

Village of North Palm Beach Florida

**2015 – 2025 North Palm Beach
Water Supply Facilities Work Plan Update**

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Prepared for the Village of North Palm Beach

Prepared by Land Research Management, Inc.

TABLE OF CONTENTS

Section

1.0 Introduction.....	1
2.0 Background Information	1
2.1 Village Overview.....	2
2.2 Relevant Regional Issues.....	4
2.2.1 SAS Withdrawal.....	4
2.2.2 Use of Reclaimed Water.....	4
2.2.3 implementation of Conservation Measures.....	5
3.0 Data and Analysis.....	5
3.1 Potable Water Service Areas.....	5
3.2 Population and Land Use	7
3.3 Level-of-Service (LOS).....	8
3.4 Public Water Supply (PWS)Finished Water Supply Demand Projections.....	8
3.5 Domestic Self Supply (DSS).....	9
4.0 Water Source Identification	9
5.0 Water Supply Project Identification and Selection	10
6.0 Availability of Water Supply and Public Facilities.....	10
7.0 Conservation Practices.....	10
8.0 Comprehensive Plan Update Requirements	12
8.1 Previous Comprehensive Plan Amendments	12
8.2 Required Additional Comprehensive Plan amendments	13

LIST OF MAPS

Number

1 Village of North Palm Beach.....	3
2 Seacoast Potable Water Service Areas.....	6

TABLE OF CONTENTS (continued)

LIST OF TABLES

Number

1	Population Projections	7
2	Existing Land Use Inventory	7
3	North Palm Beach Finished Water Demand	8
4	Seacoast Current and Projected Water supply	9
5	Seacoast Current and Projected Water supply by Source	9
6	North Palm Beach Reclaimed Water Contracts	11

North Palm Beach Potable Water Supply Facilities Work Plan

1.0 Introduction

The purpose of the 2015 – 2025 North Palm Beach Water Supply Facilities Work Plan Update (2015 – 2025 Work Plan) is to identify and plan for the water supply sources and facilities needed to serve existing and future development within the Village's jurisdiction. Chapter 163, Part II, Florida Statutes (F.S.), requires local governments to prepare and adopt Work Plans into their comprehensive plans within 18 months after the South Florida Water Management District (SFWMD) approved the 2013 Lower East Coast Water Supply Plan Update (2013 LEC Update).

SFWMD adopted the 2013 LEC Update on September 12, 2013. Per Section 163.3177(c), Florida Statutes, local governments and water suppliers are required to adopt a related Work Plan and supportive amendments to their comprehensive plans by March 12, 2015.

Municipalities and public water suppliers are required to coordinate with the SFWMD in the preparation of their Work Plans in order to identify needed facilities for at least a 10-year planning period, confirming that: (1) adequate water supply is available; and (2) infrastructure plans necessary to serve projected need have been prepared.

The (2015 – 2025 Work Plan) references identified initiatives to ensure adequate water supply for the Village of North Palm Beach. According to state guidelines, the Village's (2015 – 2025 Work Plan) and Comprehensive Plan must address traditional and alternative water supplies, as appropriate, service delivery and conservation and reuse programs necessary to serve existing and new development for a minimum 10-year period. Further, the (2015 – 2025 Work Plan) must include a planning time-frame schedule consistent with the Comprehensive Plan and the LEC Update.

Potable water is supplied to North Palm Beach by Seacoast Utility Authority (Seacoast). Local public water suppliers are required to coordinate with SFWMD in the preparation of Work Plans in order to identify needed facilities for at least a 10-year planning period. Seacoast, as a private facility regulated by the Public Service Commission, is not required to prepare a Work Plan. Alternatively, Seacoast has provided specific documentation to governments within its service area confirming that: (1) adequate water supply is available; and (2) infrastructure plans necessary to serve projected need have been prepared.

2.0 Background Information

Included in this section are a brief Village overview and a discussion of defined regional water issues.

2.1 Village Overview

The Village of North Palm Beach, located in Northeastern Palm Beach County (Ref: Map 1), is a water-oriented community providing a full-range of social, cultural and recreational opportunities, including North Palm Beach Country Club and the 385-acre John D. MacArthur Beach State Park, for its residents. Incorporated in 1956, the Village's five square miles of incorporated area includes approximately two square miles of water area.

Approaching buildout, with limited remaining developable area, the Village presently supports a resident population of approximately 12,600 and a peak-day seasonal population of an additional 1,500 part-time residents.

Village marinas and waterfront parks provide boating and fishing opportunities for small crafts as well as luxury and sport fishing boats. Hundreds of docks line waterways within the Village providing access to productive fishing areas in Lake Worth and the Atlantic Ocean.

The Village has generally restricted commercial development to the Northlake Boulevard, U.S. Highway One, and Alternate A-1-A corridors. Historically, the Village has prohibited industrial development. However, creation of an industrial future land use category, coupled with recent annexation activity, has created opportunities for industrial development in the area west of Alternate A-1-A.

The Village operates under a Council/Manager form of government, consisting of five elected officials and an appointed Village Manager. A group of appointed boards whose duties include advisory and plan review functions, meet regularly to insure careful consideration of matters relating to development, planning, recreation and administrative affairs. These board meetings, often well-attended by Village residents, provide a vital means of assuring public input into the Village decision-making process.

The Village provides a full range of municipal services, including public safety (police, fire and emergency medical services), sanitation and public improvements as well as the recreational/cultural and general political and administrative services.

2.2 Relevant Regional Issues

South Florida regional water supply issues are identified and discussed in Chapter 5 *Evaluation of Water Source Options* of the 2013 LEC Update. Among the issues identified, the following are the most pertinent to Village future water supply needs: freshwater withdrawal from the limited Surficial Aquifer System (SAS) resource; use of reclaimed water as an alternative source; and conservation practices as a means to reduce per capita consumption

2.2.1 SAS Withdrawal

Fresh groundwater is the primary source of supply for potable water consumption, landscape irrigation, and industrial and commercial uses in the LEC Planning Area. In the urban areas of the LEC Planning Area, including the Village, public water suppliers (PWS) rely heavily on the SAS. The SAS produces good quality fresh water from relatively shallow wells. Local rainfall, canals, and water from the Water Conservation Areas and Everglades National Park recharge these aquifers. When sufficient water is available, surface water from Lake Okeechobee can also be routed to regional canals to maintain water levels and recharge the aquifer. However, during droughts, lower regional groundwater levels may cause inland movement of salt water. In this case, water shortage restrictions may be declared by the Governing Board of the SFWMD to conserve freshwater supplies.

Most of the 2030 regional water supply demand will continue to be met by fresh groundwater from the SAS. However, coordinated long-term are being implemented that consider alternative water supplies in order to match demand with availability. Discussions of current programs and plans are presented in Sections 4.0 (Water Source Identification), 5.0 Water Supply Project Identification and Section and 7.0 (Conservation Practices) of this report

2.2.2 Use of Reclaimed Water

The use of reclaimed water in the LEC Planning Area helps to reduce potential resource impacts by decreasing the reliance on traditional fresh sources, such as groundwater and surface water. Reclaimed water receives at least secondary treatment and basic disinfection and is reused after treatment at a domestic wastewater treatment facility. Reclaimed water is used for landscape irrigation (e.g., medians, residential lots, and golf courses), groundwater recharge, cooling water, and environmental enhancement.

The Water Resource Implementation Rule (Chapter 62-40, F.A.C.) requires the Florida Department of Environmental Protection (FDEP) and water management districts to advocate and direct the use of reclaimed water as part of their water management programs. The District requires all applicants for water use permits proposing to irrigate with more than 0.1 MGD of water and those applicants within a mandatory reuse zone to use reclaimed water if it is feasible.

Reclaimed water for irrigation will continue to be an important and expanding part of future reuse in the LEC Planning Area. Additional reuse methods may be available to meet future water demands including use by water suppliers to recharge and replenish the network of canals found in Palm Beach County and reduce water deliveries from the regional water management system during the dry season.

A discussion of the status of reclaimed water use is presented in Section 7.0 (Conservation Practices) of this report

2.2.3 Implementation of Conservation Measures

Water conservation is considered a water source option because it can reduce, defer, or eliminate the need for expansion of the water supply infrastructure. The District has approved the Comprehensive Water Conservation Program which consists of three initiatives: regulatory; voluntary and incentive-based; and education and marketing. The objective of the program is to achieve a measurable reduction in water use. The success of Comprehensive Water Conservation Program is subject to funding levels and voluntary participation by public water suppliers and other participating groups.

A discussion of current conservation practices is presented in Section 7.0 (Conservation Practices) of this report

3.0 Data and Analysis

Included in this section is a discussion of Village potable water supply services and needs.

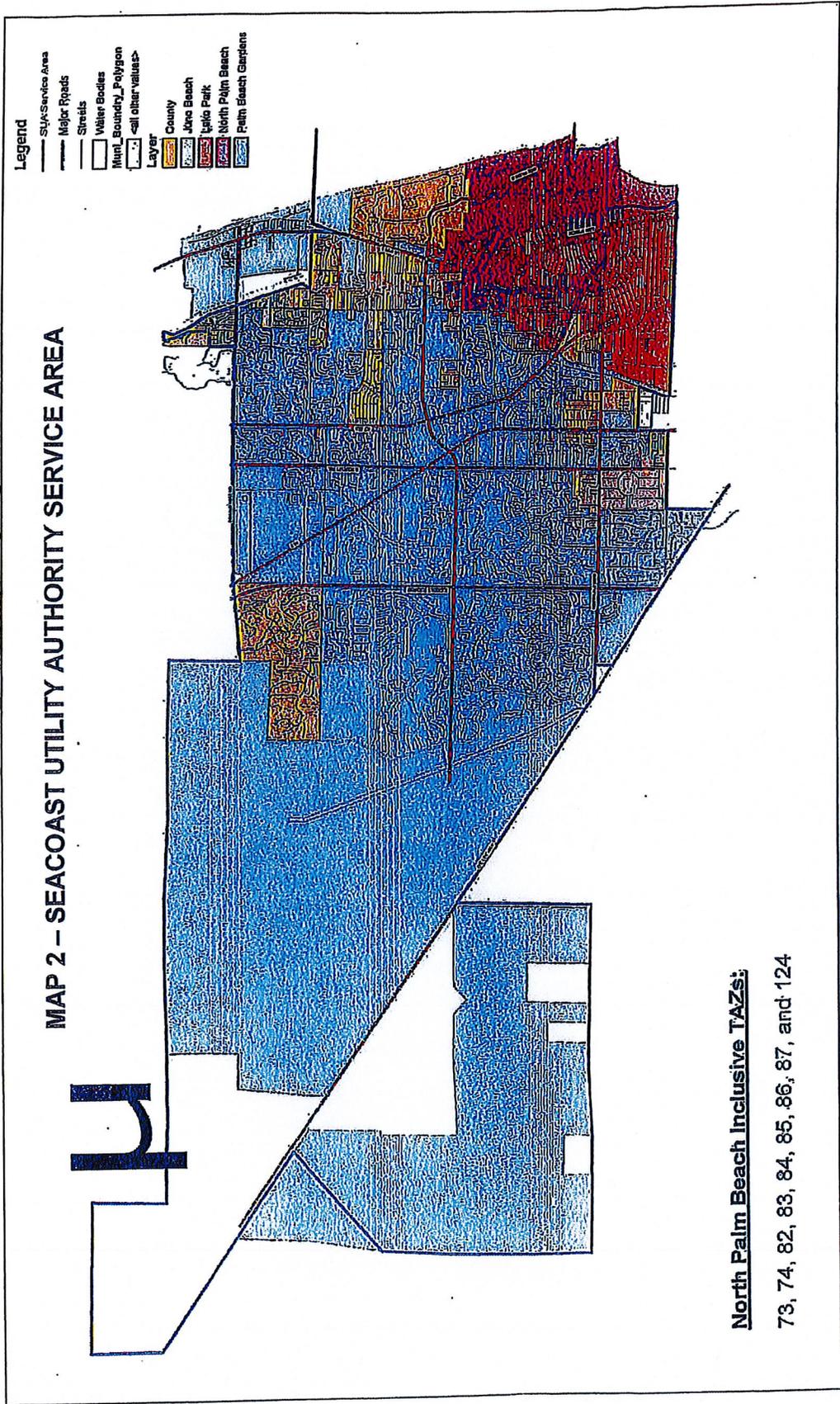
3.1 Potable Water Service Area and Facilities

North Palm Beach does not own or operate its own potable water supply system. Rather, potable water facilities and services are provided by Seacoast Utility Authority (Seacoast). In addition to the Village, Seacoast provides potable water service to Palm Beach Gardens, Juno Beach, and Lake Park, as well as portions of unincorporated Palm Beach County. The corporate limits of the Village, within the Seacoast service area, are illustrated on Map 2.

All five entities receiving services are members of the Seacoast Governing Board. All responsibilities for the withdrawal, treatment and distribution of potable water to the residents and businesses in the Village are assumed by Seacoast, including the direct billing of customers.

Related to the approval of development orders, Seacoast requires developers to upgrade the capacity of existing systems, and/or build new system components to meet their needs. Upon completion, Seacoast assumes ownership, operation and maintenance responsibilities of all related systems.

Seacoast recently completed a 30.5 MGD membrane treatment facility allowing its two lime-softening treatment facilities (Richard Road and Hood Road) to be decommissioned.



3.2 Population and Land Use

Population projections for the Seacoast service area and the Village were supplied by the Palm Beach County Planning Division. Projections are presented in Table 1.

**TABLE 1
Population Projections**

Year	Resident Population Projections*		North Palm Beach Share of Service Area (%)
	Seacoast Service Area	North Palm Beach	
2015	90,853	12,219	13.4
2020	96,674	12,592	13.0
2025	100,816	12,786	12.7
2030	103,271	13,070	12.7
2025	105,802	13,353	12.6

* - Palm Beach County Planning Division data; March 2013.

North Palm Beach population projections were most recently updated by the Village during its evaluation of proposed Comprehensive Plan Amendment 2015-02 (Waterclub II). Projections indicated that buildout of the Village would occur by 2020 and result in a population of 13,084 permanent residents, or 103% of the number (12,592 residents) projected by the Palm Beach County Planning Division for that same year. Due to the slight difference, and in order to maintain consistency with the Village's service provider, projections prepared by the Palm Beach County Planning Division, as presented in Table 1, are used for the purposes of projecting future Village water supply needs.

An inventory of existing Village land use is presented in Table 2. The minimal amount of vacant land indicates that the assumption of a near-term projected buildout of the Village is appropriate.

3.3 Level-of-Service (LOS)

The Village's adopted potable water level-of-service (LOS) standards, per the Village of North Palm Beach Comprehensive Plan are as follows:

Average Day Generation: Residential – 99 gallons per capita per day; and Non-Residential – 1,874 gallons/acre/day.

Maximum Day Generation: Residential – 147 gallons per capita per day; and Non-Residential – 2,782 gallons/acre/day.

Table 2 – Existing Land Use Inventory

Existing Land Use	Acres
Single-Family Residential	679.55
Multiple-Family Residential	258.16
Commercial	165.62
Institutional	77.14
Utility/Transportation	10.25
Recreation and Open space	190.09
Conservation	225.94
Water	1,225.10
Vacant	32.66
Total Acres	2,864.51

Source: 2006 Evaluation and Appraisal Report; Land Research Management, Inc.; 6/15.

For planning purposes, Seacoast currently uses an average day finished water generation rate of 189 gallons per capita per day (gpcd), consistent with the current system-wide usage (i.e. CUP 50-00365-W; effective to 2032)). Seacoast does not employ a non-residential generation rate; rather, all consumption (i.e. for planning purposes) is expressed on a per capita basis. Therefore, for the purposes of this analysis, the Seacoast generation rate (189 gpcd) is used to project Village water demands.

3.4 Public Water Supply (PWS) Finished Water Supply Demand Projections

Projections of finished water demand for North Palm Beach are presented in Table 3. Current (2015) finished potable water demand is estimated at 2.31 MGD (i.e. resident population of 12,219 residents x 189 gallons per capita per day), representing 13.4% of the total within the Seacoast service area.

It is projected that the Village's finished potable water demand, using population projections (Ref: Table 1) will attain a level of 2.52 MGD by 2025, or 12.6% of the total demand within the Seacoast service area.

3.5 Domestic Self Supply (DSS)

DSS is defined as water used by households whose primary source of water is water treatment facilities and/or private wells with pumpages of less than 100,000 gallons per day. There are no households within the Village using a DSS water supply source.

**TABLE 5
Seacoast Current and Projected Water Supply by Source**

Year	Biscayne/Surficial Aquifer (MGD)	Floridan Aquifer(MGD)	Total (MGD)
2015	21.88	0	21.88
2020	22.30	1.30	23.33
2025	22.30	2.47	24.77
2030	22.30	3.53	26.30

Source: Lower East Coast Water Supply Plan, 2005-2006 Update.

Raw water is presently drawn from four Surficial Aquifer wellfields (Hood Road, North Palm Beach, Burma Road and Palm Beach Gardens) and three Floridan Aquifer wells (Hood Road), pursuant to the current CUP. Each of the wellfields has permitted average and maximum daily withdrawal rates established by CUP conditions.

Each wellfield has protection zones mapped by the Palm Beach County Department of Environmental Resources Management (DERM). According to the current CUP, all wellfields are protected by the Palm Beach County Wellfield Protection Ordinance. Zones of protection are developed and zone requirements enforced by DERM.

5.0 Water Supply Project Identification and Selection

The 2013 LEC Update includes one project, a Nonfiltration Concentrate Blending Facility, to be completed in 2015 at a cost of \$4.5 Million. According to Seacoast, the project has been completed.

6.0 Availability of Water Supply and Public Facilities

The Seacoast CUP, issued by the District in September 2012 will provide adequate water supply to meet demands within its service area through the year 2032. In addition to District allocations in the CUP, Seacoast has executed a Utility Bulk Sale Agreement (June 2006) with Palm Beach County to receive up to 5 MGD of bulk potable per year. Also, system interconnections with the Town of Jupiter (Donald Ross Road at its intersections with Military Trail, and Jog Road, and U.S. 1 and Ocean Drive) and the City of Riviera Beach (Military Trail and Leo Lane) which can be utilized to supplement supply during emergencies.

7.0 Conservation Practices

An inventory of water conservation practices implemented by public water supplier is presented in Table D-5 of the 2013 LEC Update Appendices. A summary of practices currently implemented by Seacoast is presented in Table 6.

Table 6 – Seacoast Water Conservation Implementation Practices

Conservation Practice	Seacoast Practice
Irrigation Hours	Yes
Florida Friendly Landscape Ordinance	Yes
Ultra Flow Fixtures Ordinance	Yes
Rain Sensor Ordinance	Yes
Water Conservation Rate Structure	Yes
Leak Detection and Repair Program	Yes
Public Education Program	Yes

Source: Table D-5; 2013 LEC Update Appendices

In addition to the above conservation practices, Seacoast has been providing wastewater effluent for irrigation purposes since 1978. At present, Seacoast’s entire average daily wastewater flow is committed to active on-line reclaimed water consumers. An inventory of contracts for reclaimed water in North Palm Beach is presented in Table 7.

**TABLE 7
North Palm Beach Reclaimed Water Contracts**

Name	Classification*	Allocation (MGD)
Old Port Cove	A – Guaranteed	0.200
Gemini Condominium	A – Guaranteed	0.034
Royale Harbor Condominium	A – Guaranteed	0.040
Waterway Terrace Condominium	A – Guaranteed	0.031
Seamark Condominium	A – Guaranteed	0.020
Governor’s Pointe	A – Guaranteed	0.050
North Palm Beach Country Club	B- Non-Guaranteed	0.300
Total		0.675

* - According to Seacoast, Class B contracts have always received their allocations
Source: Seacoast Utility Authority; 12/31/07; North Palm Beach; 7/11/08.

8.0 Comprehensive Plan Update Requirements

8.1 Previous Water Supply Plan Amendments

During the preparation of the 2006 Evaluation and Appraisal Report (EAR), a review of statutory (Florida Statutes) and Code (Florida Administrative Code) amendments affecting the North Palm Beach Comprehensive Plan was completed. The EAR directed several amendments to address potable water supply which were incorporated within the Village 2020 Comprehensive Plan. The following is an element-by-element summary of the previous amendments.

Future Land Use Element (Chapter 3.0): Add Policy 2.6 to read as follows:

Policy 2.6: At the time of each required Evaluation and Appraisal Report, the Village shall update the Water Supply Facilities Plan to determine whether or not adequate water supply is available to meet projected needs of the ensuing 10-year period.

Infrastructure Element (Chapter 6.0): Incorporate the Village's Water Supply Facilities Plan, by reference, within Section 6.1. Also, add or revise the following:

Add Goal 6.2.6: Coordinate with Seacoast and Palm Beach County in the preparation of their Ten-Year Water Supply Work Plans, consistent with the directives of the Lower East Coast Water Supply Plan.

Revise Policy 1.1: Public facility level-of-service standards as displayed on Table 6-1 are hereby adopted, and shall be used as the basis for estimating the availability of capacity and demand generated by a proposed development. However, potable water level-of-service (LOS) standards used for Water Supply Facilities planning purposes shall be consistent with those used by Seacoast Utility Authority. Further, coordinate with Seacoast Utility Authority in developing appropriate residential and non-residential LOS categories should they become necessary to better project future water supply needs.

Add Policy 5.6: At the time of each required Evaluation and Appraisal Report, the Village shall incorporate necessary Ten-Year Water Supply Work Plan directives enacted by its water supplier and the regional water supply plan.

Conservation Element (Chapter 8.0): Add the following objective and policies:

Add OBJECTIVE 8: Participate in the formulation and implementation of water supply conservation programs developed by Seacoast Utility Authority.

Policy 8.1: Coordinate with Seacoast Utility Authority to implement potable water conservation programs established as part of its Ten-Year Water Supply Facilities Work Plan and Consumptive Use Permit.

Policy 8.2: Cooperate with Seacoast Utility Authority in the development and implementation of water reuse programs, to the extent that they may apply to North Palm Beach.

Intergovernmental Element (Chapter 10.0): Add the following policies:

Add Policy 1.15: Require that all applicants for development approval procure written confirmation of availability of potable water service prior to the issuance of a building permit.

Add Policy 4.5: At the time of each required Evaluation and Appraisal Report confirm the availability of potable water service, consistent with the regional water supply plan and Ten-Year Water Supply Facility Plans of Seacoast Utility Authority and Palm Beach County.

Capital Improvements Element (Chapter 11.0): Revise the following policy:

Revise Policy 7.1.1: A development order or permit shall be issued subject to the condition that, at the time of the issuance of a certificate of occupancy or its functional equivalent, the necessary facilities and services are in place and available to serve the new development or redevelopment. Further, prior to the approval of a building permit or its functional equivalent, the Village shall consult with the applicable supplier to determine whether adequate water supplies will be available to serve a new development no later than the anticipated date of issuance of a certificate of occupancy.

8.1 Proposed Water Supply Plan Amendments

Section 163.3177, Florida Statutes requires that the Village's 2015 – 2025 North Palm Beach Water Supply Facilities Work Plan Update includes a policy to update the Village of North Palm Beach Comprehensive Plan. The policy update is included in Attachment A.

ATTACHMENT A – COMPREHENSIVE PLAN AMENDMENTS

1. Revise Policy 5.6 of the Sanitary Sewer Solid Waste Stormwater Management Potable Water and Natural Groundwater Aquifer Recharge Element to read as follows (deletions are indicated by ~~strikethrough~~ and additions are indicated by underline).

Policy 5.6: ~~At the time of each required Evaluation and Appraisal Report, the Village shall incorporate necessary Ten-Year Water Supply Work Plan directives enacted by its water supplier and the regional water supply plan.~~ The Village of North Palm Beach hereby adopts the 2015 – 2025 Ten Year Water Supply Plan Update (Work Plan) dated July 2015 for a planning period of ten years. The Work Plan addresses issues that pertain to water supply facilities and requirements needed to serve current and future development within the Village's water service area. The Village shall review and update the Work Plan at least each five years after the Governing Board of the South Florida Water Management District approves an updated regional water supply plan. Any changes affecting the Village's Work Plan shall be included in an update to Capital Improvements Element of the North Palm Beach Comprehensive Plan to ensure consistency with the Work Plan.

2. Revise Policy 8.1 of the Conservation Element *Introduction* of the Sanitary Sewer Solid Waste Stormwater Management Potable Water & Natural Groundwater Recharge Element to read as follows (deletions are indicated by ~~strikethrough~~).

Policy 8.1: Coordinate with Seacoast Utility Authority to implement potable water conservation programs established as part of its ~~Ten-Year Water Supply Facilities Work Plan~~ and Consumptive Use Permit.