

# 2021 WINTER CONFERENCE

DECEMBER 1-3, 2021



## Taking the PAIN out of NPDES Reporting

## The City of Orlando's Story



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# Presenters and Contributors

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# Session Overview

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- About NPDES
- NPDES Annual Report Data Needs
- Pain points
- The City of Orlando Story
- Q&A



The Streets and Stormwater Division maintains and operates the City's roadways and right-of-ways and ensures efficient and safe transit on all city streets and pedestrian ways as well as maintaining and improving our drainage facilities.

# About NPDES

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- **National Pollutant Discharge Elimination System (NPDES)**  
regulations protect surface water quality from point and non point sources of pollution
- EPA identified stormwater as major contributor of pollutants to the waters of the United States
- Permit conditions specify the acceptable levels of pollutants in the discharges to protect the environment and public health
- In Florida, compliance is regulated under NPDES Permits For Municipal Separate Storm Sewer Systems (MS4)
  - ▣ RULE 62-624.600(2), F.A.C.



# Section 403.9302 Florida Statutes

- ❑ Requires Counties, Special Districts and Municipalities to perform a 20-year Needs Analysis for Stormwater and Wastewater Projects
- ❑ Needs to be submitted every 5 years
- ❑ The State of Florida Office of Economic and Demographic research (EDR) developed a comprehensive Stormwater Template



**Background Information**  
Please provide your contact and location information, then proceed to the template on the next sheet.

Name of Local Government: \_\_\_\_\_  
 Name of stormwater utility, if applicable: \_\_\_\_\_  
 Contact Person: \_\_\_\_\_  
 Name: \_\_\_\_\_  
 Position/Title: \_\_\_\_\_  
 Email Address: \_\_\_\_\_  
 Phone Number: \_\_\_\_\_

Indicate the Water Management District(s) in which your service area is located.

Northwest Florida Water Management District (NFWFMD)  
 Suwannee River Water Management District (SRWMD)  
 St. Johns River Water Management District (SJRWMD)  
 Southwest Florida Water Management District (SWFWMD)  
 South Florida Water Management District (SFWMD)

Indicate the type of local government:

Municipality  
 County  
 Independent Special District



# So what does this mean for you?

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- If you are responsible for managing stormwater infrastructure, it is more relevant than ever before to **have an organized and auditable historical record** of the following items:
  - ▣ Stormwater infrastructure (**Assets**)
  - ▣ Operations and maintenance activities (**Service Requests, Work Orders and Inspections**)
  - ▣ Active and planned Capital Projects for the repair, replacement, and expansion of stormwater-related infrastructure (**CIP**)



# Simply stated...

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- You need to have **reliable information** on:
  - ▣ The stormwater assets you own and/or maintain
  - ▣ The condition of the assets
  - ▣ Maintenance activities performed on them
  - ▣ How often you are inspecting your assets?
  - ▣ What is their projected remaining useful life?
  - ▣ What projects are planned to keep your stormwater system running smoothly?



# Why is this important?

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- Keeping track of your assets and O&M activities deliver the following **benefits** to your organization
  - ▣ Regulatory compliance
  - ▣ Protection from legal challenges
  - ▣ Protects environment and public health
  - ▣ Brings visibility for investment \$ and resource needs for your stormwater infrastructure
  - ▣ Enables data-driven decision making



# Why is NPDES reporting a PAIN?

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**Annual Report Form  
For Individual NPDES Permits For  
Municipal Separate Storm Sewer Systems  
(RULE 62-624.600(2), F.A.C.)**

- There is a large amount of information that needs to be collected and reported each year
- Information must be defensible during an audit
- For a large entity like the City of Orlando, information must be collected from multiple Divisions, Personnel, Software Systems, Spreadsheets and Paper

# Datasets needed for NPDES Report

- Program overview
- Financial analysis
- Stormwater inventory
- Development projects
- Roadway maintenance
  - ▣ City staff
  - ▣ Contractors
- Flood control projects
- Municipal waste
- Pesticides, herbicides, fertilizer use



- Public education and outreach
- Illicit discharges, improper disposal
  - ▣ inspections and enforcement
  - ▣ spill prevention and response
  - ▣ Oils, toxic, household hazardous waste
  - ▣ SSO tracking and management
- Industrial and high-risk runoff
- Construction site runoff
  - ▣ Plans review
  - ▣ Inspection and enforcement
  - ▣ Site operator training
- TMDL status report

# Typical Challenges with NPDES Reporting

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- Disconnected communication among stakeholders
  - ▣ Information is **not shared effectively**
- Lack of standard processes for data collection
- Difficult of access information – in field or in the office
  - ▣ Lack of standardized filing system
- **Too many spreadsheets** and too much paper
  - ▣ Everyone keeps their “**own copy**” of information
- Need a **GIS degree** to access map
- Reports/history not easily available



# Partial List of City Staff Providing Data

Employee	Department/Information
Alvin Gilreath	Parks, Pesticides Application
Eleizer Verde & April Taylor	Fire Department
Marvin Montgomery	Streets & SW Maint, Street Sweeping, Pesticides
Lihua Wei	Flood Control
Lisa Lotti	Streets & SW Compliance
Athena Tipaldos	Streets & SW Fiscal Analysis
Olivia Boykin	Permitting: Private Construction Site Inspections
Nat Prapinpongsonone	Site Review Data
Jonathan Ford	Fleet Yard
David Dunn	Facilities
Charles Shultz	Wastewater
Daron Johnson	Wastewater
Chancey Springstead	Wastewater
Mary Cvetan/Lisa Lotti	Streets & SW Public Awareness & Keep Orlando Beautiful
Sean Hipps	Keep Orlando Beautiful
Richard Davis	Streets & SW Maint, Litter Control
Stephen Bailiff	Streets & SW Maint, Streets Yard
Susan Ussach	Public Works Executive Team
Howard Elkin	Streets & Stormwater Division Manager
Richard Howard	Public Works Executive Team

# So is there a Treatment for this PAIN?

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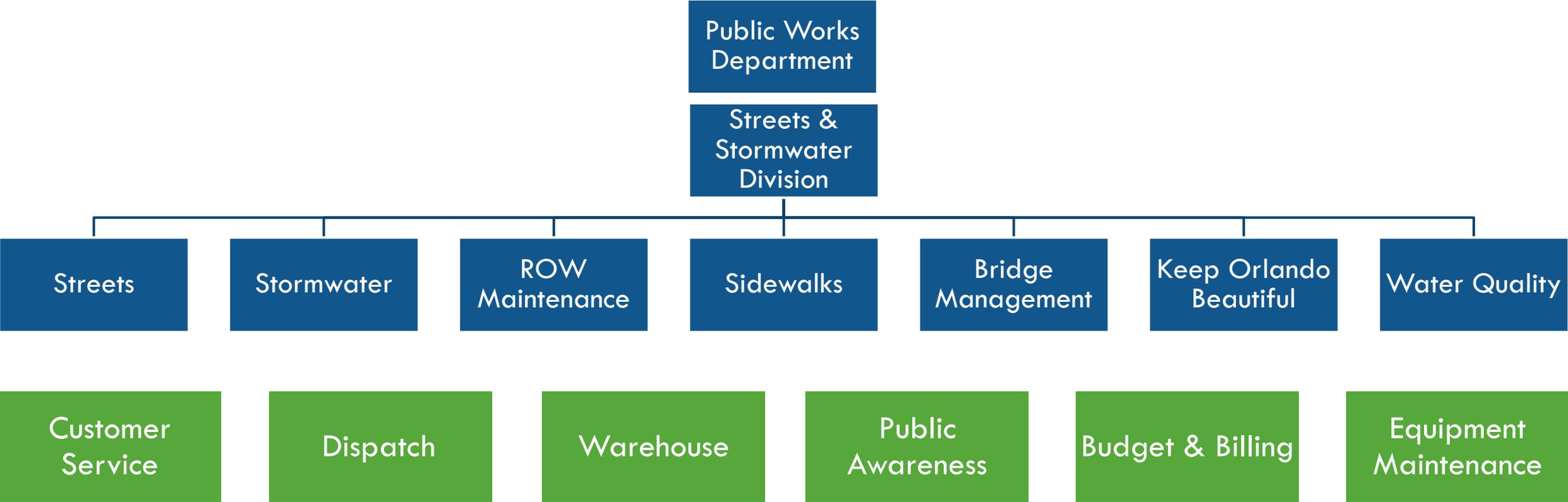
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- Fortunately, Yes!
- The City of Orlando Streets and Stormwater Division had foreseen the need for improving overall data management across business units
- The solution is to embark on **Digital Transformation** for the organization



[People vector created by freepik - www.freepik.com](https://www.freepik.com/vectors/people)

# City of Orlando Streets & Stormwater Division



# What is Digital Transformation?

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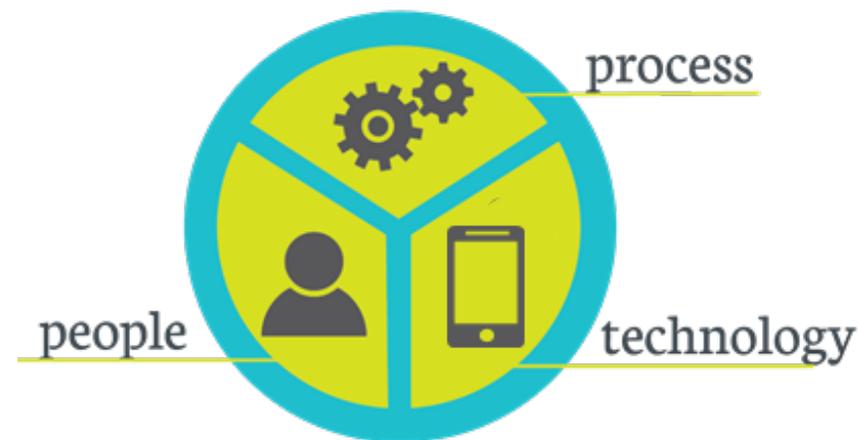
- Activity of **streamlining and simplifying** your business processes through digital technologies
- This may include:
  - ▣ **Converting** your paper-based information capture into digital format
  - ▣ **Consolidating** multiple spreadsheets into streamlined data repository
  - ▣ **Improving** citizen/customer communication through centralized log
  - ▣ **Capturing** staff knowledge into “digital knowledge library”
  - ▣ **Automating** data capture wherever possible
  - ▣ **Minimizing** data duplication



# The City's Digital Transformation Story

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- Our digital transformation journey included looking at these 3 major components of our organization:
  - ▣ People
  - ▣ Process
  - ▣ Technology



# Our People

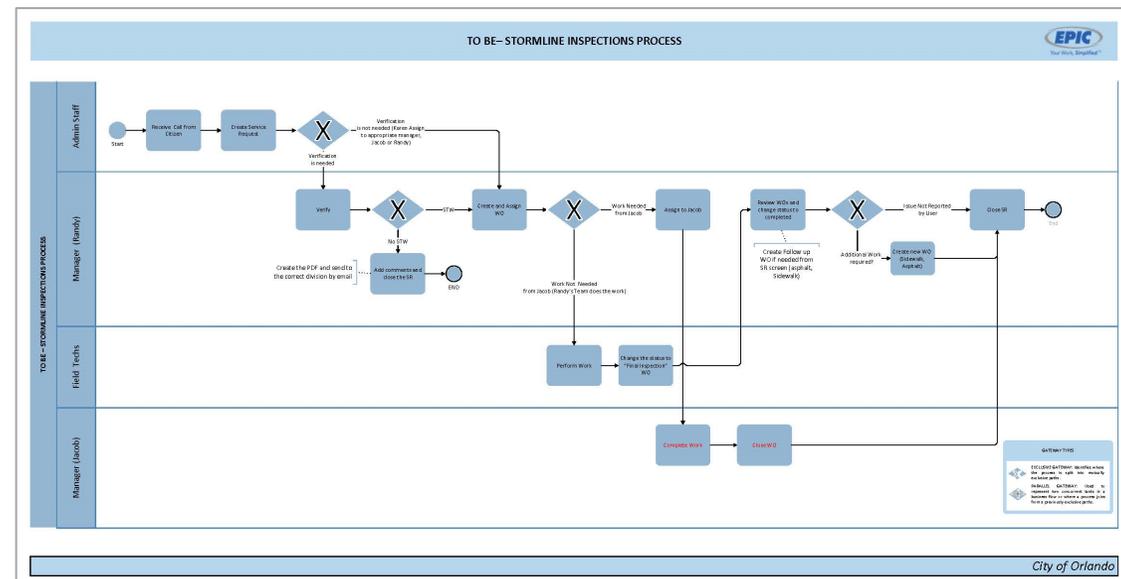
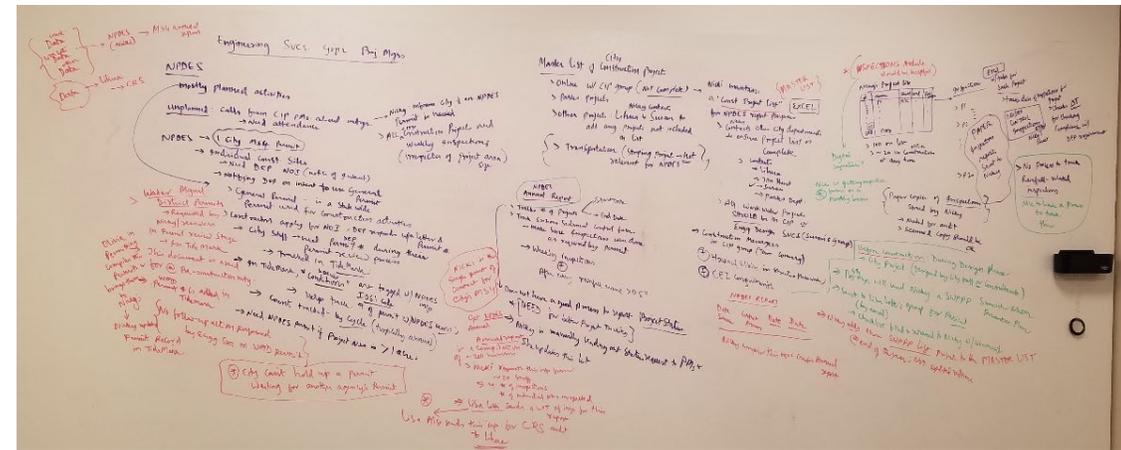
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- Our leadership team set the vision and showed visible support
- We key stakeholder groups and included them in our discussions
- Facilitated open communication on current challenges
- Encouraged input from ALL job roles across the organization



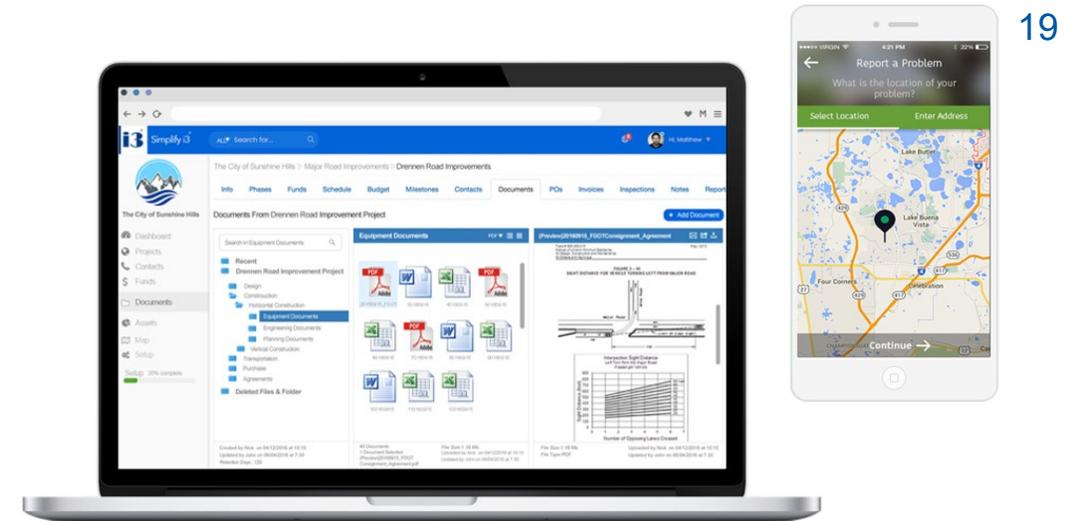
# Key Processes

- ❑ Mapped key business processes
- ❑ Identified opportunities to standardize, streamline and remove low value tasks
- ❑ Only capture the data that is useful
- ❑ Identify available datasets that can be used to improve efficiency
  - ❑ Ex: using hydrologic sensor data for automatic work order creation

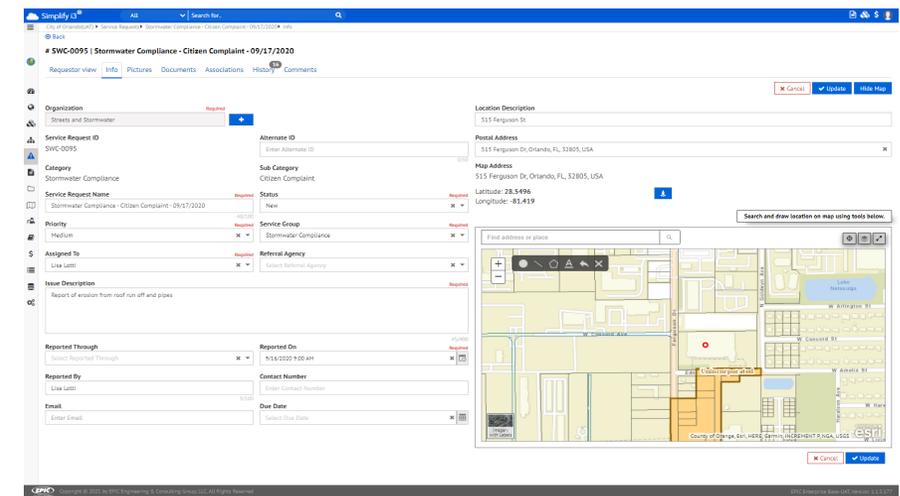


# Technology

- Select technology that makes data capture easier (tablets, phones)
  - ▣ automatic assignment of GIS attributes
  - ▣ capture pictures and comments in field
  - ▣ auto-link service requests, work orders, assets, inspections
  - ▣ improves data quality
  - ▣ increases visibility (dashboards)
- Cloud solution eliminated need for IT infrastructure and reduced demands on IT staff



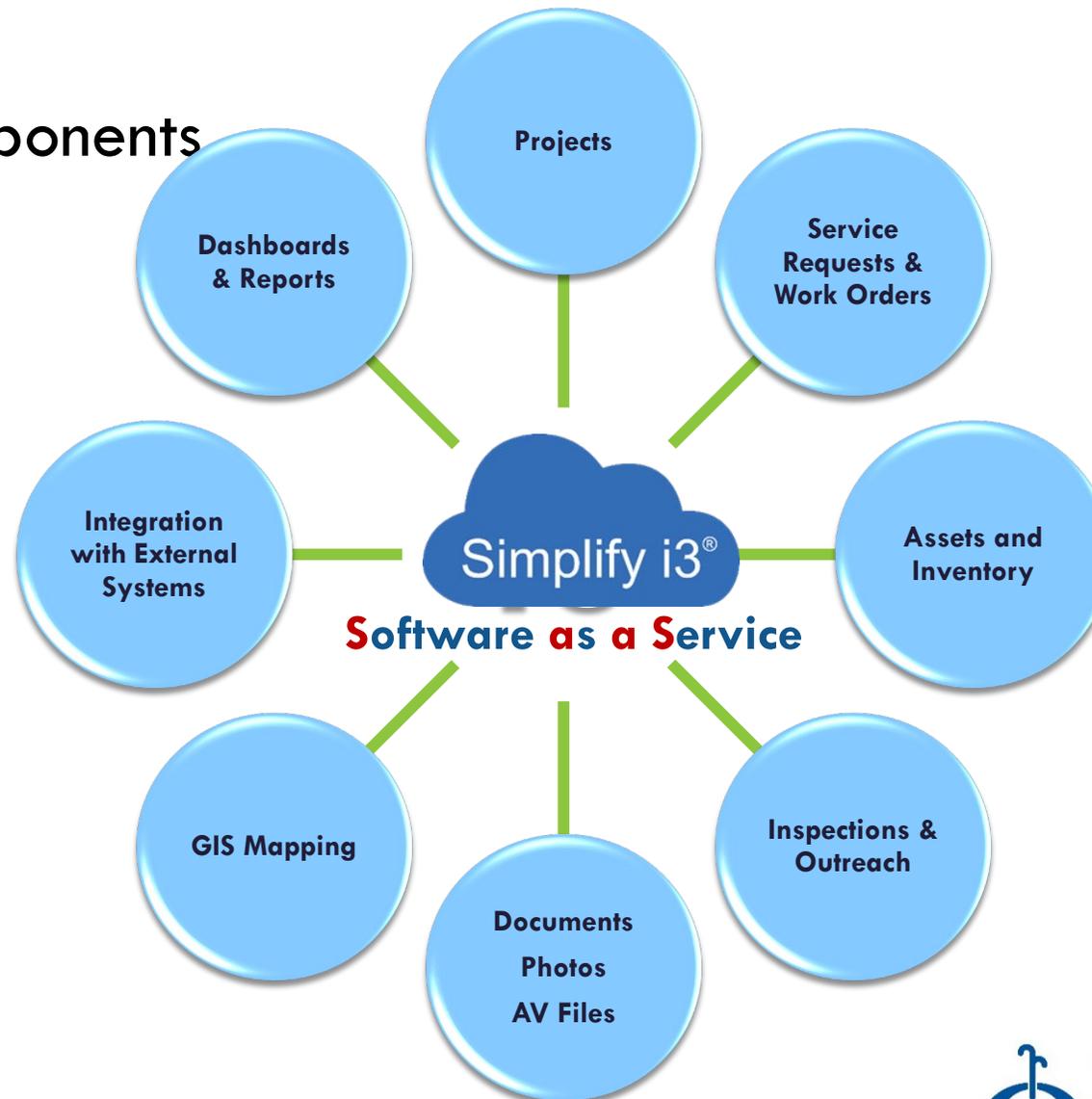
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# Simplify i3<sup>®</sup> Components for NPDES

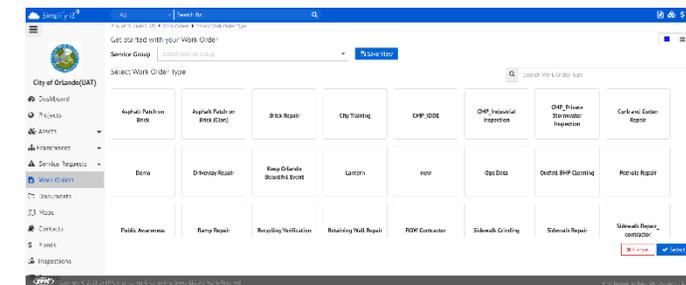
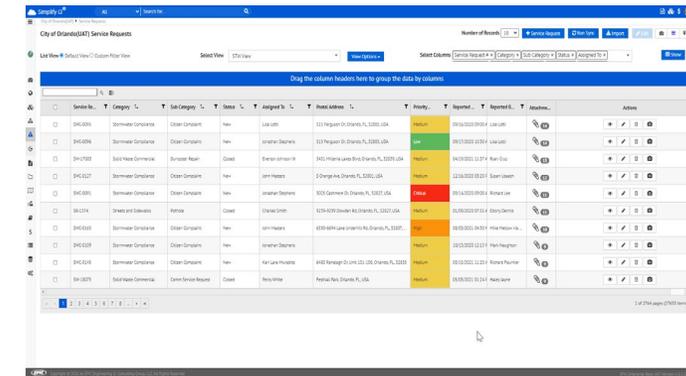
□ The following Simplify i3<sup>®</sup> components were configured

- ▣ Service Requests
- ▣ Work Orders
- ▣ Assets (from City GIS)
- ▣ Capital Projects
- ▣ Inspections
- ▣ Reports
- ▣ Dashboards



# Overview of Simplify i3<sup>®</sup>

- We will now present an overview of how the City staff are using Simplify i3<sup>®</sup> to collect the information from their daily activities
  - Correlate NPDES report components to field activities (Street sweeping, ROW maintenance, Stormline Inspections)
  - Create templates for different categories of work and capture data needed for NPDES report
    - Use GIS to automate data capture, location attributes and dimensions (lengths, area, volume)
  - Link assets, service requests, work orders and inspections to facilitate easy cross reference
  - Capture pictures and notes for audit



# NPDES Data Capture Simplify i3<sup>®</sup> Demo



Simplify i3<sup>®</sup>

[Forgot password?](#)

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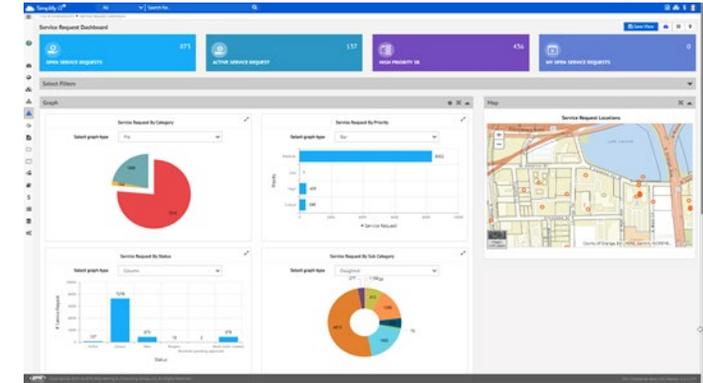


# Data for NPDES reports

Work Order Type	Status	Assigned To	Created On	Priority	Debris (Cubic Yds)
SWE-Sweeper Inlet Baskets	Completed	Tremayne Williams	11/19/2021 7:34 PM	Medium	1
SWE-Sweeper Inlet Baskets	Completed	Tremayne Williams	11/19/2021 7:36 PM	Medium	0.25
SWE-Sweeper Inlet Cleaning	Completed	Antione Blyther	11/19/2021 7:48 PM	Medium	0.25
SWE-Sweeper Inlet Cleaning	Completed	Regis Barber	11/22/2021 12:06 PM	Medium	0.5
SWE-Red-Blue Sweeper Routes	Completed	Clim Robbins	11/22/2021 4:40 PM	Medium	3.5
SWE-Red-Blue Sweeper Routes	Completed	Clim Robbins	11/22/2021 4:44 PM	Medium	7
SWE-Sweeper Inlet Baskets	Completed	Malcolm Robinson	11/22/2021 5:28 PM	Medium	0.25
SWE-Sweeper Inlet Baskets	Completed	Malcolm Robinson	11/22/2021 5:29 PM	Medium	0.5
SWE-Sweeper Inlet Baskets	Completed	Malcolm Robinson	11/22/2021 5:31 PM	Medium	0.25
SWE-Sweeper Inlet Cleaning	Completed	Regis Barber	11/22/2021 6:49 PM	Medium	0.25
SWE-Red-Blue Sweeper Routes	Completed	Raymond Brown	11/22/2021 7:16 PM	Medium	10.5
SWE-Red-Blue Sweeper Routes	Completed	Raymond Brown	11/22/2021 7:18 PM	Medium	3.5
SWE-Basin Sweeper Routes	Completed	Jose Ortiz	11/22/2021 7:25 PM	Medium	12
SWE-Basin Sweeper Routes	Completed	Stacy Scott	11/22/2021 7:25 PM	Medium	16
SWE-Sweeper Inlet Baskets	Completed	Tremayne Williams	11/22/2021 7:27 PM	Medium	0.25
SWE-Sweeper Inlet Baskets	Completed	Tremayne Williams	11/22/2021 7:29 PM	Medium	0.2
SWE-Red-Blue Sweeper Routes	Completed	Carmel Bostick	11/22/2021 7:29 PM	Medium	7
SWE-Sweeper Inlet Baskets	Completed	Tremayne Williams	11/22/2021 7:31 PM	Medium	1
SWE-Red-Blue Sweeper Routes	Completed	Carmel Bostick	11/22/2021 7:31 PM	Medium	7
					<b>14,337.71</b>

# Benefits Achieved

- Improved Communication and Collaboration
- Better Time Management
  - ▣ No need to contact field staff for work status inquiry
  - ▣ Real-time information accessible through Simplify i3® Service Request and Work Order Dashboards
  - ▣ Staff time focused on highest value activities
- Data quality improvement
- Capture of Institutional knowledge
- Historical records readily accessible for reporting



# Benefits (cont')

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- Better Customer Response
  - ▣ Documenting work using Simplify i3<sup>®</sup> standardized data collection processes makes it easier to track and respond to customer requests
  - ▣ The complete story is documented
- Data quality improvement through automation
  - ▣ GIS Overlays
  - ▣ Auto-associate Service Requests, Work Orders, Assets and Inspections
- Reduced paper ... less storage cabinet space needed!



# Next Steps for the City

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- ▣ Streamline more processes and bring them to Simplify i3<sup>®</sup>
- ▣ Train other business units on using Simplify i3<sup>®</sup>
- ▣ Integrate Simplify i3<sup>®</sup> with City website (OpenForms)
- ▣ Enhance reports and dashboards
- ▣ Expand and automate NPDES data collection and reporting
- ▣ Integrate Simplify i3<sup>®</sup> with hydrologic sensor systems
- ▣ Eliminate paper and spreadsheets to track operational data



# Q&A

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# Audience Question

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- The following information is needed to complete the NPDES Annual Report
  - ▣ A. Stormwater infrastructure inventory; Development projects and Flood control projects inspections
  - ▣ B. Roadway maintenance; Asset inspections; Construction site runoff inspections; Site operator training
  - ▣ C. Pesticides, herbicides, fertilizer use; Public education and outreach info, Illicit discharges, improper disposal info; Sanitary sewer overflows;
  - ▣ D. None of the above
  - ▣ E. All of the above

▪ Answer is E (all of the above)