



CITY OF FORT LAUDERDALE

**MEETING MINUTES
INFRASTRUCTURE TASK FORCE COMMITTEE
FORT LAUDERDALE CITY HALL
100 NORTH ANDREWS AVENUE
FORT LAUDERDALE, FLORIDA**

MONDAY, NOVEMBER 4, 2019 – 2:00 P.M. TO 5:00 P.M.

		Attendance	
Marilyn Mammano	P	29	1
Ralph Zeltman	P	29	1
Peter Partington	P	9	1
Roosevelt Walters	P	26	4
Fred Stresau	P	25	5
Norm Ostrau	P	27	1
Jacquelyn Scott	P	12	3
Gerald Angeli	P	6	0

As of this date, there are 8 appointed members to the Board, which means 5 would constitute a quorum.

Staff

- Talal Abi-Karam, Assistant Public Works Director – Utilities
- Omar Castellon, Chief Engineer
- Aneisha Daniel, Deputy Director of Public Works
- Dr. Nancy Gassman, Assistant Director of Public Works – Sustainability
- Fred Harris, Cityworks Administrator
- Todd Hiteshow, Environmental Compliance Manager
- Jill Prizlee, Chief Engineer
- Pauline Ricketts, Administrative Assistant
- Meredith Shuster, Senior Administrative Assistant
- Tatiana Guerrier, Recording Secretary, Prototype, Inc.

Communication to the City Commission

With a quorum present, the Infrastructure Task Force by consensus communicates to the City Commission:

1. It is in favor of broadly considering the Public, Private Partnership (P3) approach [for the replacement of the Fiveash Water Treatment Plant] providing that no form of P3 allows the City to give up ownership of the water, water quality or rate structure.
2. Prior to supporting a P3 the City should hire a consultant to evaluate the different type of P3s that would be appropriate and beneficial to the City on this project and further urges the City Commission to begin the process of finding said

consultant sooner rather than later should the P3 approach be determined to be the direction the City Commission chooses.

3. The Infrastructure Task Force supports the purchase of an allocation from the C-51 Reservoir and executing a Capacity Allocation Agreement.

1. Call to Order

- Roll Call

Chair Mammano called the meeting to order at 2:02 p.m. It was noted that a quorum was present.

2. Approval of Agenda

Motion made by Mr. Walters, seconded by Mr. Zeltman, to approve. In a voice vote, the **motion** passed unanimously.

3. Approval of Previous Meeting Minutes

A. October 7, 2019

Motion made by Mr. Walters, seconded by Mr. Angeli, to approve.

Mr. Partington noted the following correction to p.5: “/I” should be clarified as Inflow/Infiltration in its first use in the document.

Mr. Zeltman also noted a correction to p.6, paragraph 8: his question had been about exfiltration catch basin structures.

In a voice vote, the **motion** passed unanimously [as amended].

4. General Discussion and Comments by Committee Members

Chair Mammano stated that the Committee has been tasked with looking into the pros and cons of a Public-Private Partnership (P3) for the Fiveash Water Treatment Plant so they may advise the City Commission on this issue. Mr. Walters commented that if the Committee has not accomplished all its goals, time at future meetings should be set aside to complete this work.

Chair Mammano noted that the Committee has recommended to the City Commission that either the Infrastructure Task Force continue in the future or another advisory entity be asked to focus on the City’s infrastructure. At the most recent Commission meeting, there was consensus to wait until closer to March 2020 to revisit this issue.

The Committee members discussed this issue further, with Mr. Walters pointing out that some recommendations were not part of the Committee's original task, and that the Committee should seek to close out the items it had been charged to address before either its sunset or its extension by the City Commission. He asserted that the Committee was close to having accomplished all the tasks with which it was charged under its original Ordinance.

Mr. Ostrau asked if the members felt the C-51 reservoir was within the Committee's purview. Mr. Stresau added that the Committee has not discussed bridges, roads, sidewalks, or parks, which were part of the Committee's original scope, as they had been directed not to address all of these items. Mr. Partington and Mr. Zeltman reviewed the Ordinance that had created the Committee, which refers to reviewing and identifying items in need of repair or replacement as well as identifying funding sources and/or financing alternatives for these improvements.

There was consensus that the original charge of the Committee was very broad, and included some items that have not been discussed, such as those cited by Mr. Stresau as well as the 40-year review of the City's facilities. Some of these items were replaced by more urgent issues as they arose.

Mr. Walters recommended dedicating each of the remaining four meetings to one specific issue so they can complete their charge. As the City's 40-year review has recently been completed, the members agreed that this would be discussed at the December 2019 meeting.

Mr. Stresau raised the issue of storm drainage, asking if the Committee should look further into this issue. Dr. Nancy Gassman, Assistant Director of Public Works, advised that there are seven neighborhoods for which storm drainage improvements are intended over the next five years, depending upon funding. An Item on the City Commission Agenda for November 5, 2019 requests that the City move forward with the Stormwater Master Plan using a requested \$70 million line of credit. Dr. Gassman explained that the City wishes to take out a line of credit until they can complete the stormwater fee study, using money already in the Stormwater Fund. She felt this effort was influenced to a degree by the Committee's discussions. An Item approving the financing will come before the Commission in December 2019.

Chair Mammano requested that the Stormwater Master Plan be discussed on the Committee's December 2019 Agenda. This would provide an opportunity to communicate their support to the Commission. The Committee members further discussed other issues to be discussed in upcoming meetings, with Mr. Walters recommending that bridges and roadways be discussed no later than the January 2020 meeting.

Mr. Ostrau requested clarification of which bridges are the City's responsibility. Chief Engineer Jill Prizlee clarified that the City is responsible for 53 bridges. She added that

she would bring back a list of the bridges that have been rated structurally deficient at a subsequent meeting. The two structures rated as most deficient will be addressed during the current fiscal year.

Mr. Zeltman commented that the effects of climate change, such as greater tidal intrusion, accelerate the deterioration of bridges. This has led to discussion of elevating bridges in other municipalities to increase clearance avoid contact with high tides. Ms. Prizlee advised that this would be undertaken on a case-by-case basis: a certain amount of area is necessary to increase clearance without affecting adjacent property owners. It may not be possible to raise all bridges for this reason.

Chair Mammano suggested that seawalls also be discussed in December along with bridges. Dr. Gassman advised that the City has a Seawall Master Plan, although it does not include all City seawalls at this point. At present, seawalls are intended to protect the City's roadways, which means they would be funded through the General Fund rather than through an enterprise fund. Chair Mammano recommended that the Committee review the Seawall Master Plan and discuss whether or not its priorities are correct. Dr. Gassman recalled that at an earlier time, the Committee had discussed dedicating a set amount to go into the Capital Improvement Program (CIP) each year to go toward the funding and maintenance of seawalls, roadways, and bridges.

5. Old Business

A. Cityworks

Aneisha Daniel, Deputy Director of Public Works, introduced Cityworks Administrator Fred Harris. She explained that because the Committee reviews and evaluates CIP projects, it is important for them to have a clear understanding of Cityworks, as it will be fully integrated into the CIP process in the future. She provided the members with an executive summary from the Institute of Asset Management.

Mr. Harris advised that the City is in the very early stages of mapping asset information, which will be key to the successful implementation of the Cityworks asset management system. This information will be used for modeling and forecasting over the long term, including development of a predictor model that will examine how the addition or subtraction of funds can affect the City's infrastructure.

The primary focus of Cityworks is to ensure that the City gets the most out of its assets' life cycle. While not all assets have been consistently or properly maintained, the City hopes to be proactive rather than reactive in providing quality services to residents.

Ms. Daniel stated that Cityworks will allow Staff to make value-based decisions in the planning of CIP projects. If data is available on the life cycle of an asset, it allows for regular maintenance of that asset. Staff is currently performing condition assessments

to gather information and add it to Geographic Information Systems (GIS) data, which in turn is tied into the Cityworks program.

At present, Staff is undertaking asset inventory for sewer infrastructure. This will be followed by wastewater and stormwater. Dr. Gassman added that Cityworks will provide a framework through which information can be tracked. Specific pieces of information are required for every asset. It has not yet been determined whether seawalls will be considered stormwater or roadway assets.

The existing GIS system already includes a substantial inventory of assets about which some information is already documented. Over time, the City will continue to make investments to understand where its assets are located, as well as other criteria critical for asset management. She emphasized that this is a five- to ten-year project.

Mr. Harris stated that once all data has been compiled, Staff will be able to make decisions regarding how much money must be invested in the future. He estimated that within two to three years of gathering information, the City may develop accurate models. This will result in the development of a Strategic Asset Management Plan that will provide information on the deterioration of assets, as well as best practices.

Chair Mammano expressed concern that the City Commission will need to ensure both time and money are sufficient for the long-term commitment to Cityworks. Ms. Daniels replied that this is one reason assets are being researched in groups, beginning with the mapping and condition assessment of wastewater assets. It is not necessary to compile information on all types of assets before Staff may begin work on wastewater.

Mr. Ostrau requested that when information has been gathered on the probability and consequences of asset failure, he would like it to be presented to the Committee. Ms. Daniel replied that she would bring this information back to the Committee once all assets have been reviewed.

6. New Business

A. Public Private Partnership (P3)

Chief Engineer Omar Castellon stated that he would prepare a presentation for the Committee and the City Commission in January 2020 to summarize the findings of the study by Carollo Engineers. This study is intended to help clarify multiple questions regarding the Fiveash Water Treatment Plant, including whether or not the Granulated Activated Carbon (GAC) process would resolve the City's water issues, including water color. It was determined that GAC would not be a good option.

Another aspect of the study addressed the C-51 Reservoir to determine if it could be used and how this facility would affect the type of technology to be used. A deadline has been established by which the City must make a decision whether or not they wish to

continue participating in an agreement to use this reservoir for water. Other sources of water explored by the study include the Biscayne Aquifer, the C-3 and C-5 wells, desalinization of ocean water, the Floridan Aquifer, and others.

Dr. Gassman explained that the C-51 Reservoir would deliver water into the City's canal system, which would augment the water penetrating the Biscayne Aquifer so water may be pulled from the Biscayne. The study will be used to determine which technology the City wishes to adopt. This technology will in turn help determine the company with which the City enters into a P3: different companies will come forward and present the types of P3s for the City's consideration. Some companies may offer more than one type of technology.

The study will also address renovation versus replacement of the existing plant. Mr. Castellon clarified that the study's recommendation is for the construction of a new plant at a different location, which will use technology similar to what is already in use at Peele Dixie Water Treatment Plant.

Mr. Zeltman expressed concern with the potential costs of replacing the Fiveash Plant with a new plant at a new location. Because there are existing water mains leading into and out of the Fiveash Plant, relocation would incur significant expense, including the cost of laying new pipe at a new location. In addition, regulatory agencies have very stringent requirements for new deep wells to ensure they would not contaminate the Biscayne Aquifer. He concluded that there should be a comprehensive analysis of the advantages and drawbacks of keeping the existing Fiveash Plant, as well as the advantages, drawbacks, and costs associated with constructing a new facility.

The members discussed different types of P3s, including use of an RFP from the City asking for proposals from private companies. Chair Mammano recalled that the Committee has previously seen a document listing different types of P3s that might be proposed. She asked why Staff felt a P3 might be the best way to proceed. Mr. Castellon replied that this is based on the City's priorities, including the expense of constructing a new plant.

Ms. Daniels emphasized that no decision has been made thus far regarding whether or not to enter into a P3. She noted that some of the potential advantages to a P3 may include an opportunity to restructure debt or to construct a new plant more quickly; however, no decision will be made until the Carollo study has been presented. She also pointed out that there are many different financing models available. Staff and the Committee members will need to educate themselves on the different models and options available to the City so they will be knowledgeable about these options when the report becomes available.

Mr. Partington commented that a P3 model that includes financing could result in the construction of a less expensive and more efficient facility, which would be reflected in the water rates. Mr. Walters noted, however, that if a private company controls

everything in a P3 except the water, this places the City at risk. Mr. Castellon reiterated that in addition to looking at the possibility of building a new facility, the Carollo report will also consider retrofitting the existing plant.

Mr. Partington concluded that the Committee seemed to be broadly in favor of considering a P3, provided that the City does not give up control of the water supply, the rate structure, or the water quality. He added that should the City choose to enter into a P3, it should first engage a consultant to evaluate the different options and provide an opinion on the best possible approach for the City's specific circumstances. The Committee agreed that it would be best for the City to prepare to seek an appropriate consultant to determine the best P3 option, should they decide to proceed with that process.

It was determined that the above would serve as a communication to the City Commission.

7. Informational Items

A. C-51 Reservoir

Ms. Daniels advised that an Item on the City Commission Conference Agenda for November 5, 2019 addresses the regional alternative water supply for the C-51 Reservoir. The City will enter into an agreement to receive six million gallons per day (MGD) of additional water supply, which would take Fort Lauderdale beyond the year 2046.

Todd Hiteshew, Environmental Compliance Manager, explained that the C-51 Canal discharges into the Lake Worth lagoon in Palm Beach County. The C-51 Reservoir provides an opportunity to reclaim some of the water lost to tides. It is next to the existing L-8 Reservoir, which is owned and operated by the South Florida Water Management District. Phase 1 of the C-51 Reservoir would allocate 35 MGD to the public water supply of South Florida.

The water would enter the system through the existing South Florida Water Management District canal structures and other conveyances, which would control and operate the Reservoir once it is constructed. Water from the C-51 Canal would be back-pumped into the Reservoir. The City's agreement would provide them with up to six MGD based on the operations and maintenance agreement with the District. This would offset the City's current allocation of water from the Biscayne Aquifer, which is 52.55 MGD. The City also receives 8.64 MGD from the Floridan Aquifer. These amounts are based upon 20-year permits.

One benefit of the C-51 Reservoir is that it offers the City a permit through 2065 for six MGD in addition to its existing permits for water from the Biscayne and Floridan Aquifers. Mr. Castellon added that benefits of the agreement would include use of a

different technology as well as a plan for population growth. The cost associated with the agreement is \$27.6 million.

Ms. Daniel explained that this Item came before the Committee to ensure they are privy to the information that will be presented to the City Commission at the November 5 Conference Agenda meeting. The decision on whether or not to enter into the agreement will go before the City Commission at their December 19, 2019 meeting.

The Committee agreed by consensus to send a communication to the City Commission informing them that they have reviewed the C-51 Reservoir proposal and support it.

8. Public Comments

Boyd Corbin, member of the public, requested clarification of the time frame for creation of the proposed water treatment plant. Mr. Castellon explained that this would depend upon multiple factors, including which entity would construct the facility. He estimated that the best-case scenario would be within a range of three to five years to build a new plant.

Mr. Corbin also addressed the C-51 Reservoir, asking if one of the options, which includes lime softening, also included GAC filtration. It was clarified that this filtration would not be included. Mr. Castellon advised that GAC would not improve the quality of water.

Mr. Corbin asked if a burn associated with use of ammonia has been completed. Assistant Public Works Director Talal Abi-Karam stated that this process is expected to be complete by November 16, 2019. Mr. Corbin continued that Fort Lauderdale's water significantly exceeded the total acidic limit for safe water regulations, as did safe methane limits. He noted that the organic content of water should be subject to better filtration to prevent further excess.

It was clarified that the City is not in violation of federal or state water standards, as they are following guidelines and meeting all requirements.

9. Adjournment – Next Regular Meeting Monday, December 2, 2019

There being no further business to come before the Committee at this time, the meeting was adjourned at 4:17 p.m.

Any written public comments made 48 hours prior to the meeting regarding items discussed during the proceedings have been attached hereto.

**City of Fort Lauderdale
Infrastructure Task Force Committee
November 4, 2019
8th Floor City Commission Room – City Hall
Fort Lauderdale, FL 33301**

MEMBERS		PRESENT	ABSENT
Marilyn Mammano	P	29	1
Ralph Zeltman	P	29	1
Peter Partington	P	9	1
Roosevelt Walters	P	26	4
Fred Stresau	P	25	5
Norm Ostrau	P	27	1
Jacquelyn Scott	P	12	3
Gerald Angeli	P	6	0

Staff Present

Aneisha Daniel, Deputy Director- Public Works
 Talal Abi-Karam, P.E. Assistant Public Works Director - Utilities
 Dr. Nancy Gassman, Assistant Public Works Director-Sustainability
 Omar Castellon, Chief Engineer
 Jill Prizlee, Chief Engineer
 Fred Harris, Sr. Technology Strategist
 Meredith Shuster, Senior Administrative Assistant
 Pauline Ricketts, Administrative Assistant
 Prototype-Inc. Recording Secretary, Tatiana

Roll was called at 2:02 p.m. and a quorum was established.

Communication to the City Commission

With a quorum present, the Infrastructure Task Force by consensus communicates to the City Commission:

1. It is in favor of broadly considering the Public, Private Partnership (P3) approach [for the replacement of the Fiveash Water Treatment Plant] providing that no form of P3 allows that the City give up ownership of the water, water quality or rate structure.
2. Prior to supporting a P3 the City should hire a consultant to evaluate the different type of P3's that would be appropriate and beneficial to the City on this project and further urges the City Commission to begin the process of finding said consultant sooner rather than later should the P3 approach be determined to be the direction the City Commission chooses.
3. The Infrastructure Task Force supports the purchase of an allocation from the C-51 Reservoir and executing a Capacity Allocation Agreement.



Results of 40 Year Building Safety Inspections Program



CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT

11/22/2019

Program Requirements

Broward County Building Safety Inspection Program started in 2006 and it requires structural and safety inspections for buildings 40 years old or older and every 10 years thereafter.

- **The main goal of the program is to minimize the possibility of future building failure and better preparedness for hurricane winds.**



Program Administration

Broward County Board of Rules and Appeals provides a list of eligible buildings using information from County Property Appraiser's Office to City Building Department.

Building Department sends notification letters to property owner.

Owner has **90 days** to complete the inspections and submit to the Building Department.

If any deficiencies are noted, the Owner has **180 days** to complete the repairs in accordance with Florida Building Code.



Buildings Identified for Inspections

1. **Holiday Park Activity Center;**
2. **Holiday Park Social Center;**
3. **Holiday Park Gym;**
4. **Parker Playhouse;**
5. **Art Serve;**
6. **War Memorial;**
7. **GTL Treatment Plant;**
8. **City Hall;**
9. **Police Department;**
10. **Aquatic Center West Building;**
11. **CMS Public Works.**



Inspections Management



City hired the consultant, Walters Zackria Associates, PLLC (WZA) to conduct the required inspections. After Commission approval, Notice to Proceed with the Inspections was issued to WZA to **start on August 7th, 2017** with the **completion date on February 3rd, 2018**.



WZA completed all inspections and reports **on December 20th, 2017**.



The reports were transmitted to the Department of Sustainable Development for review **on December 22nd 2017**. WZA completed all inspections and reports **on December 20th, 2017**.



City completed the repairs of 7 facilities and the reports were submitted to DSD . **One facility is on hold** due to the major future renovations and **3 facilities will require the structural repairs to be done by specialty contractor**.



Holiday Park Activity Center Repairs Status



**Electrical
repairs**

**Facilities completed
required repairs**

**WZA inspected
repairs**

**Final report
submitted to DSD**

All work completed



Holiday Park Social Center, Art Serve and Gym Repairs Status



**Electrical
and
Architectural
repairs**

**Facilities completed
required repairs**

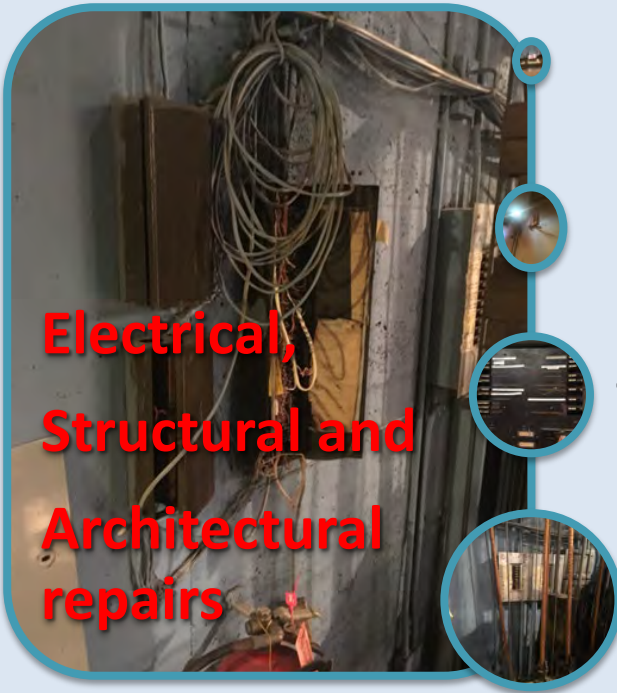
**WZA inspected
repairs**

**Final report
submitted to DSD**

All work completed



War Memorial Repairs Status



**Electrical,
Structural and
Architectural
repairs**

We requested DSD to postpone the required repairs which will be done by the future tenant of the building as part of the major renovations. The building is currently not occupied



CMS Repairs Status



Public Works completed the required electrical repairs

WZA inspected repairs

Final report was submitted to DSD

All work completed



Swimming Hall of Fame Auditorium Repairs Status



Facilities addressed electrical and architectural repairs

Remaining structural repairs will be addressed via separate repair contract. Staff is preparing re-bid package (estimated bid date December 2019)

WZA will re-inspect electrical, structural and architectural repairs when all completed

We requested extension to be able to complete the remaining structural repairs required



Parker Playhouse Repairs Status



**Electrical
repairs**

**Broward County completed
the required electrical repairs**

WZA inspected repairs

**Final report was submitted to
DSD**

All work completed



City Hall Repairs Status



**Electrical,
Structural and
Architectural
repairs**

Facilities completed electrical and architectural repairs

Remaining structural repairs will be addressed via separate repair contract. Staff is preparing re-bid package (estimated bid date December 2019)

WZA will re-inspect electrical, structural and architectural repairs when all completed

We requested extension to be able to complete the remaining structural repairs required



GTL Repairs Status



Public Works addressed all electrical and architectural repairs

Remaining structural repairs will be addressed via separate repair contract. Staff is preparing re-bid package (estimated bid date December 2019)

WZA will re-inspect electrical, structural and architectural repairs when all completed

We requested extension to be able to complete the remaining structural repairs required



Police Department Repairs Status



**Electrical,
Structural and
Architectural
repairs**



Facilities completed all repairs

WZA re-inspected the repairs and the final report was submitted to DSD. All work completed.



Summary

- **11 sites** were identified for inspections, **overall 483,633 sq.ft. of building space**. Consultant completed all required inspections.
- All buildings required repairs. **7 sites had all repairs completed. 3 sites have only structural repairs pending and 1 site is on hold due to the future tenant renovations.**
- The remaining structural repairs need to be completed by a specialty contractor. We are in the process of finalizing the bid documents (estimated bid in December of 2019).
- We requested time extension for remaining structural repairs to be done by specialty contractor.



Overall Summary

- Visual Inspections performed by WZA and its consultants were in accordance with Broward County Board of Rules and Appeals 40 year inspection program. **These inspections are limited to determining if the building structural and electrical systems are safe to occupy the building.** They are in no way a determination as to the performance or long term viability of the individual structures. Please refer to FBC 2014 Chapter I - Section 110.15 "Building Safety Inspection Program" - (B.C Administrative Provisions).
- WZA concluded that currently there are **no issues that pose critical danger to the life, safety and welfare of the occupants that would require closure of a facility or deem it as "an unsafe structure"**. However, WZA recommends that the items noted within each report should be addressed as soon as possible to remove any potential danger. City completed the majority of the required repairs with only structural portion remaining to be addressed.





Fort Lauderdale, FL

Stormwater Rate Study

Fee Work Session

November 19, 2019

Core Elements of the Study



Revenue Requirements

- Operations & Maintenance
- Renewal and Replacement
- Master Plan CIP

Cost Allocation

- Units of Service
- Effective Imp. Area
- Trip Generation

Fee Structure

- Identify Structures
- Customer Impacts

Method of Billing

- Utility Bill
- Tax Assessment

Project Timeline

2016

- Stormwater fee study analysis completed, and initial results presented.
- Trip generation and fee zones introduced as potential fee structures.

2017

- Refined version of fees presented to City Commission, which considered a hybrid approach between trip generation and the current structure.
- **City of Fort Lauderdale Infrastructure Task Force Committee-** Recommended the City Commission consider adopting a new stormwater rate methodology based upon the trip generation cost apportionment and to consider using the bond validation process immediately thereafter to validate the methodology.

2018

- **Budget Advisory Board-**Recommended that the City Commission change the methodology used for stormwater charges from using impervious surface to a trip generation model.
- City Commission provided direction to investigate hybrid structure further.
- Significant challenges arose regarding the ability to charge an updated fee using current billing data.

2019

Revenue Requirements

Near Term Needs of the Stormwater Utility

The Utility delivers service through three key areas:

- Operations and Maintenance (O&M) **\$11.5M** — **Funded**
- Renewal and Replacement Capital Projects **\$4M** — **Funded**
- Phase 1 Master Plan Capital Projects **\$200M** — **Unfunded**
 - *Edgewood*
 - *River Oak*
 - *Dorsey Riverbend*
 - *Durrs Area*
 - *Progresso*
 - *Victoria Park*
 - *Southeast Isles*

Goal: Ensure the Stormwater Utility has the resources needed to invest in and maintain the stormwater system that protects the City.

Diagnostic Scenario

FAMS-XL

FT. LAUDERDALE STORMWATER



CALC SAVE CTRL LAST OVR

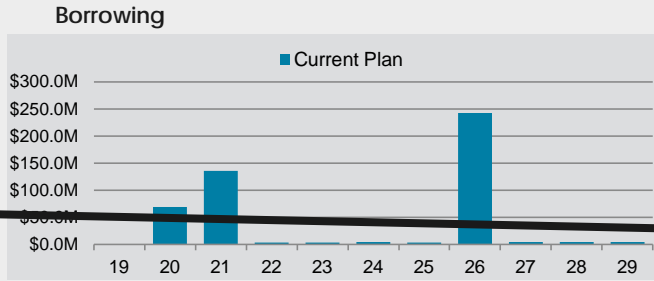
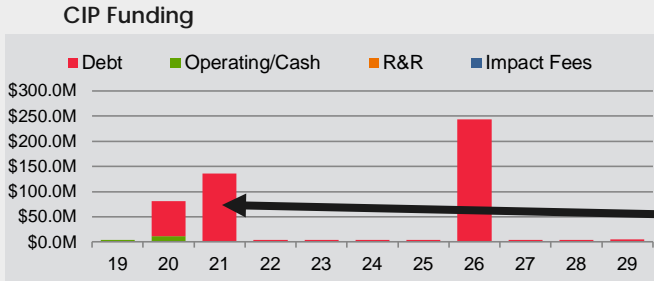
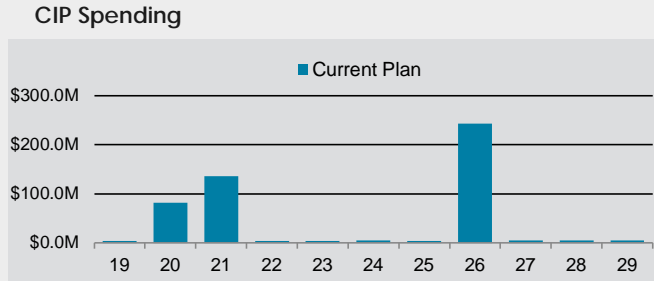
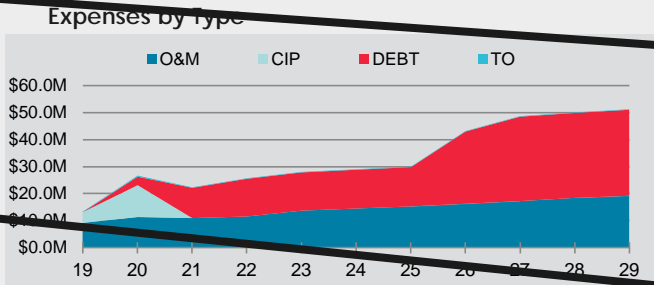
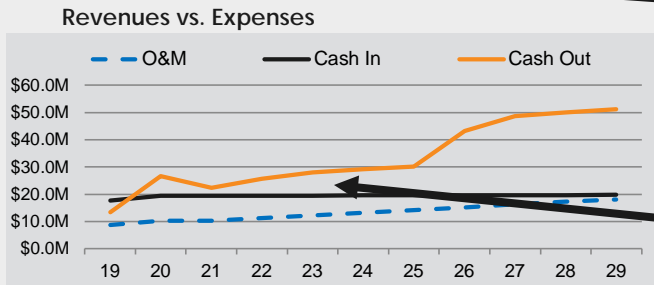
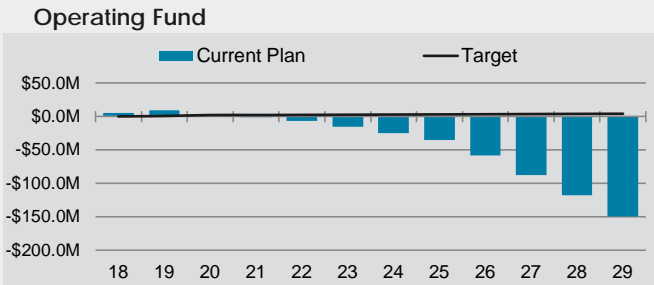
	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2023	FY 2028
Stormwater Revenue Plan	0.00%	16.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	16.67%	16.67%
Senior-Lien DSC	0.00	2.86	0.82	0.60	0.52	0.44	0.37	0.17	0.11	0.07	0.05		

Current
Revenue Level

Impaired
Coverage

Deficit Spending

Debt Financing



Required Revenue Adjustments

FAMS-XL

FT. LAUDERDALE STORMWATER



CALC SAVE CTRL LAST OVR

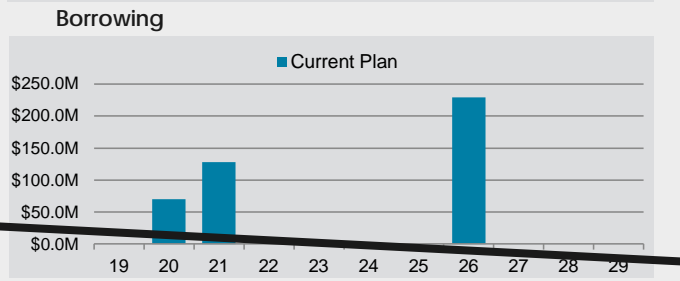
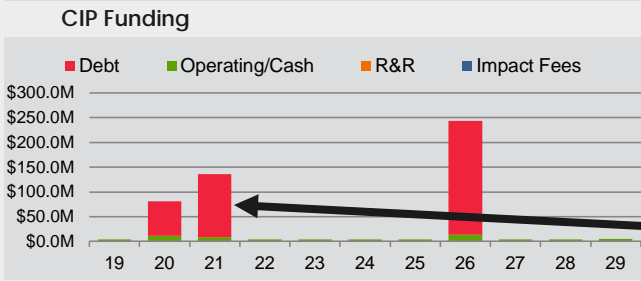
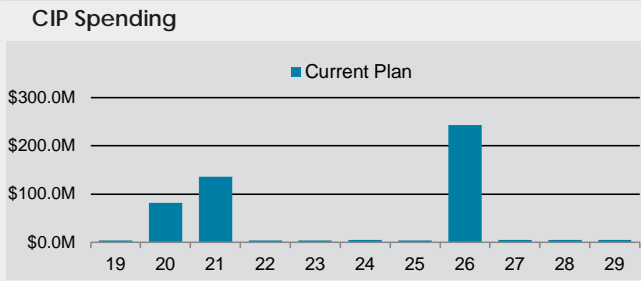
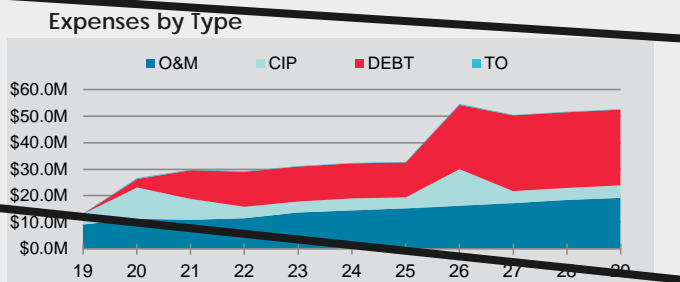
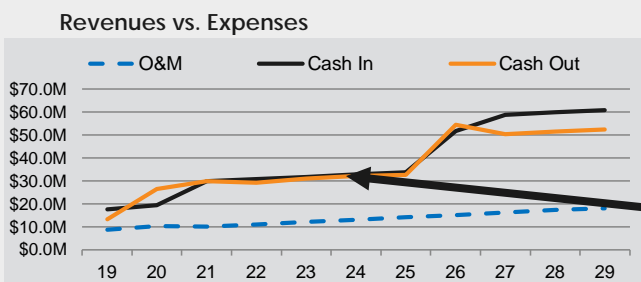
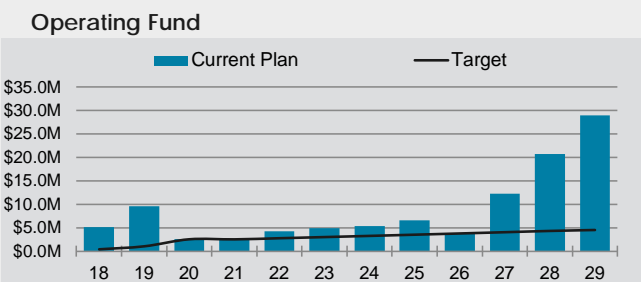
	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2023	FY 2028
Stormwater Revenue Plan	0.00%	16.67%	54.00%	3.02%	2.91%	2.87%	2.79%	53.01%	37.68%	3.02%	1.83%	90.49%	345.12%
Senior-Lien DSC	0.00	2.86	1.82	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	Scenario Manager	

54% More Revenue Required

Proper Coverage

Balanced Cash Flow

Debt Financing



Cost Allocation

Options for Stormwater Cost Allocations

Recovery Basis

Method for Measured Units on Parcel

Taxable Value

Dwelling Units

Gross Area

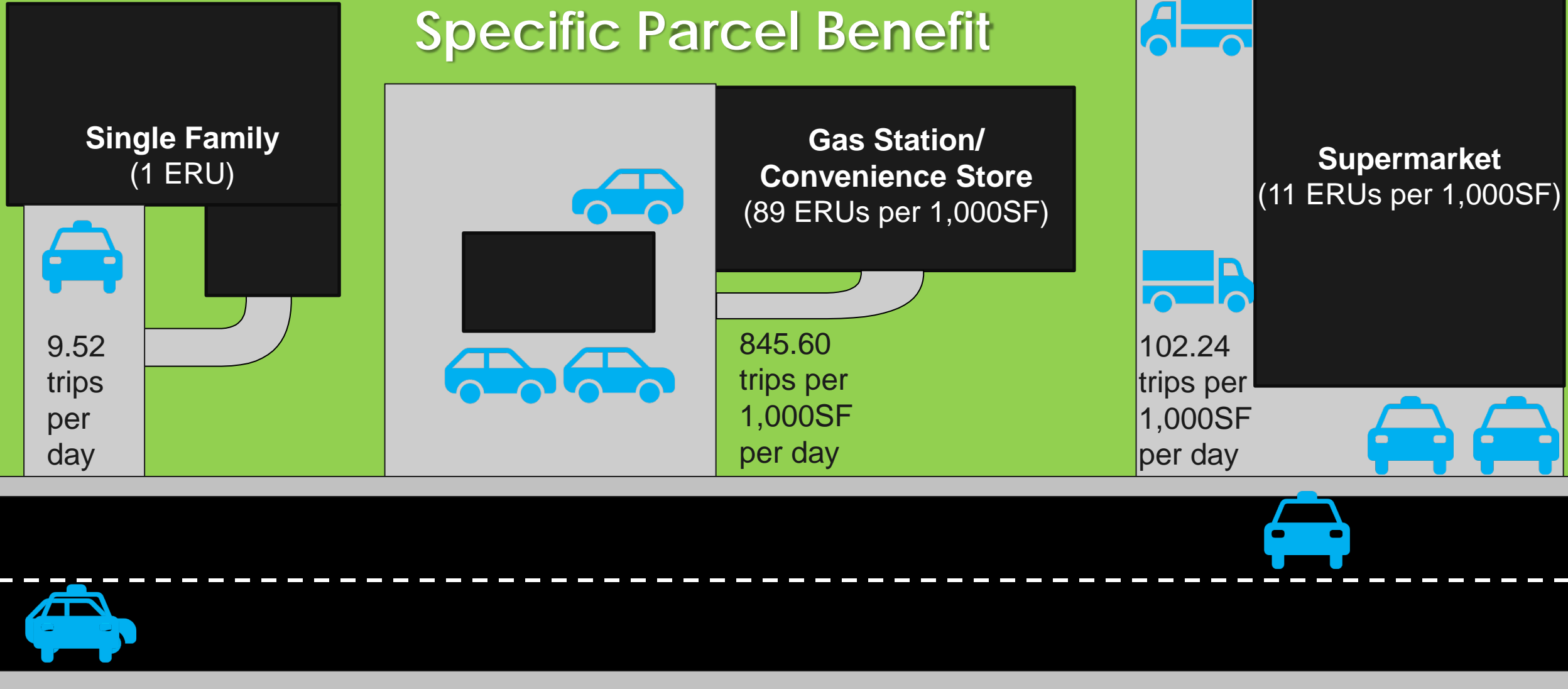
Pervious Area

Impervious Area

Trip Generation



ITE Trip Generation Rates & Specific Parcel Benefit

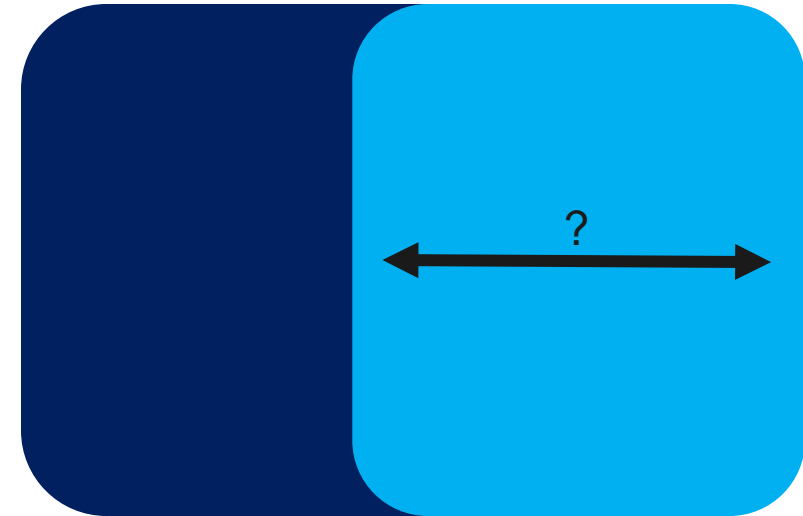


The Hybrid Model

Current Fee Structure (Effective Impervious)

Trip Generation

Revenue Requirement Split



Objective and Metric Based Split

Key Requirements:

- Updated Billing Units
- Creation of New Billing File
- Defensible Spilt of Cost
 - Quality vs. Quantity

Cost of Service Analysis

Quality

Quantity

Cost Allocation

Recovery Basis

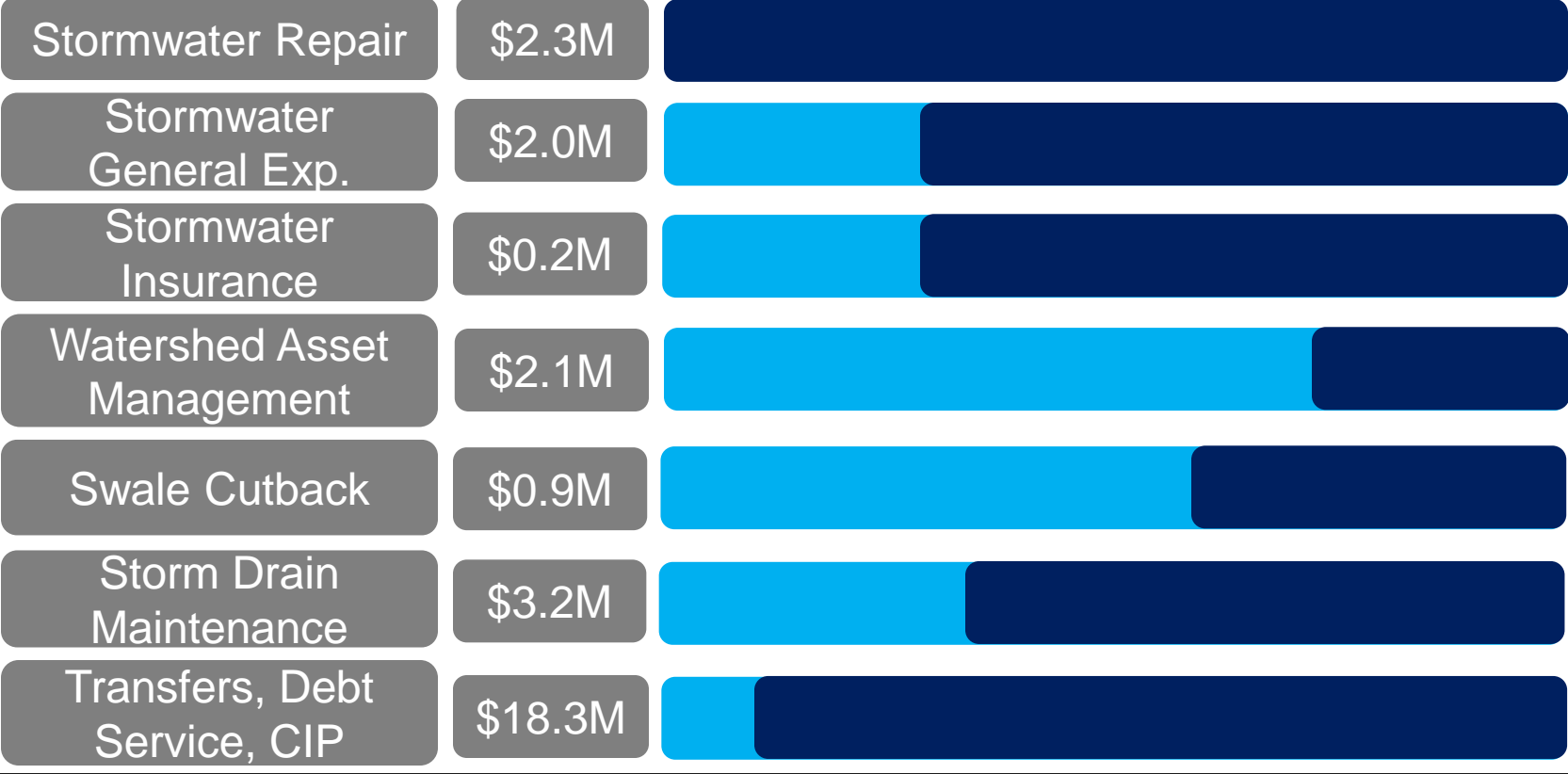
FY 2021 Expenses \$29M

Trips

Current Structure

Quality

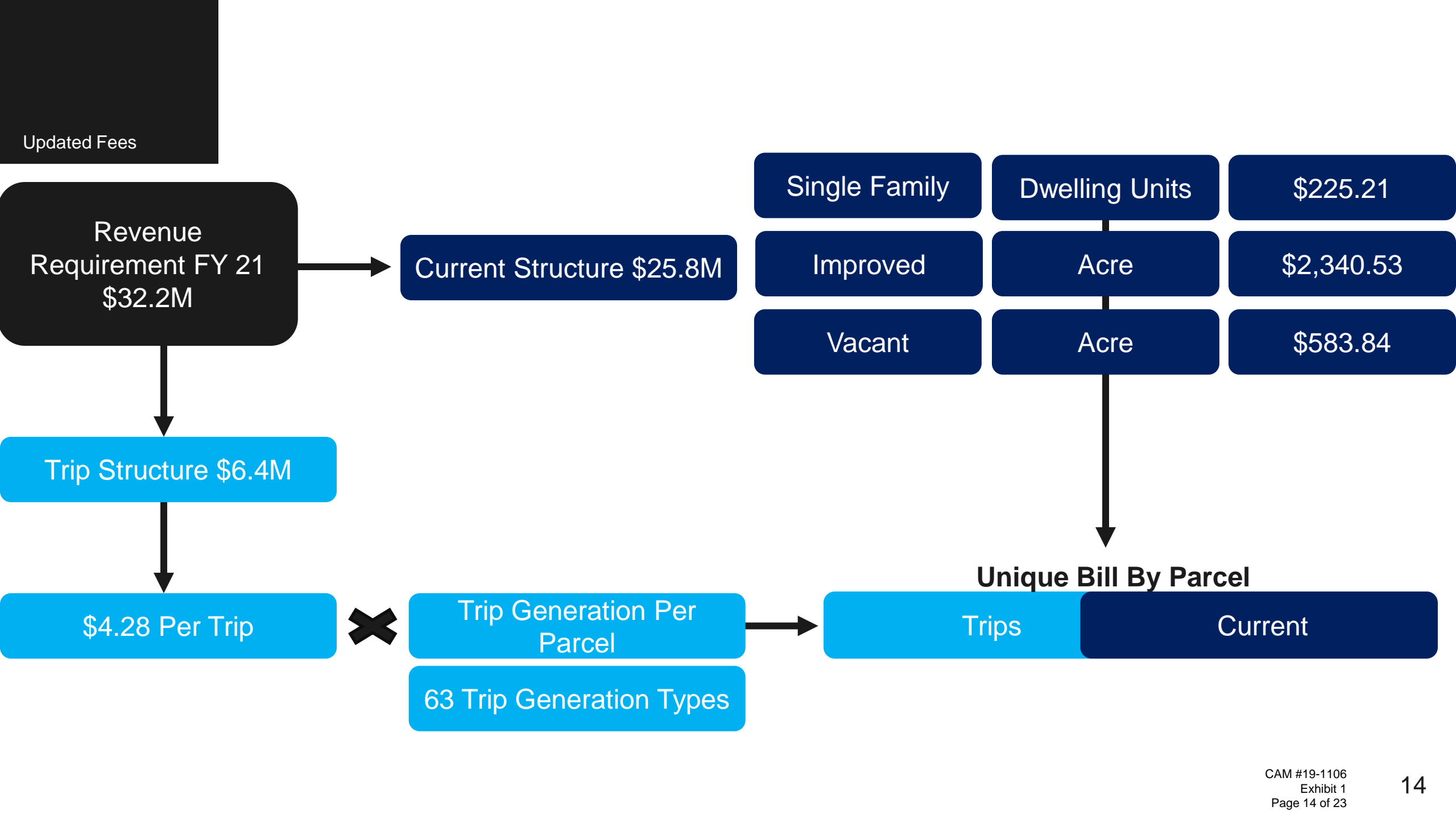
Quantity



Overall



Fee Structure



Revenue Requirement FY 21 \$32.2M

Current Structure \$25.8M

Single Family	Dwelling Units	\$225.21
Improved	Acre	\$2,340.53
Vacant	Acre	\$583.84

Trip Structure \$6.4M

\$4.28 Per Trip




Trip Generation Per Parcel

63 Trip Generation Types

Unique Bill By Parcel

Trips

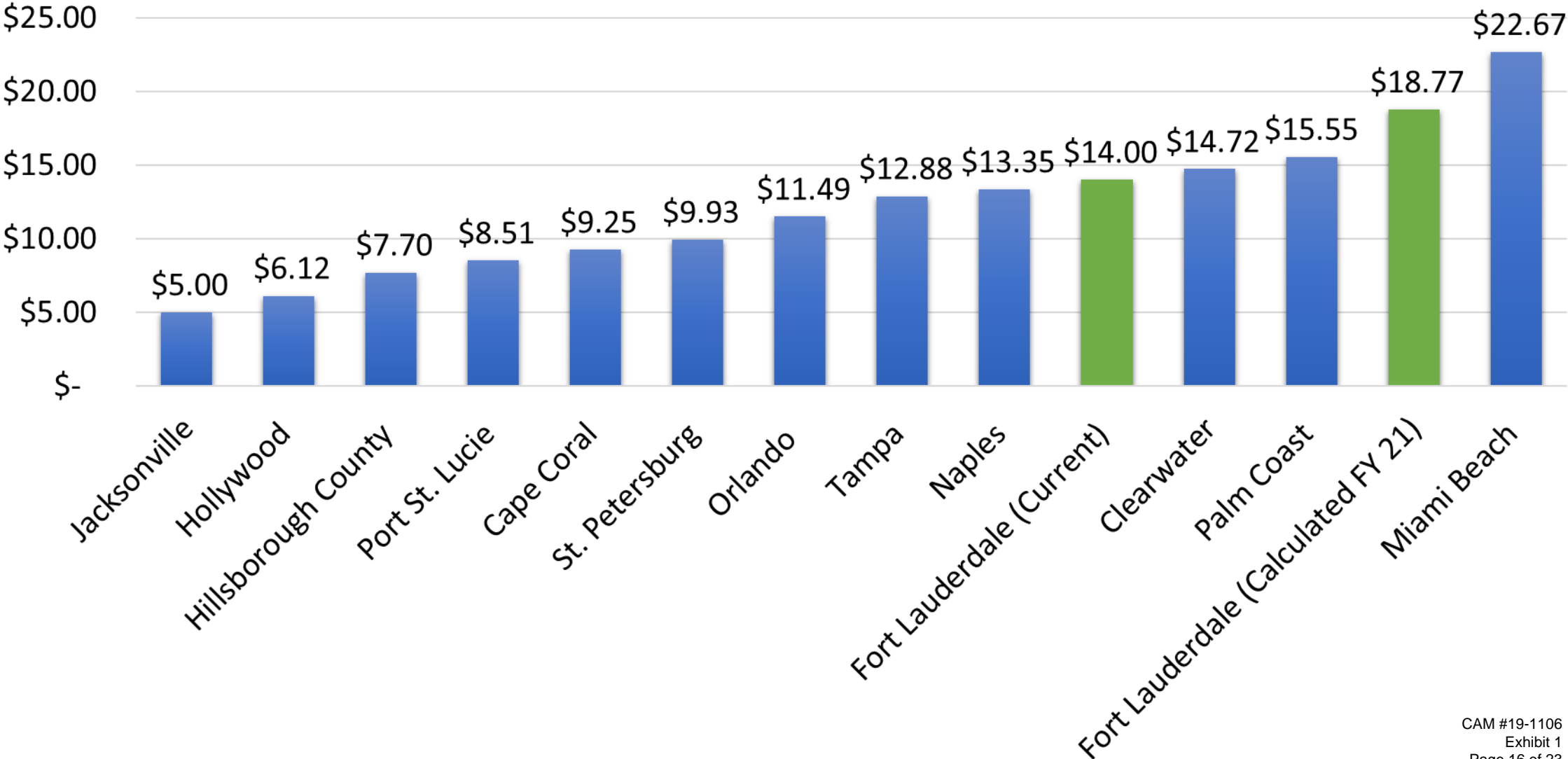
Current

Single Family Home (1 Dwelling Unit)	Annual	Monthly
	Current: \$168.00	\$14.00
	Calculated: \$225.21	\$18.77
	Change: \$57.21	\$4.77




Single Family Fee Survey

Updated Fees

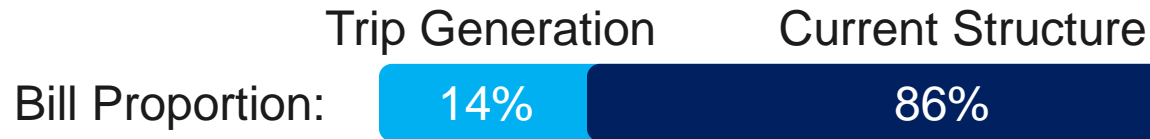



Condo Example (Dwelling Unit)



110 Units

	Annual	Monthly
Current:	\$42.55	\$3.55
Calculated:	\$77.86	\$6.49
Change:	\$35.31	\$2.94



Church Example (SQFT)		Annual	Monthly
	Current:	\$1,428.71	\$119.06
	Calculated:	\$2,596.36	\$216.36
	Change:	\$1,167.65	\$97.30

Building 20,901 SQFT
Parcel 36,750 SQFT

Trip Generation Current Structure

Bill Proportion:



Commercial Example (SQFT)



Building 120,158 SQFT
Parcel 82,526 SQFT

	Annual	Monthly
Current:	\$3,208.30	\$267.36
Calculated:	\$23,105.14	\$1,925.43
Change:	\$19,896.84	\$1,658.07

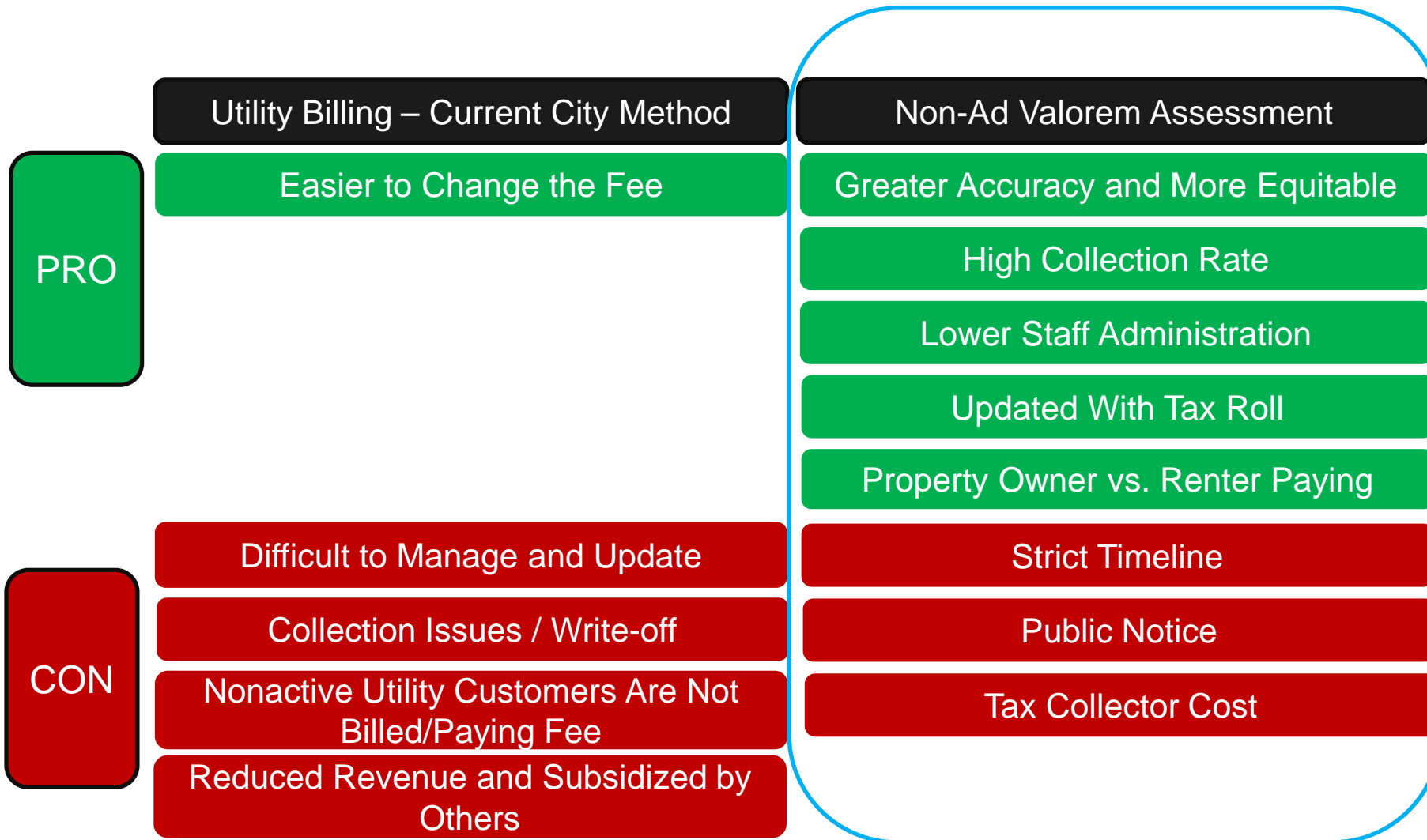


Method of Billing

Stormwater Revenue Collection Method

Method of Collection

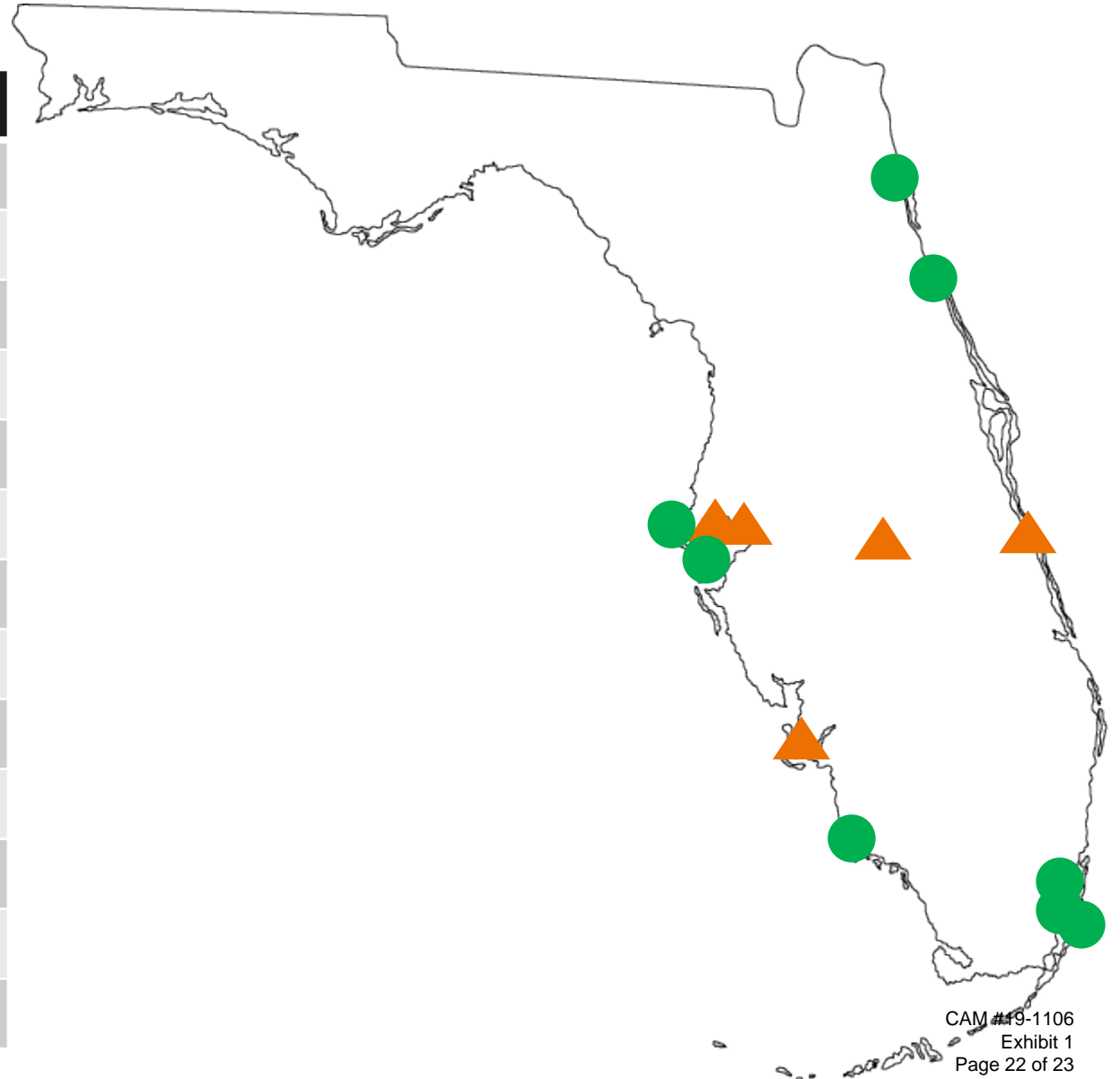
Recommended



Comparable Municipal Survey

Method of Collection

Utility	Assessment ▲	Utility Bill ●
Fort Lauderdale		X
Tampa	X	
St. Petersburg		X
Miami Beach		X
Palm Coast		X
City of Jacksonville		X
Hollywood		X
Cape Coral	X	
Hillsborough County	X	
Port St. Lucie	X	
Orlando	X	
Clearwater		X
Naples		X





Additional Questions/Discussion



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QUESTION #1: Is there a deep well injection system(s) at the Fiveash WTP and if so, what are the permit restrictions/constraints parameters, including the current average disposal volume and maximum allowable disposal volume; material type and the length of permit(s) time remaining?

ANSWER #1: There is no deep well injection at the Fiveash Water Treatment Plant.

QUESTION #2: What items were presented by Carollo Engineers during their preliminary Fiveash WTP report presentation to the City, specifically their findings and recommendations for upgrading the water treatment processes (i.e. Reverse Osmosis, nanofiltration membrane system, etc.) and if the existing WTP structures can be either upgraded or a new WTP be constructed at the existing 23 acre site or will a new WTP be constructed at another off-site location, providing the consultant's rationale including the time and cost estimates for each?

ANSWER #2: These questions will be answered in the report expected in December. An executive summary is anticipated to be presented to the City Commission in January. The Carollo report is on the February 3, 2020 agenda for the ITF.

QUESTION #3: Any other relevant information the City has on the Fiveash WTP that should be shared with the ITFC to assist in developing a recommendation to the commission on same?

ANSWER #3: Not at this time.

The Fiveash WTP walkthrough was conducted by Ralph Zeltman on 11 March 2019 and the following Questions?/Answers are provided herewith:

Q1.) The railroad car and cylinders containing chlorine at the WTP appears to have been stored at the WTP for quite sometime and would there be a potential health and safety risk should a chlorine leak occur?

The City advised that PW Engineering has submitted the request for qualification (RFQ) to the City's Procurement Department for the replacement of the elemental chlorine system (90 ton rail car and the 1 Ton cylinders).

Q2.) Does the City have a chlorine leak detection systems at the Fiveash WTP to include both sound alarms and flashing warning lights should a chlorine leak occur and be detected at the plant site to effectively allow evacuation of on-site personnel as well as alerting the neighboring communities contiguously located around the plant?

The City advised the plant has installed chlorine leak detection monitors that go off at 1 part per million (PPM). There are two audible alarms and three visual alarms. Furthermore, the alarm also shows via the Supervisory Control and Data Acquisition (SCADA).

Q3.) Why is chloramines (chlorine + ammonia) water treatment preferred over using only chlorine water treatment?

The chloramines treatment method has a more stable residual and halts the formation of trihalomethanes (THM's) than free chlorine treatment and is a more preferred method used by many utilities. Reference is made to the American Water Works Association (AWWA) Manual M56, Second Edition, titled "Nitrification Prevention and Control in Drinking Water".

Q4.) Is the Fiveash WTP equipped with any gas scrubbers or other emergency equipment capable of neutralizing or mitigating any chlorine gas leaks should an unfortunate event occur at Fiveash WTP to prevent catastrophic health and safety problems on-site and off-site neighboring communities?

The Fiveash WTP does not have gas scrubbers. The plant has:

- 1. Two automatic isolation valves in series activated based on high pressured. These are located at the 90-ton rail car.**
- 2. A system of chlorine detectors and alarms to deploy staff to investigate.**
- 3. An active collaborative system with the Fire Department first responders.**
- 4. There are two B-Kits and one C-Kit to be used by the fire department first responders as needed.**

5. **An active and continually updated Risk Management Plan which includes inspections, training, and documentation.**
6. **A collaborative effort with the Florida Division of Emergency Management and the Local Emergency Planning Council was made during the last inspection on January 2017 with no issues identified and staff was praised for their efforts.**
7. **A rehabilitation of the chlorine system was undertaken by plant staff which resulted in:**
 - * **Replacement of three out three evaporators**
 - * **Replacement of 5 out 6 chlorinators.**
 - * **Installation of trunnions and protocols (SOP) for the handling of the chlorine one ton cylinders.**
 - * **Replacement of various chlorine alarms and updating on minor supporting components in the chlorine system.**

The plant's chlorine system is being replaced as part of project P11589: Fiveash WTP Reliability Upgrades & Disinfection System Replacement RFQ has been forwarded to the Procurement Department by PW-Engineering. This upcoming project replaces the elemental chlorine system with a bulk hypochlorite system which eliminates the concerns of a gaseous chlorine leak and will remove the chlorine from the risk management plan.

Q5.) What is the anticipated number of water maintenances estimated to be performed during this year to the City's water system necessary to prevent nitrification build-up inherent with the chloramines type of disinfection treatment used at the Fiveash WTP as described in the above #Q3 question/answer? Also, will the City notify both their City residents as well as other cities/municipalities receiving water prior to each maintenance being scheduled? Also, will each water maintenance duration last for about 30 calendar days as was the case during 2018?

1. **Nitrification control is an ongoing activity. It starts at the water plants by checking the amount of free ammonia leaving in the finished water. The target is to have a value around 0.2 mg/L as recommended in the Comprehensive Utility Strategic Master Plan.**
2. **The City's ISO 17025 and NELAP certified environmental laboratory measures the nitrite and nitrate leaving the water plants on a monthly basis. In addition, and as a City's initiative the lab also samples at six locations in the distribution system the level of nitrate and nitrites (this is not required but the City is proactive).**
3. **The traditional method of performing "free chlorination maintenance activities" has not been done since 2018. However, the plant staff for periods of about 2 weeks raises the total chlorine leaving the plants while maintaining the proper ratio to ammonia. This effort is expected to be transparent to the residents and has shown to cause a reduction in the nitrification level in the distribution system.**

4. Based on the results of the 6.b. initiative the field staff has initiated localized flushing.
5. The field staff has installed approximately 20 automatic flushing devices and is in the process of installing an additional 50 automatic flushing devices in the distribution system (dead ends).
6. City staff has drafted a potential plan to implement free chlorination maintenance activities within the confines of the recommendation by FDEP. If/when implemented, the neighbors will be notified with a multifaceted outreach program involving the City's Public Information Office. This potential draft plan is being reviewed.

Q6.) Are there other concerns you and/or others at the Fiveash WTP have regarding the plant infrastructure or equipment or operations that should be brought to the attention of the ITFC? This is an opportunity to advise of any deficiencies that are needed at Fiveash WTP until it is upgraded or replaced contingent upon Carollo Engineers assessment.

1. Staff is eagerly awaiting the upcoming results of the evaluation to be completed by Carollo. This effort should provide guidance in the direction the Fiveash WTP will follow which would result at improving the services the City provides its neighbors.
2. The upcoming disinfection and reliability project P11589 described above will assist on the plant's operational readiness.
3. There are a couple of upcoming projects to replace filter media (\$2 million) and to rehabilitate the northmost 5 million gallon tank that will further enhance the plant's ability to meet demand.
4. The upcoming work will replace the skylights damaged during Hurricane Irma.
5. Depending on the direction the City follows pending the result of Carollo's evaluation there might be a couple of projects that may need to be implemented. For example, a lime improvement project, variable frequency drive for the high service pump, etc.
6. Plant staff continues with its efforts to maintain and improve the existing infrastructure by in-house improvements to the plants 4,160 volt system, the air compressor system, flow meters, etc.