

Fort Lauderdale Infrastructure Management



CITY OF FORT LAUDERDALE

CAM 17-0097

Exhibit 1

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Issues and Challenges In Managing Infrastructure

- Aging, deteriorating, or obsolete infrastructure/technology
- Deferred maintenance due to limited funding
- Infrastructure designed for smaller population with different expectations
- Changing regulatory environment and costs of compliance
- Higher levels of service desired
- Jurisdictional issues with County/State
- Public / Private Interface
- Infrastructure needs to support economic growth
- Evolving infrastructure standards for sustainable, balanced solutions
- Balancing capital investments with maintenance/operational costs
- Changing the built environment to accommodate alternative travel modes
- Impacts on staff resources due to large amount of needed projects



Infrastructure Areas

General Fund

- Seawalls
- Neighborhood Mobility
- Roads
- Bridges
- Sidewalks
- Canal Dredging
- Facilities

Parking Fund

- Parking

Airport Fund

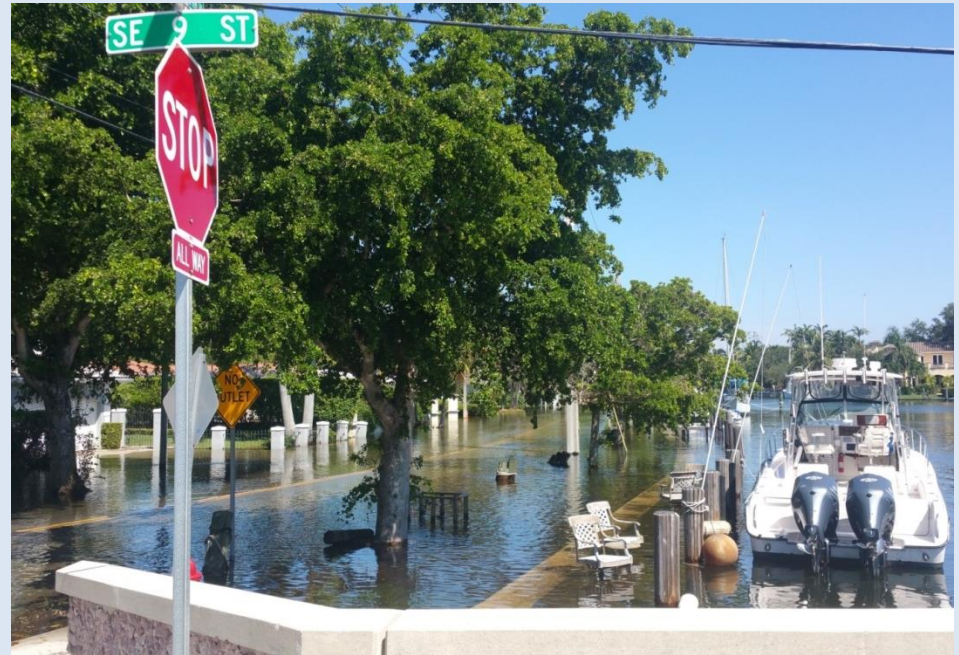
- Airport

Stormwater Fund

- Stormwater Program

Water and Sewer Fund

- Water Utility
- Sewer Utility



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General Fund

(In Millions)

	FY 2017 Adopted
Revenues	\$ 330.9
Operating Expenditures	\$ 316.5
Community Investment Plan (CIP)	\$ 14.4
CIP as a percent of total Operating Expenses ¹	4.6%
Fund Balance In Millions	\$ 71.7
Fund Balance as a percent of Operating Expenditures ²	23.6%

¹ It is the policy of the City that annual contributions to the Community Investment Plan (CIP) from the General Fund are a minimum of 1% of the total General Fund expenses.

² It is the policy of the City that the General Fund requires a minimum available fund balance of two (2) months or 16.7% of the General Fund budget, including necessary transfers.



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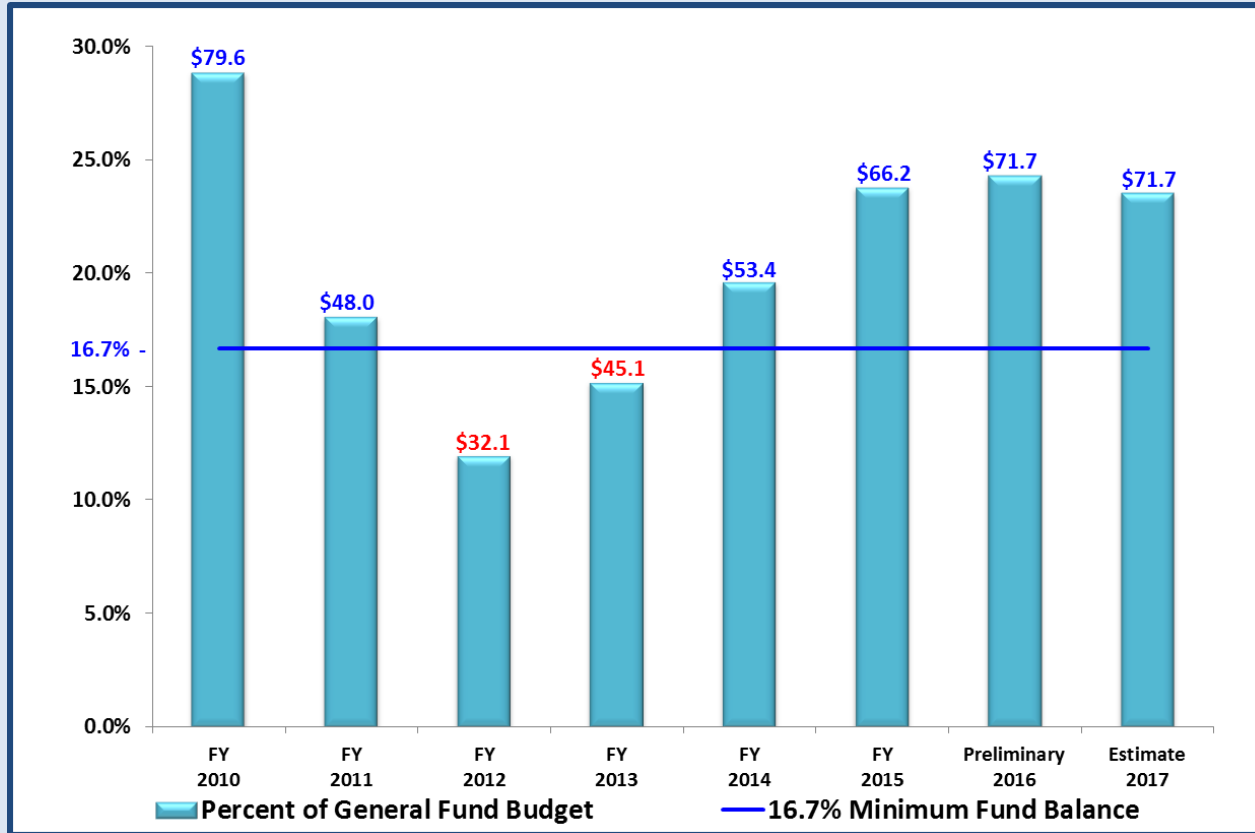
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General Fund Balance¹

(In Millions)



¹The City's policy is that the General Fund requires a minimum available fund balance of two (2) months or 16.7% of the General Fund budget, including necessary transfers.



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Seawalls

Overview

- Approximately 200 miles of seawalls and banks
- 4.8 miles City-owned seawalls
- 2.0 miles City-owned natural banks
- Revised Seawall Ordinance adopted June 21, 2016
- Developing Seawall Master Plan

Commission Priorities / Strategic Plan

- **Goal 2: Be a sustainable and resilient community**
 - Objective 2: Reduce flooding and adapt to sea level rise
 - Objective 3: Improve climate change resiliency by incorporating local and regional plans



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Seawalls

CIP

PREVIOUS FY	\$1,079,501
FY2017	\$142,690
FY2018	\$392,975
FY2019	\$892,975
FY2020	\$ 0
FY2021	\$4,776,270
FIVE YEAR CIP TOTAL	\$7,284,411

UNFUNDED	\$33,584,550
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Active Projects

- Riverwalk Seawall Replacement Northside
- Bayview Drive Seawall Between NE 59th and NE 60th Street
- Seawall Master Plan
- Marine Facilities Maintenance



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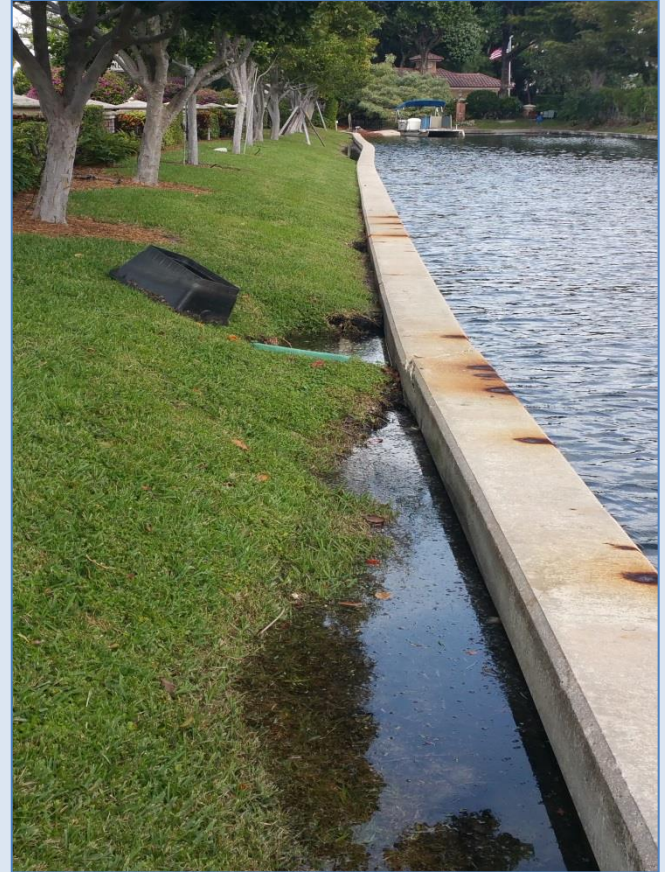
Seawalls

Issues and Challenges

- Building resiliency
- New ordinance criteria and guidelines
- King tide and floods
- Limited access

Opportunities

- Enhance level of service
- Improve community resiliency
- Increase community engagement



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PEDESTRIAN, BICYCLE, TRANSIT AND NEIGHBORHOOD MOBILITY IMPROVEMENTS

Overview

- For the past three years overall flow of traffic has been identified as one of the highest priorities for the City of Fort Lauderdale
- The City has been working towards addressing this priority through various infrastructure projects throughout the City

Challenges

- Limited funding for high cost capital projects
- Increasing neighbor dissatisfaction with traffic flow
- Increasing fatality and serious injuries from traffic crashes
- Providing vehicle, transit, pedestrian, and bicycle infrastructure improvements to accommodate increasing daily employee, resident, and visitor populations
- Significant staff resource impacts due to the high number of projects requiring management and implementation

Opportunities

- Through collaborating with partners on projects such as the Wave Streetcar, Dixie Highway and A1A we have been able to address many of these needs throughout the City



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PEDESTRIAN, BICYCLE, TRANSIT AND NEIGHBORHOOD MOBILITY IMPROVEMENTS

Current Initiatives

- Implementation of over 12 programmed City CIP Projects targeted specifically at improving public mobility and safety including:
 - Downtown Walkability Projects
 - Las Olas Improvement Project
 - NE 13th Street
 - Wave Streetcar (utility relocation funded through water and sewer fund)
 - And more...
- Participation in Broward County and FDOT projects to ensure mobility needs are met
- Conducting neighborhood mobility master plans in order to identify needs that remain unfunded



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PEDESTRIAN, BICYCLE, TRANSIT AND NEIGHBORHOOD MOBILITY IMPROVEMENTS

Needs

21 projects costing approximately **\$12.8 million** in total were identified as needed improvements within the proposed ten year infrastructure tax spending plan including:

- Bayview Drive Bike/Pedestrian Project
- Birch Road Complete Streets Project
- Breakers Avenue Complete Streets
- Las Olas Blvd At SE 8th And 9th Avenues
- NE 13th Street Complete Streets Phase II
- NE 26th Street Complete Streets
- Neighborhood Traffic Calming & Ped Safety Projects
- North Beach Village Shoppes Streets Improvements
- NW 15th Avenue Complete Streets Project
- NW 7th Avenue Corridor Project
- NW 9 Avenue Enhancement Project
- SE 16th Street Complete Streets Project
- SE 17th Street Improvements
- Neighborhood Mobility Master Plan Improvements (Coral Ridge Country Club, Lake Ridge, Palm Aire Village West, Shady Banks and Tarpon River)
- Flamingo Park, Coral Ridge Isles and Palm Aire Village East Speed Humps
- SE 6th Avenue Improvements
- Neighborhood Traffic Calming Construction



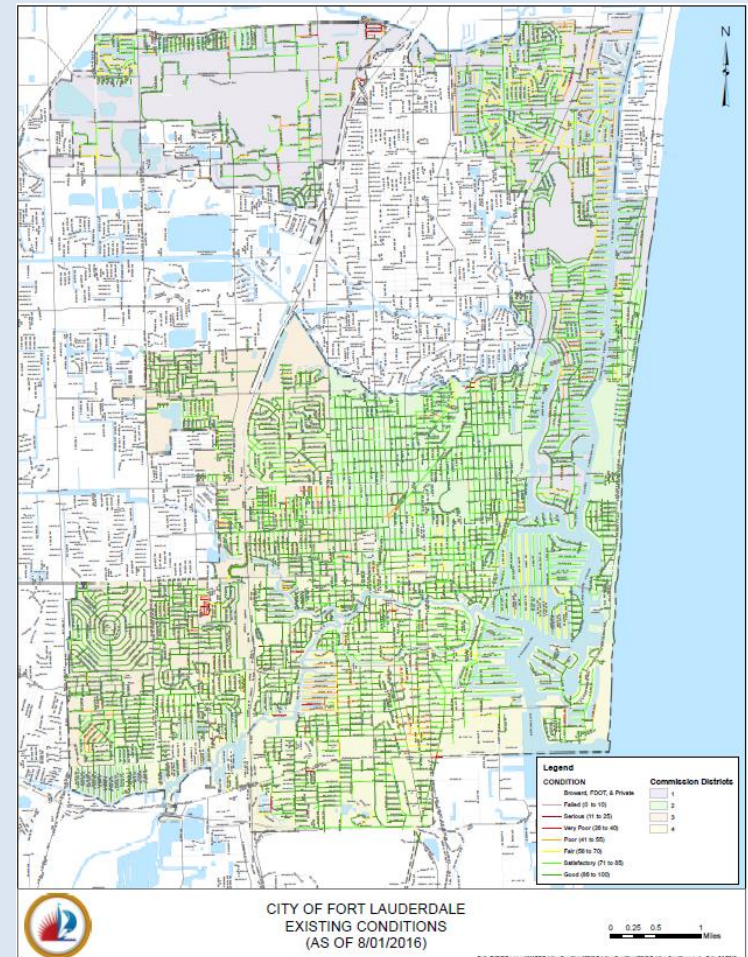
Roads

Overview

- 525 miles of roadway under City jurisdiction
- Road conditions based on 2013 Pavement Condition Index (PCI):
 - Good (86 – 100) - 212 miles
 - Satisfactory (71 – 85) - 185 miles
 - Fair (56 – 70) - 98 miles
 - Poor to failed (0 – 55) - 30 miles

Commission Priorities / Strategic Plan

- **Goal 2: Be a sustainable and resilient community.**
 - Objective 1: Proactively maintain our water, wastewater, road, and bridge infrastructure.



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Roads

CIP

PRIOR FY	\$169,431
FY2017	\$710,000
FY2018	\$710,000
FY2019	\$710,000
FY2020	\$710,000
FY2021	\$710,000
FIVE YEAR CIP TOTAL	\$3,719,431

Active Projects

Micro-surface 2014 through 2017

- Paved 69 of 98 miles of fair rating (PCI 56-70)
- Remaining 29 miles of fair rating (PCI 56-70)

Mill and Overlay 2016 through 2017

- Paved 15 of 30 miles of poor rating
- Remaining 15 miles of poor to failed rating



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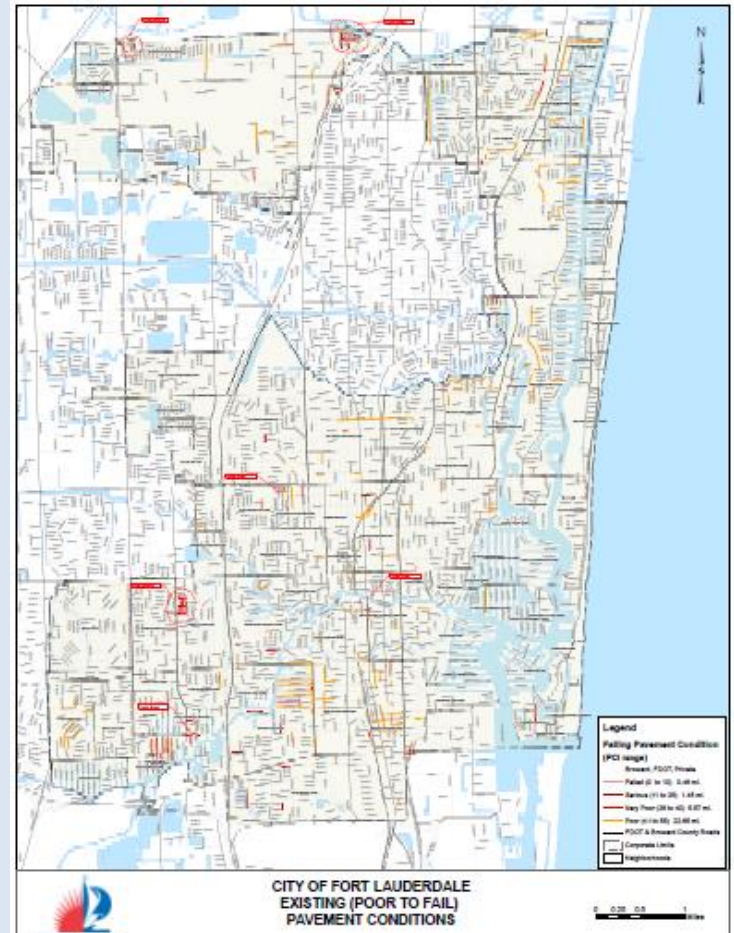
Roads

Issues / Challenges

- Maintenance of pavers in major roadways
- Staff training on PCI
- Lack of funding and deferred maintenance
- Utility adjustments on FDOT projects

Opportunities

- Policy for use and maintenance of pavers on roadways
- Incorporate roadway paving with other types of projects (e.g., stormwater, sewer)
- Master agreement for utility adjustments with dedicated annual funding



Bridges

Overview

- 51 City owned bridges
- Bridge Master Plan completed August 2014
- 2 bridges planned for replacement (Coconut Isle and South Ocean Drive)
- Bridges repaired
 - NE 55th Street Bridge
 - Laguna Terrace Bridge
 - South Gordon Bridge
- Bridges pending repair
 - Solar Plaza
 - NE 1st St
 - West Lake Drive



Commission Priorities / Strategic Plan

- **Goal 2: Be a sustainable and resilient community.**
 - Objective 1: Proactively maintain our water, wastewater, road, and bridge infrastructure.



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Bridges

CIP

PREVIOUS FY	\$3,300,421
FY2017	\$1,606,445
FY2018	\$750,000
FY2019	\$750,000
FY2020	\$100,000
FY2021	\$500,000
FIVE YEAR CIP TOTAL	\$7,006,866

Active Projects

- Coconut Isle Bridge Replacement
- South Ocean Drive Replacement
- 2 Solar Plaza Bridge Repairs
- SW 11th Street Bridge Repair
- NE 1st Street Bridge Repair/Replacement
- West Lake Drive Bridge Replacement



Coconut Isle



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Bridges

Issues and Challenges

- Effects of salt and brackish water
- Tides and sea level rise impacts
- Aging infrastructure
- Access during improvements
- Tide and sea level rise impacts on structure and navigability



S Ocean Dr

Opportunities

- Enhance level of service and reduce risk to traveling public
- Introduce new materials and processes



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Sidewalks

Overview

- Sidewalk Inspection and Management System assessed 465 miles of sidewalks
- Identified 106 miles in need of repairs
- Damages compiled into 5 categories
 - C-1, Vertical displacement $>1/4$ - inch
 - C-2, Wide cracks $>1/8$ - inch
 - C-3, Vertical displacement $< 1/4$ - inch
 - C-4, Surface defects (concrete spalling)
 - C-5, Narrow cracks $< 1/8$ – inch



Commission Priorities/Strategic Plan

- **Goal 1: Be a pedestrian friendly, multi-modal City.**
 - Objective 2: Improve transportation land use and planning to create a walkable and bike-able community



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Sidewalks

CIP

PREVIOUS FY	\$2,878,797
FY2017	\$344,000
FY2018	\$0
FY2019	\$2,150,000
FY2020	\$1,400,000
FY2021	\$0
FIVE YEAR CIP TOTAL	\$6,772,797

UNFUNDED	\$5,936,378
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Active Projects

- Sidewalk and ADA Ramps Bayview Dr between Sunrise Blvd and Oakland Park Blvd
- Sidewalk and Paver Brick Repairs
- Sidewalk and ADA ramp installation in CDBG eligible neighborhoods



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Sidewalks

Issues/Challenges

- Sidewalk maintenance responsibility
- Tree roots
- Current funding level for repairs

Opportunities

- Amend the Code of Ordinances to clarify responsibility for repair
- Streamline enforcement procedures for private sidewalk repairs
- New sidewalks



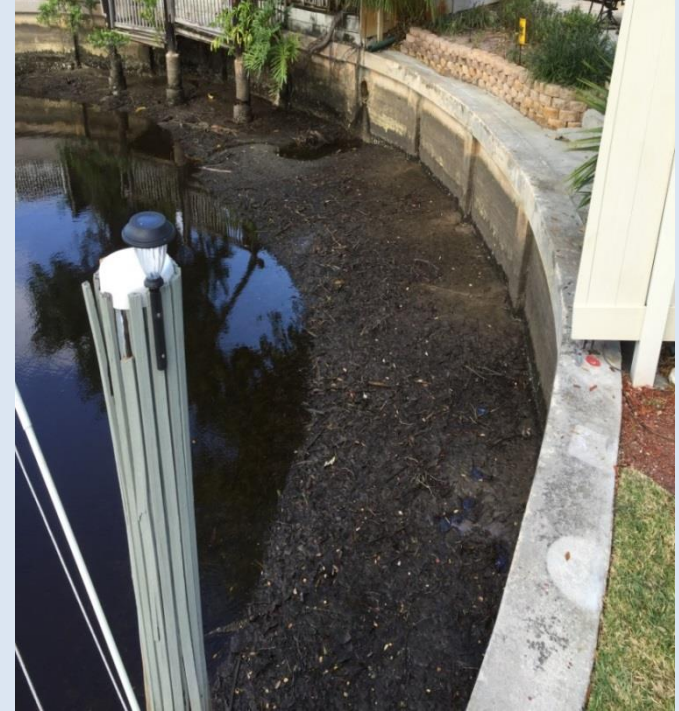
Canal Dredging

Overview

- 101 miles of canals within City limits
- 55 miles City owned
- 13.5 miles need dredging based on 2011 Marine Advisory Board accepted canal dredging criteria
- Rate study contract awarded November 2016

Commission Priorities and Strategic Plan

- **Goal:** Be a sustainable and resilient community
- **Objective:** Proactively maintain our water, wastewater, road and bridge infrastructure
- **Strategic Initiative:** Conduct an analysis of canal dredging needs and examine funding scenarios



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Canal Dredging

CIP

PRIOR FY	\$373,135
FY2017	\$0
FY2018	\$0
FY2019	\$0
FY2020	\$0
FY2021	\$0
FIVE YEAR CIP TOTAL	\$373,135

Active Projects

- Citywide Waterway Surveys Masterplan



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Canal Dredging

Issues and Challenges

- Implementation of fee schedule to cover annual dredging costs
- Local dry site locations for material disposal
- Environmental considerations

Opportunities

- Increase in accessible and navigable waterways
- Reduce flood risk
- Improve storm water drainage and runoff
- Stimulate aquatic life
- Beneficial use of dredging material
- Water quality improvements



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Facilities

Overview

- 146 major buildings
 - 1,232,825 sq.ft. total living area
 - 862,115 sq.ft of roofing
 - 36 facilities built prior to 1971
- 104 parks with different structures
- Roughly 2000 City owned street lights and an unknown number of pedestrian lights throughout the City

Commission Priorities/Strategic Plan

- **Goal 3:** Be a community that finds opportunities and leverages partnerships to create unique, inviting, and connected gathering places that highlight our beaches, waterways, urban areas, and parks
 - **Objective One:** Improve access to and enjoyment of our open spaces for everyone. In the next five years improve the landscape, level of maintenance and attention paid to our public spaces



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Facilities

CIP

- \$58,721,000 unfunded infrastructure needs identified in Parks Master Plan over the next ten years.
- \$4,500,000 in current budget available
- \$10,475,000 identified needs through 2020 in facility assessment

(General Funded only excluding police, aquatic center)

- \$812K in roofs
- \$3.5 million in Air Conditioner Repair/Replacement

Active Projects

- War Memorial Electrical Improvements
- New River Electrical Improvements
- Air-conditioning replacement: DSD, Fire Station #2, City Hall Data Center, War Memorial
- Fire Bond Projects (Stations 8, 13, & 54)
- Mills Pond Soccer & Lacrosse Fields



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Facilities

Issues/Challenges

- 40 year inspections to certify buildings continue to meet life safety minimums (roofs, structure, electrical systems, etc)
- Budgeting for upcoming improvements and unexpected required repairs.
- Retaining resources and design teams to meet these challenges.
- Repair/replace decisions

Opportunities

- Improving amenities for the use by neighbors
- Safeguarding facilities against threats; natural or man-made
- Improving efficiency of facilities through improved technologies and new materials
- Replacement Police Station



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Parking System Fund

(In Millions)

FY 2017

Adopted

Revenues	\$ 17.8
Operating Expenditures	\$ 15.8
Community Investment Plan (CIP)	\$ 1.6
CIP as a percent of Operating Expenses	10.0%
Fund Balance In Millions	\$ 2.6
Fund Balance as a percent of total Operating Expenditures ¹	16.6%
Fund Balance in days	60

¹ It is the policy of the City that the Parking System Fund requires a minimum available fund balance of 45 days or 12.5% of the Parking System Fund operating budget.



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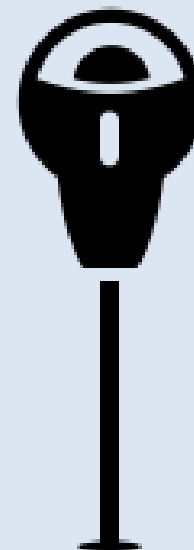
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Parking

In order to address the increase parking needs of our neighbors the City has allocated 1.6 million dollars in CIP Parking projects including:

- City Park Garage Rehabilitation and Signage
- CPG and PACA Garage Lighting Improvements
- Sustainable Parking Lot Improvements
- South Andrews Parking Space and Meter Installation
- Mobile Parking Enforcement
- City Park Garage Structural Repairs
- And more....



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Airport Fund

(In Millions)

FY 2017
Adopted

Revenues	\$ 8.5
Operating Expenditures ¹	\$ 8.1
Community Investment Plan (CIP)	\$ 1.1
CIP as a percent of Operating Expenses	13.6%
Fund Balance In Millions	\$ 12.6
Fund Balance as a percent of total Operating Expenditures ²	156.0%
Fund Balance in days	562

¹ Adopted operating expenditures were decreased by \$1.3 million to remove the Airport Payment in lieu of taxes (PILOT) payment.

² It is the policy of the City that the Airport Fund requires a minimum available fund balance of 45 days or 12.5% of the Airport Fund operating budget.



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Airport

Overview

- Two runways w/ fifteen taxiways
- Navigational aides, guidance signs & lights
- 24-Hour Air Traffic Control Tower
- Aircraft Rescue & Fire Fighting Facility
- Administration Building
- U.S. Customs & Border Protection Facility
- Observation Area
- Aviation Equipment & Service Facility
- 900 acre property w/ 200-Acre Industrial Park



Commission Priorities and Strategic Plan

- Operate, maintain, and improve the Airport and Downtown Helistop in a manner that optimizes safety, security and efficiency.
- Serve the aviation needs of the citizens while addressing community and neighborhood issues related to the Airport.



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Airport

CIP

PREVIOUS FY	\$8,818,463
FY2017	\$6,260,001
FY2018	\$4,035,836
FY2019	\$5,433,820
FY2020	\$3,340,753
FY2021	\$2,820,530
FIVE YEAR CIP TOTAL	\$31,021,203



Active Projects

Taxiway Foxtrot Pavement Rehabilitation
Master Plan Update
Taxiway Intersection Improvements
Administration Building Renovation
Electrical Vault Improvements
Relocate Taxiway Foxtrot



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Airport

Issues/Challenges

- Limited areas for tenant development
- Zoning restrictions limit the airport to developed properly
- Runway length limits types of aircraft that can use the airport

Opportunities

- Deploying technological advancements to improve Airport efficiencies
- Exploring new avenues to generate non-aviation revenue
- Promotion of Airport business incentives and Foreign-Trade Zone 241
- Develop Sustainability Management Plan
- Update Airport Master Plan to determine future development options



Stormwater Fund

(In Millions)

	FY 2017 Adopted
Revenues	\$ 11.9
Operating Expenditures	\$ 7.5
Community Investment Plan (CIP)	\$ 6.5
CIP as a percent of Operating Expenses	87.1%
Fund Balance In Millions	\$ 1.3
Fund Balance as a percent of total Operating Expenditures ¹	17.8%
Fund Balance in days	64

¹ It is the policy of the City that the Stormwater Fund requires a minimum available fund balance of 45 days or 12.5% of the Stormwater Fund operating budget.



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Stormwater Utility

Overview

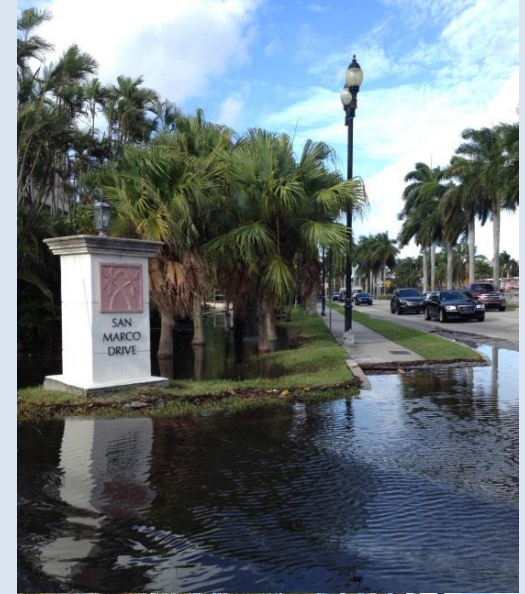
- 171 miles of storm pipe
- 2,324 manholes
- 1,258 outfalls
- 37 drainage wells
- 8,288 catch basins
- 116 tidal valves

Commission Priorities / Strategic Plan

Goal 2: Be a sustainable and resilient community

- Objective 2: Reduce Flooding and adapt to sea level rise
- Objective 3: Improve climate change resiliency by incorporating local and regional plans

Before



After



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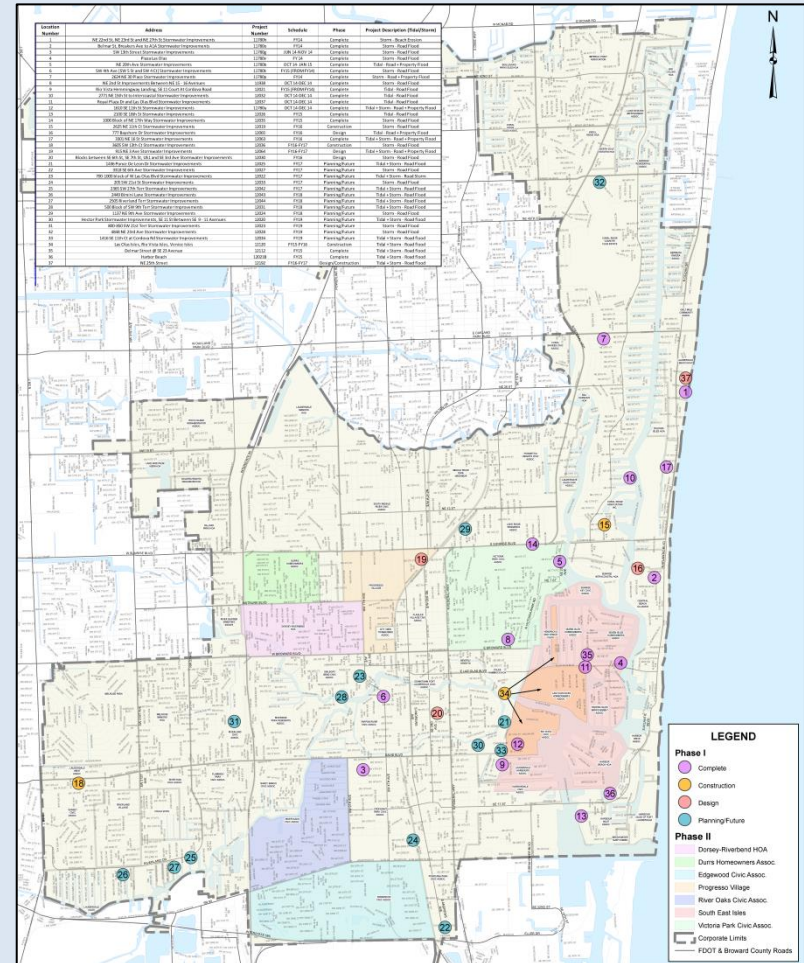
Stormwater Utility

CIP

PREVIOUS FY	\$10,367,759
FY2017	\$6,523,597
FY2018	\$1,811,579
FY2019	\$3,021,957
FY2019 (revenue bond)	\$148,200,000
FY2020	\$582,538
FY2021	\$1,971,000
FIVE YEAR CIP TOTAL	\$172,474,430

Stormwater Master Plan (FY 2014- FY2024)

- Phase I - 37 CIP Projects
- Phase II - Modeling & Design of 7 Neighborhoods
- Phase III - Construction of Phase II projects



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Stormwater Utility

CIP Projects

777 Bayshore DR – \$766,000

915 NE 3rd AVE - \$708,280

1436 Ponce De Leon DR - \$340,000

700 – 1000 Block of W Las Olas BLVD - \$272,000

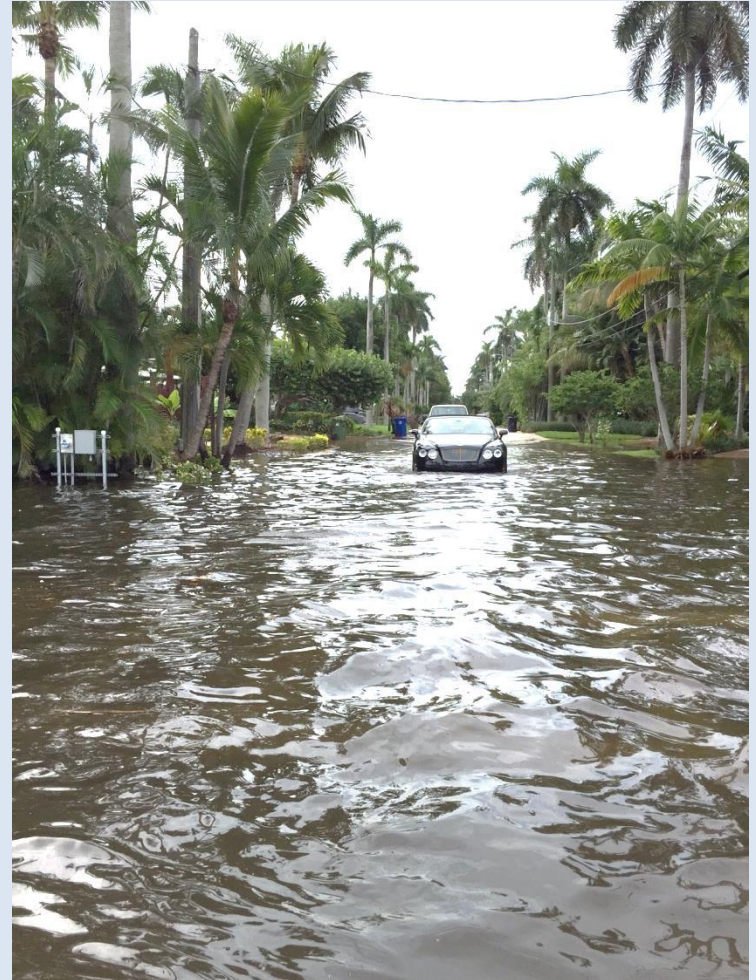
Riverland Road @ SW 27th TER - \$170,000

Issues / Challenges

- Sea level rise impacts
- Funding for Phase II Master Plan projects
- Increased funding for maintenance

Opportunities

- Stormwater Master Plan is a citywide planning and design tool
- Acquisition of an asset management system
- Utility fee increase



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Water and Sewer Fund

(In Millions)

	FY 2017 Adopted
Revenues ¹	\$ 111.0
Operating Expenditures	\$ 109.2
Community Investment Plan (CIP)	\$ 16.0
CIP as a percent of total Expenses	14.6%
Fund Balance In Millions	\$ 25.1
Fund Balance as a percent of total Operating Expenditures ²	23.0%
Fund Balance in days	83

¹ Water and Sewer revenues are reduced by sewer charges paid to the Central Region Fund as a Large User.

² It is the policy of the City that the Water and Sewer Fund requires a minimum available fund balance of 90 days or 25.0% of the Water and Sewer Fund operating budget.



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Central Region/Wastewater Fund

(In Millions)

	FY 2017 Adopted
Revenues	\$ 27.3
Operating Expenditures	\$ 19.4
Community Investment Plan (CIP)	\$ 7.8
CIP as a percent of total Expenses	40.4%
Fund Balance In Millions	\$ 2.3
Fund Balance as a percent of total Operating Expenditures ¹	11.6%
Fund Balance in days ²	42

¹ It is the policy of the City that the Central Region/Wastewater Fund requires a minimum available fund balance of 90 days or 25.0% of the Central Region/Wastewater Fund operating budget.

² At the close of each fiscal year the Large Users are refunded or charged based on actual system expenses and usage.



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Water and Sewer Charges

Effect of each 1% Monthly Increase for Neighbors
(Based on Average usage of 5,000 gallons/month)

5/8 Inch Meter	Current Rate	Proposed Rate	\$ Change	% Change
Water Charge (monthly)	\$22.46	\$22.68	\$0.22	1%
Sewer Charge (monthly)	\$37.63	\$38.01	\$0.38	1%
Total (monthly)	\$60.09	\$60.69	\$0.60	1%
Water and Sewer Charges (annual)	\$127,000,000	\$128,163,652	\$1,163,652	1%

** May be slightly lower than 1% due to elasticity adjustment related to consumption*



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Water Utility

Overview

Potable Water System

- Fiveash Regional Water Treatment Plant (70 MGD)
- Peele-Dixie Water Treatment Plant (12 MGD)
- Poinciana Park water tank and pump station
- NW 2nd AVE water tank and pump station
- 18,672 valves and 783 miles of water main pipe
- 37 water supply wells

Commission Priorities / Strategic Plan

- **Goal 2: Be a sustainable and resilient community**
 - Objective 1: Proactively maintain our water, wastewater, road, and bridge infrastructure
 - Objective 6: Secure our community's water supply



Fiveash Water Treatment Plant



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Water Utility

CIP

PREVIOUS FY	\$38,734,357
FY2017	\$7,079,836
FY2018	\$11,971,556
FY2019	\$10,733,221
FY2020	\$14,786,244
FY2021	\$6,549,073
FIVE YEAR CIP TOTAL	\$72,626,577
UNFUNDED	\$43,787,662



CIP Projects

- Relocation of 16" WM at East Las Olas - \$4,241,819
- Lake Estates Small Water Mains - \$2,424,011
- FDOT Broward Blvd Bridge 30" WM Replacement - \$392,865
- Port Condo Large Water Main Improvements - \$671,278
- Fiveash Reliability Upgrades - \$30,756,977



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Water Utility

Issues / Challenges

- Aging infrastructure
- Increased development and residential demand
- Plant rehabilitation
- Evaluation and rehabilitation/replacement of 18,672 valves and 783 miles of pipe
- Increased maintenance funding

Opportunities

- Utility master plan
- Acquisition of an asset management system
- Utility fee increase



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Sewer Utility

Overview

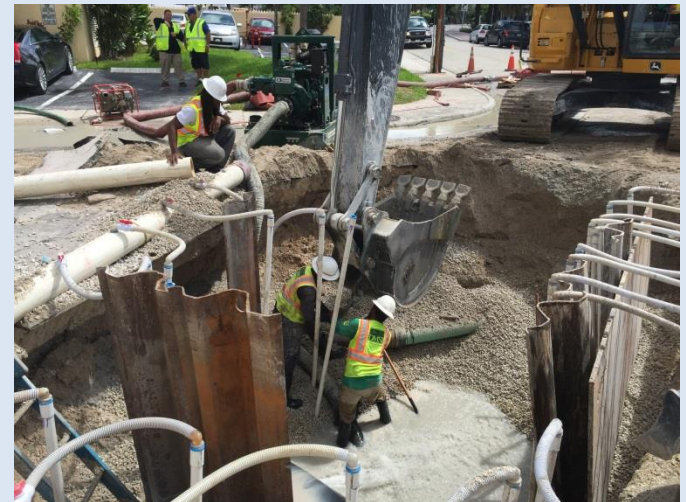
- George T. Lohmeyer Wastewater Treatment Plant (56.6 MGD permitted capacity)
- 186 pump stations and 3 re-pump stations
- 1,150 valves and 135 miles of pressurized force main
- 368 miles of gravity and low pressure sewer mains
- Service provided to 250,000 people



Commission Priorities / Strategic Plan

Goal 2: Be a sustainable and resilient community

- Objective 1: Proactively maintain our water, wastewater, road, and bridge infrastructure
- Inflow and Infiltration Reduction (\$10,370,392 budgeted in FY2017)



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Sewer Utility

CIP

PREVIOUS FY	\$38,662,719
FY2017	\$16,755,276
FY2018	\$15,528,909
FY2019	\$13,961,329
FY2020	\$13,098,176
FY2021	\$21,162,293
FIVE YEAR CIP TOTAL	\$153,047,285
UNFUNDED	\$61,540,625

CIP Projects

Victoria Park Sewer Basin A-19 Rehab -	\$1,620,912
Flagler Heights Basin A-21 Rehab -	\$931,144
Downtown Sewer Basin A-7 Rehab -	\$1,156,197
PS B-10 Rehabilitation -	\$1,441,006
PS A-12 Rehabilitation -	\$1,409,082



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Sewer Utility

Issues / Challenges

- Aging/deteriorating infrastructure
- Environmental violations
- Budget for Inflow and Infiltration Reduction
- Increased development and residential demand
- Evaluation and rehabilitation/replacement of 1,150 valves and 135 miles of force main pipe
- Increased funding for repair, replacement, and maintenance

Opportunities

- Utility master plan
- Acquisition of an asset management system
- Utility fee increase



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Summary

We are making significant infrastructure advances over the next five years to ensure the sound infrastructure necessary for future growth and economic prosperity.

Our strategic community investments, considering adaptation and resiliency, are important now and for future generations.

There are challenges with aging infrastructure and increasing maintenance needs, however our Community Investment Plan balances maintenance and infrastructure investments to provide for the long term needs of our neighbors.



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PUBLIC WORKS DEPARTMENT

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