2025

Streamline the Storm: Effortless NPDES Compliance

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ETM ENGLAND-THIMS & MILLER

ETM BY THE NUMBERS

48 YEARS IN BUSINESS

370+ EMPLOYEES

33 PARTNERS

7 REGIONAL OFFICES

100 LICENSED PROFESSIONALS

ETM SERVICES

DEVELOPMENT CONSULTING

GEOSPATIAL TECHNOLOGIES

LAND PLANNING AND PLACEMAKING

TRAFFIC AND TRANSPORTATION

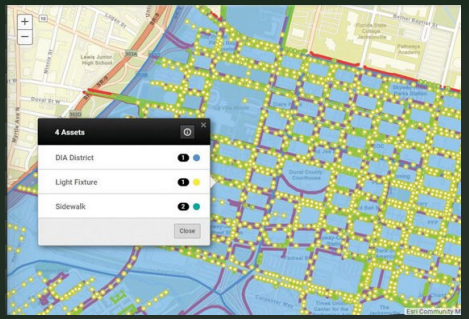
SURVEYING

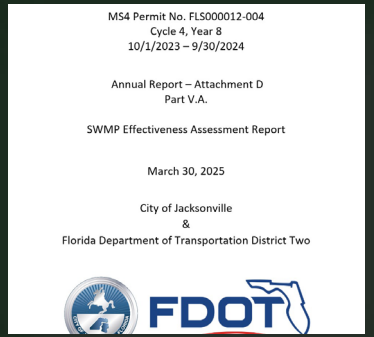
AERIAL SOLUTIONS

UTILITIES

CONSTRUCTION, ENGINEERING AND INSPECTION

Type of Services – What We Do for NPDES Compliance




MS4 Permit No. FLS000012-004
Cycle 4, Year 8
10/1/2023 – 9/30/2024

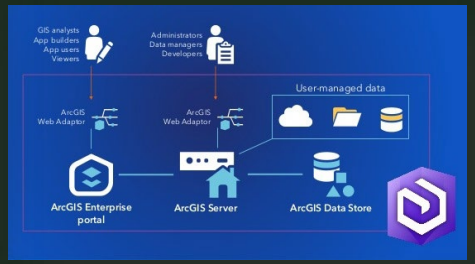
Annual Report – Attachment D
Part V.A.

SWMP Effectiveness Assessment Report

March 30, 2025

City of Jacksonville
&
Florida Department of Transportation District Two

FDOT



Field Asset Collection

Asset and Inspection Management

Report Preparation

GIS Infrastructure

Background

City of Jacksonville, FL – NPDES Phase I Permit

Beginning & Development (1997 – 2015)

- Started field inventory using GPS and collected as-builts to build the first GIS stormwater system.
- Created required programs such as HRF and Illicit Discharge, initially tracked with spreadsheets (1999 – 2015).

Data System Growth

- Moved to custom in-house databases with a spatial component to improve tracking and reporting (2017).

Modern Enhancements

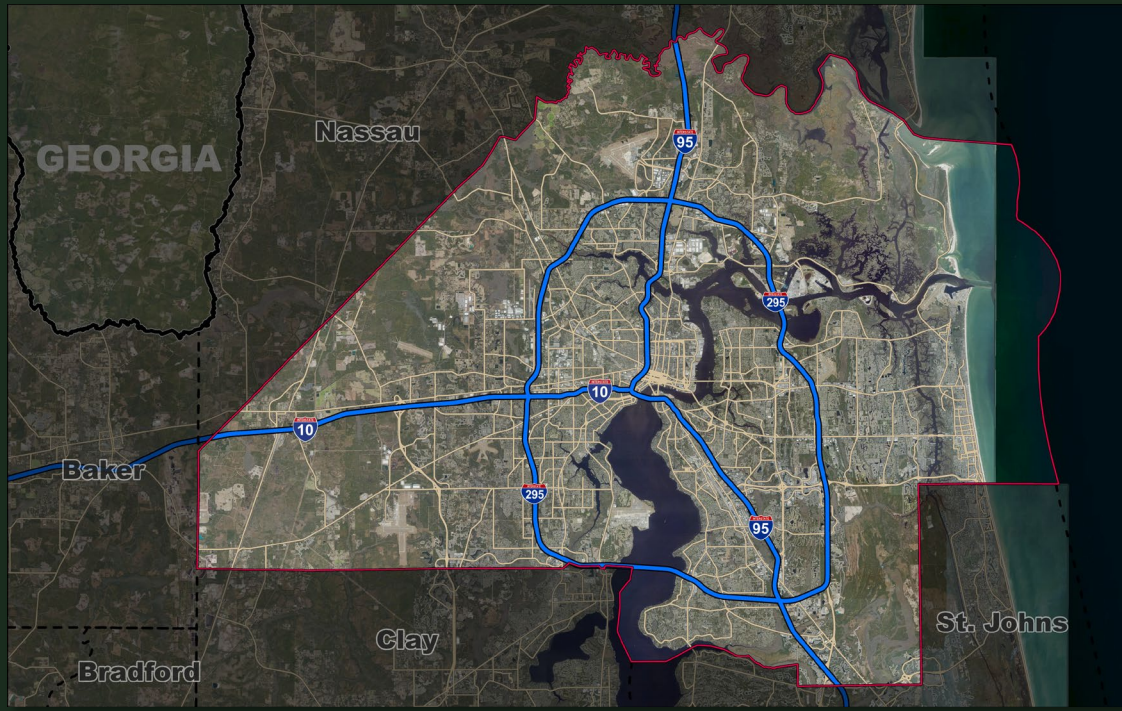
- Adopted GIS-based work and asset management tools and mobile data collection, integrating mapping, inspection, and reporting into one platform (since 2020).

NPDES in Jacksonville

By The Numbers!

Largest City (and MS4) by Land Mass In The Contiguous United States

- 224+ Stormwater Ponds
- 444 Major Outfalls
- 1,552 Miles of Pipes
- 60,000+ Inlets
- 12,000+ Manholes
- 1,186 Miles of Ditches



Challenges & Benefits: Handling the Storm

Previous asset management – custom modules

Benefits:

- Controlled pricing through in-house system development
- Provided a geospatial component
- One system to hold data

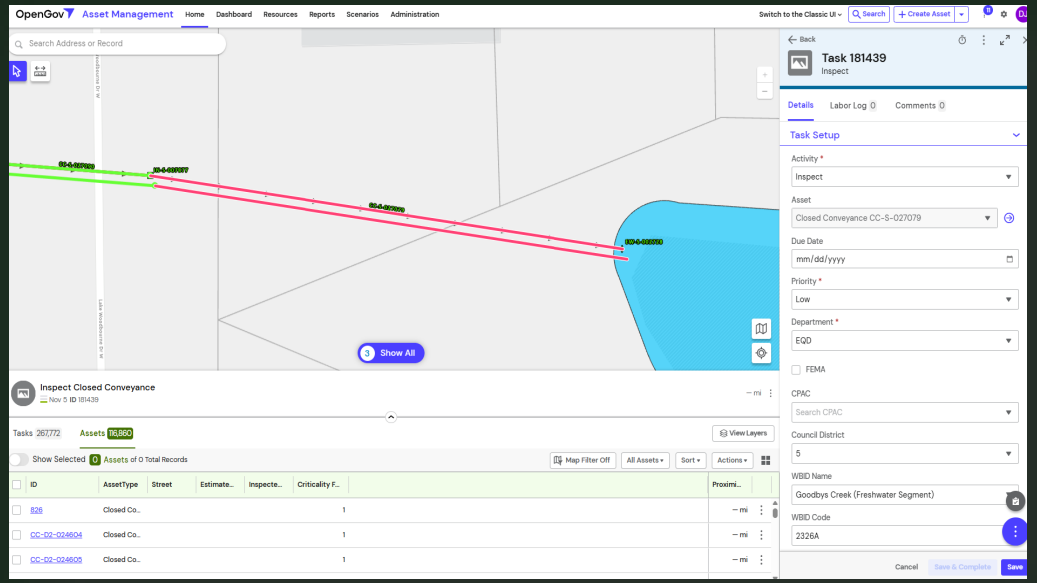
Challenges:

- Did not retain historical data
- Unreliable spatial component,
- No reporting capabilities for analysis, compliance tracking and NPDES reports
- Lacked automations
- Limited layers, dashboards, way to get data

Solution Overview

Providing Innovation – New Asset Management – Open Gov Application

- User Friendly
- Faster Geospatial component
- Improved security
- Automations
- Custom Reports
- Dashboards
- Better program to help comply with NPDES permit
- Mobile interface



Solution

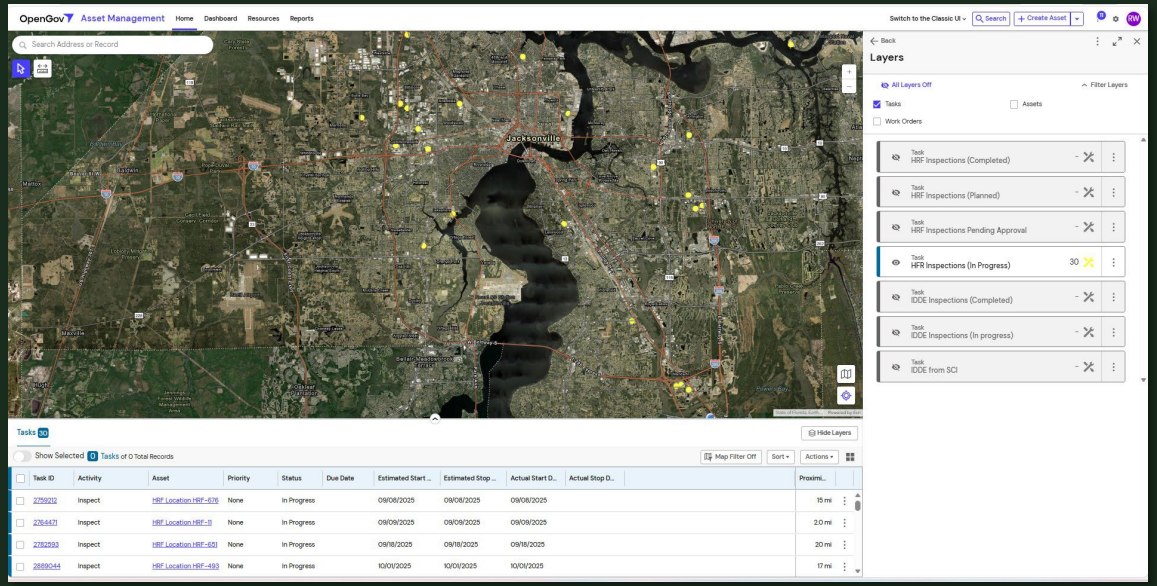
Providing Innovation – New Asset Management – Open Gov Application

GIS Integration

- Stormwater structures and other NPDES assets
- Spatial component reliable, faster Basemaps
- Real-time link between spatial data and asset records for efficient tracking and reporting
- Layers and view

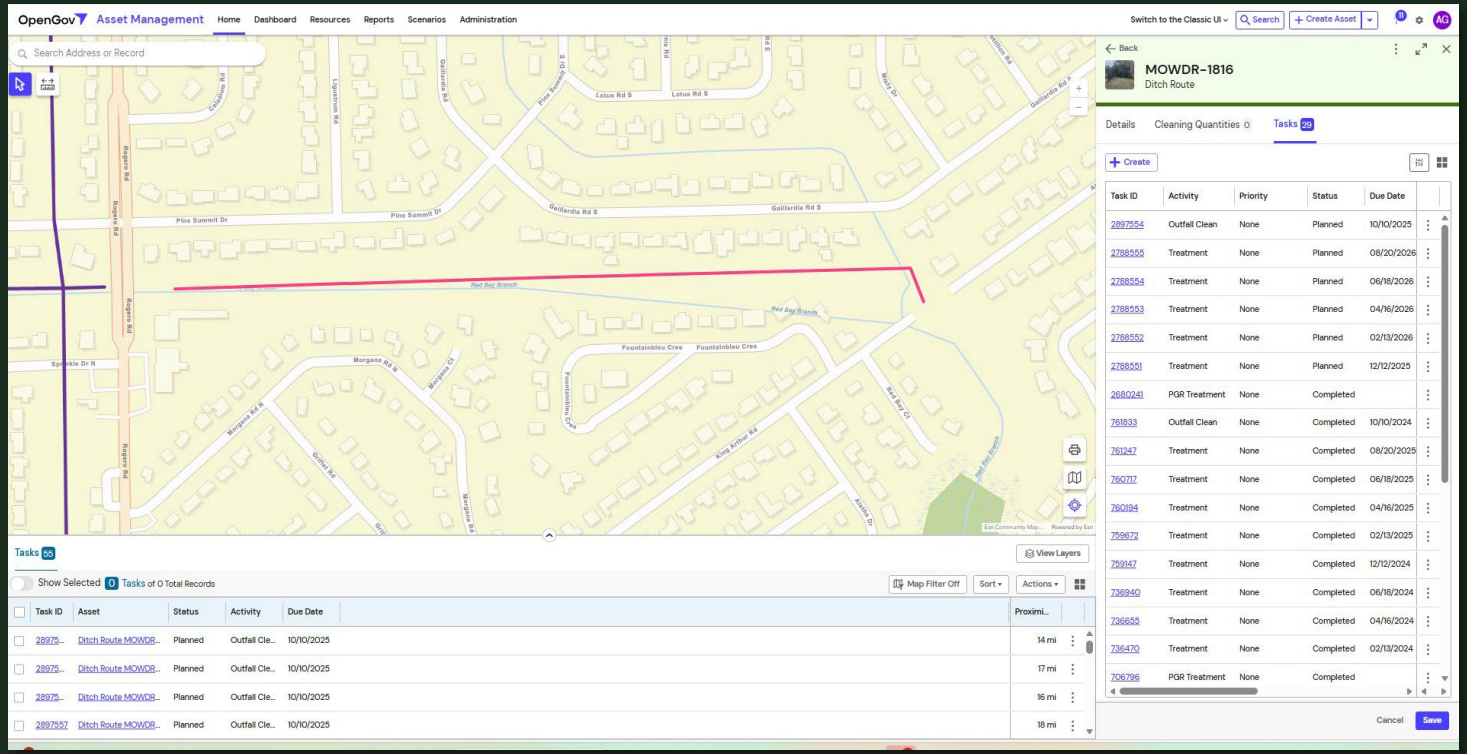
System Maintenance Programs

- Stormwater Structure
- IDDE Program
- High Risk Facility (HRF)
- Private Lift Station Program
- Maintenance Ditch Cleaning
- MLM Program



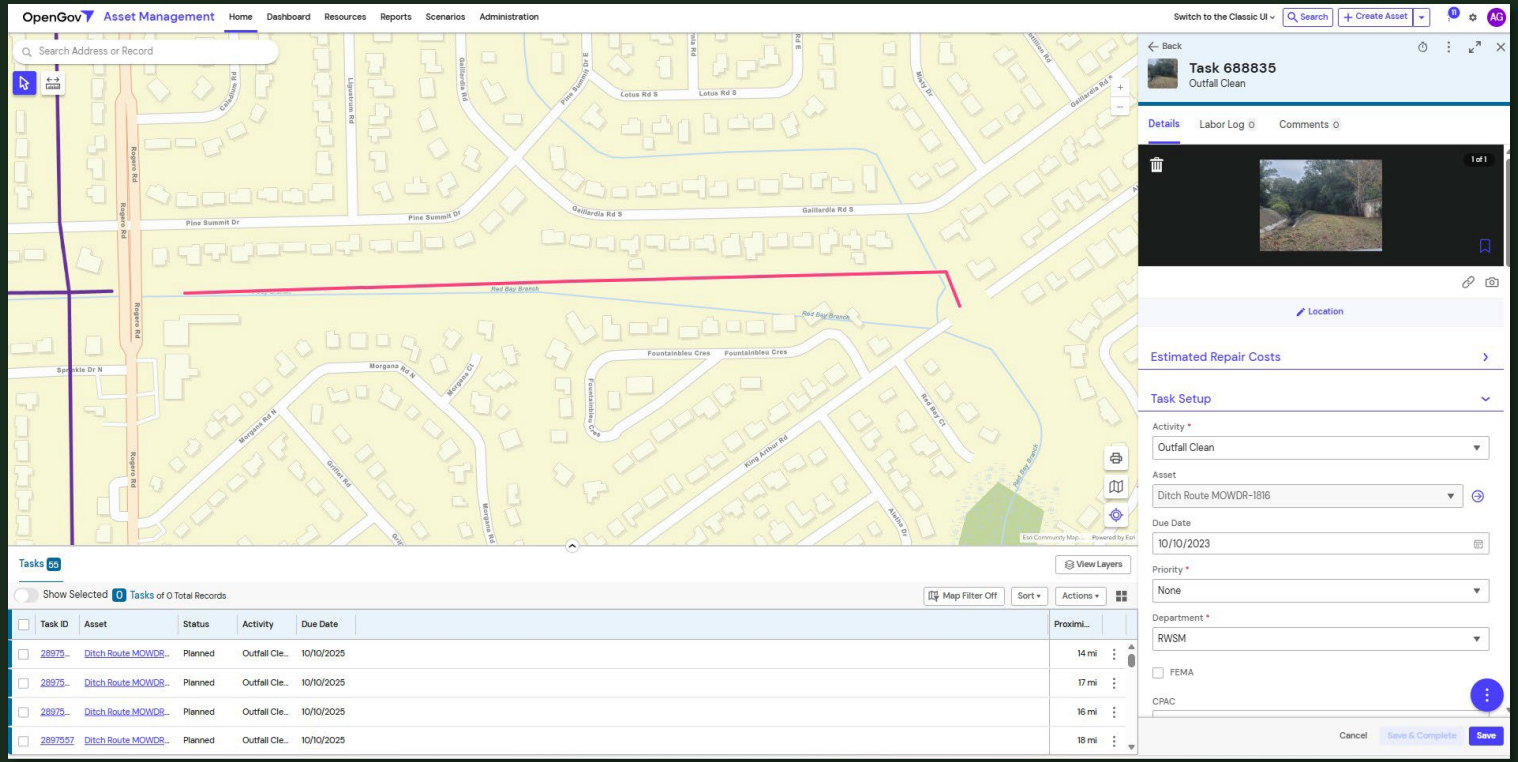
Assets

See Tasks Against an Asset



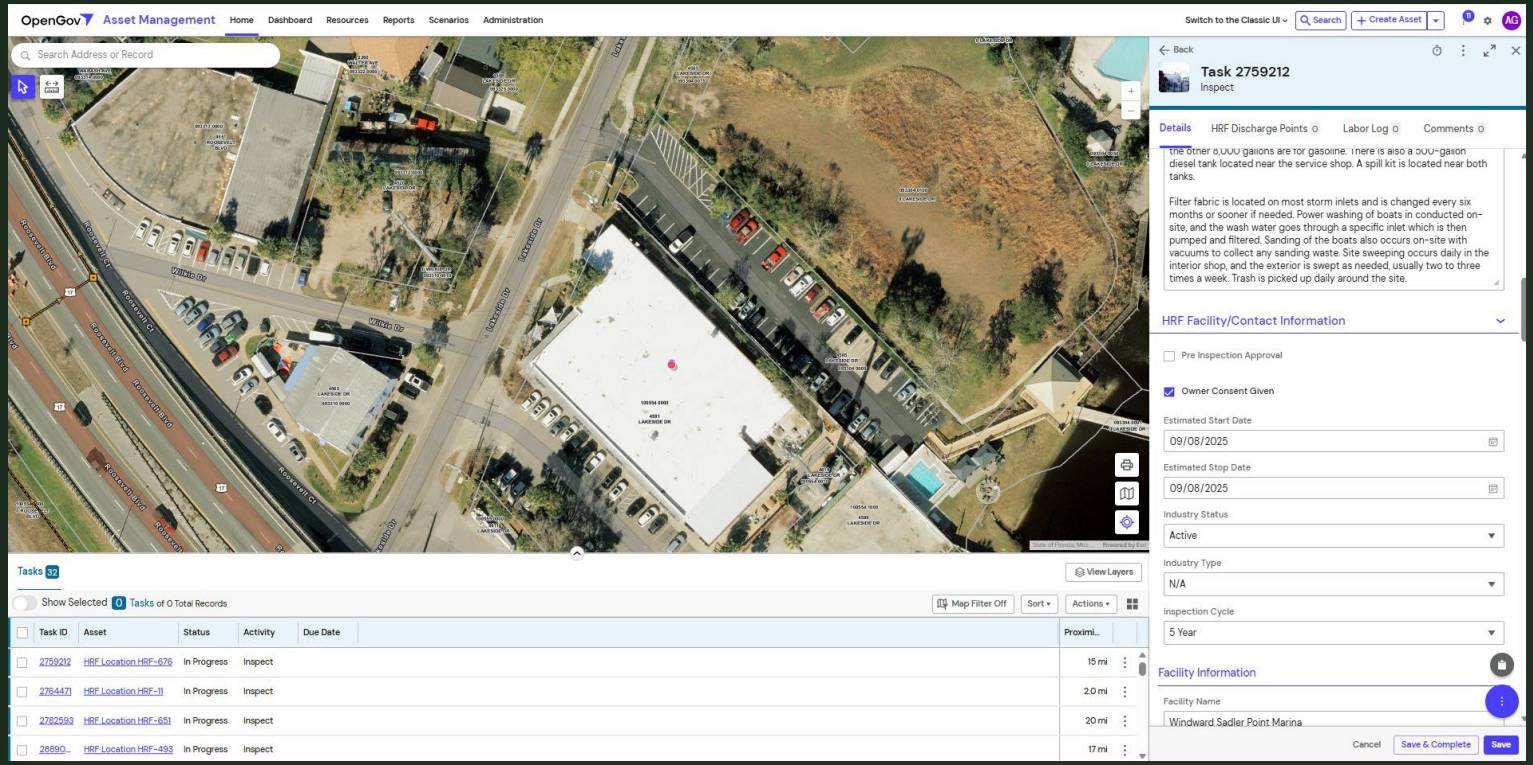
Maintenance Tasks

Photos & Attachments, Details

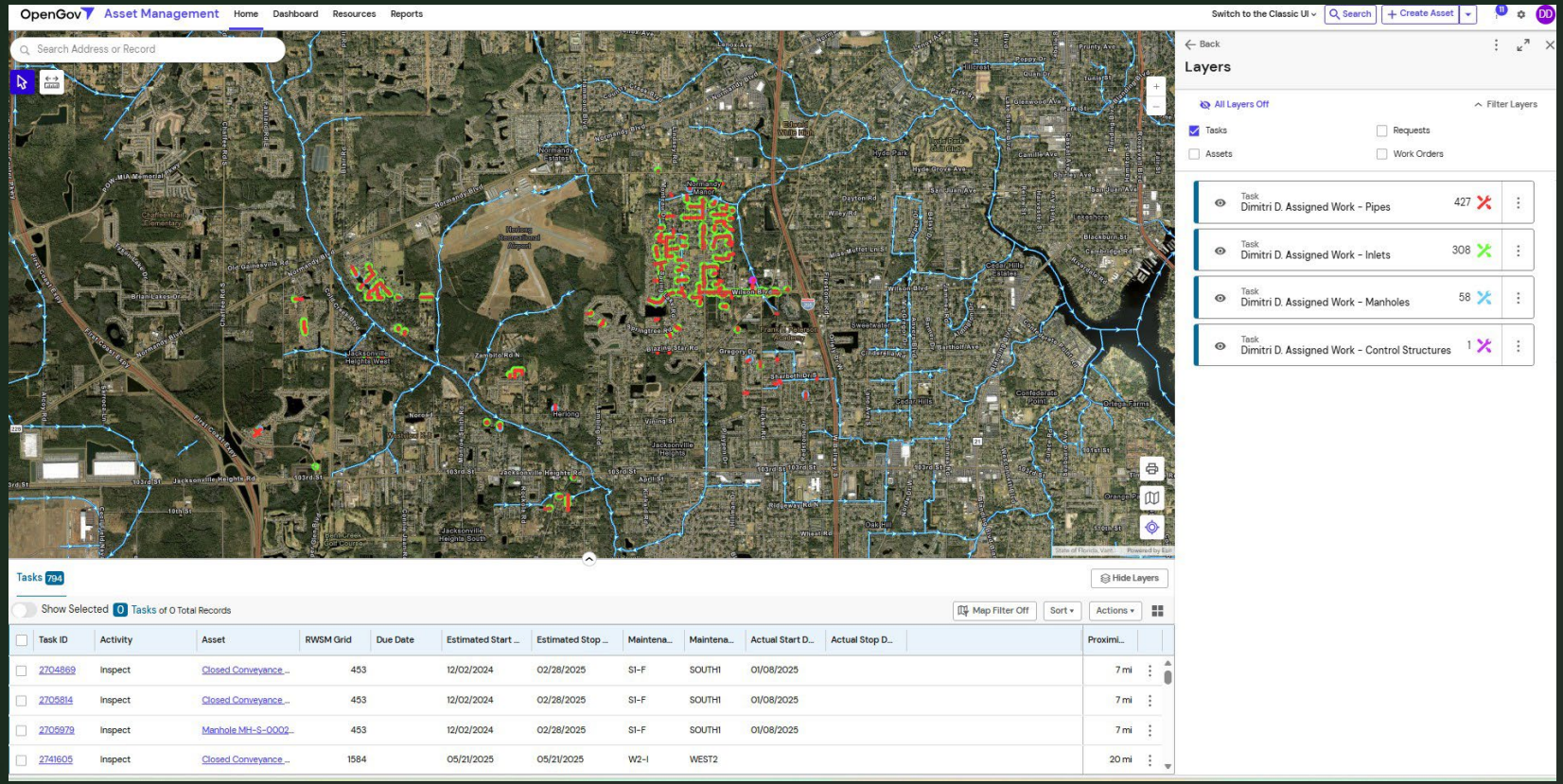


Inspect Tasks- High Risk Facilities

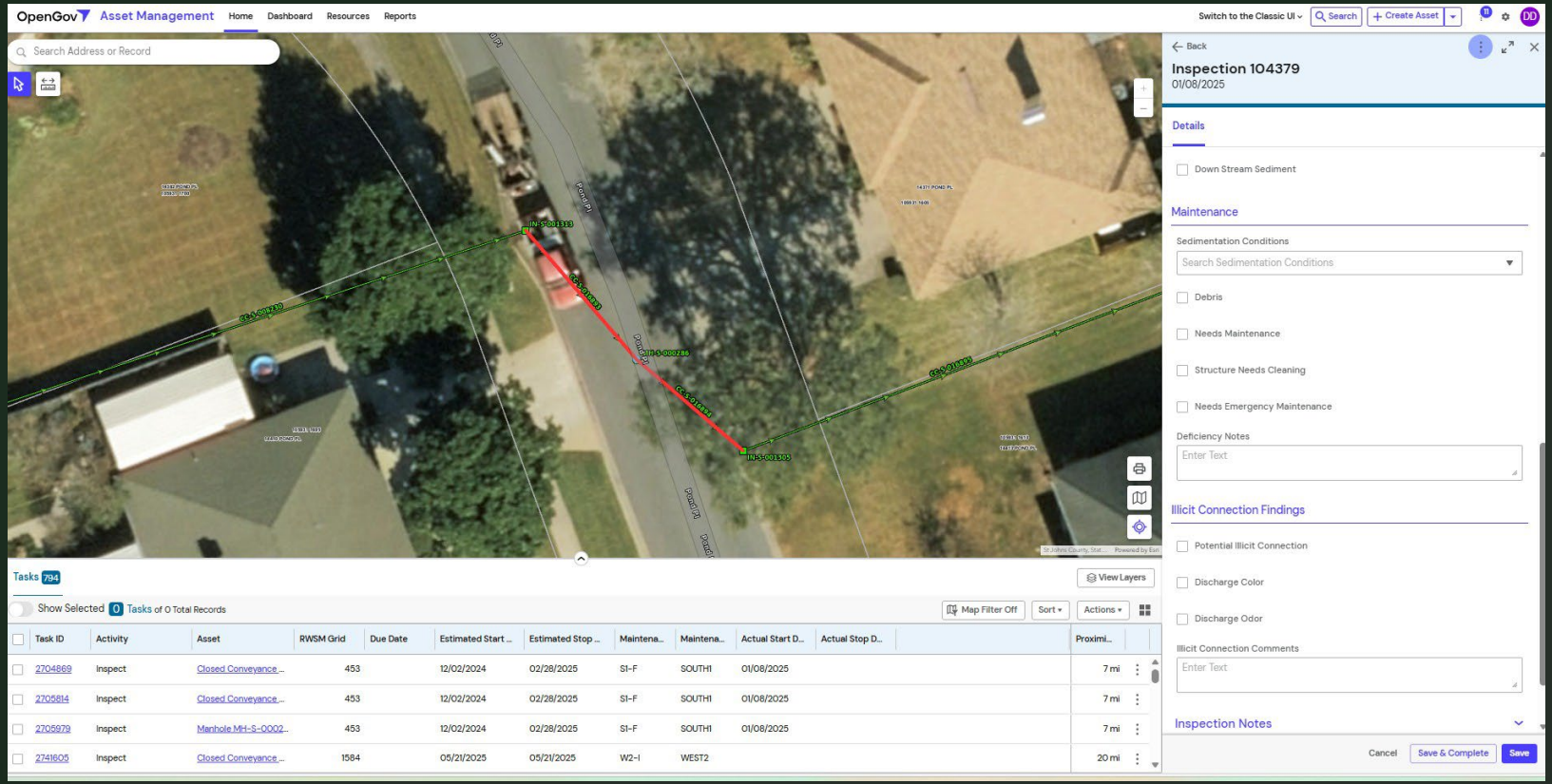
Add specific fields – drop downs, text, check marks – comply with permit requirements



Stormwater Structure Inspector workflow



Inspect Tasks – Stormwater structures

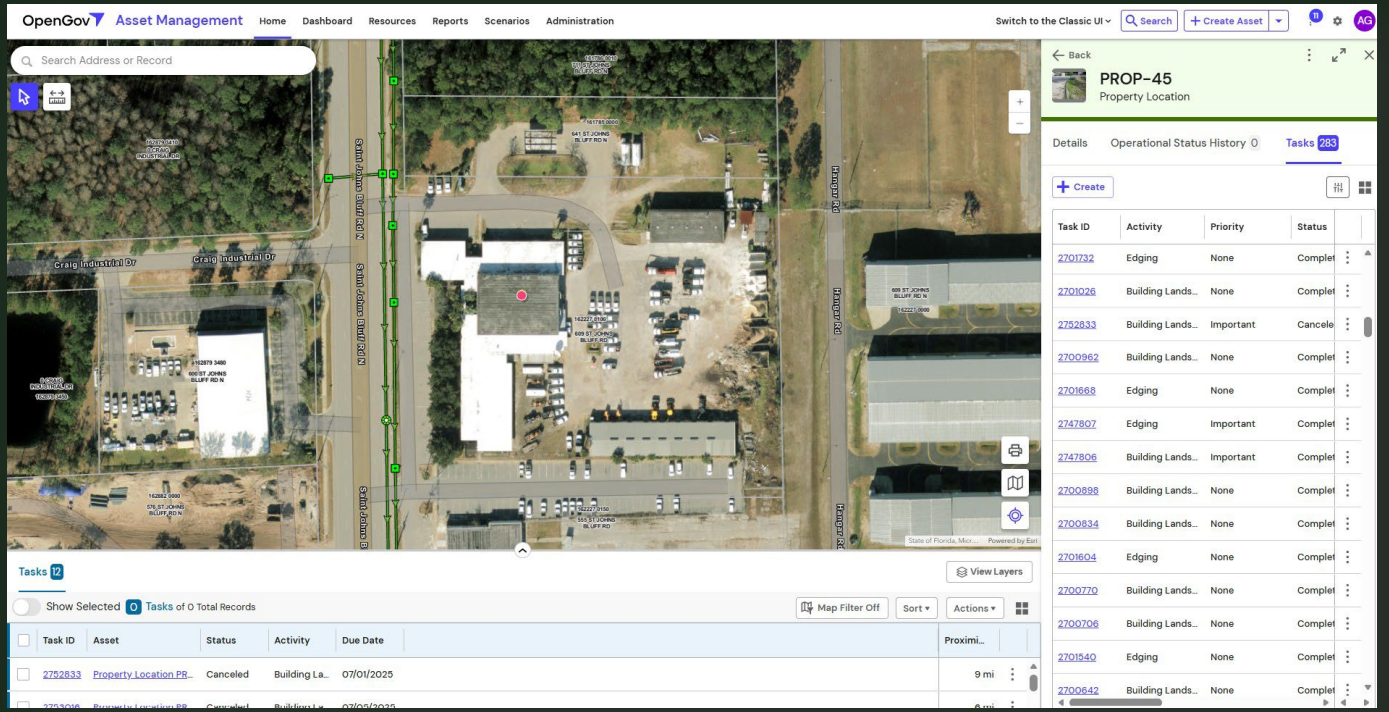


Automations & Mobile Application

Automations

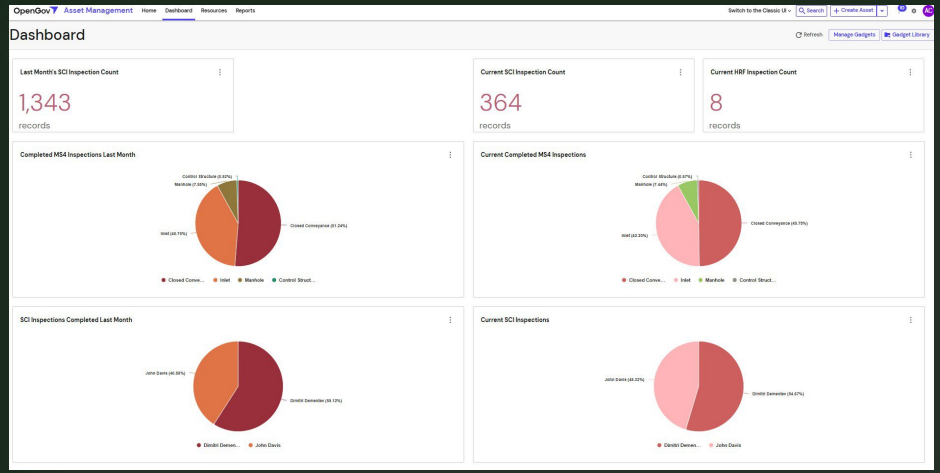
- Increase efficiency
- Helps workflow
- Improves accuracy
- Reduces time spent

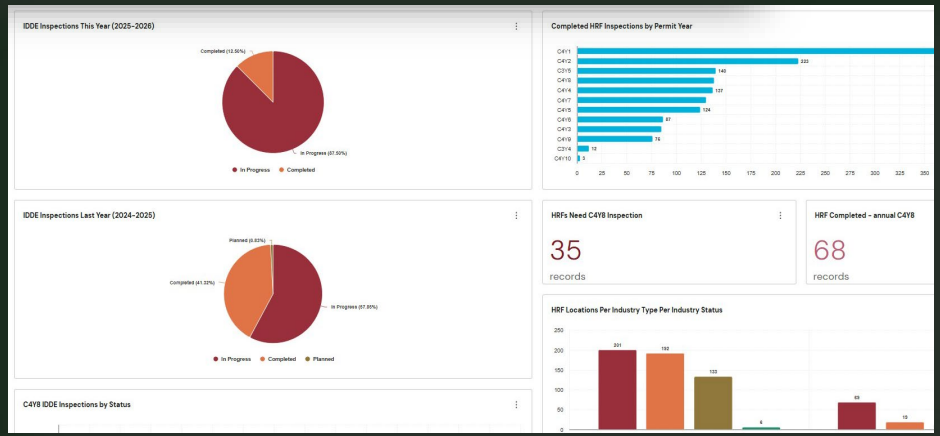
Mobile App



Dashboards

- Developed for **management oversight** and **NPDES compliance** tracking throughout the year
- Provide real-time visibility into inspections, maintenance, and program performance





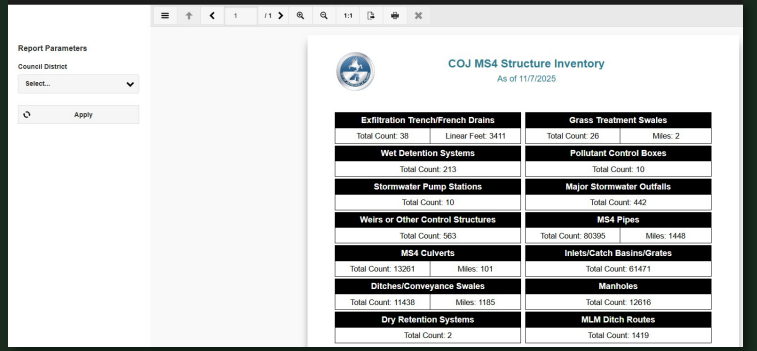
Reporting

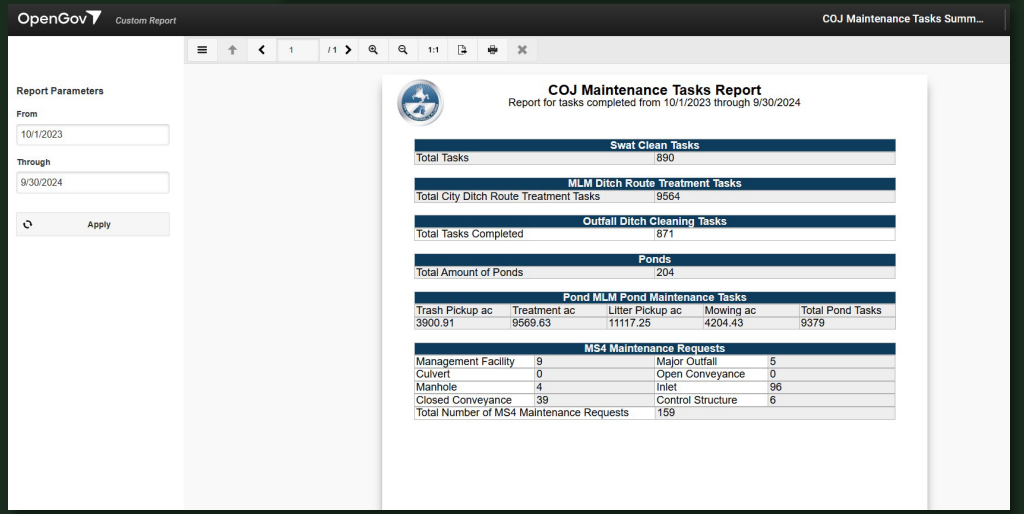
Reports

- Designed to **summarize yearly data** for **NPDES compliance reporting**
- Many include **date range or WBID filters** for flexible review
- Beyond NPDES - Reports to manage contractors, staff, inspections, maintenance

Key Report Types

- MS4 Structure Inventory
- MS4 Inspections
- MS4 Maintenance Task Summary WBID & BPCP Information Report





Reporting

Reports & NPDES Annual Report Form

Annual Report Form

- Summarizes program data into reports for input into the FDEP NPDES Annual Report form

SECTION VII. STORMWATER MANAGEMENT PROGRAM (SWMP) SUMMARY TABLE

A. Permit Citation/ SWMP Element	B. Permit Requirement/Quantifiable SWMP Activity	C. Number of Activities Performed	D. Documentation / Record	E. Entity Performing the Activity	F. Comments
Part III.A.1	**Structural Controls and Stormwater Collection Systems Operation**				

Report the current known inventory.

Report the number of inspection and maintenance activities conducted for each applicable type of structure included in Table II.A.1.a, and the percentage of the total inventory of each type of structure inspected and maintained.

Note: Delete structures that are not in your MS4's inventory. The permittee may choose its own unit of measurement for each structural control to be consistent with the unit of measurement in the documentation. Unit options include: miles, linear feet, acres, etc.

Type of Structure	Number of Structures	Number of Inspections	Percent Inspected	Number of Maintenance Activities	Percent Maintained
Exfiltration trench (assets / linear feet)	38/3,411	0	0%	6	16%
Grass treatment swales (assets / miles)	26/2	0	0%	0 (f)	0%
Wet detention systems	213	70	33%	9,379 (a)	100%
Pollution control boxes (Baffle box)	10	39 (b)	100%	39 (b)	100%
Stormwater pump stations	10	60 (e)	100%	60	100% (d)
Major outfalls	465	444 (c)	95%	139	30% (d)
Weirs or other control structures	563	128	23%	311	55% (d)
Pipes / culverts (assets / miles)	93,656/1,549	10,702	10%	859	1% (d)
Inlets / catch basins / grates	61,475	9,062	15%	1,364	2% (d)
Ditches / conveyance swales (assets / miles)	11,438/1,185	1,761	17%	12,702 (g)	100% (d)
Manholes / vaults	12,622	1,679	13%	317	3% (d)

MS4 INSPECTIONS
EQD – MS4 Structural Inspection Database. Number of inspections and percent inspected reported at the asset level.
MLM – Mowing Inspection Database
RWSM – Pump Station and Baffle Box Spreadsheet
Ditches include inspections by RWSM from the SWAT and Outfall ditch cleaning initiatives.

MAINTENANCE ACTIVITIES
RWSM maintenance activities tracked via Tivoli work order system and contractor SWAT, outfall ditch cleaning project, pollution control boxes, stormwater pump stations, pipe cleaning, pipe lining, catch basin cleanouts, through internal spreadsheets. MLM is responsible for routine maintenance of ditches and ponds. Contractor work tracked in MLM database.

Maintenance – RWSM & MLM
Inspections – EQD & RWSM
(Number of Inspections at Asset Level)

a) During C4Y8, there were 9,379 litter pickup, spraying, and mowing tasks. MLM is responsible for routine mowing (8 times/year) and litter removal (12 times/year) and spraying (12 times/year) for ponds. These are approximate schedules.
b) Pollution control boxes inspected and maintained in accordance with manufacturer's recommendations (4 times/ year), however, during C4Y8 baffle boxes were inspected 39 times.
c) There were 444 completed major outfall inspections during the permit year.
d) Percentage maintained estimate based on review of work orders and maintenance activities.
e) Stormwater pump stations are inspected 6 times a year or bimonthly by COJ (in-house). Custom Pump is also contracted to do additional maintenance.
f) Grass treatment swales are maintained with ditches and not distinguished.
g) In C4Y8, there were 871 outfall ditch cleaning tasks, 1,353 Maximo reactive tasks, 9,588 mow or treatment tasks, and 890 clean SWAT

DEP Form 62-624.600(2), Effective January 28, 2004 Page 4 of 18 Revised 10/5/2016

Demo video

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Results

Overall Impact

- Significant **savings in labor and reporting time** through system modernization and automation
- Enhanced **efficiency, accuracy, and accessibility** across stormwater management programs

Key Areas of ROI:

Inspection Efficiency

- Reduced **inspection time** through use of **mobile inspection tools**
- Field data captured once — automatically updates GIS and reports

Integration & Collaboration

- Integration with other City programs
- Improves coordination between departments and public response tracking

Improved Data Accuracy

- Better management of **acreage and calculation data** for contractor performance tracking and invoicing
- Ensures accurate metrics for compliance and reporting

Faster Access & Reporting

- **Real-time dashboards and data access** reduce turnaround for NPDES and MS4 reporting
- Enables managers to make informed decisions quickly and confidently

Next Steps

- Get more City programs in the system
- Create additional reports to make NPDES submittals easier
- Integrate with other City software applications
- Continued support and workflow improvements

Thank You!

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