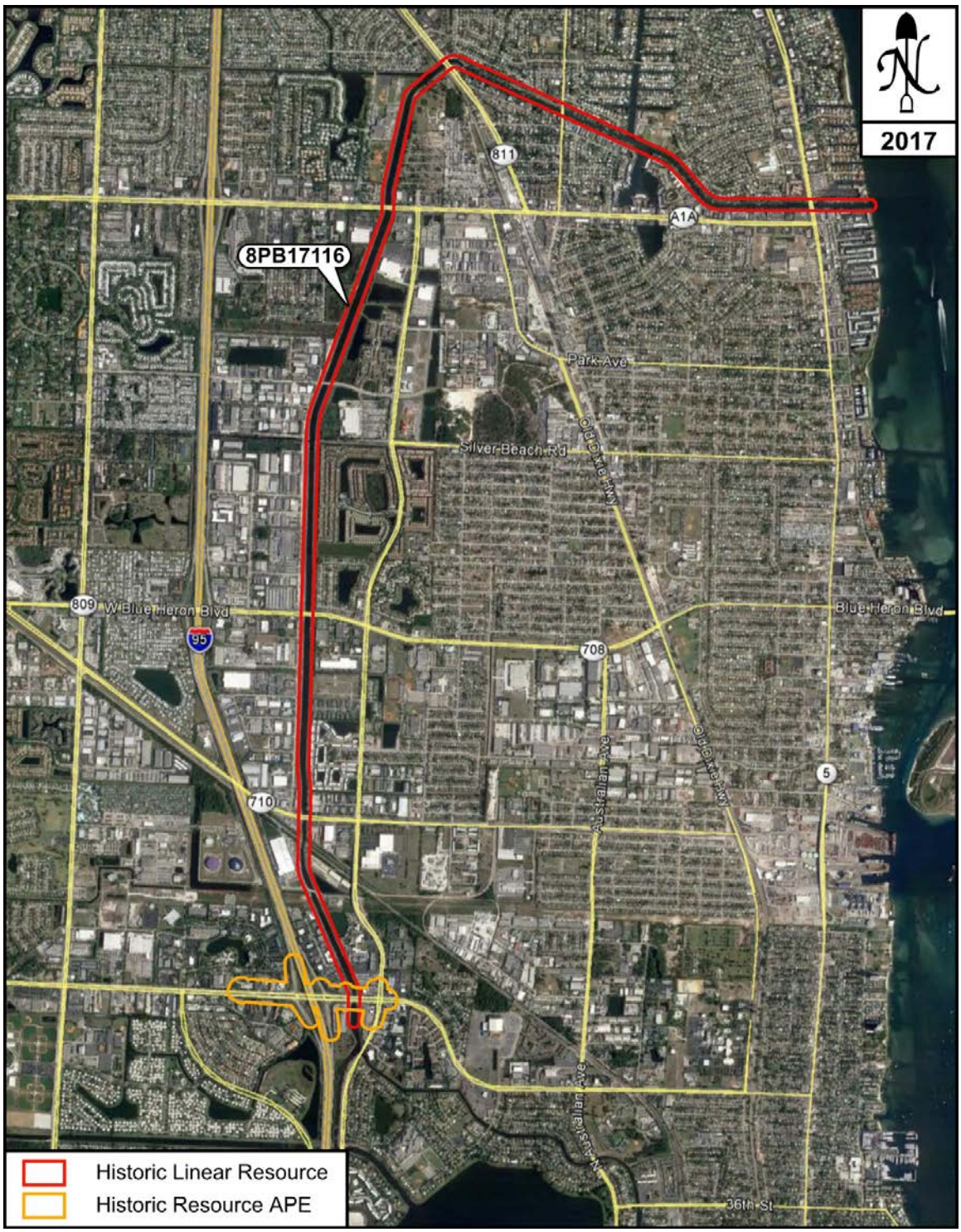

Figure 7: A 2017 Aerial Illustrating the Full Extent of the Earman River Canal (C-17)

SITE NAME: Earman River Canal (C-17)

C. HISTORY AND BIBLIOGRAPHY OF PAST WORK AT SITE

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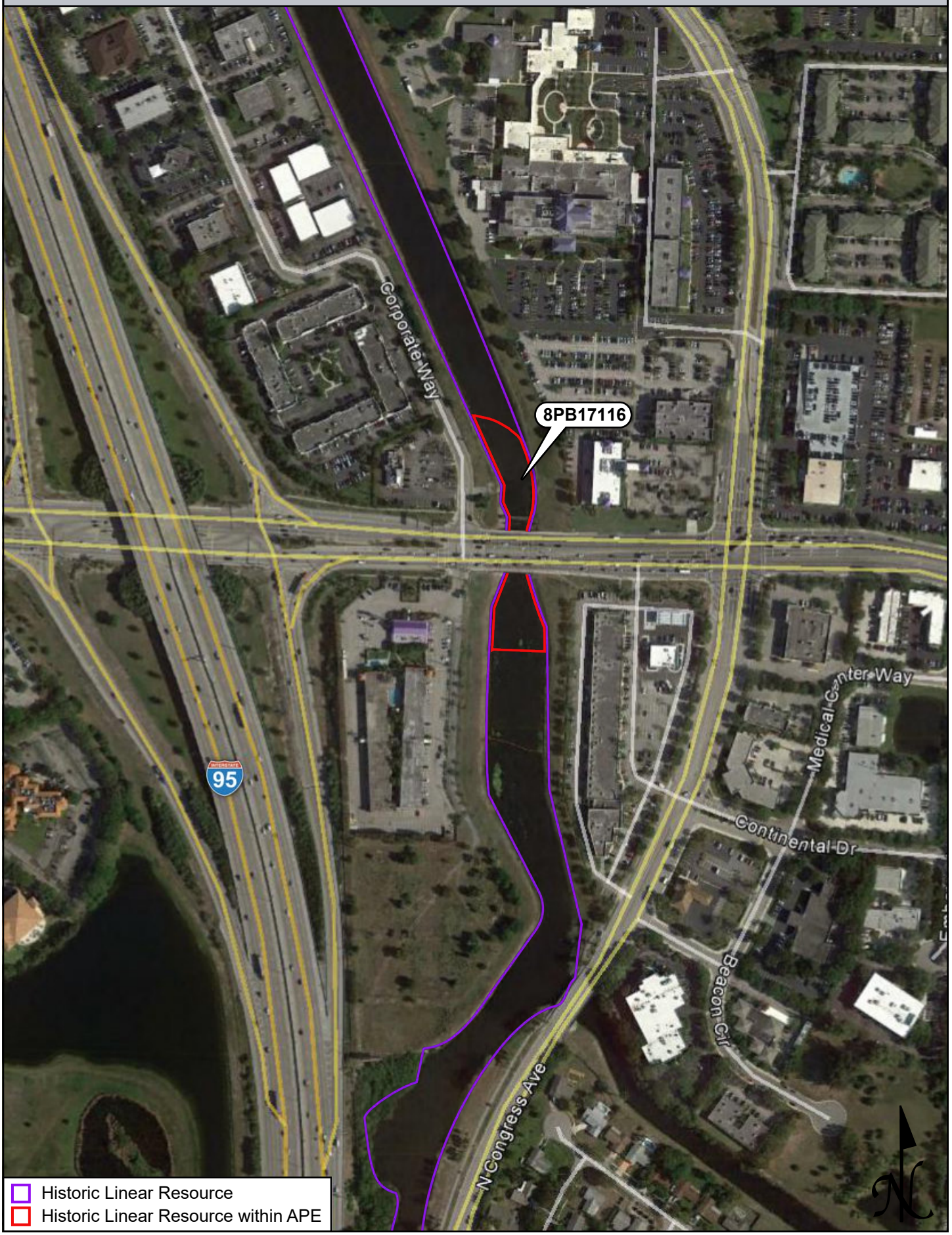
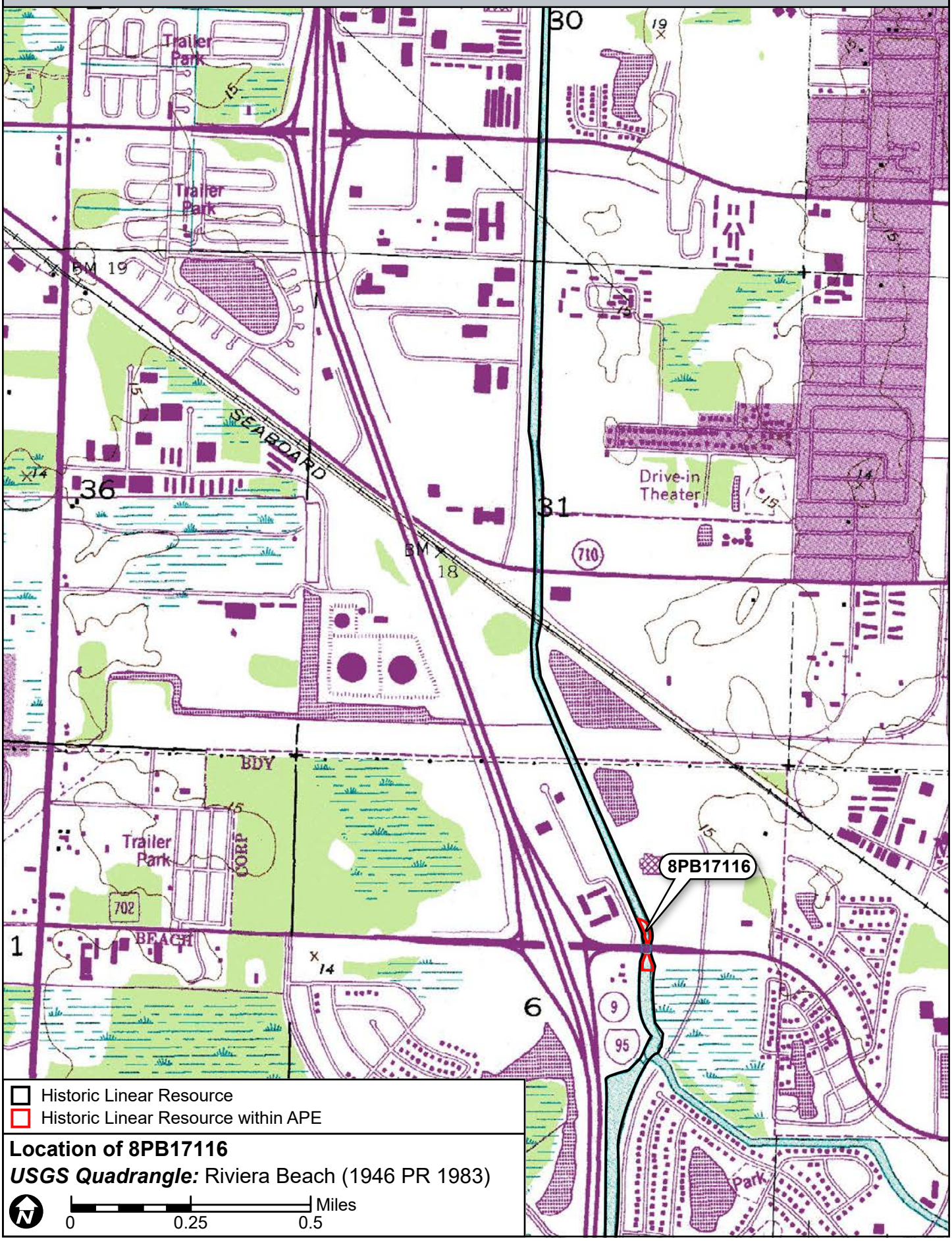
PHOTOGRAPH

PHOTOGRAPH

SKETCH MAP

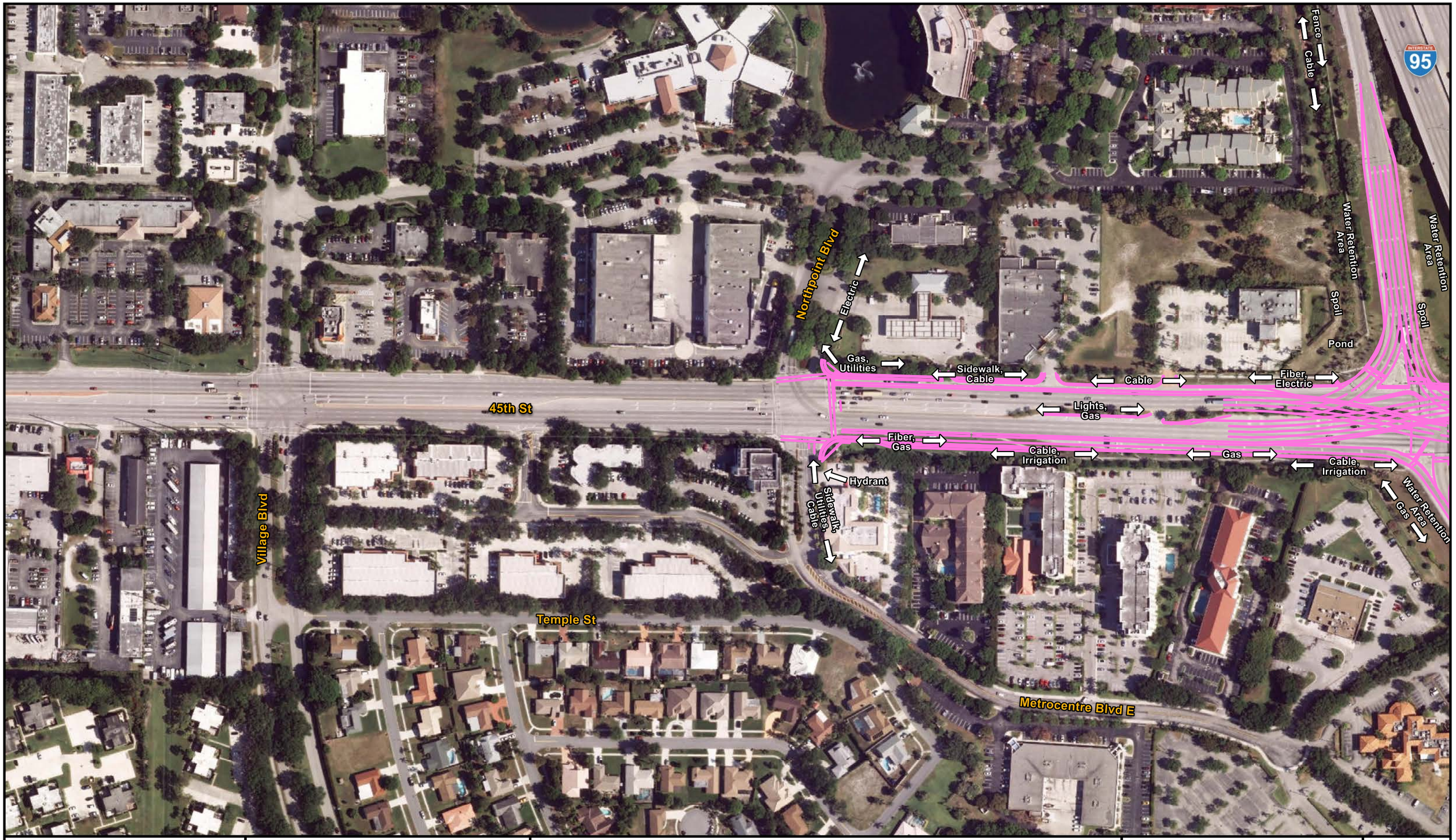

8PB17116
Corporate Way
Medical Center Way
Continental Dr
Beacon Cir
N Congress Ave
95
Historic Linear Resource
Historic Linear Resource within APE

USGS QUADRANGLE MAP

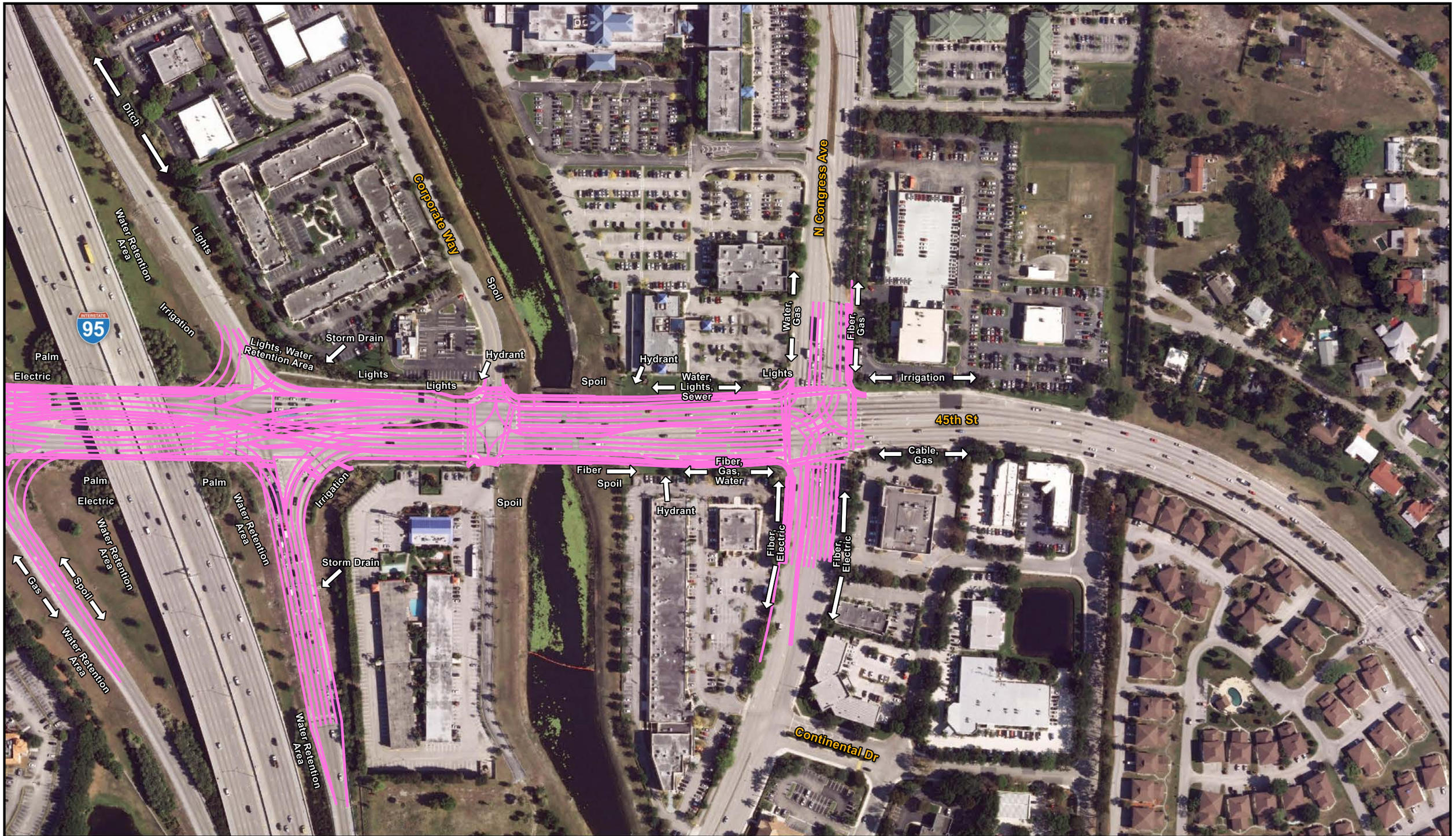


Appendix B

Current Conditions Maps



Current Field Conditions Map	*I-95/SR 9 Interchange at 45th Street* *PD&E Study* *(FPID: 436519-1-22-01, ETDM 14225)*	Archaeological APE	**Palm Beach County** 0 50 100 Meters	**Map 1**



Current Field Conditions Map	*I-95/SR 9 Interchange at 45th Street PD&E Study (FPID: 436519-1-22-01, ETDM 14225)*	Archaeological APE	**Palm Beach County** 0 50 100 Meters	**Map 2**

Appendix C

Survey Log

Ent D (FMSF only)_____

Survey Log Sheet

Florida Master Site File
Version 4.1 1/07

Survey # (FMSF only) _____

Consult *Guide to the Survey Log Sheet* for detailed instructions.

Identification and Bibliographic Information

Survey Project (name and project phase) CRAS I-95 Interchange at 45th St

Report Title (exactly as on title page) Cultural Resource Assessment Survey I-95/SR 9 Interchange at 45th Street Project Development & Environment (PD&E) Study

Report Authors (as on title page, last names first) 1. Janus Research 2. _____ 3. _____ 4. _____

Publication Date (year) 2017 **Total Number of Pages in Report** (count text, figures, tables, not site forms) 94

Publication Information (Give series, number in series, publisher and city. For article or chapter, cite page numbers. Use the style of *American Antiquity*.)
Janus Research, 1107 N. Ward Street, Tampa FL 33607

Supervisors of Fieldwork (even if same as author) Names Pepe, James P., Streelman, Amy Groover

Affiliation of Fieldworkers: Organization Janus Research City Tampa

Key Words/Phrases (Don't use county name, or common words like *archaeology*, *structure*, *survey, architecture, etc.*)
1. I-95 2. SR 9 3. 45th Street 4. _____ 5. _____ 6. _____ 7. _____ 8. _____

Survey Sponsors (corporation, government unit, organization or person directly funding fieldwork)
Name _____ Organization Florida Dept of Transportation - District 4
Address/Phone/E-mail 3400 West Commercial Blvd., Fort Lauderdale, Florida, 33309

Recorder of Log Sheet Janus Research **Date Log Sheet Completed** 6-6-2017

Is this survey or project a continuation of a previous project? ☒ No ☐ Yes: Previous survey #s (FMSF only) _____

Mapping

Counties (List each one in which field survey was done; attach additional sheet if necessary)
1. Palm Beach 2. _____ 3. _____ 4. _____ 5. _____ 6. _____

USGS 1:24,000 Map Names/Year of Latest Revision (attach additional sheet if necessary)
1. Name RIVIERA BEACH Year 1983
2. Name _____ Year _____
3. Name _____ Year _____
4. Name _____ Year _____
5. Name _____ Year _____
6. Name _____ Year _____

Description of Survey Area

Dates for Fieldwork: Start 3-22-2017 End 3-22-2017 **Total Area Surveyed** (fill in one) _____ hectares 25 acres

Number of Distinct Tracts or Areas Surveyed 1

If Corridor (fill in one for each) **Width:** _____ meters _____ feet **Length:** _____ kilometers _____ miles

Survey Log Sheet

Survey #_____

Research and Field Methods

Types of Survey (check all that apply): ☒ archaeological ☒ architectural ☐ historical/archival ☐ underwater ☐ damage assessment ☐ monitoring report ☐ other(describe): _____

Scope/Intensity/Procedures Pedestrian survey

Preliminary Methods (check as many as apply to the project as a whole)

- ☐ Florida Archives (Gray Building)
- ☐ Florida Photo Archives (Gray Building)
- ☒ Site File property search
- ☒ Site File survey search
- ☐ library research- *local public*
- ☐ library-special collection - *nonlocal*
- ☒ Public Lands Survey (maps at DEP)
- ☐ local informant(s)
- ☐ local property or tax records
- ☐ newspaper files
- ☐ literature search
- ☐ Sanborn Insurance maps
- ☐ other historic maps
- ☒ soils maps or data
- ☐ windshield survey
- ☒ aerial photography
- ☒ other (describe): Janus Library

Archaeological Methods (check as many as apply to the project as a whole)

☐ Check here if **NO** archaeological methods were used.

- ☐ surface collection, controlled
- ☐ surface collection, uncontrolled
- ☐ shovel test-1/4"screen
- ☐ shovel test-1/8" screen
- ☐ shovel test 1/16"screen
- ☐ shovel test-unscreened
- ☐ shovel test-other screen size
- ☐ water screen
- ☐ posthole tests
- ☐ auger tests
- ☐ coring
- ☐ test excavation (at least 1x2 m)
- ☐ block excavation (at least 2x2 m)
- ☐ soil resistivity
- ☐ magnetometer
- ☐ side scan sonar
- ☒ pedestrian survey
- ☐ unknown
- ☐ other (describe): _____

Historical/Architectural Methods (check as many as apply to the project as a whole)

☐ Check here if **NO** historical/architectural methods were used.

- ☐ building permits
- ☐ commercial permits
- ☐ interior documentation
- ☐ demolition permits
- ☐ exposed ground inspected
- ☐ local property records
- ☐ neighbor interview
- ☐ occupant interview
- ☐ occupation permits
- ☐ subdivision maps
- ☐ tax records
- ☐ unknown
- ☒ other (describe): aerial photography

Survey Results (cultural resources recorded)

Site Significance Evaluated? ☒ Yes ☐ No

Count of Previously Recorded Sites 0 **Count of Newly Recorded Sites** 1

Previously Recorded Site #'s with Site File Update Forms (List site #'s without "8". Attach additional pages if necessary.) _____

Newly Recorded Site #'s (Are all originals and not updates? List site #'s without "8". Attach additional pages if necessary.) PB14116

Site Forms Used: ☐ Site File Paper Form ☒ Site File Electronic Recording Form

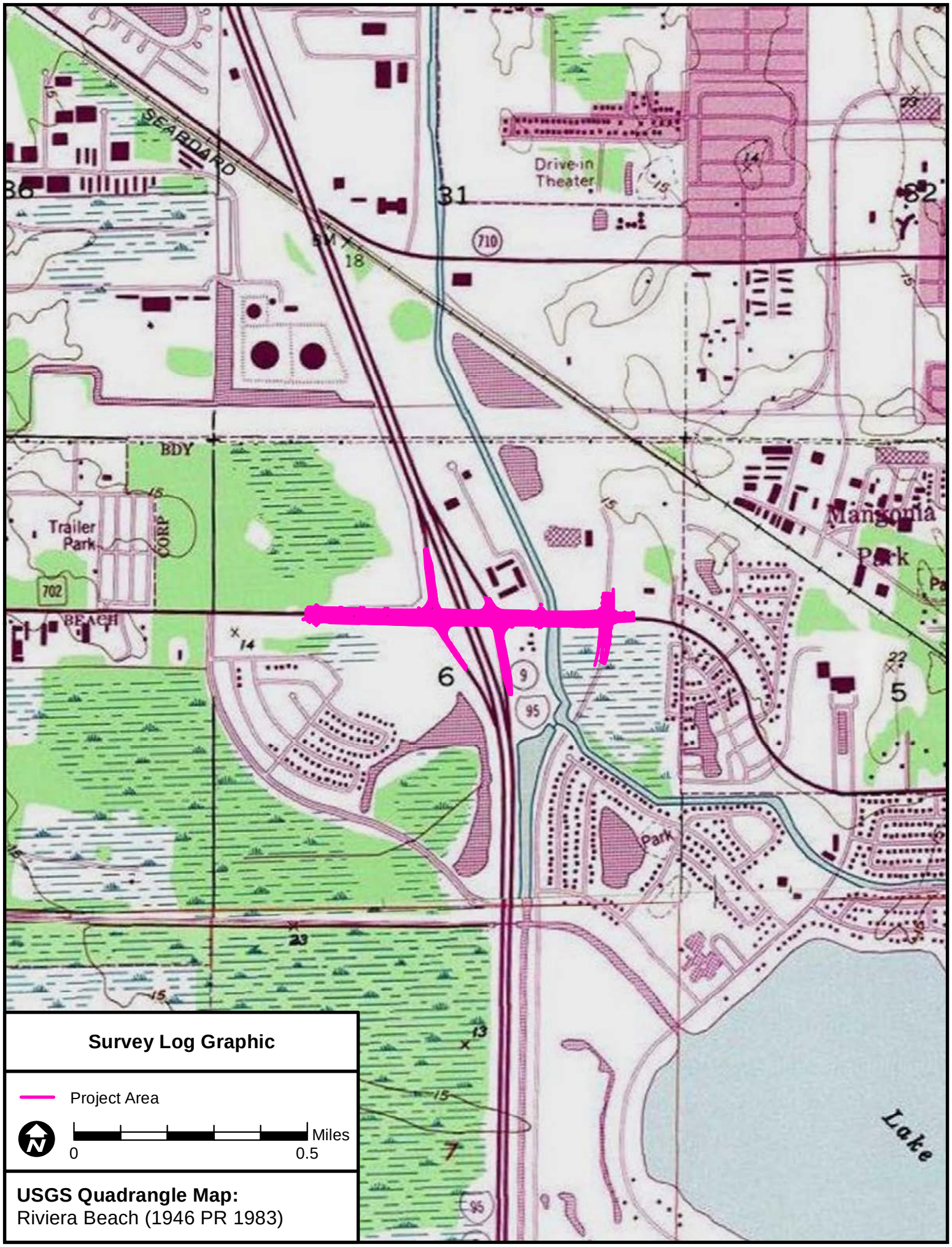
*****REQUIRED: ATTACH PLOT OF SURVEY AREA ON PHOTOCOPY OF USGS 1:24,000 MAP(S)*****

SHPO USE ONLY **SHPO USE ONLY** **SHPO USE ONLY**

Origin of Report: ☐ 872 ☐ CARL ☐ UW ☐ 1A32 # _____ ☐ Academic ☐ Contract ☐ Avocational ☐ Grant Project # _____ ☐ Compliance Review: CRAT # _____

Type of Document: ☐ Archaeological Survey ☐ Historical/Architectural Survey ☐ Marine Survey ☐ Cell Tower CRAS ☐ Monitoring Report ☐ Overview ☐ Excavation Report ☐ Multi-Site Excavation Report ☐ Structure Detailed Report ☐ Library, Hist. or Archival Doc ☐ MPS ☐ MRA ☐ TG ☐ Other: _____

Document Destination: _____ **Plotability:** _____


SEABOARD
Drive-in Theater
31
710
18
BDY
Trailer Park
CORP
702
BEACH
6
9
95
Mangonia Park
5
Park
Lake
7
Survey Log Graphic
Project Area
Miles
0
0.5
USGS Quadrangle Map:
Riviera Beach (1946 PR 1983)