

Energy Management Program Update

Sustainability Advisory Board

September 29, 2020



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PUBLIC WORKS DEPARTMENT



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Agenda

- Strategic Plan Alignment
- Current Strategies
- Recent Success Stories
 - Programmable Thermostats Deep Dive
- Looking Forward
 - Renewable Energy
 - Funding Opportunities
- Impacts of COVID-19
- Open discussion/ Q&A



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Part of the City's Strategic Plan



Infrastructure Focus Area

- **Goal 1: Build a sustainable and resilient community.**
 - *Objective: Promote energy efficiency and the expansion of renewable energy sources*

Internal Support Focus Area

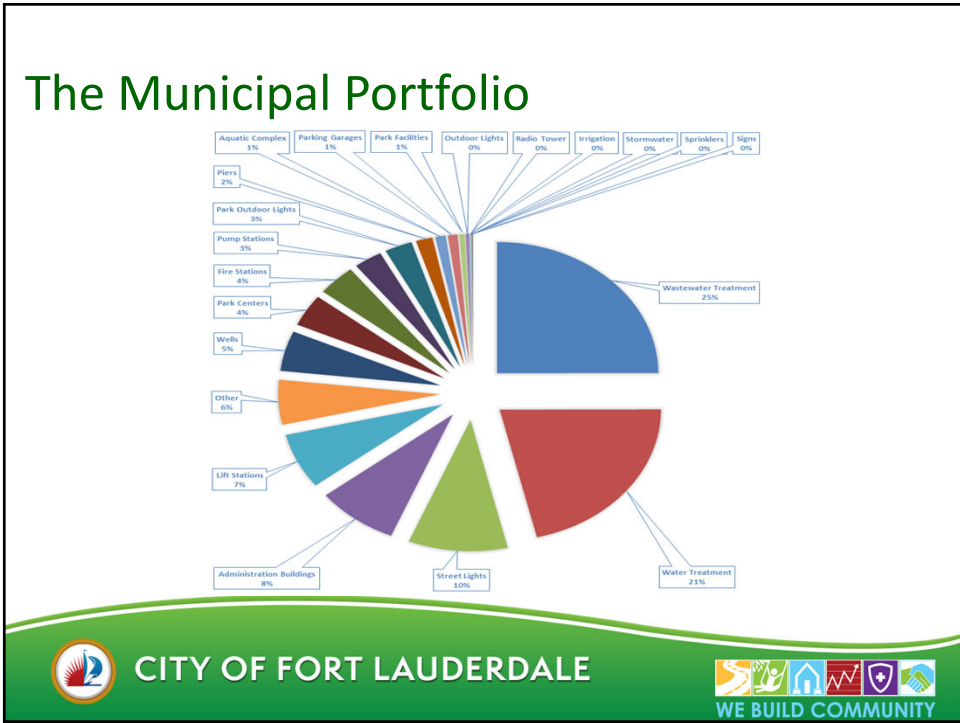
- **Goal 8: Build a leading government organization that manages all resources wisely and sustainably.**
 - *Objective: Integrate sustainability and resiliency into daily operations*



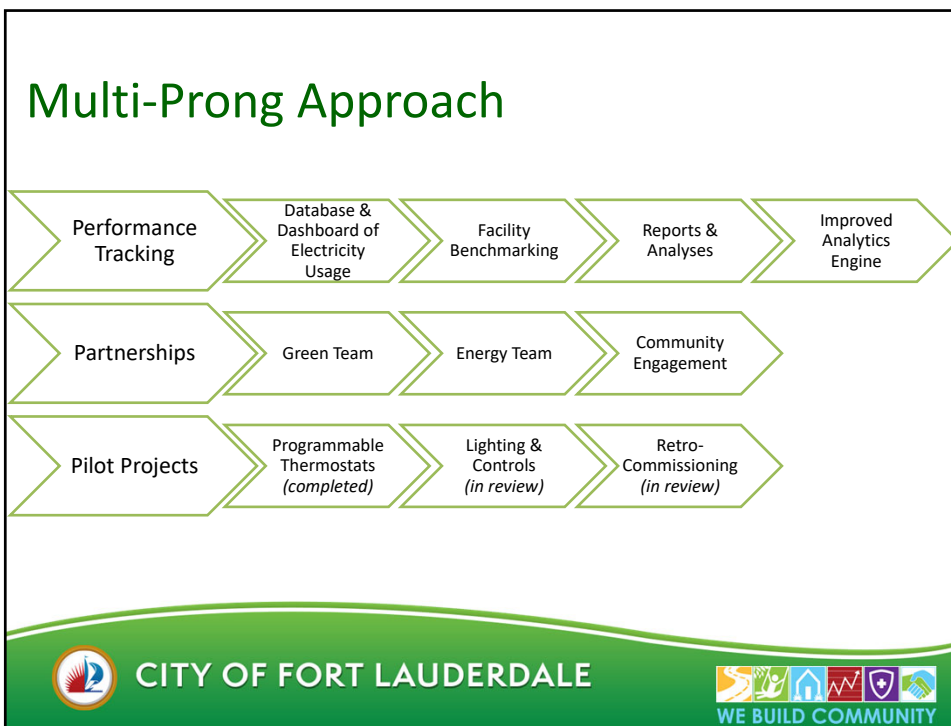
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Success Stories

Building Energy Efficiency Plan

Reduction strategies for energy and emissions within municipal buildings

- Finalized City's first 'Building Energy Efficiency Plan' (BEEP)
- Provides first steps for investment:
 - Small-scale energy efficiency
 - Large capital projects
 - Small and large renewable energy
 - Sustainable behaviors

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Success Stories

- Energy tracking and reporting tools:
 - Energy database and dashboard
 - Citywide performance report
 - Building performance report
 - High/Low Use Intensity report
 - More in development!

- New analytics engine to expand on this (*Tableau*)

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ENERGY MANAGEMENT PROGRAM

Energy Performance Report: Citywide
 Evaluation Period: January - June

Total Energy Cost

Year	Cost (\$)
2018	\$1,938,609
2019	\$1,924,447
2020	\$1,865,684

Total kWh Usage

Year	kWh
2018	20,102,584
2019	20,021,421
2020	20,001,689

Total Energy Cost by Use Type

Average kWh/Day

Energy Demand (kW)

Average Energy Cost/Day

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Success Stories

**Pilot Report:
Programmable
Thermostats**

Research, development, & analysis for municipal operations

- First pilot and report completed → programmable thermostats




- Replacing these controls produced:
 - More precise temperature measurements
 - Faster response times
 - Less maintenance required
 - Data trends for analysis
 - Annual energy cost savings of ~\$33K

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Success Stories

- USDOE Better Buildings 2020 Challenge Recognition!
 - Achieved 20% reduction in targeted facilities from:
 - ✓ 2016 Honeywell Energy Services Contract (LEDs, HVAC RCx, Envelope Repairs)
 - ✓ Employee Conservation Initiatives (Flip the Switch 1 & 2)
 - ✓ Beach Community Center Solar PV System
 - ✓ Programmable Thermostats Pilot Projects



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WE BUILD COMMUNITY

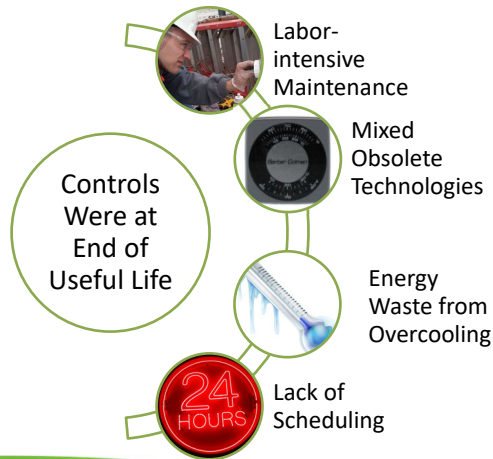
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Programmable Thermostats Overview

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Manual thermostat issues:

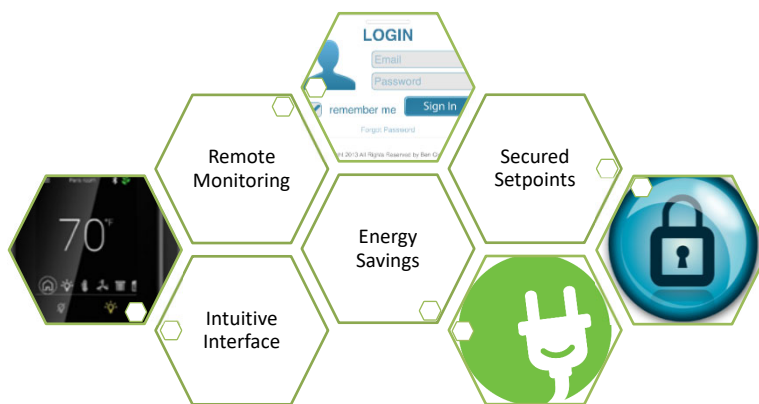


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Why Programmable Thermostats?




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Pilot Summary




Phase 1:
Honeywell ESCO
15 Installations
(2017)




Phase 2:
Kool Saver Contract
45 Installations
(2019)





Phase 3:
City Hall Retrofit
11 Installations
(2019)



Commissioning & Analysis
(2017-2020)






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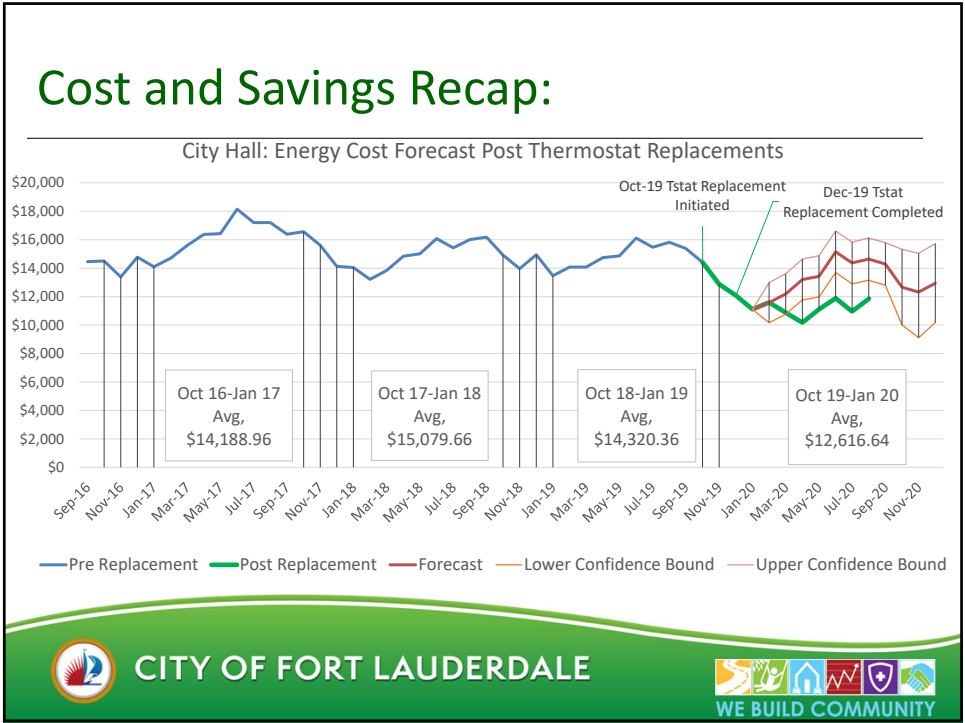
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Cost and Savings Recap:

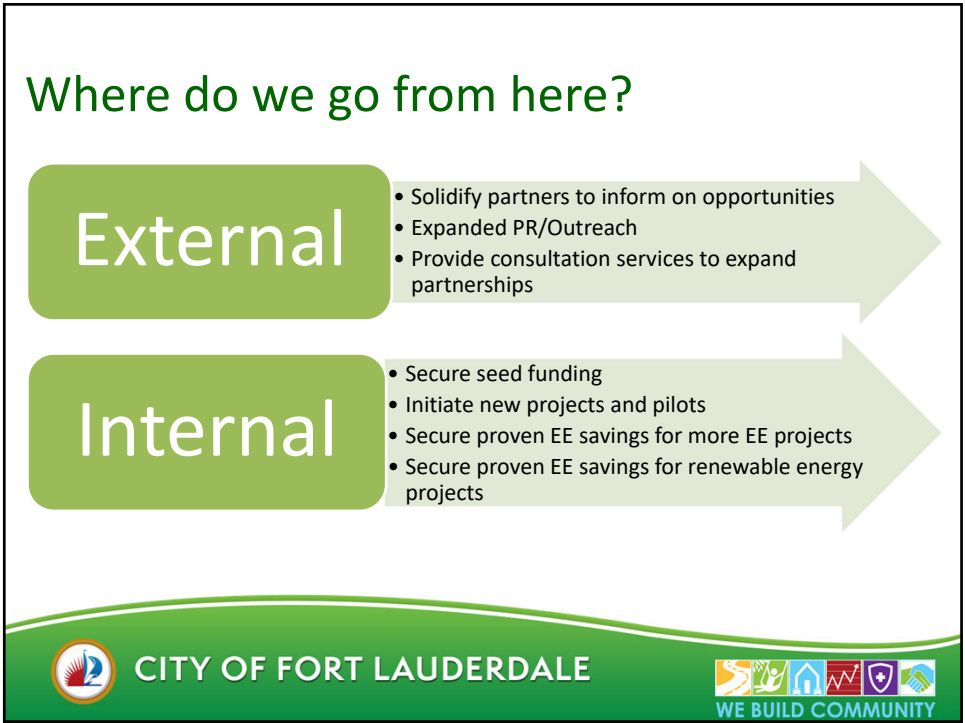
Phase	Project Name	Base Cost	#	Initial Est. kWh Savings	Current kWh Savings	Initial Est. Cost Savings	Current Cost Savings	Initial \$/kWh Reduced	Current \$/kWh Reduced	Initial ROI (Years)	Current ROI (Years)
1	Honeywell ESCO Project	\$4,333	15	33,506	34,571	\$1,837	\$1,887	\$0.13	\$0.13	2.36	2.36
2	Kool Saver Project	\$13,000	45	34,601*	64,522*	\$2,861*	\$1,641*	\$0.38*	\$0.20*	4.54*	7.92*
3	City Hall Pneumatic Upgrade	\$25,000	11	98,899	352,000	\$8,179	\$29,837	\$0.23	\$0.07	2.82	0.84
Total:		\$42,333	71	158,016	451,093	\$12,134	\$33,365	\$0.25	\$0.19	2.58	1.27


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Preliminary Renewable Energy Strategy

- **Small and Strategic Projects:**
 - Examine market offerings using BEEP suggestions
 - Examine fire stations for load reduction & resiliency
 - Examine remote irrigation systems
 - Examine sister city partnerships for bulk pricing via SSDN

- **Large Capital Project:**
 - Identify low-impact, high production locations to install one large system not currently slated
 - Parking garage rooftops for ease of installation and maximum generation
 - Potential CDG opportunity if regulatory environment changes



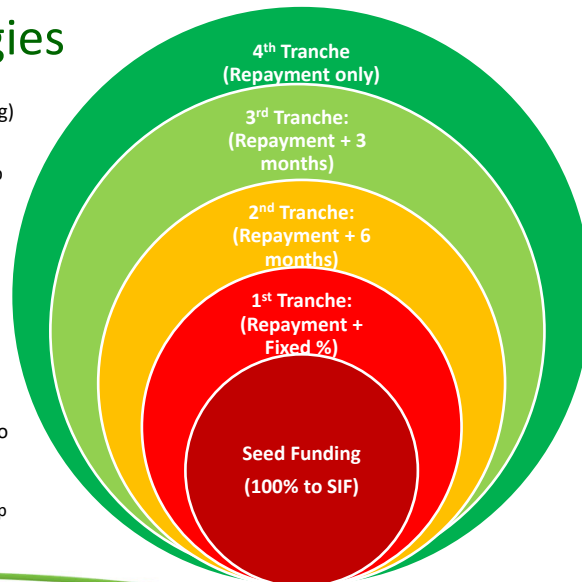
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Funding Strategies

- Standard Budget Requests (ongoing)
- Private Sector Partnerships with no upfront costs
 - Energy Invoice Auditing Services (in progress)
 - Retro-Commissioning Services (in review)
 - Building Operations Training Services (in review)
 - Energy as a Service (in review)
- EE projects will return value back to City after ROI + % over time is achieved
 - % scales down as volume ramps up



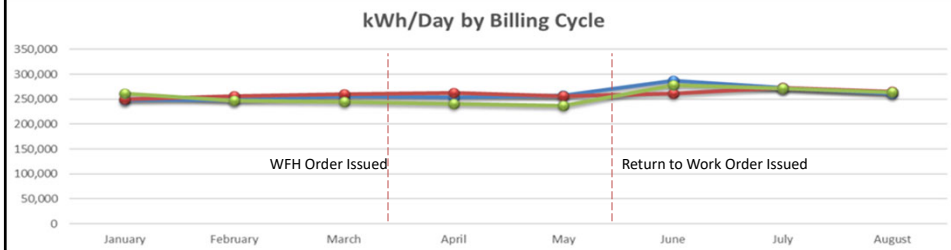
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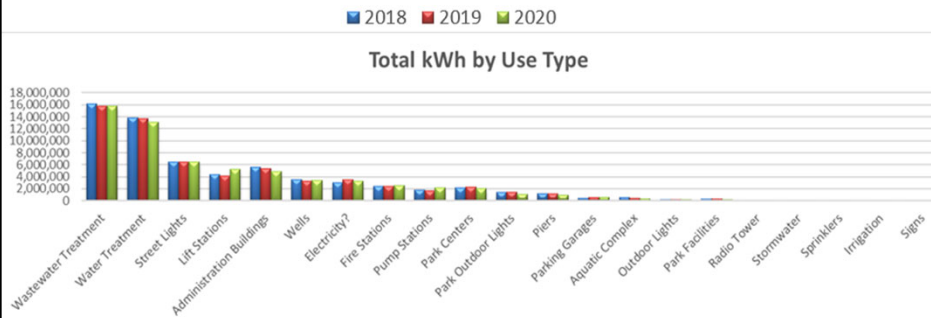
COVID-19 Energy Impact

- Overall reduction of 0.98% across City operations during “work from home” order
 - Heaviest energy users (water, wastewater) remained fully operational
 - Small reductions seen at Parks facilities, offices



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COVID-19 Energy Impact



- Analysis period: January through August



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Open Discussion

Icebreaker Question: How can the SAB support and advance the City's energy program?



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Questions or Ideas?

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Impacts of COVID-19 on City Operations

September 29, 2020



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- Solid Waste & Recycling
- City Fleet
- Water Utilities
- City Operations Water Consumption

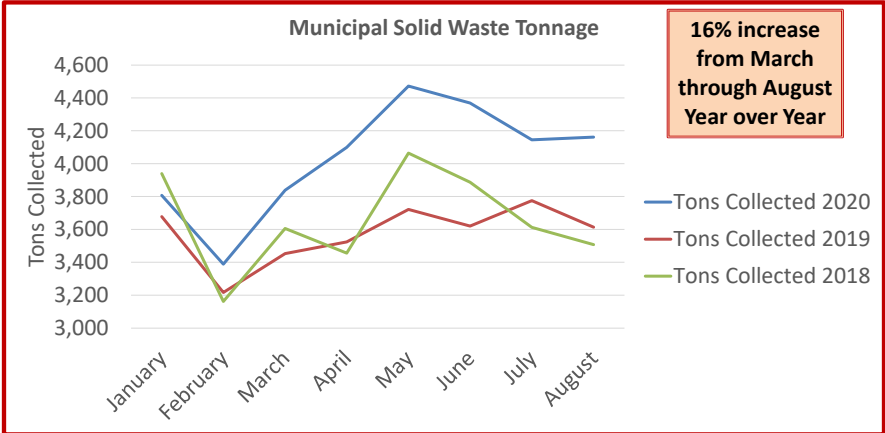


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Solid Waste & Recycling

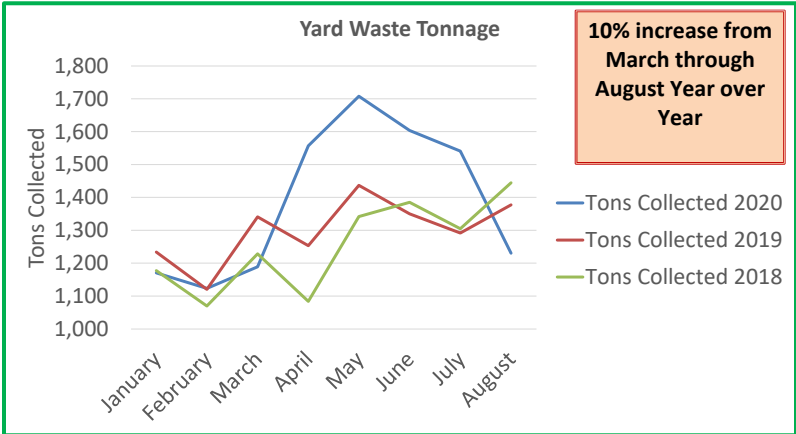


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Solid Waste & Recycling

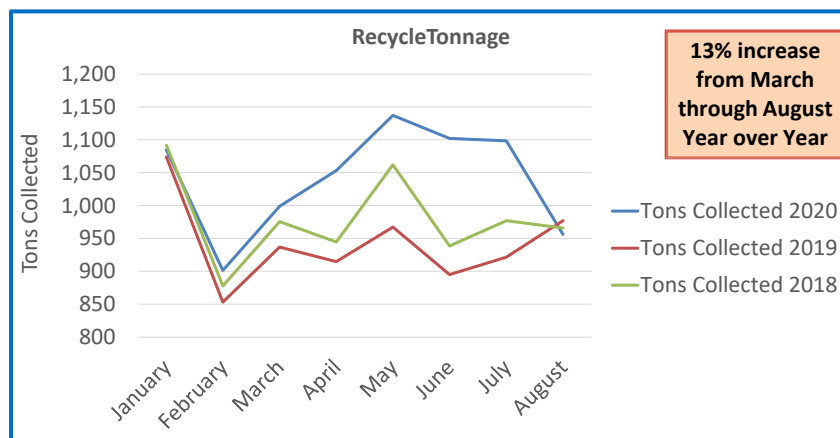


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Solid Waste & Recycling

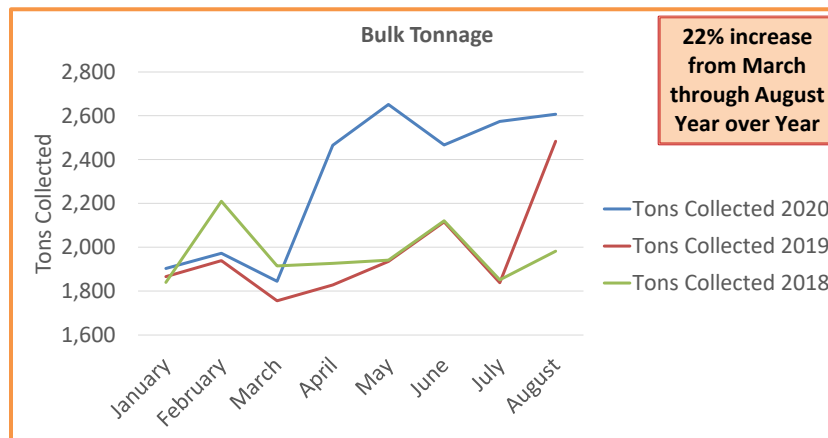


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Solid Waste & Recycling

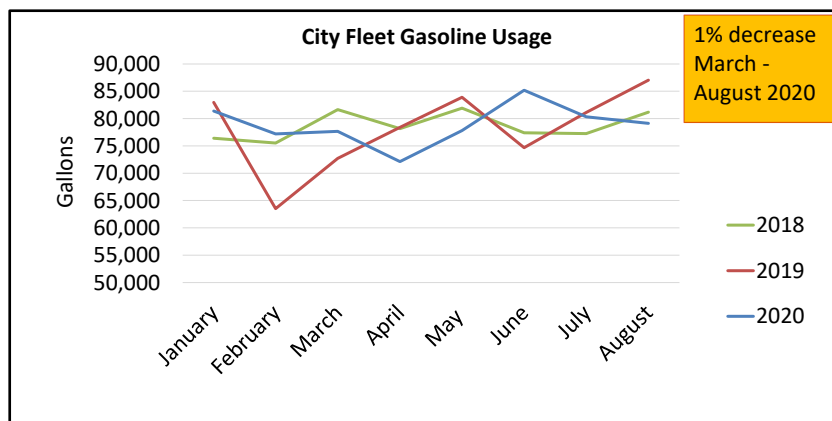


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Fleet Usage - Gasoline

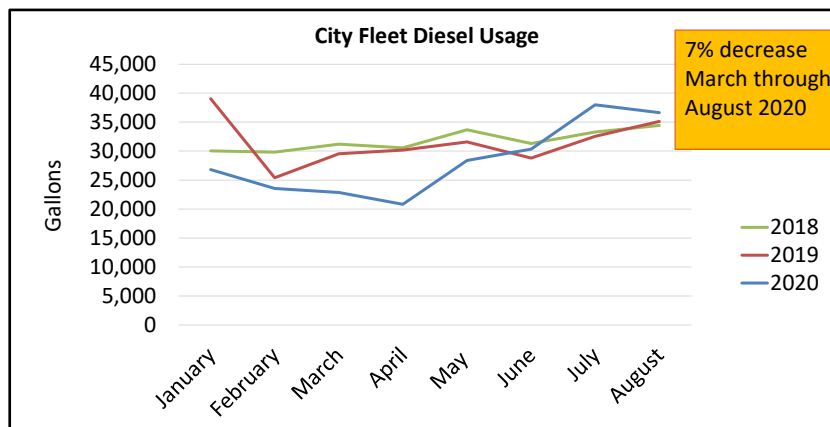


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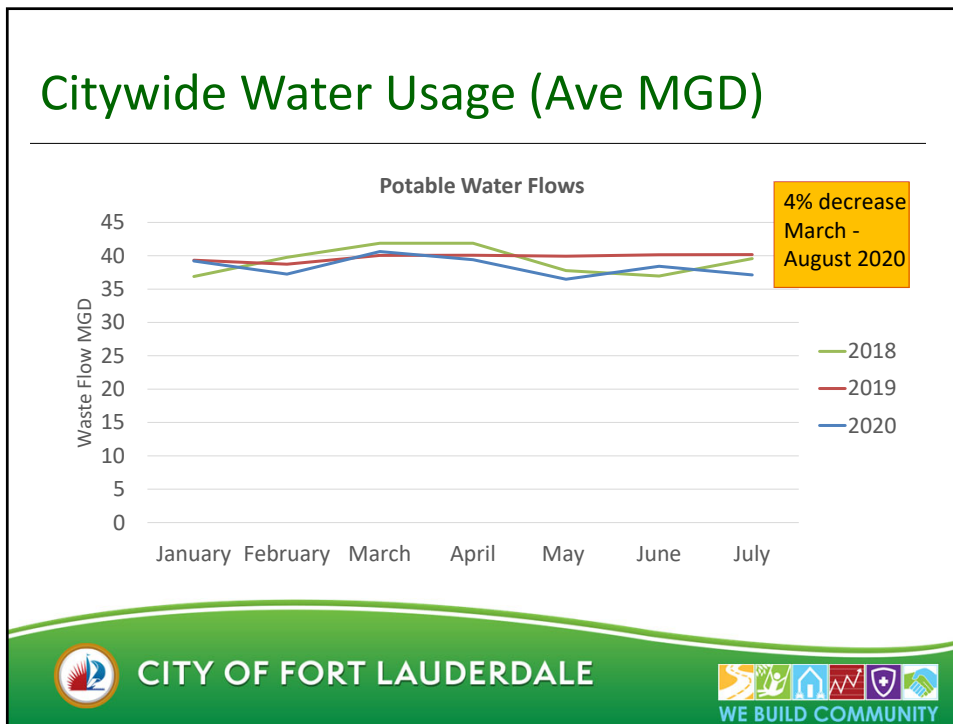
Fleet Usage - Diesel



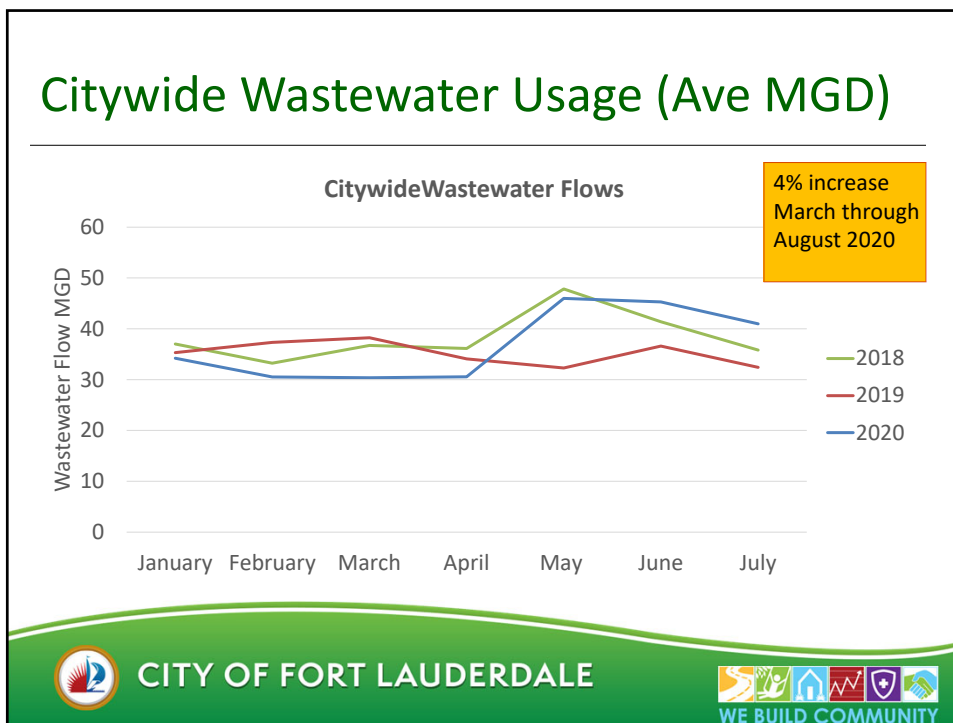
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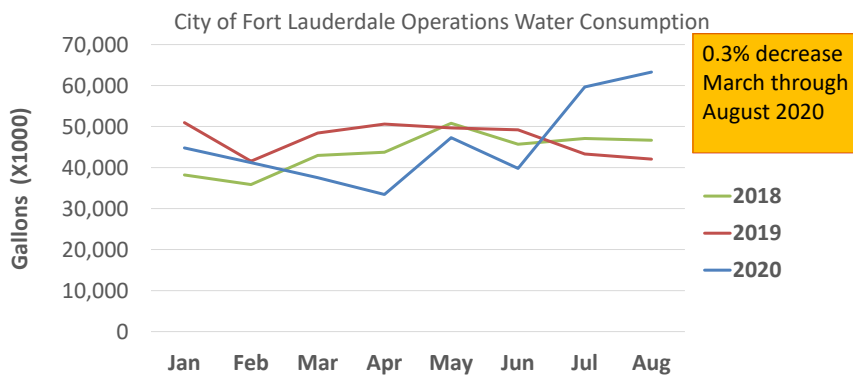


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City Operations Water Usage



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Questions



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