

R2019 1949

## INTERLOCAL AGREEMENT

THIS AGREEMENT ("Agreement" or "Interlocal Agreement"), is made and entered into DEC 17 2019, by and between the City of Boca Raton, the City of Boynton Beach, the City of Delray Beach, the Town of Highland Beach, the City of Lake Worth Beach, the Town of Lantana, the Town of Ocean Ridge, all of which are municipal corporations organized and existing under the laws of the State of Florida, and Palm Beach County, a political subdivision of the State of Florida, by and through its Board of County Commissioners, collectively referred to as the "Participants."

### WITNESSETH:

WHEREAS, the Participants are authorized pursuant to the Florida Interlocal Cooperation Act of 1969 as set forth in Section 163.01, et seq., Florida Statutes (hereinafter the "Act") to make efficient use of their respective powers, resources, authority and capabilities by enabling them to cooperate on the basis of mutual advantage and thereby provide the facilities and efforts identified herein in the manner that will best utilize existing resources, powers and authority available to each of them; and

WHEREAS, it is the purpose of the Act to provide a means by which the Participants may exercise their respective powers, privileges and authority which they may separately, but which pursuant to this Interlocal Agreement and the Act they may exercise collectively; and

WHEREAS, the Participants have common interests in planning for coastal and climate resilience given their location, topography and geography; and

WHEREAS, the Participants are dedicated to partnering to address the impacts of climate change, protecting infrastructure and the built environment, fostering a resilient economy, safeguarding the natural environment, promoting social equity, promoting effective emergency response, and fostering science-based, nonpartisan, and transparent communications together and to the public; and

WHEREAS, climate change poses serious risks to people, infrastructure, economies, and land use, both globally and in the jurisdictions of the Participants; and

WHEREAS, local governments are required to address sea level rise in the Coastal Elements of their Comprehensive Plans pursuant to Section 163.3178, Florida Statutes; and

WHEREAS, the Participants' respective populations are anticipated to share a high risk associated with climate change due to low-lying coastal

elevations, anticipated sea level rise, increases in air and water temperature, and increases in tropical storm frequency and severity; and

WHEREAS, there are cost savings and efficiencies gained by collaborating regionally on responses to climate change vulnerability; and

WHEREAS, the Participants desire to work together to evaluate and address the risks posed by climate change by developing regional collaboration frameworks, assessing vulnerabilities, identifying adaptation techniques, implementing adaptation strategies, monitoring outcomes, and evaluating results; and

WHEREAS, the Participants wish to secure grant funds to advance their ability to address the above issues; and

WHEREAS, the Participants wish to partner to obtain a Climate Change Vulnerability Assessment to determine the potential danger cause by climate change (the "Project"); and

WHEREAS, entering into this Interlocal Agreement in order to obtain a Climate Change Vulnerability Assessment is in the best interests of the Participants and the residents of the Participants.

NOW, THEREFORE, the Participants express their mutual understandings and commitments as follows:

## Section 1. STATEMENT OF PURPOSE

The purpose of this Interlocal Agreement is to establish an agreement between the Participants in order to obtain a Climate Change Vulnerability Assessment of certain geographic areas (as more particularly identified below in paragraph 3.1.2 below).

## Section 2. DEFINITIONS

2.1 Climate Change Vulnerability Assessment ("CCVA") shall mean an assessment which explores climate threats, identifies and evaluates community assets of the Participants, assesses vulnerabilities and risks faced by the Participants, and investigates and provides information regarding potential adaptation strategies for the Participants. It is intended that the results of the CCVA shall be used to implement adaption strategies by the Participants to develop a region resilient to the impacts of climate change.

2.2 Fiscal Agent shall mean the Participant which will have the procurement, accounting, reporting, and management responsibilities as it relates to the administration of the agreement entered into with the consultant chosen to carry

out the terms of the CCVA. The Fiscal Agent will make all required payments to the consultant as set forth herein and according to the agreement with the consultant.

2.3 Working Group shall mean those persons representing each Participant and it shall include one representative of each Participant. All Working Group actions and approvals related to the Project shall be determined by a majority vote of the Working Group members.

### Section 3. PROCUREMENT AND CONTROL OF CCVA PROJECT

3.1 Procurement and Financial Management: The City of Lake Worth Beach ("Lake Worth Beach") shall utilize an appropriate procurement process pursuant to its procurement code and applicable law to select a consultant to conduct the CCVA and shall serve as the Fiscal Agent for the agreement with the selected consultant. As an evaluation committee ranking proposed consultants, the Working Group agrees that it will be subject to the sunshine law and agrees to abide by the City of Lake Worth Beach procurement process, rules and regulations, including its cone of silence regulations.

3.1.1 Subject to the provisions of subsection 3.2, Lake Worth Beach shall: (1) prepare and issue a request for proposals (RFP), which RFP shall be approved by the Working Group and shall include the scope of work developed by the Working Group; (2) authorize the Working Group members to serve as the evaluation committee for the RFP and to rank the submitted proposals; (3) review the rankings of the evaluation committee and other relevant materials and select the consultant; (4) prepare an agreement with the selected consultant and present same to the Working Group members prior to executing the agreement for the Working Group's review and approval, which approval shall not be unreasonably withheld; (5) manage and oversee the agreement with the selected consultant in accordance with its terms and conditions; (6) utilize the funds that are contributed by the Participants pursuant to this Interlocal Agreement, and those funds obtained by the City of Boynton Beach ("Boynton Beach") from the Grant identified in subparagraph 3.3 below, to make payments authorized by the agreement with the selected consultant, and (7) take all steps necessary to enforce the terms of the agreement with the selected consultant.

3.1.2 The RFP shall provide that the geographic areas to be addressed by the CCVA shall be those geographic areas inside the boundaries of each Participant and those geographic areas outside the boundaries where a Participant has electric or water utility service areas. As for Palm Beach County, the geographic area shall be limited to the County's jurisdictional areas within or between the Participants; it shall not include the other unincorporated geographic areas of Palm Beach County or the geographic areas of other local governments who are not Participants (the geographic areas to be addressed by the CCVA are contained in **Exhibit "A,"** which is attached hereto and made a part hereof.)

3.1.3 Lake Worth Beach shall issue the RFP within 30 days of the date the Working Group members approve the scope of work and delivers the same to Lake Worth Beach.

3.1.4. Lake Worth Beach shall provide all deliverables and reports provided by the selected consultant to the Working Group members for review and approval prior to Lake Worth Beach's acceptance of any such deliverable and/or report. The Working Group shall have thirty (30) days to consider a deliverable and/or report for approval or to provide its basis, in writing, detailing the reasons it will not approve a deliverable and/or report. Lake Worth Beach shall not accept any deliverable or report until the Working Group has provided its approval in writing.

3.1.5 Lake Worth Beach shall ensure that the agreement with the selected consultant stipulate the deadline and budget for Tasks 1 and 2 of the CCVA to meet the requirements of the FDEP grant, as described more particularly in Section 3.3.

3.1.6 Except as provided for in sections 3.1.5 and 3.3, Lake Worth Beach's agreement with the selected consultant shall authorize payment to the consultant in accordance with the Local Government Prompt Payment Act (§§ 218.70-79, Fla. Stat.). Lake Worth Beach shall provide copies of invoices to the Working Group as they are received, and the Working Group shall have ten (10) days to review the invoices and advise Lake Worth Beach to either approve or reject the invoice. If the Working Group determines that the invoice should be rejected, it must provide an explanation of the deficiencies in writing. Lake Worth Beach will advise the selected consultant and the selected consultant shall have ten (10) days to correct all deficiencies. Once the deficiencies are corrected, payment shall be made immediately to the selected consultant in accordance with the terms of the agreement. If the Working Group determines that the deficiencies have not been corrected to its satisfaction, it will advise Lake Worth Beach to either continue working with the selected consultant or to terminate the agreement. If Lake Worth Beach terminates the agreement as provided for in this section, then the Participants agree to share proportionately with Lake Worth Beach in any costs and liabilities (including attorney's fees and costs for the defense of a lawsuit but excluding any prevailing party attorney's fees or expenses) that may result from the termination.

3.1.6 Lake Worth Beach shall keep a record of the funds received and funds disbursed, and provide updates to the Working Group members every month and as required by the grant agreement executed by Boynton Beach, or within ten (10) business days of a request to do so by the Working Group members.

3.1.7 Lake Worth Beach shall require, in its agreement with the selected consultant, that the selected consultant engage in no less than three (3) interactive workshops with the Working Group during the implementation of the CCVA.

3.2 Working Group Involvement: The Working Group will develop and approve a scope of work that shall be included in the RFP and shall be involved in the administration of the Project, as more particularly described in Section 4.

3.3 FDEP Grant Application and Management: Boynton Beach will apply for, and serve as the recipient and manager of, the Resilience Planning Grant from the Florida Department of Environmental Protection (“FDEP”). Boynton Beach’s responsibilities will include, but not be limited to: preparing required progress reports and final reports, and submitting required deliverables and reimbursement requests to FDEP. Boynton Beach shall forward to Lake Worth Beach \$65,000 (of grant funds to be received) within 30 days of the effective date of this Interlocal Agreement (in addition to the amount to be paid pursuant to Section 5.2), and shall thereafter retain the reimbursements as received from FDEP.

The grant will cover Tasks 1 and 2 of the CCVA (as listed in Section 4.2) at costs not to exceed \$35,000 for Task 1 and \$30,000 for Task 2. All deliverables for Tasks 1 and 2 must be approved by the Working Group and submitted to FDEP by June 30, 2020, to meet the requirements of the grant agreement. Boynton Beach shall have the responsibility to review and approve each invoice for Tasks 1 and 2. Accordingly, as Lake Worth Beach receives invoices for Tasks 1 and 2 from the selected consultant, it shall forward each invoice to Boynton Beach within three (3) days of receipt, and Boynton Beach shall have ten (10) business days to review each invoice and either approve or reject the invoice. In the event that Boynton Beach rejects an invoice, it shall provide, in writing, its basis for rejecting the invoice; and Lake Worth Beach shall obtain a revised invoice from the consultant and re-submit for Boynton Beach’s approval.

#### Section 4. DEVELOPMENT OF SCOPE OF WORK AND PROJECT ADMINISTRATION BY WORKING GROUP

4.1 The Working Group members shall meet as needed in order to develop the scope of work for the RFP. It is intended that the scope of work shall be based upon the Technical Memorandum, dated June 19, 2019, from Carollo Engineers to the Palm Beach County Coastal Resilience Partnership, which is attached hereto as **Exhibit “B”** and made a part hereof.

4.2. The scope of work shall include, but not be limited to, the following five tasks by the selected consultant:

1. Explore Climate Threats
2. Identify and Evaluate Community Assets
3. Assess Vulnerabilities and Risks
4. Investigate Potential Adaptation Strategies
5. Prepare summary reports for each task of the scope of work, a CCVA executive summary, and a CCVA final report, as well

as a GIS-based interactive mapping tool, that will be distributed to the Working Group members.

4.3 The scope of work shall also: (1) describe project background, purpose, and work completed to date; (2) describe in detail the above proposed tasks as well as any associated deliverables; (3) include selection evaluation criteria; (4) summarize preliminary GIS data on community assets that were collected in 2019; (5) specify that Tasks 1 and 2 must be completed within the budget and timeframe required by the FDEP Resilience Planning Grant; and (6) state a suggested completion date of the Project.

4.4 The Working Group shall provide the scope of work to Lake Worth Beach for its review. Lake Worth Beach will not make substantive changes to the scope of work, but will report to the Working Group, before issuing the RFP, if it made typographical or grammatical changes, a copy of said changes to be included in the report. Thereafter, Lake Worth Beach will issue an RFP with the scope of work included and will issue the same within 30 days of receiving the final scope of work.

4.5 The Working Group shall meet as it deems necessary in order to provide assistance and guidance to Lake Worth Beach in the administration of the Project and to meet with the selected consultant in relation to the Project.

**Section 5. COST SHARING**

5.1 The following is the anticipated budget to complete the CCVA:

<b>Task</b>	<b>Budget</b>
Task 1: Explore Climate Threats	\$35,000
Task 2: Assemble Data on Community Assets	\$30,000
Task 3: Assess Vulnerabilities and Risks Task 4: Investigate Potential Adaptation Strategies Task 5: Prepare Final Report and Interactive Map	\$301,797
<b>Total Project Budget</b>	<b>\$366,797</b>

5.2 The cost share funds to be provided by the Participants shall be as follows:

City of Boca Raton	\$85,000
City of Boynton Beach	\$54,697
City of Delray Beach	\$57,399
City of Lake Worth Beach	\$33,552
Town of Lantana	\$22,815
Town of Highland Beach	\$25,698
Town of Ocean Ridge	\$22,636
Palm Beach County	\$20,000
<b>Total Participant Contributions</b>	<b>\$321,797</b>

<u>FDEP Resilience Planning Grant funds</u>	<u>\$65,000</u>
Total Budget	\$386,797
Lake Worth Beach Administrative Fee	-\$20,000
Total Project Budget	\$366,797

5.3 The Participants and Boynton Beach on behalf of FDEP shall submit their cost share funds to Lake Worth Beach within 30 days of the effective date of this Interlocal Agreement. In the event a Participant fails to make their cost share funds payment, Lake Worth Beach shall provide written notice to the Participant of such default. Participant shall cure the default within ten (10) days of receipt of such notice. Such Participant shall be removed from this Interlocal Agreement if it fails to timely cure the default. In such event, this Interlocal Agreement shall continue, but the cost share is subject to re-calculation in a proportional amount by Lake Worth Beach such that the total amount of cost share funds are received. Lake Worth Beach will not move forward with selecting a consultant until all cost share funds are received.

5.4 Lake Worth Beach shall place \$20,000 in an administrative reserve account, from which it will draw each month to cover administrative costs including legal fees, banking fees, staff time, and other costs associated with fiscal management of the Project. Lake Worth Beach shall track all itemized expenditures and submit to the Working Group each month for its approval. In the event all administrative funds are not expended, the remaining amount may be used to pay for additional scope of services or returned in proportionate amounts to each Participant as described in Section 5.6.

5.5 Lake Worth Beach shall utilize the above cost share funds only to make payments to the selected consultant in accordance with the agreement with the selected consultant and this Interlocal Agreement.

5.6 In the event all cost share funds are not expended, Lake Worth Beach shall calculate the proportionate amount based on the amount each Participant contributed, and shall submit said calculation to the Working Group for its review and approval. Once the Working Group has approved of the calculation and forwarded the same to Lake Worth Beach, Lake Worth Beach shall return the approved proportionate amount to each Participant within thirty (30) days.

5.7 In the event the selected consultant notifies Lake Worth Beach that additional funds are required to complete the Project, Lake Worth Beach shall notify the Working Group of the need for additional funds together with a detailed explanation for the increased costs. Additional funds shall only be required to be paid by the Participants if the Working Group approves the additional funds. If the Working Group does not approve the additional funds, Lake Worth Beach will notify the selected consultant and proceed in accordance with the agreement.

## Section 6. RECORDS

Lake Worth Beach shall maintain all records relating to the CCVA and Boynton Beach shall maintain all records relating to the grant in accordance with the Florida Public Records Act.

## Section 7. REMEDIES

All Participants shall have any and all remedies as permitted by law. The Participants agree, however, to provide for positive dialogue and communications if disputes or disagreements arise as to the application or interpretation of this Interlocal Agreement.

## Section 8. DURATION AND TERMINATION

8.1 This Interlocal Agreement shall become effective upon being executed by all Participants and filed with the Clerk of Palm Beach County.

8.2 This Interlocal Agreement shall remain in effect for a period of two (2) years and may be extended written approval of the Participants. Notwithstanding the foregoing, this Interlocal Agreement shall terminate upon delivery of the CCVA to, and acceptance thereof by, the Working Group members, payment of all outstanding invoices by Lake Worth Beach, and satisfaction of the grant requirements by Boynton Beach.

8.3 In the event the agreement between Lake Worth Beach and the selected consultant is terminated, for any reason, this Interlocal Agreement shall also terminate and Lake Worth Beach shall calculate the proportionate amount to be returned which shall be based on the amount each Participant contributed. The calculation shall be submitted to the Working Group for its review and approval. Once the Working Group has approved of the calculation and forwarded the same to Lake Worth Beach, Lake Worth Beach shall return the approved proportionate amount to each Participant within thirty (30) days.

## Section 9. GOVERNING LAW/ VENUE / WAIVER OF JURY TRIAL

This Agreement shall be governed by the laws of the State of Florida. Any legal action to enforce the Agreement will be filed in Palm Beach County. In any litigation brought to enforce the terms of this Interlocal Agreement, each Participant shall bear its own costs and attorney's fees incurred in connection therewith. **BY ENTERING INTO THIS AGREEMENT, THE PARTICIPANTS EXPRESSLY WAIVE ANY RIGHT THE PARTICIPANTS MAY HAVE TO A TRIAL BY JURY OF ANY CIVIL LITIGATION OR ANY CLAIM RELATED TO THIS AGREEMENT.**



## Section 10. LIABILITY AND INDEMNITY

10.1. Each Participant shall be liable for its own actions and negligence and, to the extent permitted by law, the Participants and their respective officers and employees shall not be deemed to assume any liability for the acts, omissions and negligence of another Participant. Nothing herein shall constitute, or be construed as, a waiver of sovereign immunity beyond the limits set forth in Florida Statute, Section 768.28, or of any defense available to the Participants as set forth in Florida Statutes, Section 768.28 or any other provisions of Florida law.

10.2 This section shall survive the termination or expiration of this Agreement.

## Section 11. AMENDMENT OF THIS AGREEMENT

Amendments to this Interlocal Agreement shall be made by unanimous consent of all the Participants in writing.

## Section 12. EXECUTION OF AGREEMENT

This Agreement shall be executed by each Participant's authorized representative pursuant to an appropriate resolution or agenda item of the respective local governmental unit. Each Participant shall be bound to the terms of this Interlocal Agreement as of the date it is signed by that Participant.

## Section 13. SEVERABILITY

The invalidity, illegality, or unenforceability of any provision of this Interlocal Agreement, or the occurrence of any event rendering any portion or provision of this Agreement void or voidable, shall in no way affect the validity or enforceability of any other portion or provision of the Interlocal Agreement. Any void or voidable provision shall be deemed severed from the Interlocal Agreement and the balance of the Interlocal Agreement shall be construed and enforced as if the Interlocal Agreement did not contain the particular portion or provision held to be void. The Participants further agree to reform the Interlocal Agreement to replace any stricken provision with a valid provision that comes as close as possible to the intent of the stricken provision. The provisions of this section shall not prevent the entire Interlocal Agreement from being held void should a provision which is of the essence of the Interlocal Agreement be determined to be void by a court of competent jurisdiction.

## Section 14. NOTICES

14.1 Any notice given pursuant to the terms of this Agreement shall be in writing and done by Certified Mail, Return Receipt Requested. The effective date of such notice shall be the date of receipt, as evidenced by the Return Receipt. All notices shall be addressed to the following:

As to City of Boca Raton:

City Manager, City of Boca Raton  
201 W. Palmetto Park Rd.  
Boca Raton, FL 33432

As to City of Boynton Beach:

Lori LaVerriere, City Manager  
City of Boynton Beach  
3301 Quantum Blvd., Suite 101  
Boynton Beach, FL 33426

As to City of Delray Beach:

City Manager  
City of Delray Beach, FL  
100 NW 1st Avenue  
Delray Beach, FL 33444

As to Town of Highland Beach:

Marshall Labadie, Town Manager  
Town of Highland Beach  
3614 S. Ocean Boulevard  
Highland Beach, FL 33487

As to City of Lake Worth Beach:

Michael Bornstein, City Manager  
City of Lake Worth Beach  
7 North Dixie Highway  
Lake Worth Beach, FL 33460

As to Town of Lantana:

Deborah S. Manzo, Town Manager  
Town of Lantana  
500 Greynolds Circle  
Lantana, FL 33462

As to Town of Ocean Ridge:

Tracey Stevens, Town Manager  
Town of Ocean Ridge  
6450 North Ocean Ridge

Ocean Ridge, FL 33435

As to Palm Beach County:

Megan Houston, Director, Office of Resilience  
Board of County Commissioners, Palm Beach County  
2300 N. Jog Road, 4<sup>th</sup> Floor  
West Palm Beach, FL 33411

14.2 Notices shall be effective when delivered to the address specified above. Changes in the respective addresses to which such notice may be directed may be made from time to time by any Participant by written notice to the Participants. Facsimile and email are acceptable notice effective when received, however, facsimiles and emails received (i.e. printed) after 5:00 p.m. or on weekends or holidays, will be deemed received on the next business day. The original of the notice must additionally be mailed as required herein.

#### Section 15: FILING

A copy of this Agreement shall be filed by Palm Beach County with the Clerk and Comptroller in and for Palm Beach County.

#### Section 16: ANNUAL BUDGET APPROPRIATIONS

The Participants' performance and obligations to pay pursuant to this Agreement are contingent upon annual appropriation by its governing Boards.

#### Section 17: FORCE MAJEURE

Any Participant delayed by a Force Majeure Event, as defined herein, in performing under this Interlocal Agreement shall use reasonable efforts to remedy the cause or causes of such Force Majeure Event. A delay due to a Force Majeure Event shall serve to toll the time to perform under this Agreement. "Force Majeure Event" shall mean any act of God, fire, flood, earthquake, explosion, hurricane, riot, sabotage, terrorist attack, windstorm, failure of utility service, or labor dispute.

#### Section 18: CONSTRUCTION

No Participant shall be considered the author of this Interlocal Agreement since the Participants hereto have participated in extensive negotiations and drafting and redrafting of this document to arrive at a final agreement. Thus, the terms of this Agreement shall not be strictly construed against one Participant as opposed to the other Participants based upon who drafted it. In the event that any section, paragraph, sentence, clause, or provision hereof is held by a court of competent jurisdiction to be invalid, such shall not affect the remaining portions of this Agreement and the same shall remain in full force and effect.

#### Section 19: NO THIRD PARTY BENEFICIARY

No provision of this Interlocal Agreement is intended to, or shall be construed to, create any third party beneficiary or to provide any rights to any person or entity not a party to this Agreement, including but not limited to any citizen or employees of any Participant.

#### Section 20: NON-DISCRIMINATION

No Participant may discriminate on the basis of race, color, sex, religion, national origin, disability, age, marital status, political affiliation, sexual orientation, or gender identity and expression in the performance of this Agreement.

Palm Beach County is committed to assuring equal opportunity in the award of contracts and complies with all laws prohibiting discrimination. Pursuant to Palm Beach County Resolution R2017-1770, as may be amended, the Participants warrant and represents that throughout the term of this Agreement, including any renewals thereof, if applicable, all of its employees are treated equally during employment without regard to race, color, religion, disability, sex, age, national origin, ancestry, marital status, familial status, sexual orientation, gender identity or expression, or genetic information. Failure to meet this requirement shall be considered default of this Agreement.

#### Section 21: ASSIGNMENT

No Participant may assign this Agreement in whole or in part, without prior written consent of all other Participants, which may be granted or withheld at such Participants' absolute discretion.

#### Section 22: SEVERABILITY

If any term of the Agreement or the application thereof shall be determined by a court of competent jurisdiction to be invalid or unenforceable, the remainder of the Agreement, other than those as to which it is held invalid or unenforceable, shall not be affected thereby, and each term of the Agreement shall be valid and enforceable to the fullest extent permitted by law.

Section 23: COUNTERPARTS

This Agreement may be executed in counterparts, each of which shall be deemed to be an original, but all of which, taken together, shall constitute one and the same agreement.

Section 24: EFFECTIVE DATE

This Agreement is expressly contingent upon the approval of all Participants and shall become effective only when signed by all Participants. The effective date shall be the last date that it is executed by the Participants.

Section 25. INSPECTOR GENERAL

Palm Beach County has established the Office of the Inspector General in Palm Beach County Code, Section 2-421 - 2-440, as may be amended. The Inspector General's authority includes but is not limited to the power to review past, present and proposed County contracts, transactions, accounts and records, to require the production of records, and to audit, investigate, monitor, and inspect the activities of the Participants, its officers, agents, employees, and lobbyists in order to ensure compliance with contract requirements and detect corruption and fraud.

Failure to cooperate with the Inspector General or interfering with or impeding any investigation shall be in violation of Palm Beach County Code, Sections 2-421 - 2-440, and punished as provided by law.

**IN WITNESS WHEREOF**, the Parties have caused this Agreement to be executed on the date and year first written above.

**ATTEST:**

**CITY OF BOCA RATON**

By: Susan S. Saxton  
Susan S. Saxton  
City Clerk

By: Scott Singer  
Scott Singer  
Mayor

**APPROVED AS TO FORM AND  
LEGAL SUFFICIENCY**

By: [Signature]  
City Attorney

**ATTEST:**

By: Crystal Gibson  
Crystal Gibson  
City Clerk

**CITY OF BOYNTON BEACH**

By: Steven B. Grant  
Steven B. Grant  
Mayor

**APPROVED AS TO FORM AND  
LEGAL SUFFICIENCY**

By: James Cherof  
James Cherof  
City Attorney



**ATTEST:**

By: \_\_\_\_\_  
Katerri Johnson  
City Clerk

**CITY OF DELRAY BEACH**

By: \_\_\_\_\_  
Shelly Petrolia  
Mayor

**APPROVED AS TO FORM  
AND LEGAL SUFFICIENCY:**

By: \_\_\_\_\_  
Lynn Gelin  
City Attorney

**ATTEST:**

By: \_\_\_\_\_  
Lanelda Gaskins  
Town Clerk

**TOWN OF HIGHLAND BEACH**

By: \_\_\_\_\_  
Rhoda Zelniker  
Mayor

**APPROVED AS TO FORM  
AND LEGAL SUFFICIENCY:**

By: \_\_\_\_\_  
Town Attorney

**ATTEST:**

By: \_\_\_\_\_  
Crystal Gibson  
City Clerk


**CITY OF BOYNTON BEACH**

By: \_\_\_\_\_  
Steven B. Grant  
Mayor

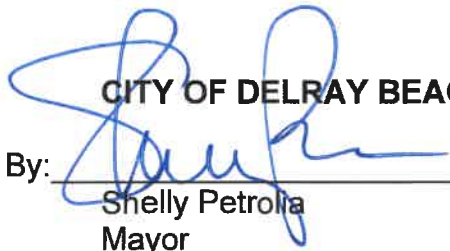
**APPROVED AS TO FORM AND  
LEGAL SUFFICIENCY**

By: \_\_\_\_\_  
James Cherof  
City Attorney

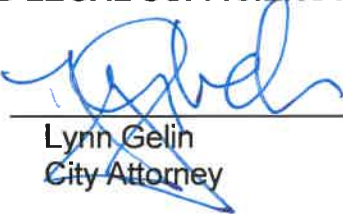
**ATTEST:**

By:   
Katerri Johnson  
City Clerk

**CITY OF DELRAY BEACH**

By:   
Shelly Petrolia  
Mayor

**APPROVED AS TO FORM  
AND LEGAL SUFFICIENCY:**

By:   
Lynn Gelin  
City Attorney

**ATTEST:**

By: \_\_\_\_\_  
Lanelda Gaskins  
Town Clerk

**TOWN OF HIGHLAND BEACH**

By: \_\_\_\_\_  
Rhoda Zelniker  
Mayor

**APPROVED AS TO FORM  
AND LEGAL SUFFICIENCY:**

By: \_\_\_\_\_  
Town Attorney

**ATTEST:**

**CITY OF BOYNTON BEACH**

By: \_\_\_\_\_  
Crystal Gibson  
City Clerk

By: \_\_\_\_\_  
Steven B. Grant  
Mayor

**APPROVED AS TO FORM AND  
LEGAL SUFFICIENCY**

By: \_\_\_\_\_  
James Cherof  
City Attorney

**ATTEST:**

**CITY OF DELRAY BEACH**

By: \_\_\_\_\_  
Katerri Johnson  
City Clerk

By: \_\_\_\_\_  
Shelly Petrolia  
Mayor

**APPROVED AS TO FORM  
AND LEGAL SUFFICIENCY:**

By: \_\_\_\_\_  
Lynn Gelin  
City Attorney

**ATTEST:**

**TOWN OF HIGHLAND BEACH**

By: Lanelda Gaskins  
Lanelda Gaskins  
Town Clerk  
*11/19/2019*

By: Rhoda Zelniker  
Rhoda Zelniker  
Mayor

**APPROVED AS TO FORM  
AND LEGAL SUFFICIENCY:**

By: \_\_\_\_\_  
Town Attorney





**APPROVED AS TO FORM  
AND LEGAL SUFFICIENCY:**

By: \_\_\_\_\_  
Town Attorney

**ATTEST:**

By: *[Signature]*



**CITY OF LAKE WORTH BEACH**

By: *[Signature]*

Name: Pam Triolo  
Title: Mayor

**APPROVED AS TO FORM  
AND LEGAL SUFFICIENCY:**

By: *[Signature]*  
City Attorney

**ATTEST:**

By: \_\_\_\_\_  
Nicole Dritz  
Town Clerk

**TOWN OF LANTANA**

By: \_\_\_\_\_  
David J. Stewart  
Mayor

**APPROVED AS TO FORM  
AND LEGAL SUFFICIENCY:**

By: \_\_\_\_\_  
R. Max Lohman, Town Attorney

**ATTEST:**

By: \_\_\_\_\_  
Karla Armstrong  
Town Clerk

**TOWN OF OCEAN RIDGE**

By: \_\_\_\_\_  
Steve Coz  
Mayor

**ATTEST:**

**CITY OF LAKE WORTH BEACH**

By: \_\_\_\_\_

By: \_\_\_\_\_


Name: Pam Triolo  
Title: Mayor

**APPROVED AS TO FORM  
AND LEGAL SUFFICIENCY:**

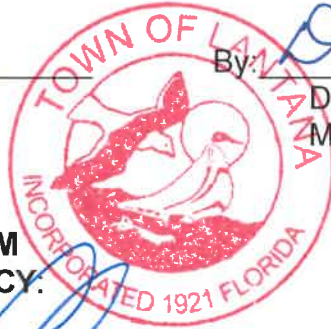
By: \_\_\_\_\_  
City Attorney

**ATTEST:**

**TOWN OF LANTANA**

By:   
Nicole Dritz  
Town Clerk

By:   
David J. Stewart  
Mayor



**APPROVED AS TO FORM  
AND LEGAL SUFFICIENCY:**

By:   
R. Max Lohman, Town Attorney

**ATTEST:**

**TOWN OF OCEAN RIDGE**

By: \_\_\_\_\_  
Karla Armstrong  
Town Clerk

By: \_\_\_\_\_  
Steve Coz  
Mayor

**APPROVED AS TO FORM  
AND LEGAL SUFFICIENCY:**

By: \_\_\_\_\_  
Town Attorney

**ATTEST:**

**CITY OF LAKE WORTH BEACH**

By: \_\_\_\_\_

By: \_\_\_\_\_

Name: Pam Triolo  
Title: Mayor

**APPROVED AS TO FORM  
AND LEGAL SUFFICIENCY:**

By: \_\_\_\_\_  
City Attorney

**ATTEST:**

**TOWN OF LANTANA**

By: \_\_\_\_\_  
Nicole Dritz  
Town Clerk

By: \_\_\_\_\_  
David J. Stewart  
Mayor

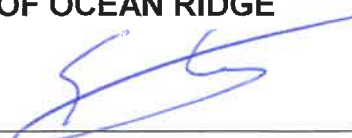
**APPROVED AS TO FORM  
AND LEGAL SUFFICIENCY:**

By: \_\_\_\_\_  
R. Max Lohman, Town Attorney

**ATTEST:**

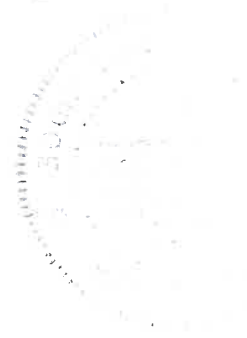
**TOWN OF OCEAN RIDGE**

By:  \_\_\_\_\_  
Karla Armstrong  
Town Clerk

By:  \_\_\_\_\_  
Steve Coz  
Mayor

**APPROVED AS TO FORM  
AND LEGAL SUFFICIENCY:**


By:  \_\_\_\_\_  
Town Attorney

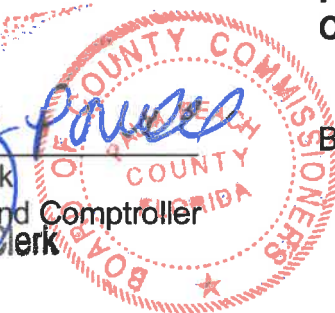


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R2019 1949

ATTEST:

PALM BEACH COUNTY, a  
political subdivision of the State of  
Florida, by and through its Board of  
County Commissioners

By:   
Sharon R. Bock  
County Clerk and Comptroller  
Deputy Clerk



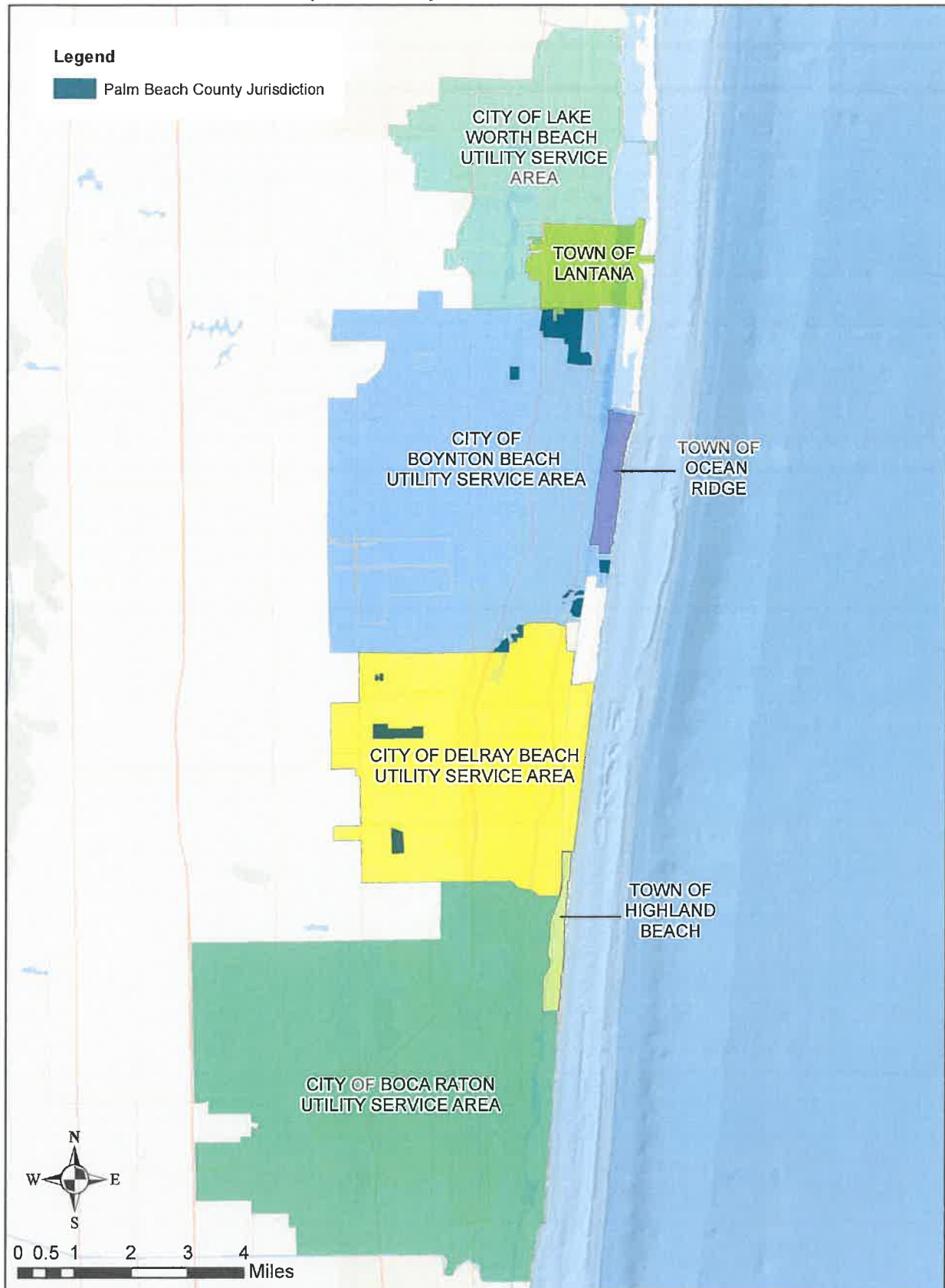
By:   
Mayor **Dave Kerner**

APPROVED AS TO FORM  
AND LEGAL SUFFICIENCY:

By:   
County Attorney

# Exhibit A

# Joint Climate Change Vulnerability Assessment (CCVA) Focus Area



# Exhibit B



TECHNICAL MEMORANDUM

# SOUTHEAST PALM BEACH COUNTY COASTAL RESILIENCY PARTNERSHIP

Date: June 19, 2019

Project No.: 11346A00

City of Boynton Beach, Florida

**Prepared By:** Sarah Deslauriers, PE, ENV SP  
**Reviewed By:** Rebecca Harvey, Ana Puszkin, Katelyn Cucinotta, Lindsey Nieratka, Aladdine Joroff  
**Subject:** DEP Agreement No. R1817 Task 3 Deliverable Technical Memorandum:  
Coastal Resiliency Partnership Climate Vulnerability Assessment Methodology

This report was funded in part, through a grant agreement from the Florida Department of Environmental Protection (FDEP) Florida Resilient Coastlines Program, by a grant provided by the Florida Coastal Office. The views, statements, findings, conclusions and recommendations expressed herein are those of the author(s) and do not necessarily reflect the views of the State of Florida or any of its subagencies.

## Background

Beyond the need for communities to prepare for and adapt to the impacts of climate change, there are clear drivers and incentives for further investigating and performing climate resilience planning efforts that should be considered. These include:

- [America's Water Infrastructure Act](#) (AWIA) – Signed in October of 2018, the AWIA requires community water systems serving more than 3,300 people to update or prepare Risk and Resiliency Assessments (RRAs) followed by Emergency Response Plans (ERPs) over the next two years. The RRAs and ERPs must take into consideration both malevolent acts and natural hazards with respect to physical- and cyber-security. However, resulting assessments and plans will not be required to cover the full breadth of climate change impacts the CRP is targeting and will not impact water systems serving less than 3,300 people.
- Florida's [Peril of Flood Act](#) – Signed in 2015, this Act requires that Comprehensive Plans to include sea level rise as one of the causes of flood risk addressed in the section on "redevelopment principles, strategies, and engineering solutions."
- [Resiliency Florida](#) – Resiliency Florida is a non-profit organization whose mission is to "act as a conduit for developing local government and private sector partnerships to secure funding and regulatory and legislative support for resiliency and adaptation strategies at the state and federal levels." Resiliency Florida promotes the exchange of ideas and resources to help communities prepare for and become more resilient to sea level rise, extreme weather, flooding and other broader challenges stemming from climate change.
- [Florida Resilient Coastlines Program](#) (FRCP) – Through the FRCP, the FDEP is working to ensure collaboration among coastal communities dealing with the impacts of climate change. The FRCP is committed to coordinating resources to prepare Florida's coastal communities and habitats for the effects of climate change through technical assistance and financial support. The program is specifically focused on rising sea levels, increasingly complex flooding, erosion, and habitat shifts.



## TECHNICAL MEMORANDUM

- [Southeast FL Regional Climate Change Compact](#) (SFRCCC or Compact) – The SFRCCC, a collaboration between Broward, Miami-Dade, Monroe, and Palm Beach Counties that began in 2010, is focused on coordinating mitigation and adaptation activities across county lines. The Compact represents a new form of regional climate governance that allows local governments to set the agenda for adaptation, while providing state and federal agencies access to technical assistance/support.

Recognizing the significant benefits of taking a regional approach to climate change planning, FDEP distributed a portion of its funds to the FRCP in fiscal year 2018/2019. This money was to be used for Resilience Planning Grants (RPGs), and awarded to projects that promote community resilience planning, development of vulnerability assessments, adaptation plans and comprehensive plan goals, objectives, policies, and regional coordination. The goal is to provide financial assistance aimed at preparing coastal Florida communities for current and future effects of rising sea levels, including coastal flooding, erosion and ecosystem changes. In November of 2018, the Southeast Palm Beach County Coastal Resilience Partnership (CRP) was awarded a \$72,000 RPG to develop a regional framework to assess climate vulnerability and prioritize adaptation strategies.

The CRP members began meeting informally in early 2017 and formally in 2018 to proactively plan for implementing adaptive measures to withstand today's extreme weather events, be responsive to legislation calling for jurisdictions to plan for impacts of climate change, and implement measures to prepare for future effects of sea level rise and further climate change. The CRP has seven Guiding Principles it keeps in mind when approaching any project:

**Partnership & Collaboration.** Climate change and its impacts do not stop at municipal borders, and the adaptation of one community can be strengthened or weakened by actions in another. The CRP will work to coordinate climate adaptation efforts across neighboring jurisdictions, consider public investments/initiatives, and examine opportunities for public-private partnerships.

**Infrastructure & Built Environment.** Strategies to protect the built environment should incorporate the best available climate science and projections from sources such as the Southeast Florida Regional Climate Change Compact. Climate projections and adaptation strategies will be based on a time horizon relevant to the lifespan and criticality of the asset(s) in question. The CRP recognizes that adaptation should balance engineering solutions, including nature-based strategies, with long-term planning strategies including managed retreat. The CRP will identify and use Adaptation Action Areas<sup>1</sup> to prioritize public investments and limit new development in areas most vulnerable to climate impacts.

**Economy.** Adapting to climate change is essential to the region's economy. Impacted sectors should be identified to mitigate economic losses and transition the labor force to growth sectors. Where economic development is appropriate, it should be accomplished in a manner that protects, maintains, and enhances coastal resources, the built environment, historic sites, and tourism. It should also respect local Land Development Regulations and evolving private property rights jurisprudence.

**Natural Environment.** Policy development should consider climate change impacts based on the best available science and aim for highest possible level of protection of natural resources, biodiversity, natural systems (ecosystems/habitats), and environmental quality. Strategies identified within the Adaptation Action Areas<sup>1</sup> will allow for green or planned open space, protect and possibly expand habitats, and reduce or mitigate sources of pollution.

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<sup>1</sup> While Adaptation Action Areas are an optional designation within a local government's comprehensive plan for areas that experience coastal flooding (and are vulnerable to the related impacts of rising sea levels), they are important to consider since they are used to prioritize funding for infrastructure needs and adaptation planning.

## TECHNICAL MEMORANDUM

**Social Equity.** Among other priorities, adaptation and resilience strategies should strive to protect human life, public and private property, and cultural resources from climate change impacts. Development and evaluation of such strategies should consider economic and social vulnerabilities and opportunities to avoid climate impacts that may disproportionately affect disadvantaged communities and populations.

**Emergency Response.** Emergency response plans and communication strategies should help municipalities prepare for and respond to major disruptions resulting from climate change impacts. The goal of maintaining and quickly recovering critical operations to reduce adverse effects on people, property, and the environment.

**Communication.** Stakeholder outreach and messaging about the CRP's work should be directed to all populations, via social and traditional media. Outreach materials should include a basic introduction to the issues, description of potential responses, and discussion of potential impacts of a changing environment on services. Messaging should be science-based, nonpartisan, and transparent with the aim of allowing stakeholders to make informed decisions.

Over the last year, the CRP utilized the FDEP grant (i.e., RPG) for Phase 1 in a three-phase process: developing the methodology for a regional climate change vulnerability assessment (CCVA). The steps for the regional CCVA, which will be carried out in Phase II, were adapted from the [U.S. Climate Resilience Toolkit](#), [American Flood Coalition](#), [FDEP Adaptation Planning Guidebook](#), the [National Oceanic and Atmospheric Administration's \(NOAA\) Vulnerability Assessment website](#), and the [Southeast Florida Regional Climate Change Compact](#). The three phases of this process and the adapted methodology (Phase II) are summarized below:

### **Phase I<sup>2</sup>**

Phase I was completed during January through June 2019 with funding from a FDEP 2018/2019 RPG. The intent of this phase was for the CRP to collect information and perform tasks in preparation for Phase II. The tasks performed that feed directly into Phase II include:

- Identifying a preliminary list of key asset categories (people, property, water infrastructure, transportation infrastructure, natural assets, critical facilities, economy).
- Identifying a preliminary list of climate change impacts affecting the asset categories (e.g., sea level rise, storm surge, precipitation, lightning, temperature, extreme winds, and wildfires).
- Performing a data inventory and gap analysis to understand the depth and breadth of data available in each community for assessing the exposure, sensitivity, and adaptive capacity of assets (included as Appendix A: GIS Data Inventory and Gap Analysis).
- Developing the CCVA methodology that comprises Phase II and serves as the basis for the request for qualifications/proposals (RFQ/RFP) to be distributed fall of 2019.

### **Phase II<sup>3</sup>**

Phase II consists of the following five steps representing the core of the CCVA methodology to be completed between the fall of 2019 and fall of 2020. These steps were decided upon by the CRP in Phase I, and will be performed by a firm selected via the RFQ/RFP process:

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<sup>2</sup> FDEP 2018/2019 RPG funds have covered Phase I. Based on the Data Gap Analysis results, additional funding may be needed to resolve the data gaps to perform the CCVA.

<sup>3</sup> Phase II will be funded by CRP members and possibly supplemented by FDEP 2019/20 RPG funds (if awarded).

## TECHNICAL MEMORANDUM

1. *Explore Climate Threats:* Vet the preliminary identification of climate threats and select the specific climate threats to be considered as part of this assessment with final approval from the CRP Working Group, taking into account the CRP budget and the data that are available for the Southeast Florida region.
2. *Identify & Evaluate Community Assets:* Select the asset categories and specific community assets within each category to be evaluated as part of this assessment, considering both the climate threats selected in step 1 and the CRP budget. The CRP has included a proposed list of asset categories and a prioritized list of the types of community assets in each category in Appendix B for the firm's consideration and the CRP Working Group's final approval.
3. *Assess Vulnerabilities and Risks:* Evaluate the propensity of the community assets to be adversely affected by each climate threat by assessing their exposure, sensitivity, and adaptive capacity; and estimate the magnitude of potential losses.
4. *Investigate Potential Adaptation Strategies:* Identify asset-specific adaptive measures to reduce vulnerability, including physical protective measures, updating design and/or operational guidelines, nature-based strategies, building and zoning code modifications, and educational approaches. For all adaptive measures, identify potential funding sources or financing options to provide a basis for prioritizing adaptation strategies.
5. *Prioritize Adaptation Strategies:* Document benefits of adaptation strategies, develop planning level cost estimates, and develop a prioritized list of adaptation strategies.

More detailed information on the actual scope of work for Phase II is provided in the Phase II – Detailed Scope of Work section.

### **Phase III<sup>4</sup>**

Phase III takes place after the completion of the CCVA outlined in Phase II, and will not be included in the scope of the RFQ/RFP. The work in Phase III consists of developing implementation plans for the prioritized adaptation strategies determined in Phase II, and taking action in driving those plans forward.

At the start of Phase III, CRP members will determine if any of the prioritized adaptation strategies identified in Phase II fit within CRP members' existing capital improvement programs (CIPs) and whether they are better suited for increasing the resilience of an individual community or the entire CRP region. To do this, each CRP member will review their respective CIPs (or Master Plans) to determine if any of the prioritized adaptation strategies can be added to existing CIP projects and/or if the existing CIP can be modified to accommodate the needed adaptation strategy. The CRP membership will then work to refine the list of adaptation strategies that could apply to more than one CRP community, in turn identifying opportunities for collaborative/regional efforts. The list of regional strategies will be used to develop a regional adaptation strategies implementation plan, which will serve as a timeline for planning, program development, materials preparation, design/construction, and outreach of prioritized projects that benefit multiple communities.

Any prioritized adaptation strategies that are not included in the regional adaptation strategies implementation plan will continue to be tracked as "stand-alone" community-level projects. Once the prioritized adaptation strategies have been categorized as community-level projects, or part of the regional adaptation strategies implementation plan, CRP members will decide next steps (or actions) to be taken for the implementation.

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<sup>4</sup> Phase III is to be funded by the CRP membership or individual members depending on the scope of the project.

## TECHNICAL MEMORANDUM

### Phase II – Detailed Scope of Work (Planned for Fiscal Year 19/20)

The goal of Phase II is to perform a multi-jurisdictional CCVA in Fiscal Year 19/20. The CRP will distribute an RFQ/RFP in the fall of 2019 soliciting support for performing the CCVA. The project's scope of work will include the five steps as outlined below. This scope may be refined, expanded, or reduced depending on the total funds that are budgeted by CRP members (plus possible supplemental grant funding).

1. *Explore Climate Threats.* In Phase I, the CRP identified a preliminary list of climate threats that the membership determined are important to consider. In the initial step of Phase II, the selected firm will determine which threats are of most concern and should be included in the CCVA.
  - a. Identify climate-related threats to be assessed in this project, which may include but not be limited to the following: extreme precipitation events, coastal storms, storm surge, high winds, lightning, beach erosion, sea level rise, saltwater intrusion, drought, extreme heat, and wildfire.
  - b. Review the latest regional climate science and available data, and select at least two scenario projections<sup>5</sup> to be assessed with respect to the range in magnitude and frequency of each threat (identified in Step 1.a). This task includes review of CCVA's performed for surrounding communities (e.g., West Palm Beach's Resilience Assessment and the work of the [Southeast Florida Regional Climate Change Compact](#)) to determine if the climate change scenarios (and the associated projections for selected climate threats) can be reasonably applied to the CRP region, or if collaboration with a local academic or research institution is needed to develop unique scenario projections. The climate threats are to be evaluated over 10-, 25-, and 50-year time horizons or in accordance with horizons recommended by the selected firm.

*Step 1 deliverables to be incorporated into final deliverables:*

- Summary of selected climate threats for the CCVA and projected changes for each for at least two scenarios spanning the selected time horizons. This summary is to include the approach for selecting the climate threats, as well as the basis for the selected scenarios and time horizons.
2. *Identify and Evaluate Community Assets.* In Phase I, the CRP determined the following asset categories should be included in the CCVA: people, property, critical facilities, water infrastructure, transportation infrastructure, economy, and natural resources. A preliminary assessment of the geographic information system (GIS) data available for each asset category was performed in Phase I and is included in Appendix A of this document. In Phase II, the selected firm will work with the CRP to refine the draft list of community assets and attributes within each asset category (listed in Appendix B), determine the scale at which the community assets and/or attributes will be assessed (in some cases the assets/attributes may be assessed in aggregate), and assess data availability for each.

*Step 2 deliverables to be incorporated into final deliverables:*

- Final list of assets and attributes within each asset category to be included in the CCVA, providing the scale at which each will be assessed and the level of data available for each.

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<sup>5</sup>In compliance with the "Peril of Flood" statute for communities with a Coastal Management Element in their comprehensive plan, a minimum of two sea level rise scenarios should be evaluated. Additionally, communities in southeast Florida are advised to use the Southeast Florida Regional Climate Change Compact Unified Sea-Level Rise Projections.

## TECHNICAL MEMORANDUM

3. *Assess Vulnerabilities and Risks.* The central step of the CCVA is to evaluate the vulnerability to climate threats across each asset category (people, property, water infrastructure, transportation infrastructure, critical facilities, economy, natural resources). Below is a representative, but not exhaustive, explanation of the level of detail expected for the CCVA.
  - a. Climate vulnerability is a measure of the degree to which an asset or a system is susceptible to and able/unable to cope with adverse effects of climate change/threats. To assess climate vulnerability and risk, this step needs to document how the selected assets are affected by climate threats in terms of the following:
    - i. Exposure: the presence of people, assets, and ecosystems in places where they could be adversely affected by hazards
    - ii. Sensitivity: the degree to which a system, population, or resource is or might be affected by hazards/threats
    - iii. Adaptive Capacity: the ability of a person, asset, or system to adjust to a hazard, take advantage of new opportunities, or cope with change

The selected firm will work with the CRP to select one or more supporting tools best suited to assess the vulnerability of assets with respect to each climate threat. These tools may be publically or privately sourced, e.g., EPA's Climate Resilience Evaluation and Awareness Tool, U.S. Climate Resilience Toolkit, Asset-Threat Comparison, Social Vulnerability Index, GIS mapping tools. The firm will then run the assessments using the selected tools, and produce outputs (e.g., asset-threat sheets, consequence matrix, maps) illustrating the impact of each climate threat to each asset/attribute.

- b. When mapping asset types/categories relative to the impacts of climate threats, potential Adaptation Action Areas (AAAs) should be identified (per the Community Planning Act, Chapter 163.3177, F.S, 2011) as this is a recommendation of FDEP for the purpose of prioritizing funds for infrastructure needs.<sup>1</sup> The selected firm is expected to use one or more criterion for designating AAAs, show the AAAs using a mapping tool, and tabulate the assets included within each designated AAA. It may be necessary to provide alternative AAAs for the CRP to consider. The selected firm is also expected to develop policy-level language that can be used in local ordinances in order to advance designation of the AAAs within CRP member jurisdictions, as well as programs and projects that will be targeted within the AAAs.
- c. The comprehensive report submitted with the final CCVA shall include planning level cost estimates for the projected damage or loss due to the climate threats assessed for each asset category by community (assuming no adaptation strategies have been put into place).

*Step 3 deliverables to be incorporated into final deliverables:*

- Summary of approach(es) and tool(s) selected to conduct the CCVA per asset, including the formatted outputs of the CCVA.
- Spatial designation of AAAs and a summary of assets included within each AAA.
- Planning level cost estimates for the projected damage/loss by asset.

The results/outputs of Step 3 are needed to perform the tasks in Steps 4 and 5.

4. *Investigate Potential Adaptation Strategies.* This step involves the identification of options/strategies to build community resilience to climate threats, by reducing vulnerability, or supporting response and recovery efforts in the event that a threat occurs. Options/strategies may also be identified by considering those that have been effective in communities dealing with



## TECHNICAL MEMORANDUM

similar vulnerabilities and risks. To accomplish this, this step seeks to develop a comprehensive list of adaptation strategies that:

- a. Identify asset- or site-specific protective measures to reduce or at least minimize prolonged service interruption and flood risk (including nature-based solutions).
- b. Identify community outreach methods and education efforts to improve communication of threats and adaptive measures that can be or have been taken to protect sensitive populations.
- c. Identify potential design guidelines for future infrastructure upgrades/designs or changes in operations that assist in mitigating flood risk.
- d. Identify potential design guidelines for future property development (building and landscape) that mitigate flood risk, heat impacts, etc.
- e. Identify assets that may be considered for relocation, as well as parcels that are unsuitable for additional asset development or should remain as undeveloped open space.
- f. In Step 4, the selected firm should also identify available programs and strategies to fund and finance implementation of adaptive measures. These may include federal and state funding sources (in addition to funds from FDEP), best practices with respect to special taxing districts, revolving loan funds, public-private partnerships, innovative insurance tools, and other practices.

*Step 4 deliverable to be incorporated into final deliverables:*

- A comprehensive list of adaptation strategies by asset.
  - A list of potential funding mechanisms for implementation of adaptive measures.
5. *Prioritize Adaptation Strategies.* This step involves documenting the benefits of adaptation strategies (including how they may be referenced in the Local Mitigation Strategy) and developing planning level cost estimates (to estimate the level of potential avoided costs), in an effort to prioritize adaptation strategies identified in Step 4. To develop the prioritized list of adaptation strategies, this step seeks to:
- a. Document potential benefits (effectiveness to reduce interruption, damage, or complete loss of assets, etc.) of each type of adaptation strategy.
  - b. Develop planning level cost estimates for each type of adaptation strategy for comparison with estimated costs if no adaptation strategy were implemented (Step 3.b) to ultimately determine potential avoided costs.
  - c. Develop a comprehensive list of prioritized adaptation strategies based on how much each reduces vulnerability (5.a), their ability to be implemented (based on estimated costs (5.b) and funds available (5.f)), and other criteria established by the CRP and selected firm.

*Step 5 deliverables to be incorporated into final deliverables:*

- Building upon the Step 4 deliverable, add the potential benefits to each type of adaptation strategy.
- Planning level cost estimates for each type of adaptation strategy.
- Prioritized list of adaptation strategies.

## TECHNICAL MEMORANDUM

### Phase II Final Deliverables & Meetings

The CRP expects the following deliverables for this project and will produce ADA compliant copies of each:

1. Executive Summary (formatted summary of the CCVA to use for public education and outreach)
2. Comprehensive Report (to document the details of the CCVA process, results of the analyses performed, and recommendations)
3. GIS-based Interactive Map

The selected firm will also be expected to prepare for and actively participate in multiple in-person meetings:

1. A minimum of two (2) formal presentations to elected officials and citizens within the CRP to be held in different locations.
2. At least three (3) interactive workshops with the CRP Working Group members participating in the CCVA.

More detailed descriptions of each deliverable, as envisioned by the CRP membership, are provided as follows.

#### 1. Executive Summary

The firm will prepare a non-technical Executive Summary of the major findings of the CRP CCVA incorporating representative color maps and graphics for distribution to the public to promote community engagement. The Executive Summary will be formatted to allow each participating municipality to display the summary of regional findings alongside their community-specific findings, as well as key adaptation strategies identified for implementation and the benefits of those strategies.

#### 2. Comprehensive Report

The Comprehensive Report will present the approach taken to perform the regional CCVA, the findings compiled at a regional-scale geography as well as highlights of community-specific information at the municipal/neighborhood level, and the process followed to identify and prioritize adaptation strategies. The community-specific information should be sufficiently detailed to allow for municipalities to develop projects and programs. The Comprehensive Report should include:

- A summary of the overall CCVA methodology.
- A discussion of:
  - selected climate threats and asset types (by asset category, as determined in Step 1);
  - the approach taken to evaluate the impact of each climate threat per asset type (including a summary of each tool used to perform the evaluation)
  - the exposure, sensitivity and adaptive capacity of each asset (per Step 2)
  - the operational and contextual challenges faced by each CRP participant;
  - a sensitivity analysis; and
  - the results of the CCVA by region and community, including a summary of potential costs due to loss/damages (Step 3).

## TECHNICAL MEMORANDUM

- A summary of best practices (a list of example models) within the CRP membership or the state.
- Identification and prioritization of adaptation strategies (Steps 4 & 5) organized by geographic region. The explanation of adaptation strategies should note their benefits (Step 4) and whether two or more jurisdictions have common vulnerabilities arising from interdependencies. Planning level cost estimates should also be included for each (Step 5), along with whether collaboration among jurisdictions may be able to leverage resources.

The Comprehensive Report should also include a list of data and analyses used in the CCVA in an appendix at the community/municipal or sub-municipal level. The data should be formatted to highlight issues that are specific to each CRP member.

The Comprehensive Report figures should include descriptive color maps, tables, and an annotated bibliography of sources and references.

### **3. GIS-Based Interactive Map**

The future implementation of selected adaptive strategies will require ongoing analyses and occasional updates. Thus the information is to be provided in an interactive mapping platform/tool which CRP staff can access, view and modify.

The selected firm will develop a GIS-based interactive mapping tool that allows users to view multiple data layers and data sets, as well as aggregate and disaggregate vulnerabilities by asset type, threat type, time horizon and/or climate change model. The tool should allow the user to zoom in and out to different geographic levels to examine vulnerabilities at different scales. The tool needs to have the capability of assigning permission levels in order to restrict access to sensitive data and protect the integrity of data sets.



# Appendix A



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## Southeast Palm Beach County Coastal Resilience Partnership

### GIS Data Inventory and Gap Analysis

#### Introduction

The Southeast Palm Beach County Coastal Resilience Partnership (CRP) is comprised of local communities and Palm Beach County. The goal of the CRP is to advance resiliency efforts within the partnership geographical area. These efforts will foster synergy and consistency in assessing climate vulnerability, prioritizing adaptation needs, and identifying adaptation strategies among the CRP members. This report summarizes data collected for the Task 1 deliverable of the CRP's Phase I project, supported by a FY18/19 Resilience Planning Grant from the Florida DEP. The focus of this task is to determine what data exist on community assets potentially affected by climate change (including residential parcels, commercial parcels, buildings, critical facilities, water and stormwater, infrastructure, parks, natural areas, etc.) and to evaluate the remaining data needs required to perform a comprehensive climate change vulnerability assessment. Data on climate threats (e.g., sea level rise, precipitation, temperature, extreme winds) will be collected and explored during Phase II. The goal of the current task was to verify and collect available data for each of the CRP communities, which will contribute to developing the scope of the vulnerability assessment and reduce the cost of Phase II.

#### Project Effort

The role of Florida Technical Consultants (FTC) in this project is to contact each CRP member that chose to participate in the resilience study. The following communities are involved in the study: City of Boca Raton, City of Boynton Beach, City of Delray Beach, City of Lake Worth Beach, Town of Briny Breezes, Town of Lantana, Town of Ocean Ridge, Town of Manalapan, Town of Highland Beach, Town of Hypoluxo, Town of Gulf Stream, Town of South Palm Beach, and Palm Beach County. Once initial contact was made, FTC met with each community to discuss the types of data needed for the study.

#### Data Inventory

To collect data from each of the participants, FTC used various web-based data sharing applications as well as data transfers using an external hard drive. If the participant was unable to provide copies of datasets, the participant then verified the datasets they have existing. After the data were collected or verified, it was organized into a matrix that is included as Exhibit A (Resiliency Study – Data Matrix) of this report. Exhibit A shows (by participant) types of state, county, and community level data that were requested and/or verified, as well as specific areas of concern per direct feedback from each community.

The goal of the data inventory is to determine what data exist on community assets that can be used to assess climate change vulnerability. Each of the larger cities have provided basic infrastructure such as the potable water system, sanitary sewer collection system, and stormwater collection systems. The Town of Hypoluxo, Town of Lantana, and Town of Manalapan also provided this infrastructure data. Palm Beach County provided County datasets that cover the boundaries to many of the CRP members. These County datasets include GIS information such as parcels, parks or natural areas, zoning, and wellfield protection areas. Additionally, the National Oceanic and Atmospheric Administration (NOAA) provides valuable statewide data, such as flood frequency and sea level rise.

#### Data Gap Analysis

While most of the participating municipalities have provided data, the City of Delray Beach has not yet provided data.

The City of Boca Raton provided a matrix list of the data they have available, which will be provided in Phase II. Additionally, the Town of Briny Breezes and Town of South Palm Beach have been in contact with FTC but specified they do not have GIS data available. The Town of Manalapan is not a CRP member, but they provide water to Hypoluxo. Palm Beach County provided flood maps and land use data which cover the communities that have not submitted any data to date. In addition to Exhibit A, Exhibit B consists of various maps summarizing data collected by County and Community.

In order to perform a complete climate change vulnerability assessment, further analysis of the collected data is necessary. Key data sets include the following:

- Stormwater Systems (Structures, Pipes and Lift Stations)
- Sanitary Sewer Systems (Structures, Pipes and Pump Stations)
- Water Systems (Structures, Pipes and Treatment Facilities)
- Critical Facilities (Hospitals, Emergency Centers, Fire Stations, etc.)
- Generator Locations

The scope of the climate change vulnerability assessment (Phase II) will be determined by the CRP and will depend in part on the data sets that are available. Effort and cost to complete data sets will vary among the various communities depending on their size, current data, staffing, and funds available. Once spatial data are obtained for all relevant assets, light detection and ranging (LiDAR) data can be used to extract ground surface elevations for each asset. The elevation information can then be related back to data pertaining to the climate threat of interest and help identify vulnerable areas within each community.

# EXHIBIT A

## Exhibit A: Resiliency Study - Data Matrix

Data that has been provided by the County or local community has a box checked by an "X". State and County data will also be checked by an "X" in a local community if there is data within that boundary.

	Palm Beach County	City of Boca Raton	City of Boynton Beach	City of Delray Beach	City of Lake Worth Beach	Town of Briny Breezes	Town of Gulf Stream	Town of Highland Beach	Town of Hypoluxo	Town of Lantana	Town of Manalapan	Town of Ocean Ridge	Town of South Palm Beach
<b>State Data from National Oceanic and Atmospheric Administration (NOAA)</b>													
Flood Frequency	X	X	X	X	X	X	X	X	X	X	X	X	X
Sea Level Rise	X	X	X	X	X	X	X	X	X	X	X	X	X
<b>County Data</b>													
Boundaries	X	X	X	X	X	X	X	X	X	X	X	X	X
Buildings													
Cemetery	X	X	X	X	X								
Critical Facility (Hospitals, Emergency Centers, Fire Stations, etc.)	X	X	X	X	X	X	X	X	X	X	X	X	X
Flood Zones	X	X	X	X	X	X	X	X	X	X	X	X	X
Parcels	X	X	X	X	X	X	X	X	X	X	X	X	X
Parks/Natural Areas	X	X	X	X	X	X	X	X	X	X	X	X	X
Roads, highways, freeways, bridges	X	X	X	X	X	X	X	X	X	X	X	X	X
<b>Community Data</b>													
Canals (With Ownership)		X											
Critical Beach Erosion Line							X						
Green Space Parcels			X		X		X			X		X	
Land Use	X	X	X	X	X	X	X	X	X	X	X	X	X
Raw Water Pipes					X								
Raw Water Structures		X*			X								
Reclaimed Water Pipes		X*	X										
Reclaimed Water Structures		X*	X										
Sanitary Sewer Pipes	**	X*	X		X	X	X	-	X	X			
Sanitary Sewer Structures	**	X*	X		X	X	X	-	X	X			
Storm Evacuation Areas		X*					X						
Stormwater Pipes		X*						-	X	X			
Stormwater Structures		X*	X					-	X	X			
Treated Wastewater Outfalls		X*			X								
Wastewater Treatment Plants		X*											
Water Pipes	**	X*	X		X	X	X	-	X	X		X	
Water Structures	**	X*	X		X	X	X	-	X	X		X	
Water Supply Sources	**	X*			X								
Water Treatment Plant		X*											
Wellfield Protection Areas	X	X*	X	X	X				X	X			
Zoning		X*					X						
<b>Areas of Concern</b>													
Areas of Economic Susceptibility													
Areas of Public Health Concern													
Attractions													
Boat Ramps		X	X	X	X								
Hotels													
Known Areas of King Tide Flooding		X	X										
Lifeguard Stands		X											
Marinas								X		X			
Neighborhoods		X											
Other Vulnerable Infrastructure													
Piers										X			
Restaurants													
Roads/ Paths/ Walkways/ Parking Lot		X											
Seawalls / Protection													
Signs/Signals		X					X						
Storm Drain Facilities That Do Not Drain		X	X										
Stormwater Master Plan		X	X	X	X								
Vulnerable Populations													
Water Walkway													

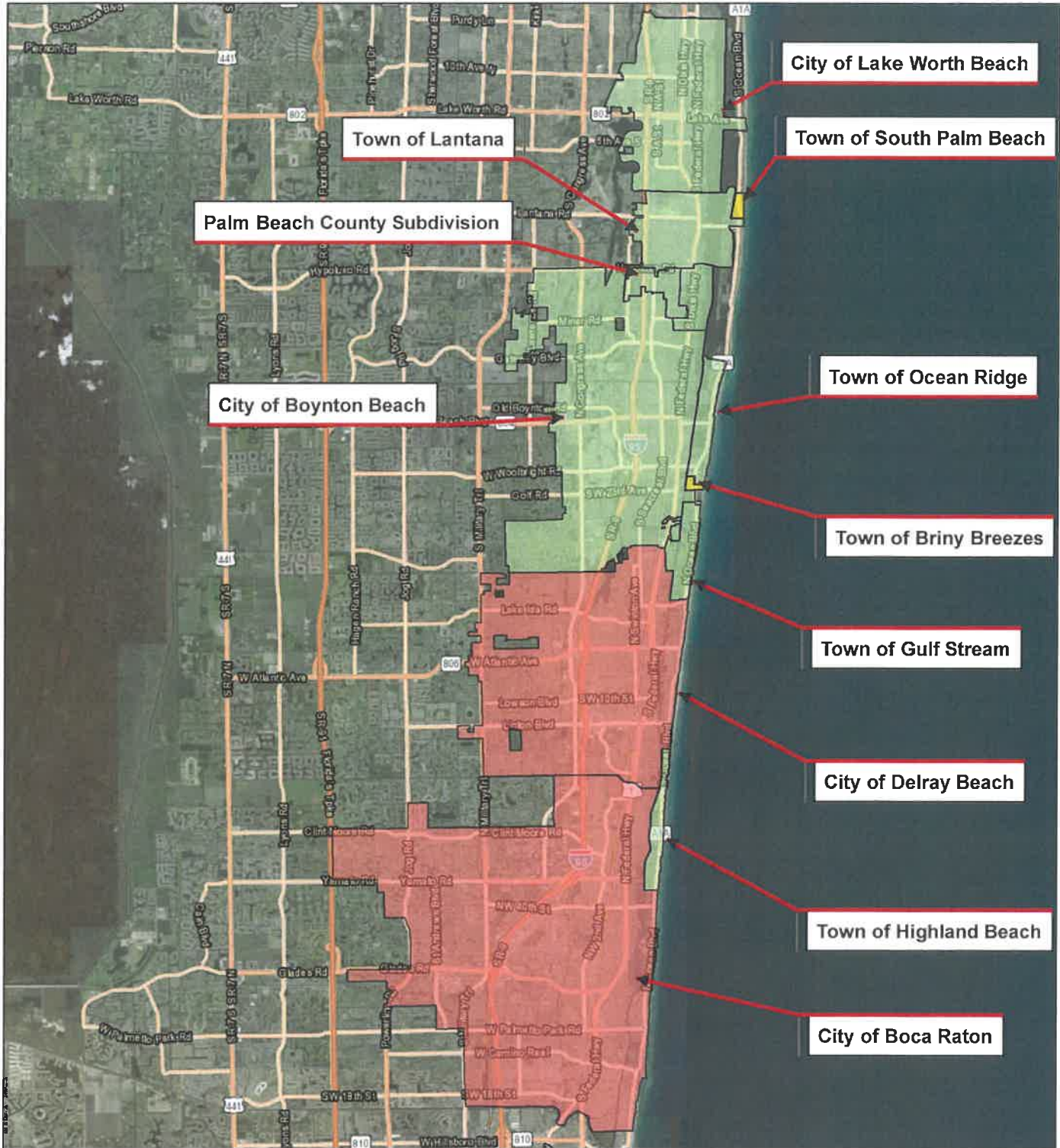
\*: Stated that this data is available, but has not provided hard copies

\*\* : Stated this data will be available in Phase 2

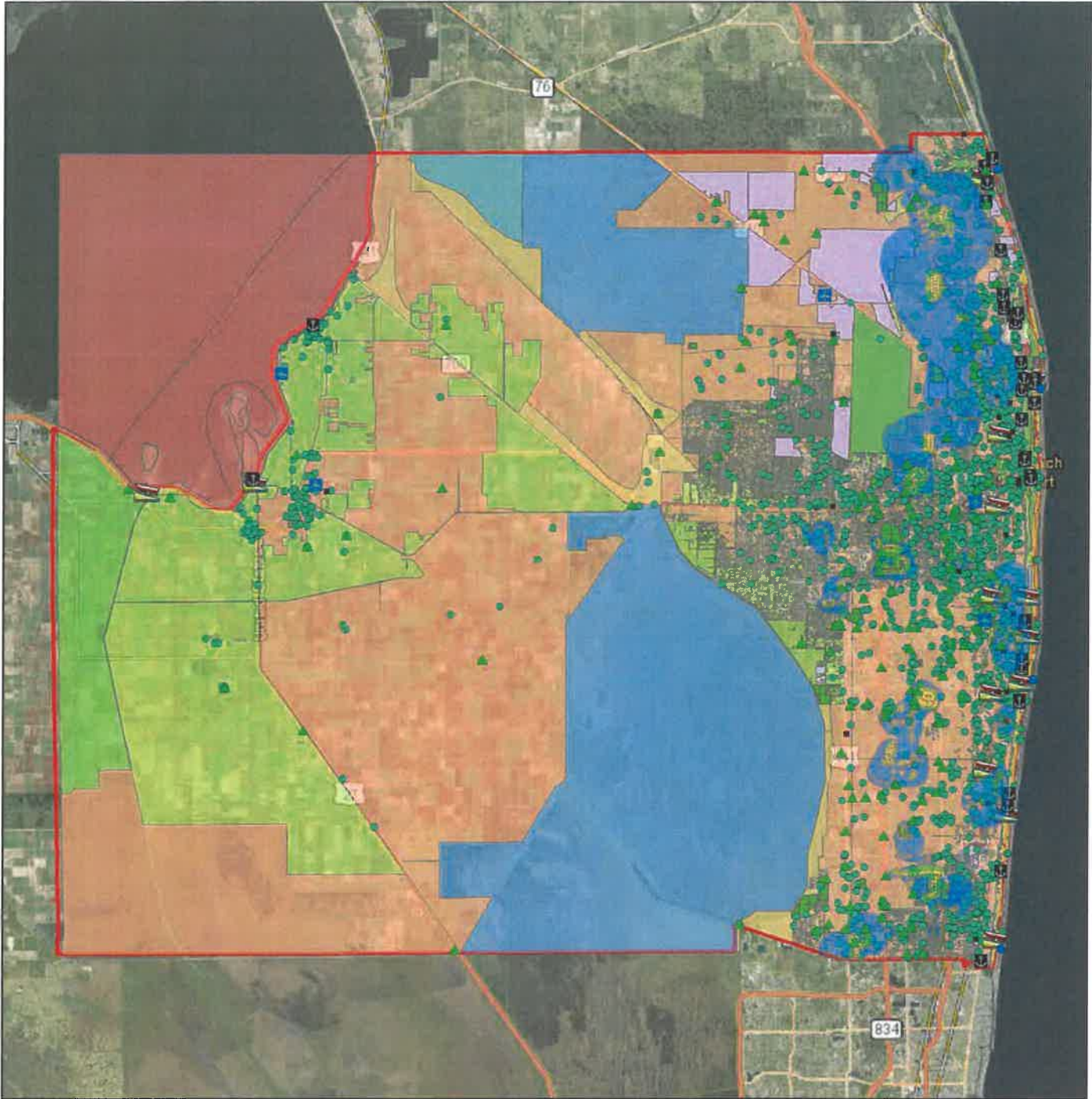
# EXHIBIT B



# Exhibit A: Resiliency Study - Data Summary



<p><b>Legend</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; border: 1px solid black; background-color: white; margin-right: 5px;"></span> Data Provided</li> <li><span style="display: inline-block; width: 15px; height: 10px; border: 1px solid black; background-color: yellow; margin-right: 5px;"></span> No Data Available</li> <li><span style="display: inline-block; width: 15px; height: 10px; border: 1px solid black; background-color: pink; margin-right: 5px;"></span> No Data Provided</li> </ul>	<p><b>Data Submittal Tracker</b></p> <p>As of April 18, 2019</p> <p>Map is not to scale</p>	
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**Legend**

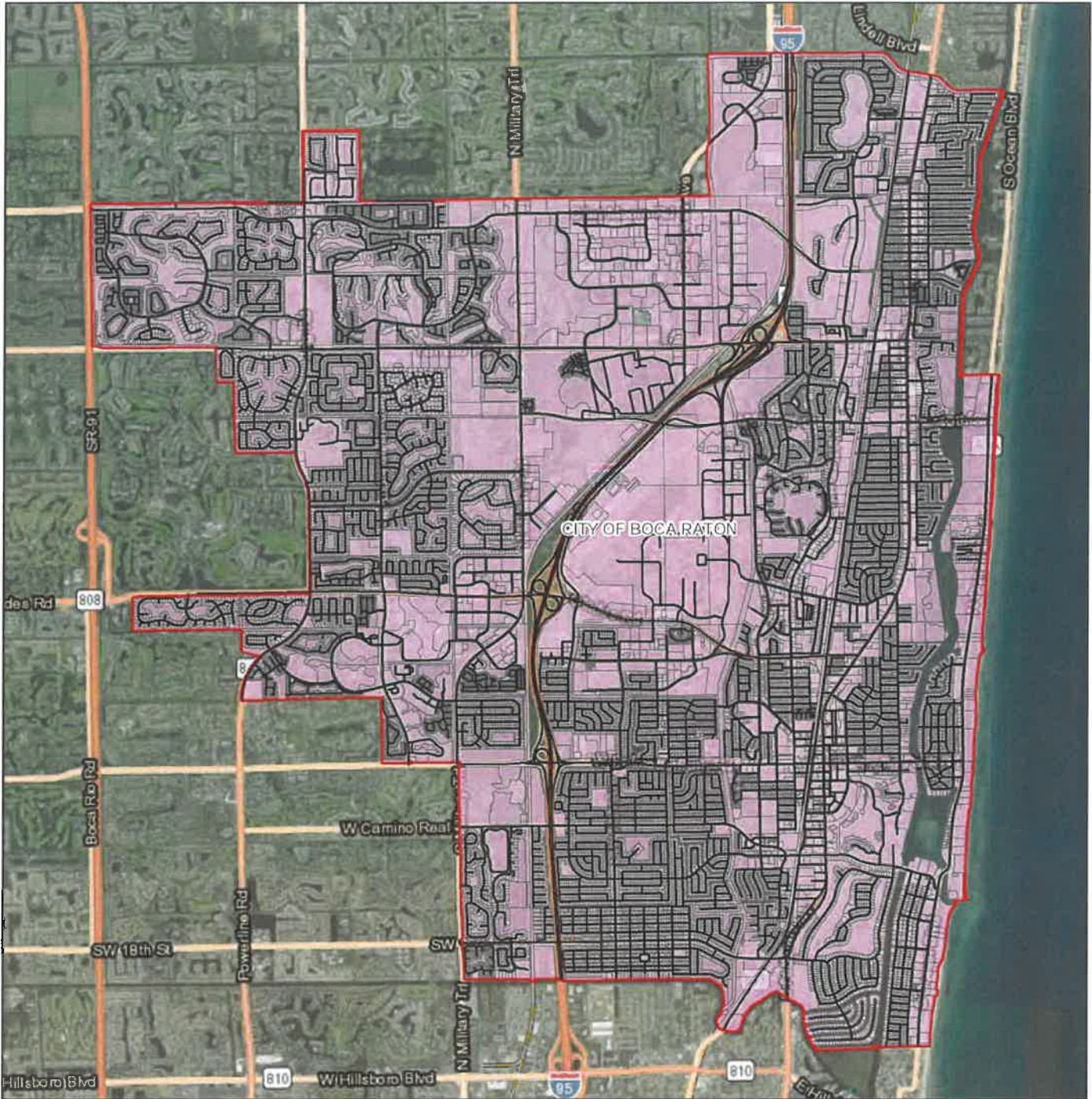
- |                        |                                      |
|------------------------|--------------------------------------|
| ▲ Communication Towers | ■ County Parks                       |
| ● Nautical Inlets      | ■ Natural Areas Boundary             |
| ⚓ Marinas              | ■ Flood Zone - D                     |
| ■ Cemeteries           | ■ Flood Zone - 0.2 PCT ANNUAL CHANCE |
| ⚓ Boat Ramps           | ■ Flood Zone - A                     |
| ✈ Airports             | ■ Flood Zone - AE                    |
| ● Critical Facilities  | ■ Flood Zone - AH                    |
| ■ Wellfield Zone 1     | ■ Flood Zone - AO                    |
| ■ Wellfield Zone 2     | ■ Flood Zone - X                     |
| ■ Wellfield Zone 3     | ■ Flood Zone - VE                    |
| ■ Wellfield Zone 4     | ■ Study Area                         |

**PALM BEACH COUNTY  
County Level Data**

Map is not to scale







Legend

- Boca Raton Centerlines
- Boca Raton Parcels
- Study Area

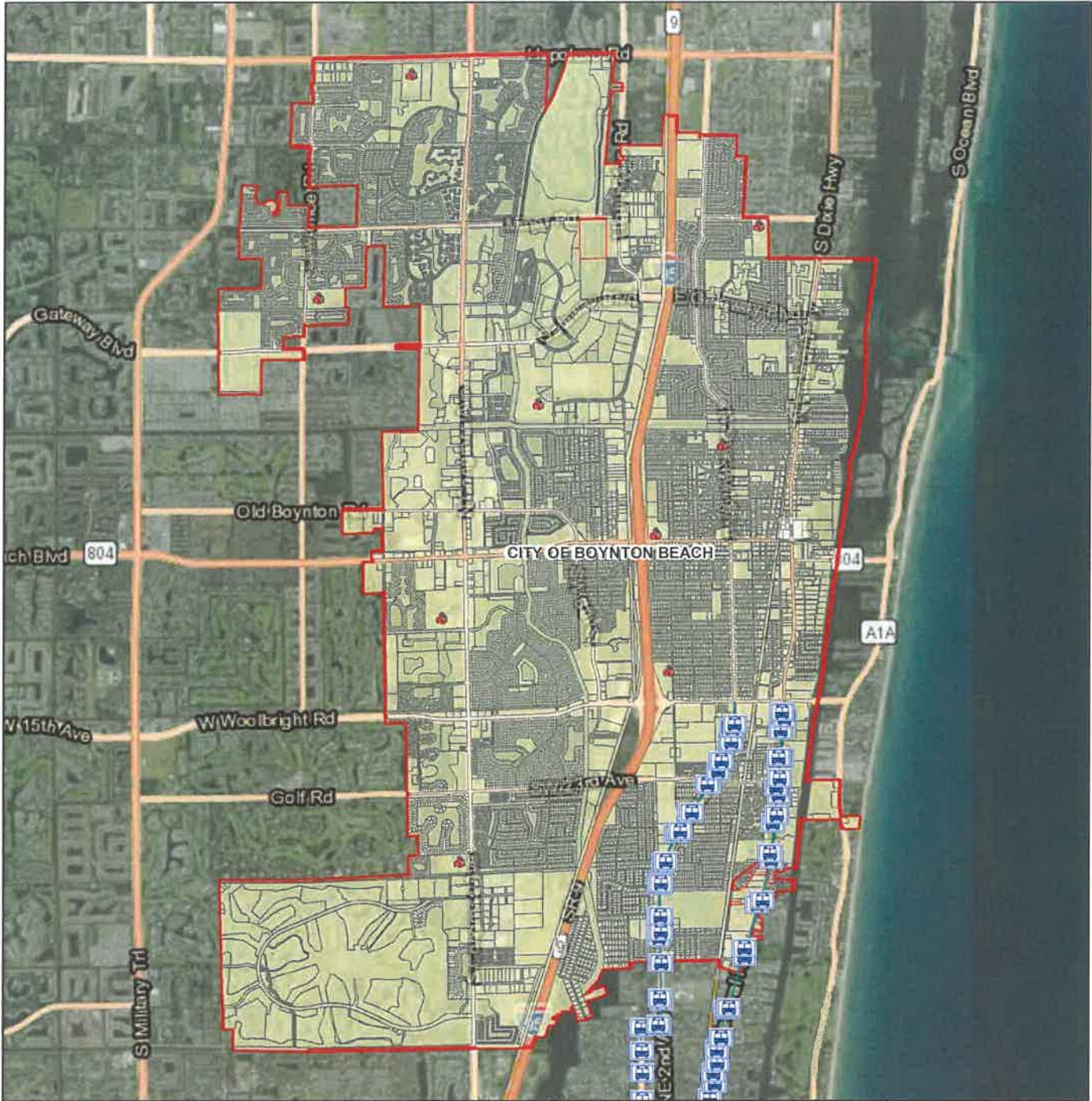
CITY OF BOCA RATON  
Examples of City Level Data

Not all data collected is visible in map

Map is not to scale







**Legend**

-  Bus Stops
-  Bus Routes
-  Boynton Beach Schools
-  Boynton Beach Parcels
-  Study Area

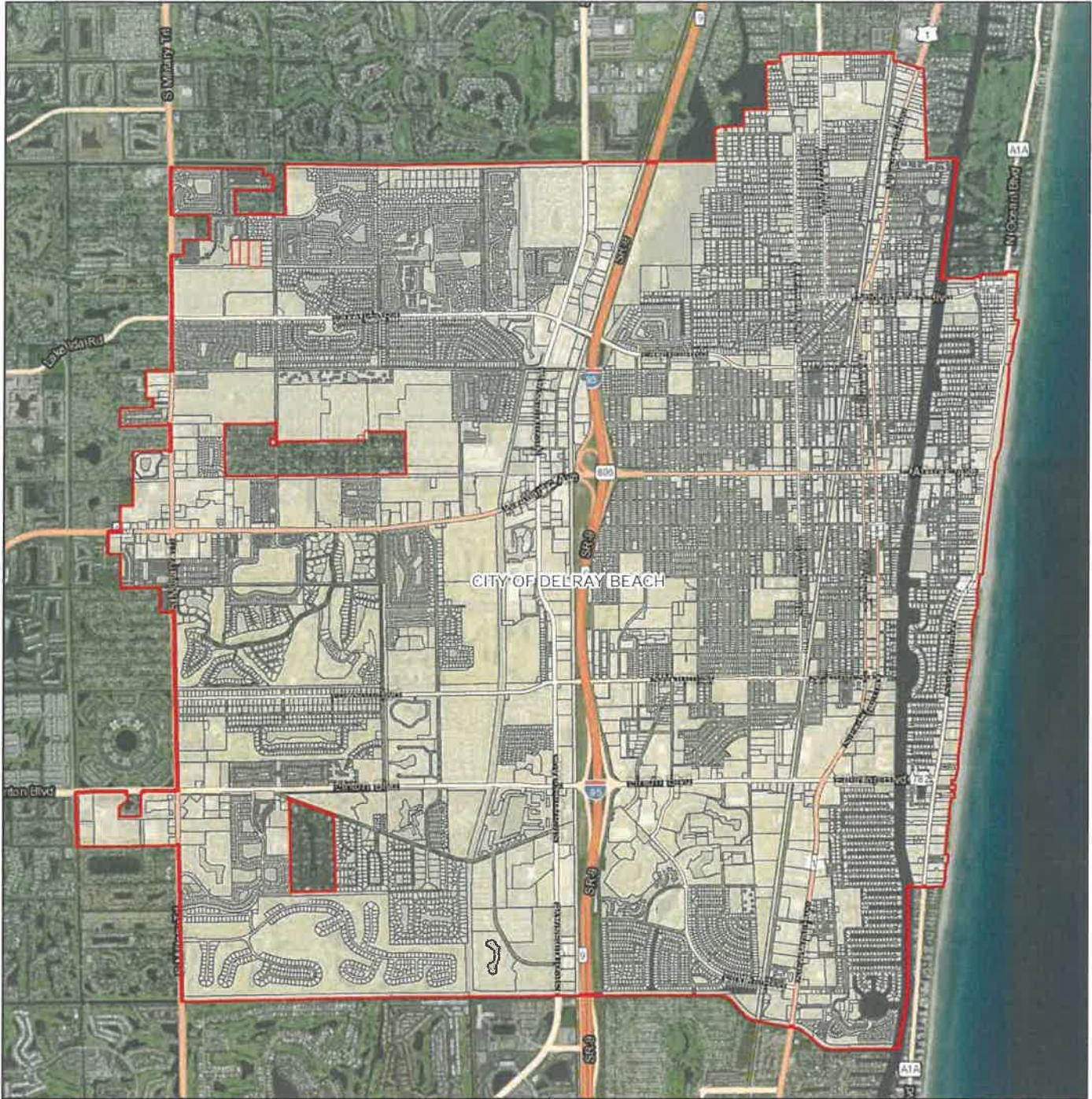
**CITY OF BOYNTON BEACH**  
**Examples of City Level Data**

Not all data collected is visible in map



Map is not to scale







Legend

-  Delray Beach Parcels
-  Study Area

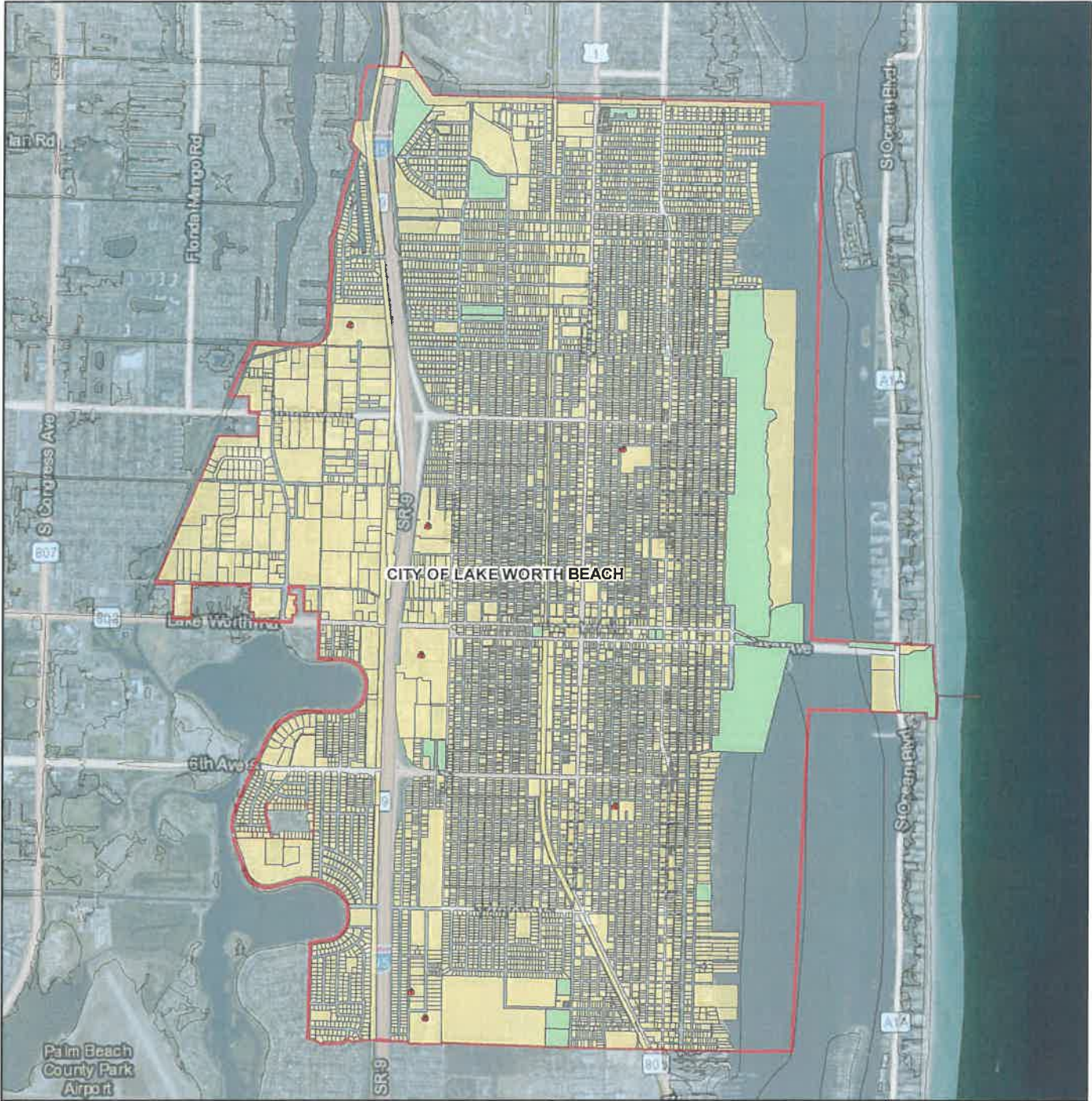
**CITY OF DELRAY BEACH**  
**Examples of City Level Data**

Not all data collected is visible in map

Map is not to scale







**Legend**

- Lake Worth Schools
- Parks/Recreation/Open Spaces
- Lake Worth Parcels
- Flood Zones
- Study Area

**CITY OF LAKE WORTH BEACH**  
**Examples of City Level Data**

Not all data collected  
 is visible in map

Map is not to scale







Legend

- Briny Breezes Centerlines
- Briny Breezes Parcels
- Study Area

**TOWN OF BRINY BREEZES**  
**Examples of City Level Data**

Not all data collected is visible in map

Map is not to scale







Legend

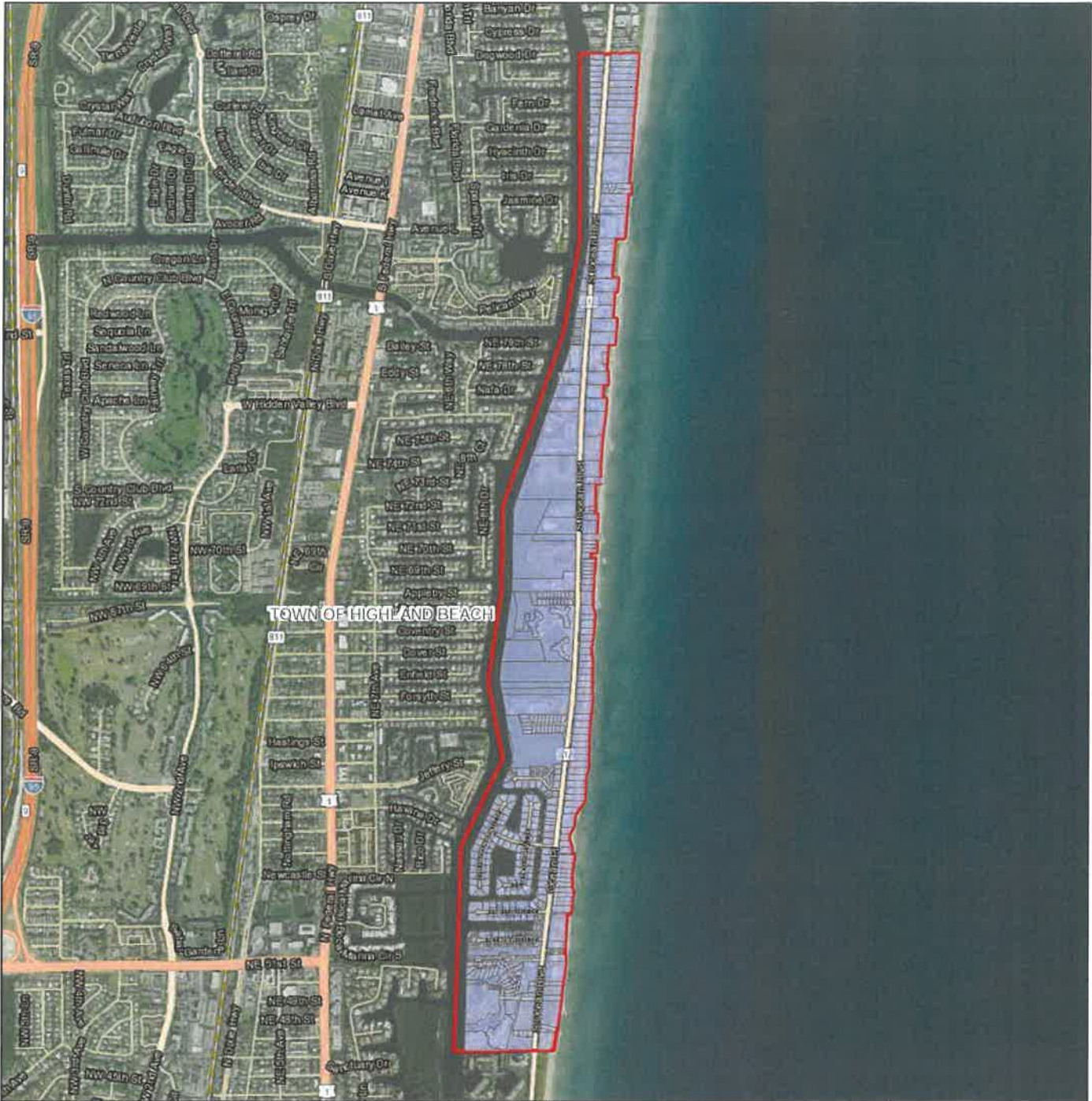
- Stop Signs
- ⊙ Landmarks
- Golf Courses
- ◆ DEP Monitoring Location
- Tanks
- Critical Beach Erosion
- Roads
- Town of Gulf Stream Owned Property
- Gulf Stream Boundary
- Ⓜ Police Station
- Ⓜ Town Hall
- Senior Community
- Zoning Areas
- Study Area

**TOWN OF GULF STREAM**  
**Examples of City Level Data**

Not all data collected is visible in map

Map is not to scale





Legend

- Highland Beach Parcels
- Study Area

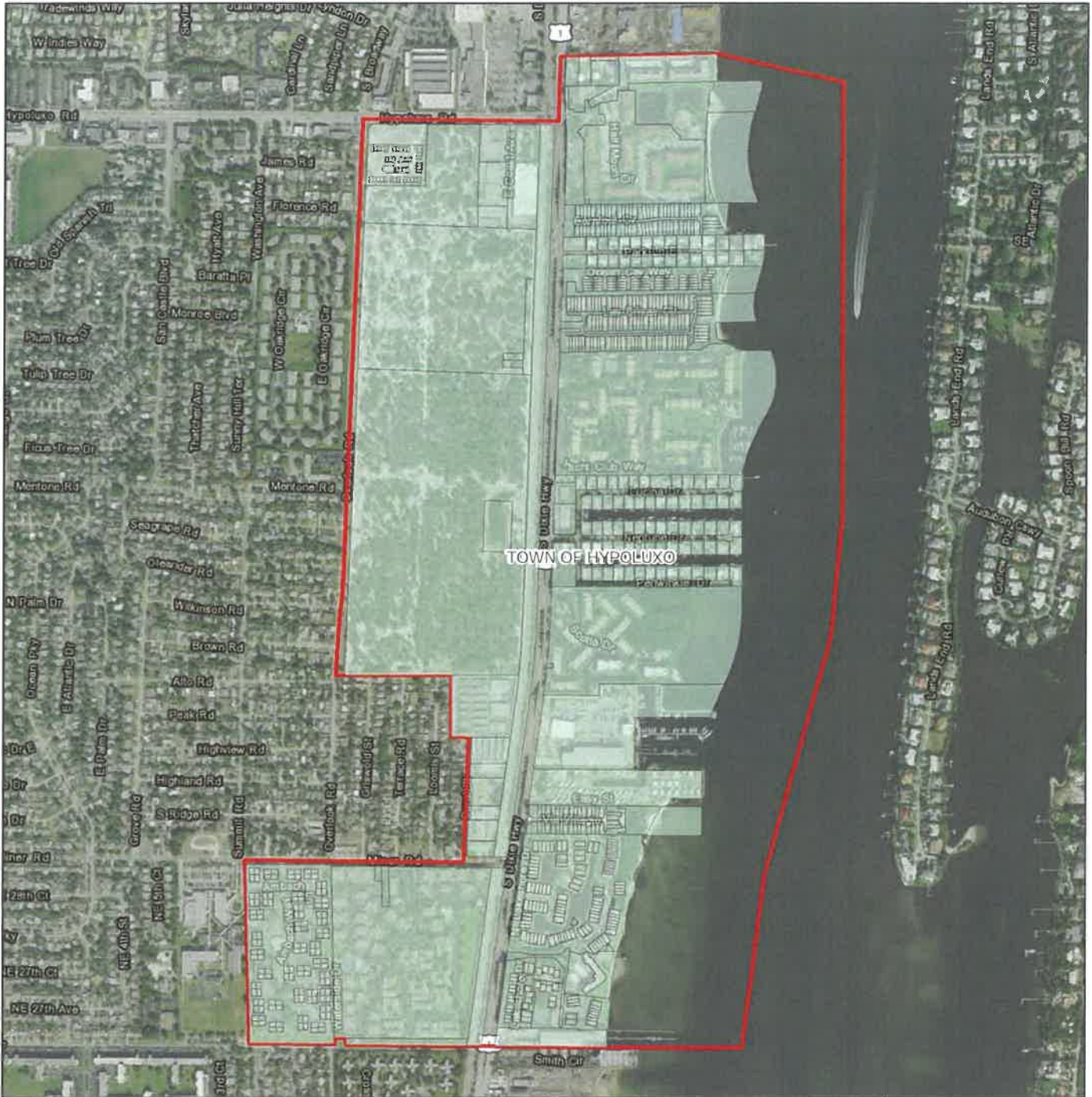
TOWN OF HIGHLAND BEACH  
Examples of City Level Data

Not all data collected is visible in map



Map is not to scale







Legend

-  Hypoluxo Parcels
-  Study Area

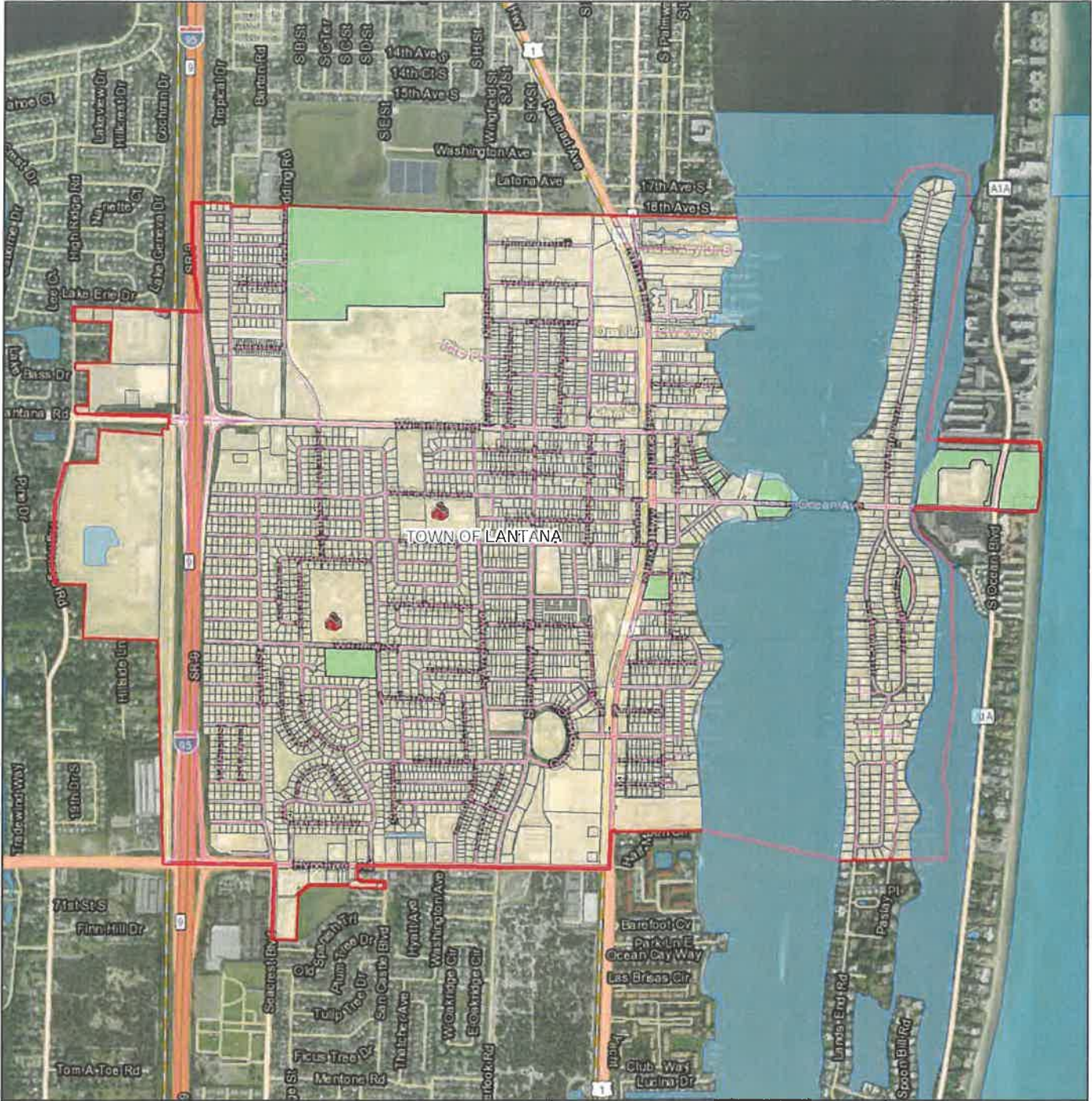
**TOWN OF HYPOLUXO**  
**Examples of City Level Data**

Not all data collected is visible in map





Map is not to scale







Legend

-  Lantana Schools
-  Lantana Centerlines
-  Water Bodies
-  Recreation Parks
-  Lantana Parcels
-  Study Area

TOWN OF LANTANA  
Examples of City Level Data

Not all data collected is visible in map

Map is not to scale







Legend

- Ocean Ridge Parcels
- Study Area

TOWN OF OCEAN RIDGE  
Examples of City Level Data

Not all data collected is visible in map

Map is not to scale





Legend

- Commercial
- Government
- Res. Multi-Family
- Res. Single Family
- Study Area

**TOWN OF SOUTH PALM BEACH**  
**Examples of City Level Data**

Not all data collected is visible in map

Map is not to scale



# Appendix B



## **Proposed Asset Categories and Prioritized Community Asset Types**

### **Level of Importance of each Asset/Attribute**

**Prefer it be Included**

**Useful and Desired, Not Necessary**

**Supplemental, Not Necessary**

### **People** (to be updated with U.S. 2020 Census data)

**Total Population**

**Population Aggregated by Age (e.g., below age 5, below age 18, over age 65)**

**Population by Group/Institutional Living**

**No. of Households**

**Household Size**

**Race/Ethnicity**

**Renters versus Owners**

**Households by Income**

**Households in Poverty**

**Homeowners and tenants-speak English "less than well"**

**Households with Disabled Individuals**

**Single-Parent Households**

**Seasonal Population**

**Employment Status – unemployed vs employed**

**Education Level – no HS diploma vs HS diploma**

**Population with Asthma**

### **Property** - Private

**Buildings by use type (residential, commercial, industrial, mixed use cultural, institutional etc.)**

**Residential by type – single family, multi-family, etc**

**Buildings – Institutional Residents (senior living, group homes etc.)**

**Buildings by year built**

**Building first Floor Elevations**

**Property Taxable Value**

**Property Market Value**

**Insured Value**

**Vacant land**

**Properties on Septic tanks**

**Buildings Pre-firm and Post-Firm**

**Building Pre and Post adoption of Miami-Dade Wind code**

**% of Homes with FEMA NFIP insurance**

**Data on household insurance costs and share of household income**

**Data on commercial property insurance costs and share of annual revenue**

### **Critical Facilities**

**City-owned, County-owned and School Board**

**Critical Facilities**

**Medical and Hospital**

- Pharmacies
- Assisted Living Facilities
- Energy Utility
- Fire Stations & Life Rescue
- Police Stations
- Correctional Facilities
- Emergency Shelters
- Housing & Homeless Shelters
- Major Food Distribution Centers
- Hazardous Waste Manufacturing Centers
- Emergency Operations Centers
- Fuel Stations
- Marina & Boat access ramps
- Seawalls
- Day Cares, Pre-Schools (non-school board educational sites)
- Libraries & Community Centers
- Piers

#### **Water Infrastructure**

- Water Treatment Plants
- Wastewater Treatment Plants
- Reclaimed Water Pipes
- Reclaimed Water Structures
- Sanitary Sewer Pipes
- Sanitary Sewer Structures
- Stormwater Pipes
- Stormwater Structures
- Treated Wastewater (Effluent) Outfalls
- Water Pipes
- Water Structures
- Water Supply Sources
- Wellfield Protection Areas
- Aquifer Storage & Recovery (ASR) Wells
- Storm Outfalls
- Lift Stations
- Drainage Canals & Flood Control Structures
- Wet & Dry Retention Areas

#### **Transportation Infrastructure**

- Airports
- Road (Roads in Flood zones)
- Highways vs Major Roads, Neighborhoods
- Rail Lines & Stations
- Bridges (especially for Emergency Response Access)
- Intermodal Stations
- Bus Depots & Storage

## **Sidewalks & Bike Trails**

### **Economy**

#### Tourism

**Number of Hotel/Lodging Facilities (location, size/beds/ economic value)**

**Number of Jobs (in Tourism)**

**Sales & Bed Tax generated**

**Visitor Data**

**Salaries & Wages (in Tourism)**

**Consumer Spending**

#### Recreation

**Private Marinas & Boating Destinations**

**Fishing Areas (piers/docks/seawalls)**

**Diving Charter Boats & Sites**

**Golf Courses**

**Equestrian Centers**

**Sports Complexes**

**Gardens**

#### Agriculture (if applicable)

**Number of Establishments (ornamentals and nurseries versus food production)**

**Acreage of Agricultural Land**

**Number of Jobs/Wages Directly Supported by Agriculture**

**Elevation of Agricultural Land**

### **Natural Resources**

**Natural Areas/Preserves**

**Wetlands**

**Beaches**

**Mangroves**

**Recreation Parks & Associated Assets**

**Lakes & Waterways (Lake Worth Lagoon)**

**Greenways - Trailways**

**Tree Canopy**