

**ADVANCE**  
FORT LAUDERDALE



**COMPREHENSIVE PLAN UPDATE**

Infrastructure Task Force Presentation

Presented by:



CITY OF FORT LAUDERDALE

**THE  
CORRADINO GROUP**

*April 1, 2019*

# Today's Agenda

- What is the Comprehensive Plan?
- **Capital Improvements Element**
- Project Timeline



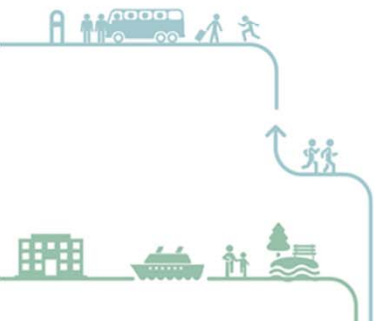
# What goes into a Comprehensive Plan?

## Existing Elements

- Administration and Implementation
- Future Land Use
- Infrastructure
- Housing
- Historic Preservation
- Transportation
- Conservation Coastal Management
- Parks and Recreation
- Education
- Intergovernmental Coordination
- Capital Improvements**
- Solid Waste

## New Elements

- Climate Change
- Urban Design
- Economic Development



# Updating Fort Lauderdale's Comprehensive Plan

## Existing Master Plans, Studies and Reports

*Press Play and Fast Forward*

Wastewater Infiltration and Inflow Plan

Stormwater Master Plan

Comprehensive Utility Strategic Master Plan

Downtown and New River Master Plan

Central Beach Master Plan

Northwest Regional Activity Center Design Guidelines

Sustainability Action Plan

Parks Master Plan

Connecting the Blocks

Complete Streets Manual

Vision Zero

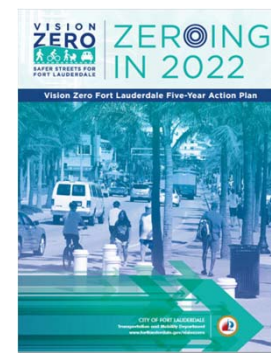
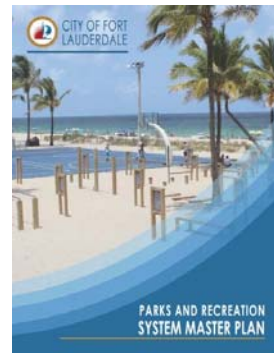
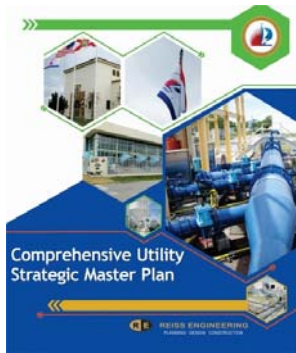
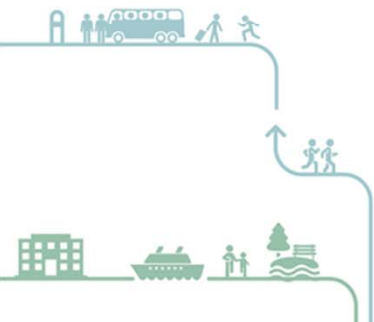
South Andrews Avenue Master Plan

Neighborhood Design Criteria Revisions (NDCR)

Uptown Urban Village Plan

Affordable Housing and Economic Analysis

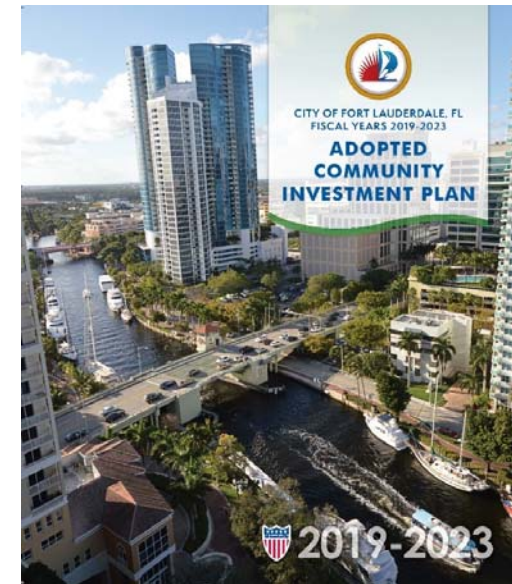
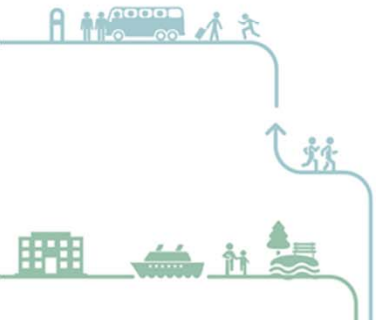
Design and Construction Manual



## Capital Improvements Element

### OBJECTIVE CI 1.1: Funding Capital Improvements

- The City Manager shall prepare and propose a five-year Capital Improvement Program and One-Year Capital budget to the City Commission annually as part of the Community Investment Plan (CIP) preparation process. The plan will include:
  1. Sources of funding
  2. Considerations of the Comprehensive Plan to develop the annual capital improvement plan
  3. Adherence to Level of Service Standards
    - a) Estimate of costs
    - b) Timing of program needs





## Capital Improvements Element

### OBJECTIVE CI 1.1: Funding Capital Improvements

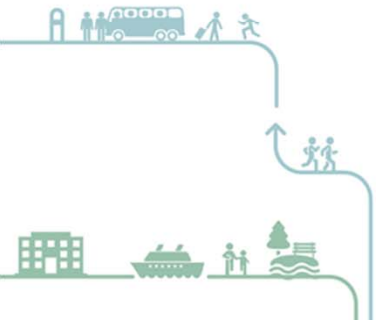
Ensure facility needs will not exceed the City's capacity to fund capital improvements:

1. Work with management and operational departments to assess and prioritize funding available for needs;
2. Needed to adequately service existing and development and development for which development orders were previously issued.



The Capital Improvements Element shall be reviewed annually:

1. Reference CIP as adopted and amended annually by the City Commission;
2. Ensure appropriate levels of funding; consider recapitalization, replacement costs, life cycle, annual depreciation needs, etc.;
3. Coordinate planning for City improvements with applicable government agencies;
4. Prioritize CIP projects based on hierarchy of program needs.



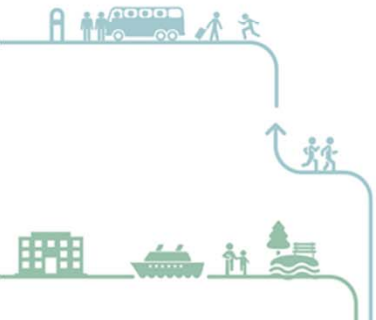


## Capital Improvements Element

### OBJECTIVE CI 1.1: Funding Capital Improvements

Capital projects will be evaluated using the following criteria:

1. Meets federal, state or legal requirement;
2. Project feasibility;
3. Costs and sources of funds;
4. Reduces risk and improves urgent safety needs;
5. Relevant level of service and performance measures;
6. Addresses aging infrastructure needs and maintenance of existing facilities;
7. Project consistency with existing approved plans and projects;
8. Improves traffic, mobility, connectivity, pedestrian safety and cyclist safety;
9. Environmental benefits;
10. Promotes or accelerates sustainable economic development.



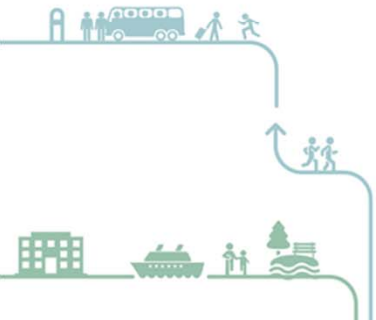


## *Capital Improvements Element*

### OBJECTIVE CI 1.1: Funding Capital Improvements

Examples of financing methods that may be used include:

1. General Fund Revenues
2. Enterprise Fund Revenues
3. General Obligation (GO) Bonds
4. Regulatory Fees
5. Special Assessments
6. Special Assessment Bonds
7. Revenue Bonds
8. Public Private Partnership
9. Energy Performance Contracts
10. Grants

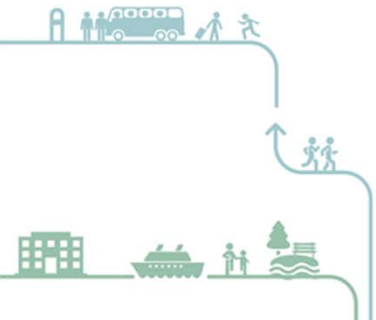




## Capital Improvements Element

### OBJECTIVE CI 1.2: Public Facilities and Standards for Level of Service (LOS)

1. Capital improvements will adhere to all construction standards, minimize construction costs and assure acceptable useful life and minimum maintenance cost;
2. Water, sanitary sewer, and stormwater improvements will be designed and constructed to the size required to serve the City's projected needs;
3. Water and sanitary sewer support systems need not reflect full future demand, but should be designed to accept future facilities without the need to substantially redesign existing facilities;
4. Utilize existing and future sources of funding for water, stormwater and wastewater improvements including impact fees;
5. Ensure all enterprise funds are utilized for the intended purpose.

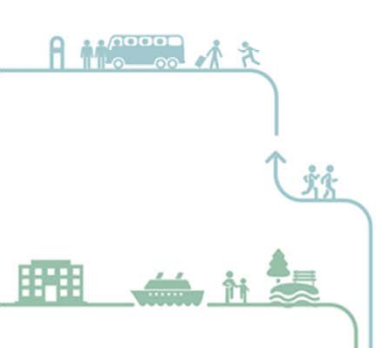




## Capital Improvements Element

### OBJECTIVE CI 1.2: Public Facilities and Standards for LOS (Water)

1. Assure that adequate water supplies and potable water facilities meet the adopted level of service, shall be available to serve new development no later than the issuance of a certificate of occupancy;
2. Implement the water supply projects described in the 10-Year Water Supply Facilities Plan. These improvements shall be incorporated into the Capital Improvements Element and City's budget on an annual basis;
3. Water supply projects to be undertaken within the next five years shall be included in the Five-year Capital Improvements Plan with identified, committed funding sources for the initial three years as required by Chapter 163, Florida Statutes.

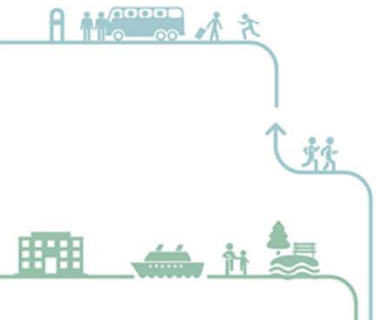




## Capital Improvements Element

### OBJECTIVE CI 2.1: Infrastructure Concurrency Management (Water)

- Design capacity of potable water treatment facilities;
- Existing LOS measured by average number of gallons/day based on average flows experienced and number of equivalent residential units within service area;
- Existing potable water storage capabilities of the water system;
- Existing minimum water pressure;
- Adopted LOS standards for the potable water facility components;
- Existing capacities or deficiencies of the system;
- Capacities reserved for approved but unbuilt development;
- City improvements to facility based on approved development impact on existing capacities and identified deficiencies.





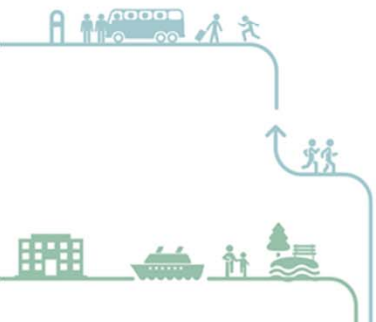




## Capital Improvements Element

### OBJECTIVE CI 2.1: Infrastructure Concurrency Management (Stormwater)

- Existing Level of Service (LOS) determined by the City's roadway flood protection criteria and environmental regulations;
- Adopted LOS standards and metrics for stormwater and environmental protection as defined by the City's Watershed Asset Management Plan (WAMP);
- The City shall provide capital improvements related to stormwater management, operations and maintenance;
- Drainage improvements designed to improve flood protection and pollution controls to City's streets and roadways;
- Improvements will be identified and prioritized by WAMP through adopted LOS and in alignment with asset management best practices, as defined by the Institute of Asset Management (IAM).

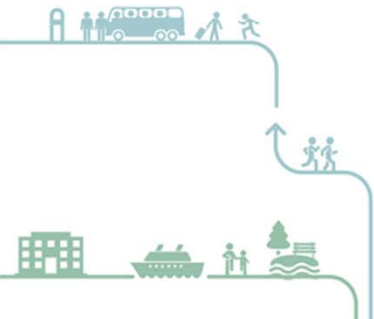
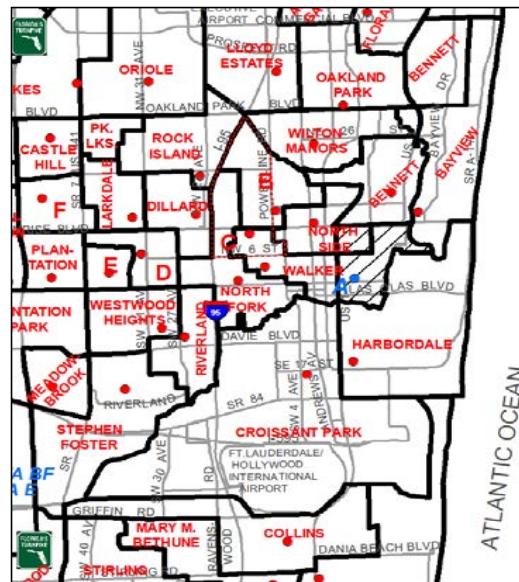




## Capital Improvements Element

### OBJECTIVE CI 2.2: School Board Capacity Coordination

- Broward County School Board shall coordinate with municipalities to ensure that public school facilities are available consistent with available financial resources and the adopted LOS;
- Five-Year District Educational Facilities Plan (DEFP) shall contain an annually updated, five-year financially feasible schedule of capital improvements to address existing deficiencies and maintain adopted LOS;
- Fort Lauderdale shall automatically amend its CIE to reflect any amendment, correction or modification to the Broward County School Board's adopted Five-Year DEFP;
- LOS for School Type A shall be 100% gross capacity (including relocatables);
- LOS for School Type B shall be 110% permanent Florida Inventory of School Houses (FISH) capacity.



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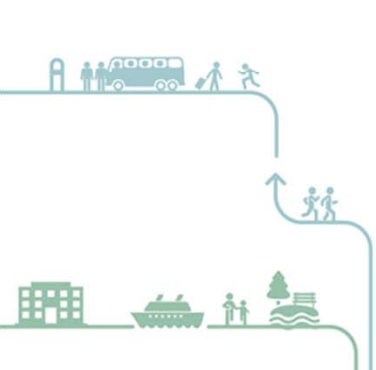
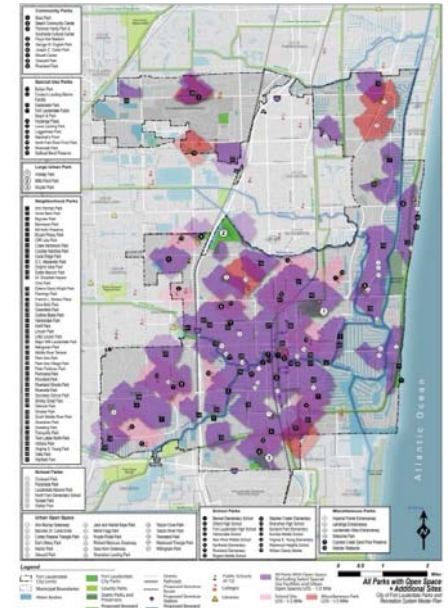
## Parks and Recreation Element

### EVALUATION MEASURE PR 1.1.1: (updated)

City will provide parks and open space to meet LOS of 5-acres of park and open space per 1000 residents at service radius of less than 1/2 mile to parks, playgrounds and walking and biking trails for all residents.

EVALUATION MEASURE PR 1.1.1a: Of the 5-acres per thousand resident LOS requirement, 2.0 acres shall be for neighborhood parks per 1000 residents.

EVALUATION MEASURE PR 1.1.1b: Of the 5-acres per thousand resident LOS requirement, 1.0 acre shall be community parks per 1000 residents.

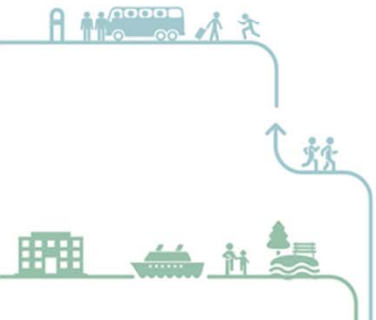


# ▶▶▶ Parks and Recreation Element

## Projected Park Level of Service: Park Acreage Per 1,000 people

	2015	2020	2025	2030	2035	2040	2045
Population	175,228	179,997	208,747	222,915	232,419	240,134	247,613
Acres/1000 people	5.46	5.31	4.58	4.29	4.12	3.98	3.86

- Population projection to be revised by Broward County after 2020 Census
- Statewide 2013 Outdoor Comprehensive Plan Target: 6 acres
- Total park acreage- 956.5 acres



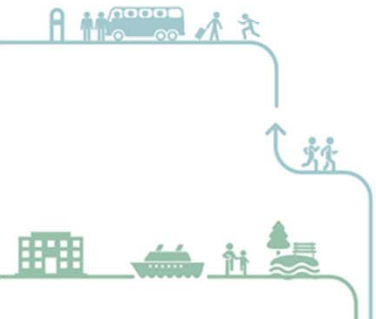


## Parks and Recreation Element

### Analysis of Park Acreage for Updated Park Level of Service: 5 Acres Per 1000 People

Year	2015	2020	2025	2030	2035	2040	2045
Population	175,228	179,997	208,747	222,915	232,419	240,134	247,613
Acres Needed to Maintain 5 Acres/1000 people Level of Service	876.1	900.0	1043.7	1114.6	1162.1	1200.7	1238.1
Additional Park Acreage Needed to Maintain Level of Service	None	None	87.2	158.1	205.6	244.2	281.6

- Population projection to be revised by Broward County after 2020 Census;
- Encourage publicly accessible open space through public realm requirements for new development projects.

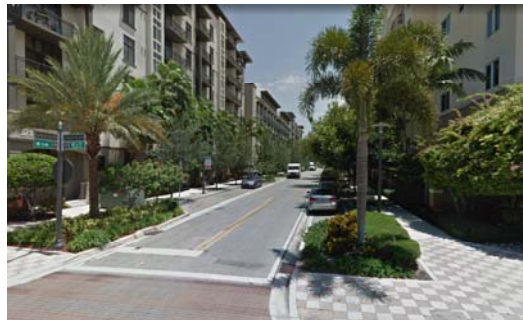
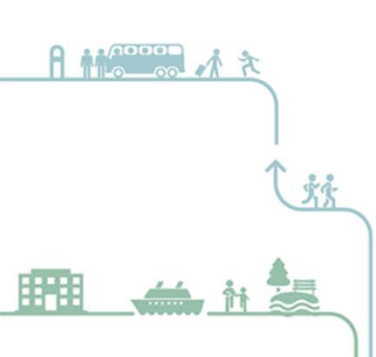


# Capital Improvements Element

## OBJECTIVE CI 1.2: Public Facilities and Standards for Transportation Level of Service

Prioritize capital improvements necessary to meet the adopted levels of service specified in the Transportation Element, giving consideration to the City's connected blocks policy, neighborhood needs and the following:

1. Prioritize roadway improvement projects that improve safety, complete existing network gaps, improve sustainability, support transit and:
  - Connecting the Blocks Program
  - Complete Streets Policy
  - Vision Zero Policy
2. Incorporate FDOT, County and MPO projects into Capital Improvements Program to track improvements within the City.



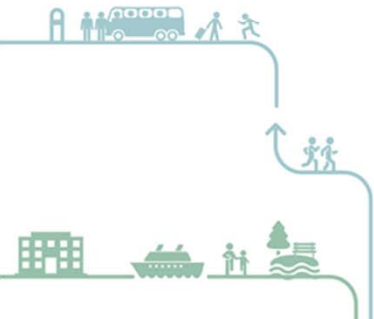


## Capital Improvements Element

### OBJECTIVE CI 2.1: Infrastructure Concurrency Management (Transportation)

Ensure infrastructure is available for existing and future development:

- Use adopted or as amended level of service standards for roadways and transit;
- Review design capacity based on different roadway and transit networks;
- Evaluate LOS standards based on multi-modal approach;
- Existing LOS measured by the average annual number of trips per day and peak hour trips;
- Projected capacities or deficiencies due to approved but unbuilt development;
- Planned improvements to be made to the roadway and transit network.





## Roadway LOS

Existing Local Roads - Level of Service D acceptable for urban environment based on:

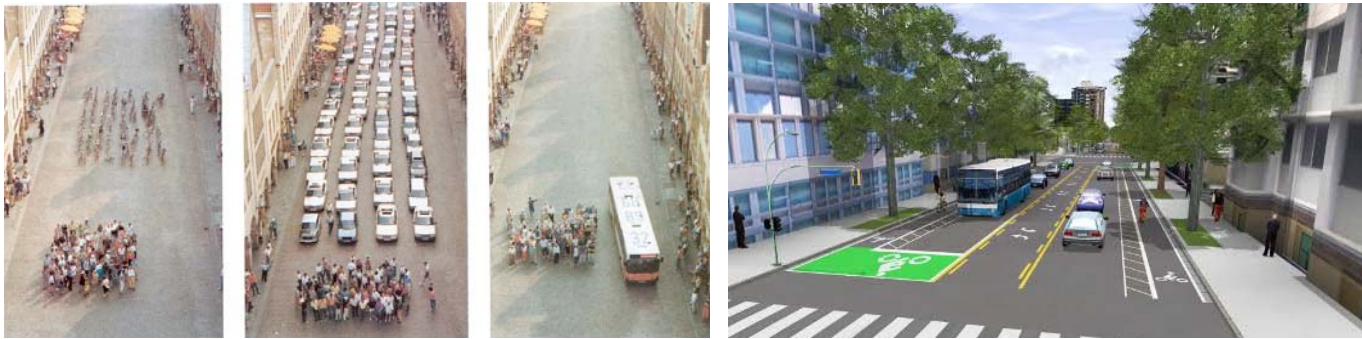
- Encourages slower driving through the streets and makes drivers more aware of their surroundings;
- Fast, free flowing traffic often dangerous for pedestrian and bicyclists
- Higher level of service would require prohibitive cost and societal impacts:
  - Lane additions
  - Bypass roads
  - Access management





# Roadway LOS

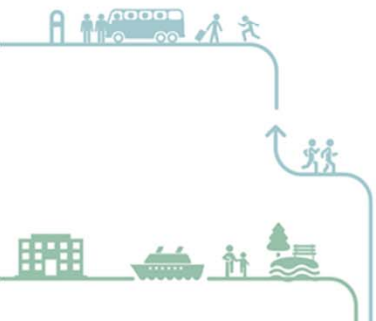
Multimodal Approach to Transportation;  
(sustainability, efficiency, cost-effectiveness, environmental, health and social equity aspects)



## Constructing and Maintaining Roadways

Add Bike Lanes and Resurface 4 Lane Divided Urban Roadway	\$1,148,368.61/mile*
Widen 2 Lane Divided Roadway to 4 Lanes and Add Bike Lanes	\$5,456,415.25/mile*

Source: FDOT  
\*Costs not inclusive of land acquisition



# Project Timeline

	
Comprehensive Plan Draft Framework	March 2018
Community and Stakeholder Meetings	May 2018 – March 2019
Second Draft	April 2019
Public Workshops	May/June 2019
Planning & Zoning Board	July 2019
City Commission	September 2019
Broward County Planning Council	October 2019
Broward County Commission	November 2019
State and other agency reviews	December 2019 - February 2020
Final Plan Adoption	March 2020





## Thank You

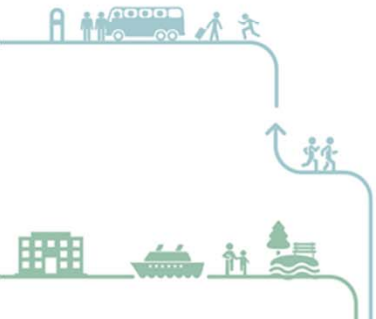
For Additional Comments and Questions, please visit:  
<http://www.fortlauderdale.gov/comprehensiveplan>

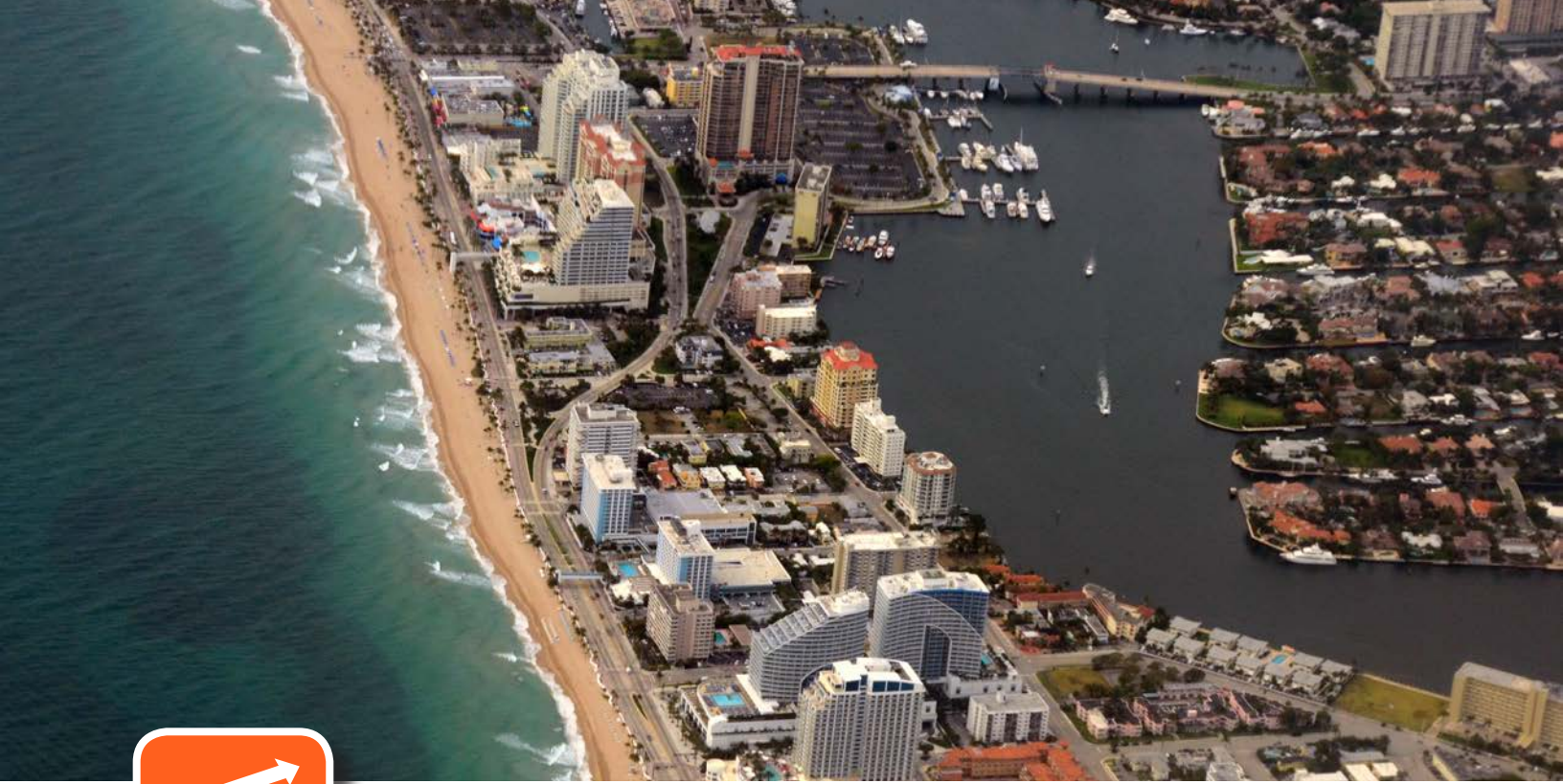
Join our list to keep involved, receive updates and come to our workshops throughout the process!

Drop us a note:

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Urban Design and Planning Division  
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# INTERNAL SUPPORT

## CAPITAL IMPROVEMENTS ELEMENT

### PRINCIPLES

The Capital Improvement Element is the primary mechanism to consider which and where public facilities should be located to implement the City of Fort Lauderdale Comprehensive Plan. It describes standards to improve existing facilities and for constructing new facilities for at least a five-year period and includes a detailed schedule of funding, prioritization and timing for all capital projects within the City. It also includes guidelines for determining capital improvement needs using a combination of level of service standards, performance criteria from the Vision Scorecard and the FL2 STAT Community Investment Plan Ranking Team under the direction of the City Manager, the City Commission and the Capital Improvement Plan Committee.

In this way, the Capital Improvement Element is an integral part of the City of Fort Lauderdale's budget. The five-year capital improvement plan is presented to the City Commission annually for adoption.

The Capital Improvement Element will also implement components of the City of Fort Lauderdale's Vision Plan and Strategic Plan as they relate to:

1. Transportation as a pedestrian friendly and multi-modal City
2. A sustainable and resilient community
3. Unique, inviting and connected gathering places
4. Educational excellence
5. Public safety



## GOALS, POLICIES, AND EVALUATION MEASURES

**GOAL 1:** The City will strive to provide infrastructure as appropriate to meet the standards set forth within the comprehensive plan elements, by preserving, modifying and replacing existing infrastructure and providing new infrastructure related to growth and resiliency.

### OBJECTIVE CI 1.1: Funding Capital Improvements

Ensure that financial resources are available to provide capital improvements that meet existing needs and needs of planned future growth and in a cost-effective manner.

**POLICY CI 1.1.1:** The City Manager shall prepare and propose a five-year Capital Improvement Program and One-Year Capital budget to the City Commission annually as part of the Community Investment Plan preparation process, for adoption to meet present infrastructure deficiencies and future infrastructure needs as discussed in other Elements of this Comprehensive Plan as follows:

1. The proposed plan shall include sources of funding for each capital improvement or category of capital improvement.
2. Utilize the findings and recommendations of the Comprehensive Plan to develop the annual capital improvement plan.
3. The Capital Improvement Schedule should demonstrate that level of service standards will be maintained in a such a way that deficiencies and needs are addressed during the next five-year period.
4. The schedule of capital improvements provides an estimate of public facility costs including a delineation of when it will be needed, the general location of the facilities and projected revenue sources to fund the facilities. Projects necessary to ensure that any adopted level-of-service standards are achieved and maintained for the 5-year period are identified as either funded or unfunded and given a level of priority for funding.



**POLICY CI 1.1.2:** Identify public facilities needed to adequately service existing development and development for which development orders were previously issued.

**POLICY CI 1.1.3:** Capital projects will be evaluated using the following criteria:

1. **Meets federal, state or legal requirement** - Whether there is a federal, state, local mandate, grant, court order, judgment, or other requirement that the project must be completed.
2. **Project feasibility** - Whether there are obstacles to proceeding with the project (land acquisition, easements, approvals required, etc.)
3. **Costs and sources of funds** - Whether the project would impact the City's operating costs, debt service level, and/or whether the project would yield revenue.
4. **Reduces risk and improves urgent safety needs** - Whether the project reduces an immediate or future risk, addresses a public health and/or safety hazard, or addresses an urgent safety needs.



5. **Relevant level of service and performance measures** - Is the impact of the project measurable? Will completing the project improve key performance measures or result in efficiencies?
6. **Addresses aging infrastructure needs and maintenance of existing facilities** - Whether the project helps to repair or replace the City's aging infrastructure (e.g. bridges, seawalls, roads) or provides for capital maintenance of existing City facilities (e.g. community centers, swimming pools, or sports complex).
7. **Project consistency with existing approved plans and projects** - Whether the project is directly consistent with a Commission approved plan, advances the Strategic Plan, the Commission Annual Action Plan (CAAP), and/or the Vision Plan.
8. **Improves traffic, mobility, connectivity, pedestrian safety and cyclist safety** - Whether the project would result in filling mobility gaps, supporting more effective interconnectivity, and ensuring increased and safe accessibility to activities, events and locations (bikeway path, commuter rail).
9. **Environmental benefits** - Whether the project would address sea level rise, flooding, energy efficiency, water quality, water efficiency or other sustainability measures.
10. **Promotes or accelerates sustainable economic development** - Whether the project would directly result in capital investment, increased tax base, increased property values, or improved job opportunities.

**POLICY CI 1.1.4:** The Capital Improvements Element will be reviewed annually. The Plan will include:

- Sources of funding
- Considerations of the Comprehensive Plan to develop the annual capital improvement plan
- Adherence to Level of Service Standards
- Estimate of costs
- Timing of program needs



**POLICY CI 1.1.4a:** The five-year capital improvement schedule of the Capital Improvement Element shall incorporate by reference the Community Investment Plan as adopted and as amended annually by the City Commission.

**POLICY CI 1.1.4b:** Top priority will be given to appropriate levels and schedules of recapitalization including quantity, replacement cost, life cycle and annual depreciation/recapitalization needs when developing budget recommendations for the Community Investment Plan.

**POLICY CI 1.1.4c:** Coordinate planning for City improvements with applicable government agencies.

**POLICY CI 1.1.4d:** Prioritize CIP projects based on hierarchy of program needs.



**POLICY CI 1.1.5:** Examples of financing methods that may be used include:

1. **General Fund Revenues** - General tax revenues, transfers in from other funds, and other receipts that are not allocated by law or contractual agreement used for new construction as well as improvements to infrastructure primarily for community-wide benefit and use, such as municipal buildings and parks.
2. **Enterprise Fund Revenues** - Revenues from a fund that provides goods or services to the public for a fee that makes the entity self-supporting (e.g. Water and Sewer, Stormwater, Sanitation, Parking, and Airport Funds).
3. **General Obligation (GO) Bonds** - Obligations secured by the full faith and credit of a governmental unit or payable from the proceeds of ad valorem taxes of a government unit which require voter approval.
4. **Grants** - Priorities adopted by the Commission that direct staff's pursuit of funds used for capital projects when available.
5. **Regulatory Fees** - Fees that are imposed for a sovereign function and shouldn't exceed the regulated activity's cost such as Park Impact Fees and Water and Sewer Capital Expansion Fees.
6. **Special Assessments** - Used to construct and maintain capital facilities such that the construction improves the property and the assessment has been fairly and reasonably apportioned among the properties receiving the benefit.
7. **Special Assessment Bonds** - Bonds that provide for capital improvements and are paid in whole or in part by levying and collecting special assessment on the abutting, adjoining, contiguous, or other specially benefited property.
8. **Revenue Bonds** - These are typically bonds that finance income-producing projects and are secured by a specified revenue source (e.g. Parking Revenues, Stormwater Fees, Water and Sewer Rates).
9. **Public Private Partnership** - A contractual agreement between a public agency and private sector entity with the intention in delivering a service or facility for the use of the general public.
10. **Energy Performance Contracts** - Projects that guarantee energy, water, and operational savings that must be greater than the cost of the project.

**POLICY CI 1.1.6:** All legal, feasible, cost-effective methods of financing capital improvements shall be explored. Capital projects shall not be dictated by the nature of funding available except to the extent that the projects meet an initial test of being required to achieve City goals and to the extent that project must be placed in priority dictated by the nature of funds available.

### **OBJECTIVE CI 1.2: Public Facilities and Standards for LOS**

Provide infrastructure, roads and public education facilities to meet existing needs and needs of planned future growth at the adopted level of service standards.

**POLICY CI 1.2.1: Water and Sewer** - Provide the necessary capital improvements to maintain water, wastewater and stormwater levels of service, based on service area proportional needs as described in the Infrastructure Element through 2040 and for consistency with the sustainability action plan as follows:

1. Capital improvements will adhere to all construction standards, minimize construction costs and assure acceptable useful life and minimum maintenance cost.
2. Water and sanitary sewer improvements will be designed and constructed to the size required to serve the City's projected needs. Water and sanitary sewer support systems need not reflect full future demand, but should be designed to accept future facilities without the need to substantially redesign existing facilities.



3. Utilize existing and future sources of funding for water and wastewater improvements including water and wastewater impact fees. Ensure all enterprise funds are continued and utilized for the intended purpose.
4. Assure that adequate water supplies and potable water facilities meeting the adopted level of service, shall be in place and available to serve new development no later than the issuance of a certificate of occupancy.
5. Implement the water supply projects described in the 10-Year Water Supply Facilities Plan. These improvements shall be incorporated into the Capital Improvements Element and City's budget on an annual basis.
6. Water supply projects to be undertaken within the next five years shall be included in the Five-year Capital Improvements Plan with identified, committed funding sources for the initial three years as required by Chapter 163, F.S.



**POLICY CI 1.2.2: Transportation** - Provide capital improvements necessary to meet the adopted levels of service specified in the Transportation Element, giving consideration to neighborhood needs and the following:

1. Prioritize roadway improvement projects that improve safety, complete existing network gaps, improve sustainability, support transit and reflect Connecting the Blocks Program, the Complete Streets Policy, and Vision Zero.
2. FDOT, County and MPO improvements within the City.

**EVALUATION MEASURE CI 1.2.3: Stormwater** - The City shall provide capital improvements related to the stormwater management, operations and maintenance including drainage improvements designed to improve flood protection and pollution controls to City's streets and roadways. These improvements will be identified and prioritized by the City's Watershed Asset Management Plan (WAMP) through adopted the Level of Service (LOS) and in alignment with asset management best practices, as defined by the Institute of Asset Management (IAM).

**EVALUATION MEASURE CI 1.2.4: Solid Waste** - Provide for adequate solid waste collection and disposal necessary to remain consistent with Broward County's Comprehensive Plan solid waste generation rates.

**GOAL 2:** Ensure adequate funding for infrastructure and capacity exist concurrent with development or redevelopment.

**OBJECTIVE CI 2.1: Infrastructure Concurrency Management**

Maintain Principles for constructing, extending or increasing capacity of public facilities. and principles for correcting existing deficiencies.

**EVALUATION MEASURE CI 2.1.1: Concurrency Management System** - The following is the Concurrency Management System used by the City for monitoring and ensuring adherence to: the adopted LOS standards, the availability of public facility capacity, and the schedule of capital improvements as defined in appropriate Comprehensive Plan elements. It includes guidelines for interpreting and applying LOS standards to applications for development orders (D.O.'s) and development permits (D.P.'s) and determining when the test for concurrency must be met, including the latest point in the application process for the determination of concurrency prior to the approval of an application. The Concurrency Management System provides a program that ensures D.O.'s and D.P.'s are issued in a manner that will not result in a reduction in the LOS below the adopted LOS standard for the affected facility.



### 1. Capacity and LOS Inventory

The provisions and requirements of the Concurrency Management System applies only to those facilities listed herein. The following inventories shall be maintained by the appropriate City departments and they will be used for the concurrency assessment of new development. The inventory shall be reviewed annually and updated as necessary.

#### a. Transportation

- Design capacity of different roadway and transit networks.
- The existing LOS measured by the average annual number of trips per day on a roadway link and the peak hour trips as provided in the last counts taken before November 1 by the Florida Department of Transportation, Broward County or the City.
- The status of service degradation on those roads classified as backlogged, based on the methodology described in the Transportation Element of this plan.
- The adopted level of service standards for roadways and transit.
- The existing capacities or deficiencies of the roadway and transit network. The capacities reserved for approved, but unbuilt development.
- The projected capacities or deficiencies due to approved but unbuilt development.
- The improvements to be made to the roadway and transit network by any approved developments pursuant to previous development orders and the impact of such improvements on the existing capacities or deficiencies.
- The improvements to be made to the roadway and transit network by the City, Broward County, the State of Florida Department of Transportation, or other public agency and the impact of such improvements on the existing capacities or deficiencies.



#### b. Sanitary Sewer

- The design capacity of the wastewater treatment facilities.
- The existing level of service standards measured by the average number of gallons per day per unit based on the average flows experienced at the treatment plant and the total number of equivalent residential units within the service area.
- The adopted LOS standard for average daily flows per equivalent residential unit.
- The existing deficiencies of the system.
- The capacities reserved for approved but unbuilt development.
- The projected capacities or deficiencies due to approved but unbuilt development.
- The improvements to be made to the facility by any approved developments pursuant to previous development orders and the impact of such improvements on the existing capacities or deficiencies.





**c. Potable Water**

- The design capacity of potable water treatment facilities.
- The existing LOS measured by the average number of gallons per day per unit based on the average flows experienced and the total number of equivalent residential units within the service area.
- The existing potable water storage capabilities of the water system. The existing minimum water pressure.
- The adopted LOS standards for the potable water facility components.
- The existing capacities or deficiencies of the system.
- The capacities reserved for approved but unbuilt development.
- The improvements to be made to the facility by any approved developments pursuant to previous development orders and the impact of such improvements on the existing capacities or deficiencies.
- The improvements to be made to the facility by the City and the impact of such improvements on the existing capacities or deficiencies.

**ci. Solid Waste Disposal**

- The design capacity of solid waste disposal facilities.
- The existing level of service measured by the number of units served per route.
- The adopted LOS standard for solid waste.
- The capacities reserved for approved but unbuilt development.
- The projected capacities or deficiencies due to approved but unbuilt development.
- The improvements to be made to the system by any approved developments pursuant to previous development orders and the impact of such improvements on the existing capacities or deficiencies.

**cii. Stormwater Drainage**

- The existing LOS determined by the current City's roadway flood protection criteria and environmental regulations.
- The adopted LOS standards and metrics for stormwater and environmental protection as defined by the City's Watershed Asset Management Plan (WAMP).





## OBJECTIVE CI 2.2: Coordination with School Board for School Capacities

**POLICY CI 2.2.1:** The City of Fort Lauderdale shall advise Broward as needed in regards to school needs generated by City's growth. Broward County, in collaboration with the School Board of Broward County and the municipalities shall ensure that public school facilities are available for current and future students consistent with available financial resources and the adopted LOS.

**POLICY CI 2.2.1a:** Consistent with policies and procedures within the Interlocal Agreement for Public School Facility Planning the Five-Year District Educational Facilities Plan (DEFP) shall contain a five year financially feasible schedule of capital improvements to address existing deficiencies and achieve and maintain the adopted LOS in all concurrency service areas. This financially feasible schedule shall be updated on an annual basis and annually adopted into the CIE.

**EVALUATION MEASURE CI 2.2.2:** The LOS for School Type A shall be 100% gross capacity (including relocatables). The LOS for School Type B shall be 110% permanent Florida Inventory of School Houses (FISH) capacity.

**POLICY CI 2.2.3:** The LOS shall be adopted and incorporated into the PSFE of Broward County and the Municipalities' Comprehensive Plans.

**POLICY CI 2.2.4:** Fort Lauderdale shall automatically amend its CIE to reflect any amendment, correction or modification to the Broward County School Board's adopted Five-Year DEFP concerning costs, revenue sources, or acceptance of facilities pursuant to dedications or proportionate share mitigation, once adopted by the School Board.



**City of Fort Lauderdale  
Infrastructure Task Force Committee**

**8th Floor City Commission Room – City Hall  
Fort Lauderdale, FL 33301**

<b><u>MEMBERS</u></b>		<b><u>PRESENT</u></b>	<b><u>ABSENT</u></b>
Marilyn Mammano	P		
Peter Partington	P		
Ralph Zeltman	P		
Jacquelyn Scott	P		
Roosevelt Walters	P		
Fred Stresau	P		
Norm Ostrau	P		
Dave Orshefsky	P		

**Staff Present**

Joe Kenney, Asst. Public Works Director  
Meredith Shuster, Sr. Administrative Assistant

Roll was called at \_\_\_\_ p.m. and a quorum was established.

**Communication to the City Commission**

1. Member \_\_\_\_\_ made the motion, seconded by member \_\_\_\_\_ recommending the City Commission:
  - a. Establish a permanent Infrastructure Advisory Board to continue the objectives of the Infrastructure Task Force and continue to make recommendations to the City Commission regarding infrastructure conditions and improvement strategies in infrastructure maintenance and resiliency.
  - b. The Board will assist in reviewing existing City infrastructure, including, but not limited to: roads, sidewalks, airports, seawalls, water and wastewater distribution and collection systems, treatment plants, well fields, parks and all City facilities and structures and examine their current condition and identify infrastructure for repair or replacement as well as review and identify funding sources and financing alternatives for those infrastructure improvements.
  - c. The Board will consist of eleven (11) members appointed by resolution of the City Commission, who shall serve a three (3) year term; a maximum of two (2) consecutive terms, without compensation and at the pleasure of the City Commission.

- i. Two members will be chosen by the Mayor and each Commissioner and one additional member by consensus of the entire Commission
- d. The Board should include members who have background or experiences to fit one or more of the identified groups. Also, it is recommended that each group be represented by at least one member of the following:

<p><b><u>Group 1:</u></b>  <b>Design &amp; Engineering</b>  <i>examples:</i>  <i>Landscape Architecture</i>  <i>Urban Planning</i>  <i>Civil Engineering</i></p>	<p><b><u>Group 2:</u></b>  <b>Municipal</b>  <i>City Administration</i>  <i>Former Elected Officials</i>  <i>Former Utility Directors</i></p>	<p><b><u>Group 3:</u></b>  <b>Finance</b>  <i>Governmental Finance</i>  <i>Private Finance</i></p>
<p><b><u>Group 4:</u></b>  <b>Law</b>  <i>Municipal Law</i>  <i>Corporate Law</i></p>	<p><b><u>Group 5:</u></b>  <b>Developer</b>  <i>Private Development</i></p>	<p><b><u>Group 6:</u></b>  <b>Community Association</b>  <i>Civic Associations</i></p>

- e. Each member of the Board shall be a resident, property owner, or business owner in the City of Fort Lauderdale.
- f. Notwithstanding above, if the City Commission determines that an applicant for a vacancy on the Board possesses the experience required for filling a particular vacancy, such person may be appointed.
- g. Board meetings and procedures:
  - i. The Board shall meet no more frequently than once each calendar month.
  - ii. The Board shall select its own chair and vice-chair from its members.
  - iii. The Board shall adopt rules and procedures for the conduct of its meetings.
  - iv. A majority of the members appointed to the Board on the date a meeting is held shall constitute a quorum.
- h. Board purpose and duties:
  - i. To act in an advisory capacity to the City Commission with regards to infrastructure maintenance and repair; and
  - ii. To review existing infrastructure, including, but not limited to: roads, sidewalks, airports, seawalls, water and wastewater distribution and

- collection systems, treatment plants, well fields, parks and all City facilities and structures and examine their current condition; and
- iii. To review and identify the repair or replacement as well as review and identify funding sources and financing alternatives for those infrastructure improvements; and
  - iv. To facilitate City resident's input in infrastructure improvements within the City; and
  - v. To provide recommendations to the City Commission on the adoption, prioritization and implementation of initiatives, actions, policies, and public outreach and education programs to support and promote all aspects of infrastructure repair; and
  - vi. To monitor the progress of approved recommendations and identify and address hurdles to their implementation to ensure that infrastructure improvements are implemented in a reasonable timeframe; and
  - vii. To review and advise on future infrastructure requirements for the City including needs, implementation and potential funding sources; and,
  - viii. To monitor and ensure that resiliency and sustainability is a consideration for all City infrastructure-related issues to confirm that the needs of future generations are considered beyond just the current priorities.

In a voice vote, the motion carried unanimously. (or vote breakdown)

## **THE CHARLES W. FIVEASH WATER TREATMENT PLANT**

By Ralph Zeltman, Civil Engineer of Fort Lauderdale's Infrastructure Task Force Committee

The Charles W. Fiveash Water Treatment Plant (WTP) was constructed in 1954 and has been expanded four times over 60+ years and now has a 70 Million Gallons per Day (MGD) design capacity and has an average demand of 35 MGD. The Fiveash WTP has 29 raw water wells located at the Prospect Wellfield permitted by the South Florida Water Management District to withdraw 52.55 MGD from the Biscayne Aquifer.

The raw water is pumped to the Fiveash WTP into two aeration basins to oxidize out objectionable iron and other minerals and liberate out gases/odors. The water is injected with coagulant polymers to precipitate out suspended solids such as iron and other objectionable minerals that the aeration basins were unable to remove. The water is then transmitted to four hydrotreaters where it is treated with lime to soften the water to achieve the proper pH level. Fluoride is injected to fluoridate water for healthier teeth and then the water is disinfected using chlorine and ammonia (chloramines) pursuant to Broward County Ordinance. This chloramine treatment method has a more stable residual and halts the formation of trihalomethanes (THM's) than free chlorine treatment and is a preferred method used by many utilities.

The finished water is then pumped by thirteen high service pumps, six of which are diesel engines, to transmit potable water from the WTP out through large diameter water transmission mains and ultimately through smaller distribution mains to convey potable water to the City's utility customers, including other cities and municipalities.

Although the treated potable water is periodically tested before leaving the Fiveash WTP to assure it meets all federal, state and local regulatory agency requirements, the treated water has a "shelf" life which means it degrades as a function of time during its travel from the WTP through the transmission and distribution mains encountering organic and other matter before ultimately reaching the utility customers. The time it takes for the water to travel through the pipes to the more distant water distribution areas periodically requires the City to test the water quality and if necessary, conduct maintenance with free chlorination and selected flushing through fire hydrants to eliminate/reduce the nitrification build-up that has developed over time, especially during warm Summer months and without the added water demand from our tourists.

Currently the City has selected a consultant to analyze and submit a report to recommend the best future for the Fiveash WTP. Options include replacing the current treatment system from the lime softening process to a new method of treatment, potentially similar to what transposed at the Peele Dixie WTP going from the lime softening water treatment process to a more state of the art nano-filtration water treatment plant. The Peele Dixie nano-filtration WTP may provide valuable information as part of the pilot study to ultimately provide the optimum design method best for the proposed Fiveash WTP granular activated carbon method of treatment.

I hope this information will benefit those residents/utility customers who want to know more about the City's continuing efforts to provide the best water treatment processes to their customers.

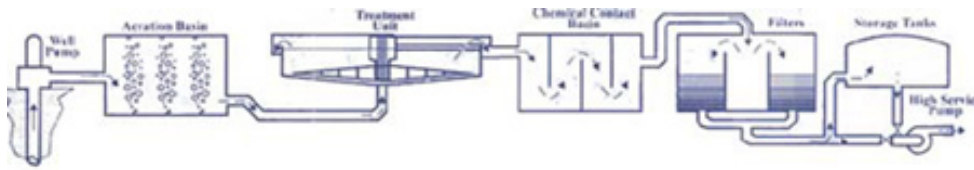


### The City of Fort Lauderdale Charles W. Fiveash Water Treatment Plant

The plant covers a full 1,000,000 square feet and sits on an 11.5-acre parcel of land near I-95 and Prospect Road. It has 29 wells, located in the Prospect Wellfield, just west of Fort Lauderdale Executive Airport.

At the heart of the operation is a computer nerve center which provides plant operators status updates and assists with control of the major plant equipment.

Thirteen high service pumps deliver potable water into the distribution system. Six high service pumps, driven by diesel engines, provide power in case of electrical service failure.



**WELL PUMP**

Ground Water from the Biscayne Aquifer is pumped from the Prospect Wellfield to the Fiveash Water Treatment Plant.

**AERATION BASIN**

The first Process toward clean water is aeration. Aeration, forcing air through the ground water, helps remove odor, iron, magnesium, and carbon dioxide.

**TREATMENT UNIT**

This is the heart of the plant process. It is here where lime and chemical coagulants draw the suspended particles together to form larger particles which settle to the bottom and are removed as sludge.

**CHEMICAL CONTACT BASIN**

Fluoride and disinfectants are added at this stage. Fluoride is for strong teeth and the disinfectants prevent bacteria from developing.

**FILTERS**

This is the final cleaning process. The remaining suspended particles are removed in one of the 22 dual media filters. Each filter contains 16 inches of anthracite coal, 12 inches of sand, and 8 inches of support gravel. Each filter can clean 4.63 MGD. Periodically, filters are cleaned by pumping water backwards through them and disposing of the solids.

**STORAGE TANKS**

Filtered water flows into three storage tanks which have a combined capacity of 14 MG. Future expansion may require the plant to provide an additional 5 MG of storage.

**HIGH SERVICE PUMPS**

The plant has a design capacity to supply up to 70 MGD of water to consumers. 6 diesel powered pumps of which 3 can provide emergency power when normal electrical service is interrupted.

**Infrastructure Task Force**  
**Regional Treatment Facility Capacities**  
*April 2019*

At the March 7, 2019 Infrastructure Task Force meeting, a request was made for additional feedback on the current capacity at the City's regional treatment facilities. The current status is as summarized below:

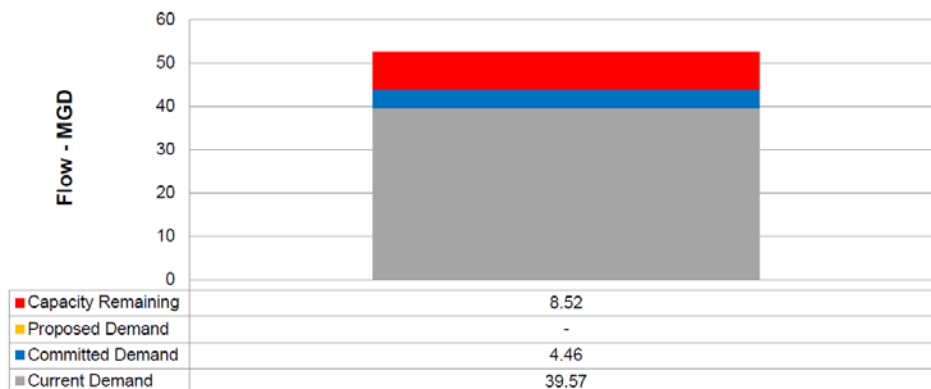
**Potable Water:**

The City's water supply relies on two potable water treatment plants – the Fiveash Water Treatment Plant which commenced operation in 1950 and the Peele-Dixie Water Treatment Plant (2008). A summary of their combined production capacity is:

Permitted capacity- 52.55 MGD AADF  
 Current AADF- 39.57 MGD  
 Committed flows- 4.46 MGD  
 Capacity remaining- 8.52 MGD

Abbreviation key:  
 MGD= Millions of gallons per day  
 AADF= Annual average daily flow  
 TMADF= Three month average daily flow  
 Committed flows= projects in development

**Summary of Water Production**



**Wastewater:**

A summary of capacity at the George T. Lohmeyer Wastewater Treatment Plant is:

Permitted capacity- 56.6 MGD TMADF  
 Current TMADF- 36.04 MGD  
 Committed flows- 4.46 MGD  
 Capacity remaining- 16.10 MGD

**Summary of Wastewater Treatment Capacity**

