

RESOLUTION NO. 2014-R-75

A RESOLUTION OF THE VICE MAYOR AS ACTING MAYOR AND CITY COUNCIL OF THE CITY OF NORTH MIAMI, FLORIDA, APPROVING THE ATTACHED WATER FACILITIES PLAN ADDENDUM TO THE CITY OF NORTH MIAMI WATER DISTRIBUTION SYSTEM AND STORAGE SYSTEM EVALUATION, TO ADDRESS FINANCIAL AND ENVIRONMENTAL ISSUES RELATING TO THE PROPOSED WATER DISTRIBUTION AND STORAGE SYSTEMS AND WATER METER UPGRADE SO AS TO OBTAIN FUNDING FROM THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (“FDEP”) STATE REVOLVING FUND (“SRF”), IN ACCORDANCE WITH FLORIDA LAW; PROVIDING FOR AN EFFECTIVE DATE AND FOR ALL OTHER PURPOSES.

WHEREAS, the Florida Safe Drinking Water Act under Chapter 403, Florida Statutes, provides for financial assistance to local government agencies to finance the construction and installation of water infrastructure improvements, including water distribution and storage systems and water meter related improvements; and

WHEREAS, applicable funding rules of the Florida Administrative Code require the City of North Miami (“City”) to apply for financial assistance from the Florida Department of Environmental Protection (“FDEP”) State Revolving Fund (“SRF”), to enter into an agreement with the FDEP, to establish pledged revenues, to designate an authorized representative, and to provide assurances of compliance with program requirements; and

WHEREAS, the attached Water Facilities Plan Addendum to the City Water Distribution System and Storage System Evaluation (“Plan Addendum”), was prepared to establish the funding requirements of the SRF, to specifically finance the proposed improvements in accordance with state law; and

WHEREAS, City administration respectfully requests that the Vice Mayor as Acting Mayor and City Council approve the attached Plan Addendum, to allow the City to participate in this SRF funding program; and

WHEREAS, the Vice Mayor as Acting Mayor and City Council have determined that the approval of the attached Plan Addendum to obtain SRF funds for the proposed Water

Distribution and Storage Systems improvements and Water Meter Upgrade, is in the best interest of the City.

NOW THEREFORE, BE IT RESOLVED BY THE VICE MAYOR AS ACTING MAYOR AND CITY COUNCIL OF THE CITY OF NORTH MIAMI, FLORIDA:

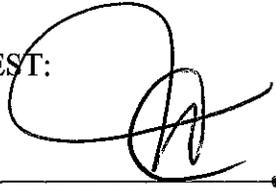
Section 1. Approval of Water Facilities Plan Addendum. The Vice Mayor as Acting Mayor and City Council of the City of North Miami, Florida, hereby approve the attached Water Facilities Plan Addendum to the City of North Miami Water Distribution System and Storage System Evaluation, to address financial and environmental issues relating to the proposed Water Distribution and Storage Systems and Water Meter Upgrade so as to obtain funding from the Florida Department of Environmental Protection ("FDEP") State Revolving Fund ("SRF"), in accordance with Florida law.

Section 2. Effective Date. This Resolution shall become effective immediately upon adoption.

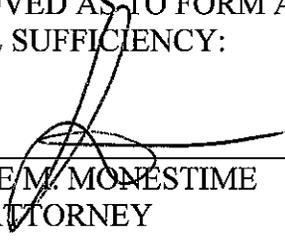
PASSED AND ADOPTED by a 4-0 vote of the Vice Mayor as Acting Mayor and City Council of the City of North Miami, Florida, this 9th day of September, 2014.


PHILIPPE BIEN-AIME
VICE MAYOR AS ACTING MAYOR

ATTEST:


MICHAEL A. ETIENNE, ESQ.
CITY CLERK

APPROVED AS TO FORM AND
LEGAL SUFFICIENCY:


REGINE M. MONESTIME
CITY ATTORNEY

SPONSORED BY: CITY ADMINISTRATION

Moved by: Galvin

Seconded by: Keys

Vote:

Vice Mayor as Acting Mayor Philippe Bien-Aime	<u> x </u>	(Yes)	<u> </u>	(No)
Councilperson Scott Galvin	<u> x </u>	(Yes)	<u> </u>	(No)
Councilperson Carol Keys, Esq.	<u> x </u>	(Yes)	<u> </u>	(No)
Councilperson Marie Erlande Steril	<u> x </u>	(Yes)	<u> </u>	(No)

CITY OF NORTH MIAMI, FLORIDA
WATER FACILITIES PLAN ADDENDUM

To The
City of North Miami Water Distribution System and Storage System Evaluation –
Technical Memorandum by Hazen & Sawyer, Dated December 2011

Proposed Project
Water Distribution System and Storage System and Water Meter Upgrade

August 2013

Wisler Pierre-Louis, P.E.
City of North Miami, Assistant Public Works Director
Florida Registration 69090
April 17, 2014
Funding (financial) Elements Only
City of North Miami, FL

This addendum does not amend the Feasibility Study by Hazen and Sawyer. The intent of this addendum is to provide specific information as necessary to qualify the **“Water Distribution System and Storage System Evaluation”** project shown in the December 2011 Hazen and Sawyer Study, and the **Renewal and Replacement of all Water Meters**, for SRF Funding. The Engineering design/technical elements of this project are provided by Hazen and Sawyer and the City of North Miami.

City of N. Miami

WATER FACILITIES PLAN ADDENDUM

FDEP-SRF

B&V PROJECT NO. 181740.0300

PREPARED FOR

The City of North Miami, FL

MAY 9, 2014



Forward

Facility planning consists of those necessary plans and studies that directly relate to the construction of drinking water infrastructure improvements. The facilities plan demonstrates the need for the proposed facilities, through a systematic evaluation of feasible alternatives; it also proposes that the selected alternative is effective in meeting established water quality goals while recognizing environmental and social considerations.

This document is an addendum (in addition) to the “Technical Memorandum – Water Distribution System and Storage System Evaluation” by Hazen & Sawyer, dated December 2011 (Appendix A). This addendum addresses financial and environmental issues related to the proposed project, to meet the requirements of the FDEP – SRF program. In addition to the distribution piping improvements, the City of North Miami staff provided data as needed to include renewal and replacement of all water meters for SRF funding.

In summary, this addendum includes:

1. *Water Facilities Plan (WFP) signed and sealed by a Florida registered PE.*
2. *Documentation that the WFP has been adopted by the sponsor, via City Commission Resolution.*
3. *Documentation that the propose plan is in compliance with the local comprehensive plan, via letter from the Planning and Zoning Department stating such.*
4. *Completed SRF business plan.*
5. *Environmental information as required by the SRF*
6. *Copy of the most recent sanitary survey for the Winson plant.*
7. *Statements that the proposed facilities (piping infrastructure and water meter replacement) will meet FDEP drinking water standards.*
8. *Documentation of the Public meeting minutes, public advertisement of this meeting.*

Wisler Pierre-Louis, P.E.

Interim Public Works Director
City of North Miami
Utility Operations Center
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North Miami, FL 33181
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APPENDIX

- A. The City of North Miami Water Distribution System and Storage System Evaluation – Technical Memorandum by Hazen & Sawyer – December 2011
- B. Water Service Area Map and Near Term Improvements Map
- C. Soil Map
- D. Source Water Protection Information and Wetlands Maps
- E. Species Report
- F. Flood Map
- G. Future Land Use Map
- H. Public Hearing/Dedicated Revenue Hearing Documents
- I. Business Plan and Financial Information
- J. Comprehensive Plan Provisional Form
- K. Water Meter Life Cycle Cost Analysis
- L. Financial Data
- M. User Rate Ordinance

Chapter 1.0 - Summary of Findings and Recommendations

This Facilities plan was prepared by the City of North Miami to meet the requirements of the State Revolving Fund (SRF) loan funding of drinking water distribution systems and storage systems. The area considered in preparing this plan includes the City of North Miami water service area. The water service area includes the Village of Biscayne Park and surrounding areas of unincorporated Miami-Dade County.

Water Distribution:

Technical elements are addressed in the Technical Memorandum for the City of North Miami Water Distribution System and Storage System Evaluation – by Hazen & Sawyer, dated December 2011. This Facilities Plan addresses FDEP SRF project number DW13182.

The City of North Miami applied for project construction funding through the Florida Department of Environmental Protection, State Revolving Funds via Request for Inclusion. The application was accepted and is identified as DW-13182, Transmission and Distribution. The funding request total \$11,105,580. The program requires the city to complete all preconstruction activities (planning, design, biddable construction plans, specifications, permits, etc.) in advance of applying for constructing funding.

DEP SRF Project Number 13182

This proposed project for SRF funding is identified as the “Near-term improvements and Alternative No. 2A of the City of North Miami (CNM) Water Distribution System”. The estimated construction cost is \$6,202,000. The city provides water service to approximately 91,000 people in the city and the surrounding areas including Golden Glades, Pinewood, Westview, and Village of Biscayne Park, sections of Golden glades and surrounding areas of unincorporated Miami-Dade County. The Technical Memorandum by Hazen & Sawyer evaluates the near-term improvements and long-term improvements to include alternative analysis, opinion of probable cost and conclusions and recommendations. This Amendment addresses the near-term recommendations and Alternative 2A outlined in the Technical Memorandum.

Water Meters:

Also included in this SRF funding request is the renewal and replacement of all water meters. All commercial water meters have recently been upgraded with great success in improved accuracy. Most of the meters have exceeded their design life and therefore should be upgraded with new meters.

There are approximately 20,000 total meters that are proposed for meter upgrades; the total meter program is estimated to cost \$4,903,580.

Combined Water Distribution and Meter Upgrades:

Using the “Near-Term and Alternative 2A distribution cost of \$6,202,000 and the Water Meter replacement cost of \$4,903,580, the total SRF funding request is \$11,105,580. Construction efforts are expected to cover a two year period. Meters have an expected life of approximately 15 years.

The project elements described above comply with the City’s adopted comprehensive plan.

Chapter 2.0 - Introduction

2.1 Background

Water Distribution System:

The City of North Miami (city or CNM) is located within the Northeast section of Miami-Dade County, Florida, between Fort Lauderdale and Miami. It provides water service to approximately 91,000 people in the city and surrounding areas. The city also has over 3,000 businesses located within four business districts and industrial areas. The city has earned its name as a coastal community by encompassing Biscayne Bay on the eastern boarder of the city. The city is primarily built out residential and shopping community. The city is also home to the Oleta River State Park, which is the largest urban park in Florida.

The primary water source for the CNM is the Winson Water Treatment Facility; a conventional lime softening plant with a permitted raw water treatment capacity of 9.3 MGD. The plant supplies approximately 300 miles of distribution system and 65 percent of the city's finished water. Additional finished water for the city is provided by the Miami-Dade Water and Sewer Department (MDWASD) through a series of interconnects throughout the water system. The Technical Memorandum for the City of North Miami Water Distribution System and Storage System Evaluation – by Hazen & Sawyer explains the near-term improvements that are needed to resolve peak flow and water age issues, fire flow and the opening of all interconnects with the MDWASD.

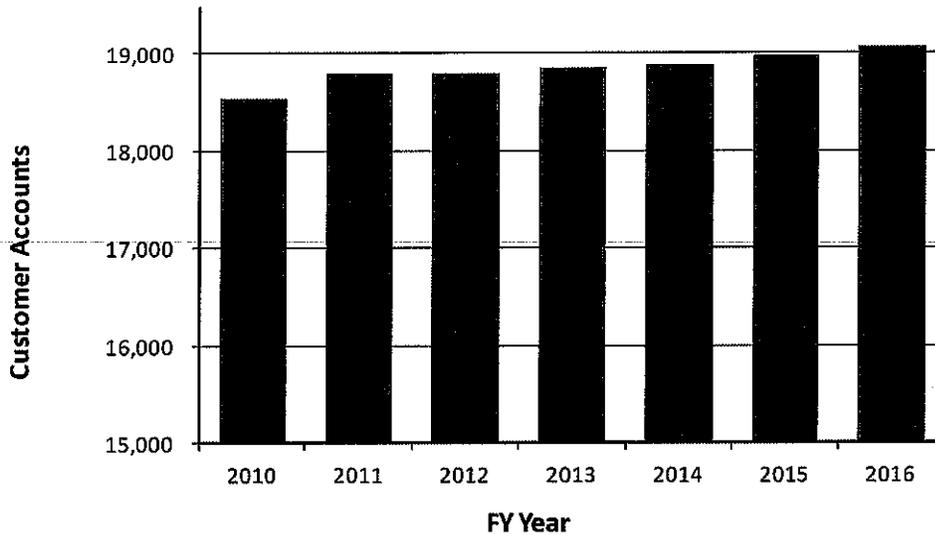
The city recently completed a FDEP-SRF Facilities Plan for the city's only water treatment plant, Norman H. Winson, and is in the process of letting Phase one for construction which includes rehabilitation of six (6) Biscayne Aquifer Production Wells and Filter Rehabilitation. The filter rehabilitation project components include replacement of filter media, surface wash agitator system, under drain system and pipe gallery for existing Filters 1 through 4, including refurbishment and waterproofing of filter interiors for leak suppression. The well rehabilitation project includes geophysical logging, testing, video surveying, disinfection of each well and installation of new column piping complete with all appurtenances

Water Meters:

The City's water system derives revenue primarily from charges for treated water service. Other sources of income includes fees for billing, service charges, metering fees, connection fees, delinquent fees, and other miscellaneous revenue.

Analysis of the customer base indicates no immediate growth in new customer connections to the water system. As a result, the forecast of customer growth is held at FY 2011 levels in FY 2012, a slight increase of 0.25% is forecasted annually in both FY 2013 and FY 2014, and an increase of 0.50% is projected for both FY 2015 and FY 2016. Figure 1 summarizes historical and projected customer accounts. Treated water service is currently provided to 15,818 residential customers, 700 apartment customers, 5 mobile home customers, 1,712 commercial customers, 113 city customers, and 448 sprinkler customers. The total number of water customers served by the City is anticipated to grow from 18,796 in FY 2012 to 19,075 in FY 2016.

Figure 1 Historical and Projected Customer Account



2.2 Purpose and Objective

Water Distribution System:

The success of a city is directly dependent on its ability to provide adequate infrastructure and services to its customers in a sustainable manner. The CNM has taken the initiative to identify its current and future water needs by retaining the services of Hazen and Sawyer (H&S) to conduct a Feasibility Study of the city's water distribution facility. The goal of this Feasibility Study was to develop a plan for continually meeting the CNM's future water supply and distribution needs as effectively as possible.

South Florida's increasing demands for water has strained the area's sole source of fresh ground water, the Biscayne Aquifer, which has become less reliable as a water source over the years. This is due to the fact that millions of gallons of water are pumped out of the ground each day contributing to its vulnerability as a continuing source of ground water. New stringent regulations regarding the Biscayne Aquifer have forced water officials to seek alternative sources of water. Addressing these water issues was a priority during the 2005 Florida legislative session. Two bills, SB 360 and SB 444, were passed and signed into law by Governor Jeb Bush. These bills focus on encouraging cooperation in the development of alternative water supplies and improving the linkage between local governments' land use plans and water management districts' regional water supply plans. There are also regulatory and financial incentives to encourage alternative water supply use.

In order to comply with new regulatory guidelines and restrictions pertaining to water supply, the City of North Miami is considering expanding its current capacity to meet future water needs of the city by improving its water treatment and supply facilities. Infrastructure efficiency, adequacy and reliability are critical to meet the various demands on the drinking water system. The piping network must be improved to ensure water moves from the two drinking water sources to the point of demand.

Water Meters:

The City recently upgraded their commercial water meters and now plans to implement upgrades to the residential customer base using SRF funds. Accuracy of existing meters is questionable as many of the residential meters have been in service greater than ten years. It is expected that implementing new meters across the entire customer base will improve consumption accuracy and thereby increase water and wastewater revenues. Greater accuracy will also enable the City to better account for non-revenue water (unaccounted for water). Water accuracy is critical to the Water Management District and is

reflected in the City’s consumptive use permit. Water meter replacement is also expected to encourage water conservation within the customer base.

The scope of the facilities plan is described below:

- Inventory existing water facilities, service area characteristics, and environmental conditions.
- Establish design needs for the planning period.
- Identify and evaluate various water system alternatives to satisfy the planning year needs.
- Recommend the most cost-effective, environmentally sound facilities to meet the planning needs.
- Describe, in detail, the recommended facilities and their cost.
- Present a schedule of implementation of the recommended facilities.
- Identify any adverse environmental impacts and propose mitigating measures.
- Identify a source of financing and estimate the cost per household.

2.3 Evaluation and Approach

Water Distribution System:

As stated in the Hazen & Sawyer report: The purposes of the Water Distribution System and Storage System Evaluation are to review water distribution system performance and to identify potential pumping, distribution, and storage system capital improvements which may be necessary to meet the near-term (i.e., 2012) and long-term (i.e., 2025) needs of the North Miami service area.

The evaluation considers such issues as age of the existing infrastructure, growth, redevelopment of existing areas to higher densities, water age, fire flow, and estimated project costs (i.e., construction costs plus estimated costs for engineering and surveying services). The general planning area for this evaluation consists of the City of North Miami and neighboring areas served by the city. Planning level capital costs are presented in Table 1 and subsequent tables from the City of North Miami Water Distribution System and Storage System Evaluation – by Hazen & Sawyer document. This represents the costs for a total expansion for Near Term and Phase IIA improvements.

Summary of Opinion of Probable Costs for Improvements – Table 1				
Alternative	Description	Capital Cost	O&M Costs from 2011 to 2025	Total Present Worth
	Near-term Improvements	\$5,609,000	N/A	\$5,609,000
Alternative 2A	Long-term Improvements – Alternative No. 2A – Winson WTP, MDWASD Interconnects with no Tank	\$593,000	\$54,844,000	\$55,437,000
	Estimated Project Costs	\$6,202,000		

Table 1.11
Opinion of Probable Costs for Improvements

Alternative	Description	Capital Cost	O&M Costs from 2011 to 2025	Total Present Worth
Near-term Improvements		\$5,609,000	N/A	\$5,609,000
2025 Improvement Alternatives				
Alternative 1	Long-Term Improvements Alternative No.1 – Winson WTP with Tank	\$109,579,000	\$51,228,000	\$160,807,000
Alternative 2A	Long-Term Improvements - Alternative No.2A – Winson WTP, MDWASD Intercon- nects with No Tank	\$593,000	\$54,844,000	\$55,437,000
Alternative 2B	Long-Term Improvements Alternative No.2B – Winson WTP, MDWASD Interconnects with Tank	\$8,203,000	\$54,844,000	\$63,047,000
Alternative 3	Alternative No.3 Improvements for Water Age Scenario – Winson WTP, North Miami Beach Interconnects with Tank	\$19,703,000	\$58,383,000	\$78,086,000

Table 1.3
Near-Term Improvements for Peak Hour and Fire Flow Demands –
Winson WTP, MDWASD Interconnects, with No Tank

Improvement	Type	Location	Length (feet)	Size (inches)
1	Connection	NW 115th St. and NW 14th Ave.	30	2 to 12
2	Pipeline	Along 121st Rd and Biscayne Canal Dr.	140	6
3	Pipeline	NE 10th Ave, between NE 110th Ter. and NE 110th St.	100	6
4	Pipeline	NE 10th Ave., between NE110th St. and 109th St.	370	6
5	Pipeline	118 St. east of Dixie Hwy. to Biscayne Canal Rd.	850	6
6	Pipeline	NE 109th St. between NE 9th Ave and NE 9th Ct.	510	6
7	Pipeline	NE 105th St. East of NE 12th Ave.	450	6
8	Connection	Bayshore Dr. and NE 108th St.	30	6 to 8
9	Pipeline	NW 141st St. between NW 6th Ct. and NW 7th Ave	460	6
10	Pipeline	East side of Biscayne Blvd. between NE 135th St. and NE 151st St.	3,000	16
11	Pipeline	NE 16th Ave. between NE 143rd St. and NE 146th St., NE 146th St. between NE 16th Ave. and NE 18th Ave.	2,290	16
12	Pipeline	NE 18th Ave. between NE 146th St. and NE 145th St.	1,01016	

Table 1.4
Near-Term Improvements for Water Age Scenario –
Winson WTP, MDWASD Interconnects with No Tank

Improvement	Type	Location	Length (feet)	Size (inches)
1	Autoflushing Device	Interama Blvd. and Sunny Isles Blvd.	N/A	N/A
2	Connection	NE 108th St. and NE 15th Ave.	10	6 to 8
3	Connection	NE14th Ave. and NE 144th St.	25	2 to 8
4	Pipeline	NE 6th Ave., between NE 148th St. and NE 137th St.	3,650	6
5	Connection	NE 11th Ave. and NE 143rd St.	10	2 to 2
6	Connection	NE 6th Ave. and NE 149th St.	25	2 to 12

Table 1.4
Near-Term Improvements for Water Age Scenario –
Winson WTP, MDWASD Interconnects with No Tank

Improvement	Type	Location	Length (feet)	Size (inches)
7	Connection	NE 6th Ave. and NE 147th St.	50	6 to 6
8	Connection	NE 6th Ave. and NE 143rd St.	40	6 to 6
9	Connection	NE 6th Ave. and NE 142nd St.	40	6 to 6
10	Pipeline	NE 5th Pl. between NE 143rd St. and NE 145th St.	850	6

Table 1.7
Long-Term Improvements - Alternative No.2A–
Winson WTP, MDWASD Interconnects with No Tank

Improvement	Type	Location	Length (feet)	Size (Inches)	Year Required
1	Pipeline	NW 140th Terr. between NW 7th Ave. and NW 8th Ave.	540	6	2015
2	Pipeline	West Biscayne Canal Rd. between NE 118th St. and NE 118th Ter.	360	6	2015
3	Pipeline	NW 7th Ave. between NW 141st St. and NW 139th St.	930	6	2015

Note: It is assumed that all near-term improvements are completed by year 2015.

Available sources of information relevant to the city's water treatment facility and distribution system have been collected and reviewed. Prior reports, hydraulic models, and studies conducted in previous years were reviewed, including the City's Comprehensive Plan and population projections from the Miami-Dade County Planning Department. Further, records of purchased water from Miami-Dade County have been examined to determine the historical daily utilization and forecast the near term utilization required until this supplemental capacity is replaced from other sources such as plant expansion or new plant construction. A condition survey of the existing WTP and typical raw water well was conducted.

Water Meters:

Based on the success with renewing and replacing aging commercial water meters, it is assumed that renewal and replacement of ageing meters will have the same effect on revenues through improved accuracy. Water Management District and FDEP regulatory compliance is dependent on accurate metering.

Chapter 3.0 - Environmental Impacts

3.1. Description of Planning Area

3.1.1. Planning/Service/Project Area

The planning area and the service area are the same. The planning area is the city limits and surrounding area. Please see Appendix B, Water Service Area and Major Facilities by Hazen and Sawyer. The surface features include flat coastal property that is mostly high density urban.

3.1.2. Climate

North Miami has a tropical monsoon climate with hot and humid summers and short, warm winters, with a marked drier season in the winter. Its sea-level elevation, coastal location, position just above the Tropic of Cancer, and proximity to the Gulf Stream shapes its climate. With January averaging 67.2 °F (19.6 °C), winter features mild to warm temperatures; cool air usually settles after the passage of a cold front, which produces much of the little amount of rainfall. Lows sometimes fall below 50 °F (10 °C), but very rarely below 35 °F (2 °C). Highs generally range between 70–77 °F (21–25 °C). The wet season begins sometime in May, ending in mid-October. During this period, temperatures are in the mid-80s to low 90s (29–35 °C), accompanied by high humidity, though the heat is often relieved by afternoon thunderstorms or a sea breeze that develops off the Atlantic Ocean, which then allow lower temperatures, but conditions still remain very muggy. Much of the year's 55.9 inches (1,420 mm) of rainfall occurs during this period.

3.1.3. Topography and Drainage

North Miami and its suburbs are located on a broad plain between the Florida Everglades to the west and Biscayne Bay to the east. The elevation of the area never rises above 40 ft. (12 m) and averages at around 6 ft. (1.8 m) above mean sea level in most neighborhoods, especially near the coast. The city lies on the shores of Biscayne Bay which contains several hundred natural and artificially created barrier islands. The Gulf Stream, a warm ocean current, runs northward just 15 miles (24 km) off the coast, allowing the city's climate to stay warm and mild all year. Rainfall is not expected to adversely affect the proposed project.

3.1.4. Geology, Soils and Physiography.

The surface bedrock under the Miami area is called Miami Oolite or Miami Limestone. This bedrock is covered by a thin layer of soil, and is no more than 50 feet (15 m) thick. Miami Limestone is considered to be part of the Biscayne aquifer.

Beneath the plain lies the Biscayne Aquifer, a natural underground source of fresh water that extends from southern Palm Beach County to Florida Bay. Most of the South Florida metropolitan area obtains its drinking water from this aquifer. As a result of the aquifer, it is not possible to dig more than 15 to 20 ft. (4.6 to 6.1 m) beneath the city without hitting water, which impedes underground construction.

The City of North Miami is in the Atlantic Coastal Ridge and consists of urban land and is nearly level. The soils in this area consists of mixed stony loam fill spread over natural soils and are moderately or well drained soils that are consistent with fill material. This soil is 8 to more than 80 inches deep over the limestone bedrock.

Miscellaneous soils include, "coastal beach; man-made soils; mangrove swamps; swamps, mines; pits; and dumps" as defined by the USDA. For soils map, see Appendix C.

3.1.5. Surface and Water Hydrology.

Watershed Stats

Size of Basin: 1,200 square miles

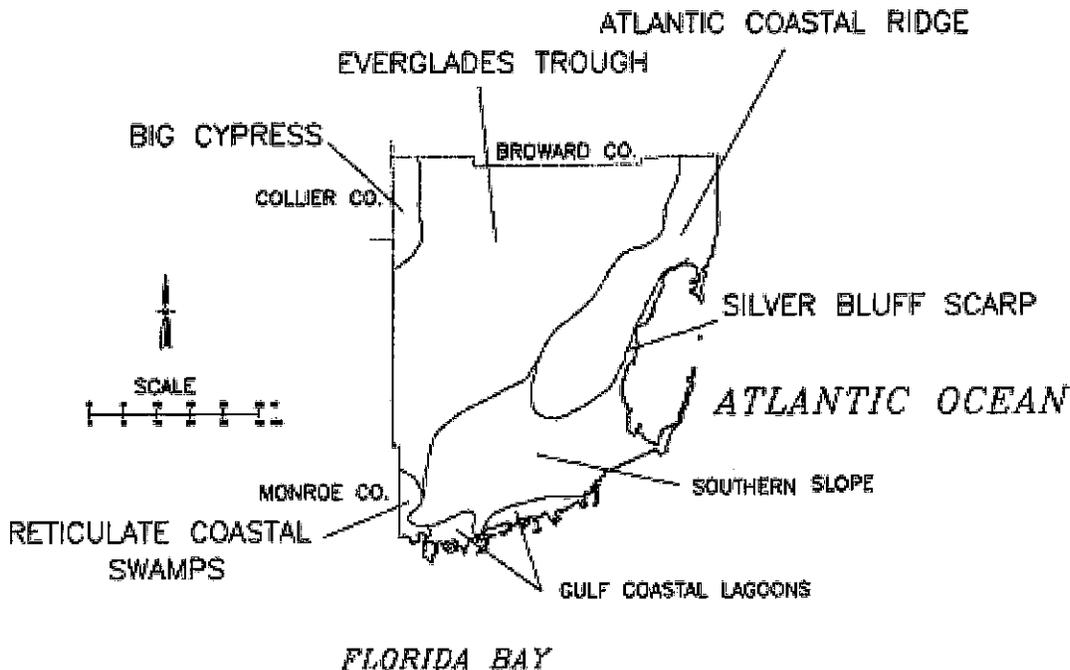
Major Cities and Towns: Tamarac, Coral Springs, Margate, North Lauderdale, Pompano Beach, Sunrise, Lauderdale Lakes, Oakland Park, Wilton Manors, Plantation, Weston, Ft. Lauderdale, Davie, Cooper City, Hollywood, Dania, Pembroke Pines, North Miami Beach, North Miami, Hialeah, Miami, Medley, Miami Springs, Coral Gables, and Homestead

Counties: Three-fourths of the watershed lies within Miami-Dade County and a smaller area lies within Broward County.

Major Water Features: Biscayne Bay, Miami River, New River, Pompano Canal, Taylor Slough, Atlantic Intracoastal Waterway (AICW), and near shore coastal waters of the Atlantic Ocean

Overview: The Biscayne Bay-Southeast Coast Basins encompass much of the lower east coast region of the state, extending from the Everglades Water Conservation Areas 2 and 3 and Everglades National Park on the western side, to the Atlantic Ocean on the eastern side. They include Biscayne Bay, the New River, Pompano Canal, Taylor Slough, the Atlantic Intracoastal Waterway (AICW), and the near shore coastal waters of the Atlantic Ocean.

The City's water resources consists of the Oleta River Estuary, Arch Creek, Little Arch Creek, Biscayne Bay, Emerald Lake, and man-made drainage systems.



3.1.6. Source Water Protection

North Miami acquires its source water from the aquifer and not surface water. North Miami's source water is the Biscayne Aquifer. Miami-Dade County identifies our well field protection areas. By rule, the source water protection area for a system that uses ground water as its source shall be established as the area having a 500 foot radius around each well. This information is overseen by the South Florida Water Management District and is monitored through North Miami's "Consumptive Use" permit. The permit is current at time of this. Please see Appendix D for a complete response to Linda Ann Clemens, PG of the Florida Department of Environmental Protection request for additional information on source protection.

3.1.7. Environmentally Sensitive Areas or Features

3.1.7.1. Wetlands

U.S. Department of the Interior National Wetland Inventory Map is shown in Appendix D. The City's wetlands are located primarily in the area bounded by Biscayne Boulevard and Biscayne Bay. There is also additional 4.4 acres wetlands area between Arch Creek Road and Emerald Drive. The City also owns an additional 4.7 acres wetlands area, on the northeast corner of NW 17th and NE 135th street. These wetland areas consist of mangrove preserves. Projects within jurisdictional wetland areas are required to obtain all Federal, State and county permits, and provide mitigation as necessary.

Biscayne Bay is approximately 40 miles long and 2-10 miles wide and forms part of the Atlantic Intercoastal Waterway. It offers a diverse marine ecosystem with living coral reefs. The Bay is home for all kinds of sea life that includes stone crabs, manatees, dolphins, seagrasses and a variety of wading birds.

There are also two (2) lakes within the City limits. Emerald lake is located NE of 16th Avenue, Arch Creek Road and Emerald Drive and Pepper Park Lake is located at NE 135th Street and NW 17th Avenue.

3.1.7.2. Environmentally Sensitive Lands

According to the USDA Natural Resources Conservation Service, there are no prime or unique farmlands in the planning area. Also, there are no Outstanding Florida Waters (OFW's) listed in the City's service area.

3.1.7.3. Plant and Animal Communities (Endangered Species)

See Appendix E; for a list of plant and animal communities in Dade County, Florida.

The City limits are mostly urban however the City has the Oleta River State Park. The Oleta River State Park is the largest urban park in Florida and offers a variety of recreational opportunities and the north end of the park beautiful mangrove forest preserves native South Florida plants and wildlife. The project areas outlined in this Facilities Plan are not located in the State Park.

3.1.7.4. Archeological and Historical sites.

Discussions have been held with the State Historic Preservation Officer of the Division of Historical Resources of the Florida Department of State regarding potential historical or archaeological sites within the project area.

The city's most important historic resource in the City of North Miami is the Arch Creek Historic and Archaeological Site. The county owns and maintains the Arch Creek Park. The Arch Creek Historic and

Archaeological site is listed on the National Register of Historic Places. There is a mangrove area along Arch Creek that is preserved and includes a Tequesta Indian canoe landing.

The Arch Creek Bridge was built in 1925 and is listed on the Florida Master Site file, which lists historic and archaeological sites in the State of Florida.

According to the City’s Comprehensive Plan the following table of historic structures located in the City of North Miami is inclusive.

<u>Site Name</u>	<u>Year Built</u>	<u>Structure Use</u>
William Jennings Bryan Elementary	1928	School
Bethany Evangelical Covenant Church & School	C1934	House of worship
Griffing Park	C1946	Park
Automatic Car Wash	C1950	Service station
12310-12320 West Dixie Highway	C1951	Commercial
Luggen’s Discount Photo and Video	C1925	Commercial
Nightingale Gardens	C1925	Nursing home/Private residence
Sam’s Discount Tires	C1950	Service station
12343-12345 West Dixie Highway	C1949	Commercial
Intl Brotherhood of Teamsters Local 390	C1950	Commercial
Northeast Pain Management	C1949	Commercial
Dixie Medical Center	C1935	Commercial/Medical

3.1.8. Flood Plain

Flood zones for the city are designated on the Flood Insurance Rate Map (FIRM) located in Appendix F. The city is mostly located within AE flood zone, with the areas of Biscayne Bay in the AV flood zone. The central area of the city is in AE and X flood zones and the western area of the city is located in the X flood zone. Flooding should be evaluated further by the design engineer.

<u>Flood Zone</u>	<u>Description of Zone</u>
AE	Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study. The Base Flood Elevations (BFE’s) derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements

	apply.
X	Zone X is the flood insurance rate zone that corresponds to areas outside the 100 year floodplains, areas of 100-year sheet flow flooding where average depths are less than 1 foot, areas of 100-year stream flooding where the contribution drainage area is less than 1 square miles, or areas protected from the 100-year flood by levees. No Base Flood Elevations or depths are shown within this zone.

3.1.9. Air Quality

The City recognizes the National Ambient Air Quality Standards and the criteria air pollutants in development of this project. Because of the climate conditions in South Florida, Miami-Dade County has better air quality than most major metropolitan areas in the United States. The FDEP rates the air quality thought Miami-Dade County as good. Air pollution is generally not a significant threat to the residents of North Miami.

3.2. Socio-economic Conditions

3.2.1. Population

2010 Census indicates there are 58,786 people within the city's 8.41 square miles land area so the estimated number of people per square per mile is 6,990.

Also in the 2010 Census it indicates that there are 22,110 households with approximately 3.12 persons per household. Median household income is 36,808 and the Per capita income in the past 12 months per the 2010 Census is \$17,264 with 21.2% of the city below the poverty line.

3.2.2. Land Use and Development

North Miami is predominately residential and a mix of small business. Land value is expected to increase by three percent annually. Future Land Use Map Appendix G.

3.3. Water Supply, Treatment, and Transmission/Distribution System

3.3.1 Project Description

The City of North Miami (the City) currently provides potable water for municipal use to an estimated population of 91,401 people (2009) within its service area which is located within the utility service area of the City of North Miami, in northeast Miami-Dade County.

Capital improvement are proposed for the drinking water distribution system and the associated water meters. The city recently completed a FDEP-SRF Facilities Plan for the city's only water treatment plant, Norman H. Winson. **Distribution System Improvements** include upgrading specific elements of the piping network to improve water quality and quantity. **Water Meter Improvements include** renewal and replacement of existing meters.

3.3.2 Existing Facilities

The City of North Miami's Norman H. Winson Water Plant well field consists of eight (8) existing Biscayne aquifer raw water supply wells. The treatment plant uses lime softening filtration and chloramines for disinfection and is currently permitted to treat 9.3 mgd of raw Biscayne aquifer water. The plant maintains 2 ground storage tanks with a capacity of 2.25 mgd.

The city’s water distribution system consists of over 300 miles of 1” to 30” diameter water mains that convey the finished water from plant to the individual customers.

City of North Miami Pipe Diameters and Lengths

<u>Diameter</u>	<u>Approximate Lengths</u>
2”	841,163-feet
4”	38,271-feet
6”	314,915-feet
8”	255,937-feet
12”	128,545-feet
16”	51,742-feet
20”	11,071-feet
30”	9,467-feet
	Total: 312.7-miles

Source: Hazen and Sawyer – Water Distribution System and Storage System Evaluation

3.3.3 History

The city has held a public water supply consumptive use permit issued by the South Florida Water Management District since 1977. The allocation issued in 1977 was for 3.39 billion gallons per year, or 9.3 mgd. The maximum-day allocation also was limited to 9.3 mgd which corresponds to the capacity of the treatment plant. The city met demands beyond their allocation of a bulk sale services agreement with Miami-Dade County Water and Sewer Department (MDWASD).

The Hazen & Sawyer Technical Memorandum mentions the renewal of the city’s Water Use Permit was issued in August 23, 2010 and expires on August 23, 2030. The maximum withdrawal rate from the Biscayne Aquifer continues to be 9.3 MGD, which results in a finished water production capacity for the existing lime softening plant of approximately 9.11 MGD.

3.3.4 Recent Upgrades

On October 12, 2007, the City of North Miami timely applied for a modification and renewal of their consumptive use permit. The applicant requested an allocation to provide treated water for up to 108,267 people in the year 2030. The city of North Miami worked closely with District Staff in developing projections of customer demands (finished water use). The population projections were developed by analyzing the Traffic Analysis Zones with Miami-Dade County. Miami-Dade County Water and Wastewater Services Department and the District are reflective of populations approved by the Department of Community Affairs through the prevailing Comprehensive Land Use Plan Amendment.

The city has completed a Facilities Plan for the city's only existing water plant named Norman H. Winson Water Treatment Plant and is in the process of bidding Phase 1 for construction which includes rehabilitation of six (6) Biscayne Aquifer Production Wells and Filter Rehabilitation. The filter rehabilitation project components include replacement of filter media, surface wash agitator system, under drain system and pipe gallery for existing filters one through four, including refurbishment and waterproofing of filter interiors for leak suppression. The well rehabilitation project includes geophysical logging, testing, video surveying, disinfection of each well and installation of new column piping complete with all appurtenances

3.3.5 Raw Water Demands

Average Annual Demands based on historical water use, the city's projected finished per capita use rate is 139.4 gallons per capita per day. The projections indicate that the population of the service area will increase from 92,220 people in 2010 to 108,267 people in 2030. The total finished water demand for the year 2030 is 5.509 mgd (15.09 mgd). The city was evaluated for the five years preceding April 1, 2006 and shows the base condition water use was 3,185.39 mgd (average of 8.73 mgd).

3.3.6. Water Conservation

Please note, all applicable permits for the following programs (A through H) have been met.

A: Permanent Irrigation Ordinance: The city is in the process of drafting and approving a Permanent Irrigation Ordinance. As per Limiting Condition 24, a permanent irrigation ordinance shall be adopted and effective no later than August 31, 2011.

B: Xeriscaping Ordinance: The city is in the process of adopting a Florida Friendly Landscape Ordinance. As per Limiting Condition 24, this ordinance shall be adopted no later than August 31, 2011.

C: Ultra-Low Volume Plumbing Fixture Ordinance: North Miami Code Sec. 5-16. Adoption Of Florida Building Code. The Florida Building Code, as adopted and amended by the state, shall be the building code for the city. (Ord. No. 1253, § 1,4-8-08; Ord. No. 1262, § 1,7-8-08)

D: Water Conservation Rate Structure: The city is conducting a study towards the adoption of a Tiered Water Conservation Rate Structure. As per Limiting Condition 24, a tiered Water Conservation Rate Structure shall be implemented no later than August 31, 2011,

E: Leak Detection Program: The city has provided the following description of their leak detection program: First a section of the distribution system is surveyed using Aqua 40 Loggers. The data from the logger are down loaded into Aqua 40 program, when a leak is detected the date is recorded, Next using correlation equipment tile leak is located and recorded. That information is then passed on to the Distribution Department to be scheduled for repairs. When the leak is uncovered we visually estimate the gallons per minute, that information and the date repaired is recorded. Using this information the amount water lost is calculated.

F: Rain Sensor Device Ordinance: The city is currently revising their Land Development Regulations (Ordinance No. 1278, adopted April 28, 2009) to comply with current District criteria. As per Limiting Condition 24, the city shall adopt a Rain Sensor Ordinance by August 31, 2011.

G: Water Conservation Education Program: The city provides the following services: in-school programs, printed materials, public service announcements, AWWA Developed in-house.

H: Reclaimed Water: The city does not operate a wastewater treatment plant. The city will continue to explore water reuse opportunities with the SFWMD, MDWASD and the City of North Miami Beach.

3.3.7. Performance of Existing Water System.

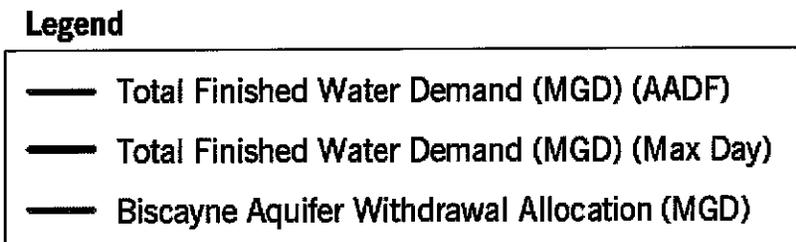
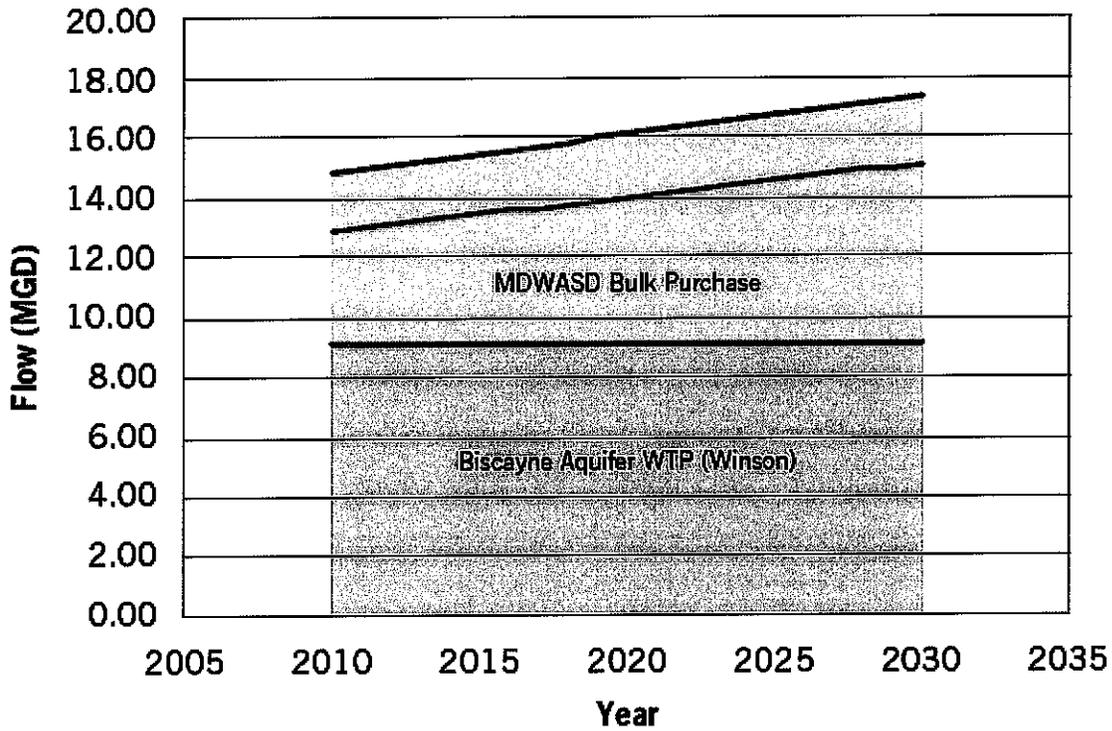
The distribution system, being old, experiences lost water. City staff constantly tends to the maintenance of these facilities. The treatment plant proposed through this facilities plan to receive the necessary upgrades to maintain regulatory compliance and customer demands. Malfunction of the equipment occurs periodically. Facility upgrade is needed to ensure continuous regulatory compliance.

3.3.5. Water Demand Projection.

Water demand is shown in the following tables and is based upon the assumptions listed:

Table 1.1 Finished Water Demand Forecast by H&S

Calendar Year	2010	2015	2020	2025
Total Finished Water Demand (MGD)	12.86	13.42	13.99	14.53



North Miami Service Area Average Day Water Demand Projections (Showing Treatment Losses)																					
Calendar Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Projected Population in Serving Area (in thousands)	93.22	93.43	93.84	94.06	95.47	96.28	97.1	97.92	98.75	99.55	100.36	101.16	101.99	102.81	103.6	104.21	104.83	105.63	106.54	107.46	108.27
Total Finished Water for Capital (MGD)	119.48	119.49	119.49	119.49	119.49	119.49	119.49	119.49	119.49	119.49	119.49	119.49	119.49	119.49	119.49	119.49	119.49	119.49	119.49	119.49	119.49
Total Finished Water Demand (MGD)	12.86	12.97	13.08	13.20	13.31	13.42	13.54	13.65	13.76	13.88	13.99	14.10	14.22	14.33	14.41	14.53	14.64	14.75	14.87	14.98	15.09
Total Finished Water Production Capacity (MGD)	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11
Finished Water Purchased from MDWASD (MGD)	3.74	3.85	3.97	4.08	4.19	4.31	4.42	4.54	4.65	4.76	4.88	4.99	5.10	5.22	5.30	5.41	5.51	5.64	5.77	5.89	6.00
Biscayne Aquifer																					
Total Lime Softened Finished Water Produced (MGD)	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11
Losses from Treatment (%)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Lime Softened Treatment Losses (MGD)	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Biscayne Raw Water Demand (MGD)	9.30	9.30	9.30	9.30	9.30	9.30	9.30	9.30	9.30	9.30	9.30	9.30	9.30	9.30	9.30	9.30	9.30	9.30	9.30	9.30	9.30
Floridan Aquifer																					
Total Membrane Treated Finished Water Produced (MGD)	0	0	0	0	0	0	0	0	4.65	4.76	4.88	4.99	5.10	5.22	5.30	5.41	5.51	5.64	5.77	5.89	6.00
Losses from Treatment (%)	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Losses from Treatment (MGD)	0	0	0	0	0	0	0	0	1.55	1.59	1.63	1.66	1.70	1.74	1.77	1.80	1.84	1.88	1.92	1.96	1.99
Floridan Raw Water Demand (MGD)	0	0	0	0	0	0	0	0	6.20	6.35	6.50	6.65	6.80	6.96	7.07	7.22	7.37	7.52	7.67	7.82	7.97
Raw Water (Biscayne + Floridan Aquifers) Totals*																					
Total Finished Water Demand (Biscayne + Floridan Aquifers) - Does not include MDWASD Supply	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	13.76	13.88	13.99	14.10	14.22	14.33	14.41	14.53	14.64	14.75	14.87	14.98	15.09
Total Losses From Treatment (MGD)	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	1.74	1.77	1.81	1.85	1.89	1.93	1.95	1.99	2.03	2.07	2.10	2.14	2.18
Total Raw Water Demand from Combined Sources (MGD)	9.30	9.30	9.30	9.30	9.30	9.30	9.30	9.30	15.50	15.65	15.80	15.95	16.10	16.26	16.37	16.52	16.67	16.82	16.97	17.12	17.27

3.3.7. Service Population and Finished Water Projections

The table below gives service population and actual finished water production annual averages for five previous years.

**City of North Miami Water Use Permit (SFWMD)
Per Capita Use Per MORs and MDWASD (Fin. Water)**

	2005	2006	2007	2008*	2009	Average 2005 - 2009
Population in Service Area**	88,732	89,429	90,125	90,586	91,401	90,055
Per Capita Usage (Annual Average) (gpcd)	145.59	147.31	142.94	132.02	129.12	139.40
Total Annual Use (Finished Water- From Winson WTP) (MG)	3172.447	2923.192	2823.412	2393.035	2905.809	2843.599
Total Annual Use (Finished Water- From MDWASD) (MG)	1542.903	1885.33	1878.664	1983.912	1413.62	1740.89
Total Annual Use (Finished Water- Total) (MG)	4715.350	4808.522	4702.076	4376.947	4319.533	4584.486
Average Month Use (Finished Water- From Winson WTP) (MG)	264.371	243.698	235.284	199.420	242.159	236.967
Average Month Use (Finished Water- From MDWASD) (MG)	128.576	157.111	156.555	165.326	117.802	145.074
Average Month Use (Finished Water- Total) (MG)	392.946	400.710	391.839	364.746	359.961	382.040
Max Month Usage (Finished Water- From Winson WTP) (MG)	279.399	268.230	269.184	217.312	253.163	257.458
Max Month Usage (Finished Water- From MDWASD) (MG)	147.984	208.281	190.656	222.462	146.969	183.267
Max Month Usage (Finished Water- Total) (MG)	427.383	476.511	459.840	439.774	400.132	440.724
Ratio Max:Average (Finished Water- From Winson WTP)	1.06	1.10	1.14	1.09	1.05	1.09
Ratio Max:Average (Finished Water- From Winson WTP)	1.15	1.33	1.22	1.35	1.25	1.26
Ratio Max:Average (Finished Water- From Winson WTP)	1.09	1.19	1.17	1.21	1.11	1.15

* Leap Year

** Population Based on Interpolation of Data from Nmpopulationworksheet New Service Area

3.4 Managerial Capacity

The City of North Miami has the sole responsibility and authority to build, operate, and maintain the water system. The city's water utility department provides the drinking water services. The Utility Director is licensed professional engineer in the State of Florida. The system is operated continuously.

3.4.1. Operation and Maintenance Program.

The city utility staff maintains and operates the water system. Repairs/rehabilitation of the water mains due to broken pipes and joints are periodically made. Telemetry is installed in all the booster pump stations. The treatment plant and distribution system is operated continuously by utility staff consists of licensed water plant and water distribution system operators..

Chapter 4.0 - Development of Alternative (See Appendix A)

Chapter 5.0 - The Selected Plan (See Appendix A)

Chapter 6.0 - Implementation and Compliance

6.1. Public Hearing/Dedicated Revenue Hearing

A public hearing/dedicated revenue hearing was held at City Hall. on August 26, 2014, after advertising in the area newspapers. Citizens attended the hearing. Records of the public notice and the hearing are available in the City Office. A summary of the hearings is attached in **Appendix H.**

6.2. Regulatory Agency Review

To qualify for a subsidized loan from the SRF, various governmental agencies must be satisfied with the way that The City of North Miami's water system problem is to be solved. Copies of the facilities plan adopted by the City Commission will be sent to State Clearinghouse for a multi-agency review.

6.3. Financial Planning

The Department of Environmental Protection's State Revolving Fund is expected to be the financing source for the project. A business plan (BP) has been prepared to explain to the public and to the State Agency what the financial impact on the users of the water system will be. The BP is shown in **Appendix I.**

The existing user system rate ordinance in support of this project is as follows: **NOTICE FOR NORTH MIAMI UTILITY CUSTOMERS** -The City of North Miami's Water and Sewer Utility implemented a new consumption based rate structure in 2012 (Resolution No. R-2012-52.) Effective October 1, 2013, this rate structure proposes an increase of 3.0% for water and 11.5% for sewer charges in Fiscal Year 2013-2014. This rate structure was implemented in 2012, replacing a previous rate structure that was based on an annual inflationary increase. The North Miami Water and Sewer Utility's Consumptive Use Permit (13-00059-W) issued in August 2010, required the adoption of a consumption-based rate structure as one of the conditions of issuance. The rate increases and assessments described herein were considered by the City Council at the public hearing held on April 10, 2012. Notice of this hearing was published on all customer utility bills.

New Utility Rate Structure

The adoption of the new consumption-based rate structure for North Miami's water and sewer utility replaces the previous Consumer Price Index (CPI)-based rate structure, which allowed for annual increases due to inflation. This new structure will have an effect on all utility customers. The effect will vary, based upon the amount of water you consume at your home or business.

Under the new tiered rate structure, you will be charged for usage in incremental units every three months: up to 5,000 gallons, up to 12,000 gallons and up to 20,000 gallons, etc. The less water you use, the lower your quarterly bill will be.

6.4. Implementation

The City of North Miami has the sole responsibility and authority to implement the recommended facilities.

6.5. Implementation Schedule

<u>Date</u>	<u>Description</u>
August 26, 2013	Hold Public Hearing on Facilities Plan and Business Plan.
September 2013	Submit Facilities Plan and Public Participation Documentation to FDEP.
April 2014	Facilities Plan submitted to Clearing House for review and comment.
April 2014	FDEP review and publish the Department's Environmental Information Document (EID) in the Florida Administrative Weekly for 30-days comment period.
April 2014	End of the 30-day comment period for the EID and approval of the planning documents.
April 2014	Plans & Specifications (Readiness to Proceed) documents complete and submitted to FDEP.
April 2014	Submit request for addition of the project(s) to the FDEP's project priority list.
May 2014	Hearing to add the project(s) to the Fundable portion of the priority list.
June 2014	Sign SRF Loan Agreement
June 2014	Advertise for bids
June 2014	Open construction bids
June 2014	Award contract(s)
June 2014	Start project construction
June 2016	Complete construction
July 2016	Certify operational performance of the project and closeout project.
February 2017	Begin SRF loan repayments to the FDEP

6.6. Compliance

The City of North Miami is the permitted and certified entity in control of the proposed facility improvements and the city will ensure the following compliance requirements are met. Further, the city's adoption of this facilities plan constitutes full agreement with the contents of this facilities plan and therefore assumes responsibility to carry out the obligations associated within the facilities plan:

The drinking water from the selected alternative will be in compliance with the FDEP drinking water standards.

The selected alternatives shall meet the requirements of the F.A.C.

The environmental aspects of the proposed facilities are satisfactory.

The recommended facilities are consistent with The City of North Miami's comprehensive plan and/or with the County's comprehensive plan. Comprehensive Plan Provisional Compliance Form is located in Appendix J.

Appendix A

**The City of North Miami Water Distribution System and Storage System
Evaluation – Technical Memorandum by Hazen & Sawyer – December 2011**

Appendix B

Water Service Area Map and Near Term Improvements Map

Appendix C

Soil Map

Appendix D

Source Water Protection Information and Wetlands Maps

Appendix E
Species Report

Appendix F

Flood Map

Appendix G

Future Land Use Map

Appendix H

Public Hearing/Dedicated Revenue Hearing Documents

Appendix I
Business Plan and Financial Information

Appendix J

Comprehensive Plan Provisional Form

Appendix K
Water Meter Life Cycle Cost Analysis

Water Meter - Life Cycle Cost Analysis

Meter Assembly			
Item	Manual Read	Touch Read	AMI
Life of Equipment	15	16	20
Initial Cost of Equipment and Labor	1,079,760	3,533,760	4,692,048
Annual Operations & Maintenance Cost	200,000	220,000	220,000
Meter Read Cost	260,000	26,000	2,000
Salvage Value (at Year 20)	(674,850)	(2,120,256)	(2,346,024)
Discount Rate = 3-3/4%	0	0	0
Review Period	40	40	40
Present Worth of Future Amount	(155,187)	(487,569)	(539,486)
CPI	3%	3%	3%
Uniform Series Compound Amount	<u>38,642,765</u>	<u>20,665,473</u>	<u>18,649,334</u>
Life Cycle Cost	39,877,712	24,686,808	23,880,868
Best Selection	3	2	1

Present Worth of a Future Amount $P = \text{Salvage Value} \cdot (1/(1+i)^n)$ <use for salvage value>

Uniform Series Compound Amount $P = \text{O\&M} \cdot ((1+i)^n - 1) / i(1+i)^n$ <use for O&M cost>

Life Cycle Cost = Initial Cost of Equipment - Present Worth of Future Amount + Uniform Series Compound Amount

Appendix L
Financial Data

SCHEDULE OF PRIOR AND PARITY LIENS

Identify Each Obligation

#1 SunTrust 1 - Loan	\$1,200,000	#2 SunTrust 3 - Loan	\$508,959	#3 SunTrust 4 - Loan	\$709,181
Coverage %	120%	Coverage %	120%	Coverage %	120%
Insured (Yes/No)	Yes	Insured (Yes/No)	Yes	Insured (Yes/No)	Yes
#4 SunTrust 5 - Loan	\$514,250	#5 SunTrust 6 - Loan	\$424,421	#6 SRF WW131810	\$491,653
Coverage %	120%	Coverage %	120%	Coverage %	115%
Insured (Yes/No)	Yes	Insured (Yes/No)	Yes	Insured (Yes/No)	Yes
#7 SRF Loan DW131830	\$11,105,580	#8 Coverage	0%	#9 Coverage	0%
Coverage %	115%	Coverage %	0%	Coverage %	0%
Insured (Yes/No)	Yes	Insured (Yes/No)	No	Insured (Yes/No)	No

Fiscal Year	Annual Debt Service (Principal + Interest)	#1	#2	#3	#4	#5	#6	#7	#8	#9	Total Non-SRF Debt Service w/coverage	Total SRF Debt Service w/coverage
2012	197,734	84,269	90,470	84,428	68,626						630,632	-
2013	49,434	5,826	87,811	84,425	69,628						356,549	-
2014			87,812	10,378	69,628						201,382	-
2015			87,813		69,627						188,928	-
2016			87,812			30,068	679,181				105,374	709,249
2017			87,812			30,068	679,181				105,374	709,249
2018						30,068	679,181					709,249
2019						30,068	679,181					709,249
2020						30,068	679,181					709,249
2021						30,068	679,181					709,249
2022						30,068	679,181				-	709,249
2023						30,068	679,181				-	709,249
2024						30,068	679,181				-	709,249
2025						30,068	679,181				-	709,249
2026						30,068	679,181				-	709,249
2027						30,068	679,181				-	709,249
2028						30,068	679,181				-	709,249
2029						30,068	679,181				-	709,249
2030						30,068	679,181				-	709,249
2031						30,068	679,181				-	709,249
2032						30,068	679,181				-	709,249
2033						30,068	679,181				-	709,249
2034						30,068	679,181				-	709,249
2035						30,068	679,181				-	709,249

**SCHEDULE OF PROJECTED REVENUES AND DEBT COVERAGE
FOR RATE-BASED SYSTEM PLEDGED REVENUE**
(Begin with the fiscal year preceding first anticipated semiannual loan payment.)

	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>
(a) Operating Revenues (Identify)					
Water Revenues	12,049,050	12,320,800	12,722,100	13,348,300	14,219,900
Sewer Revenues	11,904,850	13,856,100	15,488,100	16,701,800	17,792,400
(b) Interest Income	53,921	55,916	57,985	58,391	60,551
(c) Other Incomes or Revenues (Identify)					
Other Charges for Service	1,688,600	1,688,600	1,692,900	1,697,100	1,705,600
(d) Total Revenues	<u>25,696,421</u>	<u>27,921,416</u>	<u>29,961,085</u>	<u>31,805,591</u>	<u>33,778,451</u>
(e) Operating Expenses	19,354,900	20,231,400	21,158,200	22,145,400	23,190,100
(f) Net Revenues (f = d - e)	<u>6,341,521</u>	<u>7,690,016</u>	<u>8,802,885</u>	<u>9,660,191</u>	<u>10,588,351</u>
(g) Existing Debt Service on Non-SRF Projects (including coverage)	630,632	356,549	201,382	188,928	105,374
(h) Existing SRF Loan Debt (including coverage)	0	0	0	0	709,249
(i) Total Existing Debt Service (l = g + h)	<u>630,632</u>	<u>356,549</u>	<u>201,382</u>	<u>188,928</u>	<u>814,623</u>
(j) Projected Debt Service on Non-SRF Future Projects (including coverage)	0	0	0	0	0
(k) Projected SRF Loan Debt Service (including coverage)	0	0	0	0	709,249
(l) Total Debt Service (Existing and Projected) (l = i + j + k)	<u>630,632</u>	<u>356,549</u>	<u>201,382</u>	<u>188,928</u>	<u>1,523,872</u>
(m) Net Revenues After Debt (m = f - l)	<u>5,710,888</u>	<u>7,333,467</u>	<u>8,601,503</u>	<u>9,471,263</u>	<u>9,064,479</u>

(o) Identify the source of the above information and explain methods used to develop the projections (*Attachment # 1*). Include an explanation of any revenue and expense growth or other adjustments; for example, any rate increases, service growth, inflation adjustments, expense adjustments reflecting the cost of operating additional facilities, or other considerations.

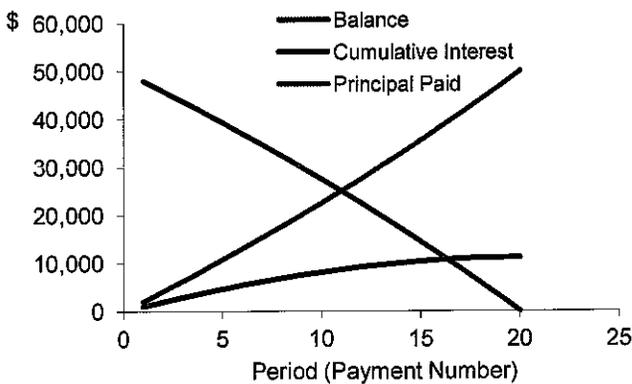
Are the above projections consistent with the capital improvements financing information in the accepted clean water facilities plan?
 Yes No. If not, explain on *Attachment #* _____.

Loan Amount (pv)	11,105,580
Interest Rate (rate)	2.00%
Total # of Periods (Nper)	20

Payment per Period	\$679,180.83
Total Interest Paid	\$2,478,036.51

Period	Payment Amount	Interest	Cumulative Interest	Principal	Principal Paid	Balance
						\$ 11,105,580.00
1	679,180.83	222,111.60	222,111.60	457,069.23	457,069.23	10,648,510.77
2	679,180.83	212,970.22	435,081.82	466,210.61	923,279.84	10,182,300.16
3	679,180.83	203,646.00	638,727.82	475,534.82	1,398,814.66	9,706,765.34
4	679,180.83	194,135.31	832,863.13	485,045.52	1,883,860.18	9,221,719.82
5	679,180.83	184,434.40	1,017,297.52	494,746.43	2,378,606.61	8,726,973.39
6	679,180.83	174,539.47	1,191,836.99	504,641.36	2,883,247.96	8,222,332.04
7	679,180.83	164,446.64	1,356,283.63	514,734.18	3,397,982.15	7,707,597.85
8	679,180.83	154,151.96	1,510,435.59	525,028.87	3,923,011.02	7,182,568.98
9	679,180.83	143,651.38	1,654,086.97	535,529.45	4,458,540.46	6,647,039.54
10	679,180.83	132,940.79	1,787,027.76	546,240.03	5,004,780.50	6,100,799.50
11	679,180.83	122,015.99	1,909,043.75	557,164.84	5,561,945.33	5,543,634.67
12	679,180.83	110,872.69	2,019,916.44	568,308.13	6,130,253.47	4,975,326.53
13	679,180.83	99,506.53	2,119,422.97	579,674.30	6,709,927.76	4,395,652.24
14	679,180.83	87,913.04	2,207,336.02	591,267.78	7,301,195.54	3,804,384.46
15	679,180.83	76,087.69	2,283,423.71	603,093.14	7,904,288.68	3,201,291.32
16	679,180.83	64,025.83	2,347,449.53	615,155.00	8,519,443.68	2,586,136.32
17	679,180.83	51,722.73	2,399,172.26	627,458.10	9,146,901.78	1,958,678.22
18	679,180.83	39,173.56	2,438,345.82	640,007.26	9,786,909.04	1,318,670.96
19	679,180.83	26,373.42	2,464,719.24	652,807.41	10,439,716.45	665,863.55
20	679,180.83	13,317.27	2,478,036.51	665,863.55	11,105,580.00	0.00

Loan Amortization Chart



Loan Amount (pv)	491,653
Interest Rate (rate)	2.00%
Total # of Periods (Nper)	20

Payment per Period	\$ 30,067.88
Total Interest Paid	\$ 109,704.68

Period	Payment Amount	Interest	Cumulative Interest	Principal	Principal Paid	Balance
						\$ 491,653.00
1	30,067.88	9,833.06	9,833.06	20,234.82	20,234.82	471,418.18
2	30,067.88	9,428.36	19,261.42	20,639.52	40,874.34	450,778.66
3	30,067.88	9,015.57	28,277.00	21,052.31	61,926.66	429,726.34
4	30,067.88	8,594.53	36,871.52	21,473.36	83,400.01	408,252.99
5	30,067.88	8,165.06	45,036.58	21,902.82	105,302.84	386,350.16
6	30,067.88	7,727.00	52,763.59	22,340.88	127,643.72	364,009.28
7	30,067.88	7,280.19	60,043.77	22,787.70	150,431.42	341,221.58
8	30,067.88	6,824.43	66,868.20	23,243.45	173,674.87	317,978.13
9	30,067.88	6,359.56	73,227.77	23,708.32	197,383.19	294,269.81
10	30,067.88	5,885.40	79,113.16	24,182.49	221,565.68	270,087.32
11	30,067.88	5,401.75	84,514.91	24,666.14	246,231.81	245,421.19
12	30,067.88	4,908.42	89,423.33	25,159.46	271,391.27	220,261.73
13	30,067.88	4,405.23	93,828.57	25,662.65	297,053.92	194,599.08
14	30,067.88	3,891.98	97,720.55	26,175.90	323,229.83	168,423.17
15	30,067.88	3,368.46	101,089.01	26,699.42	349,929.25	141,723.75
16	30,067.88	2,834.48	103,923.49	27,233.41	377,162.66	114,490.34
17	30,067.88	2,289.81	106,213.29	27,778.08	404,940.73	86,712.27
18	30,067.88	1,734.25	107,947.54	28,333.64	433,274.37	58,378.63
19	30,067.88	1,167.57	109,115.11	28,900.31	462,174.68	29,478.32
20	30,067.88	589.57	109,704.68	29,478.32	491,653.00	0.00

Loan Amortization Chart

