

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

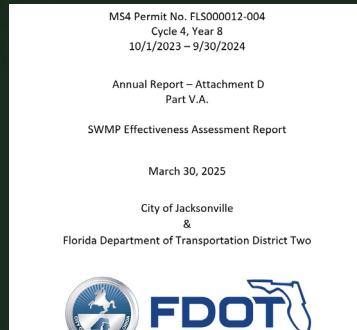
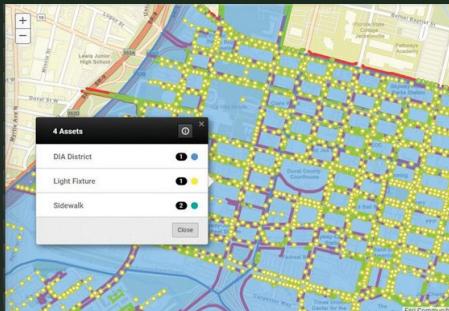


UTILITIES



CONSTRUCTION,
ENGINEERING
AND INSPECTION

Type of Services – What We Do for NPDES Compliance



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

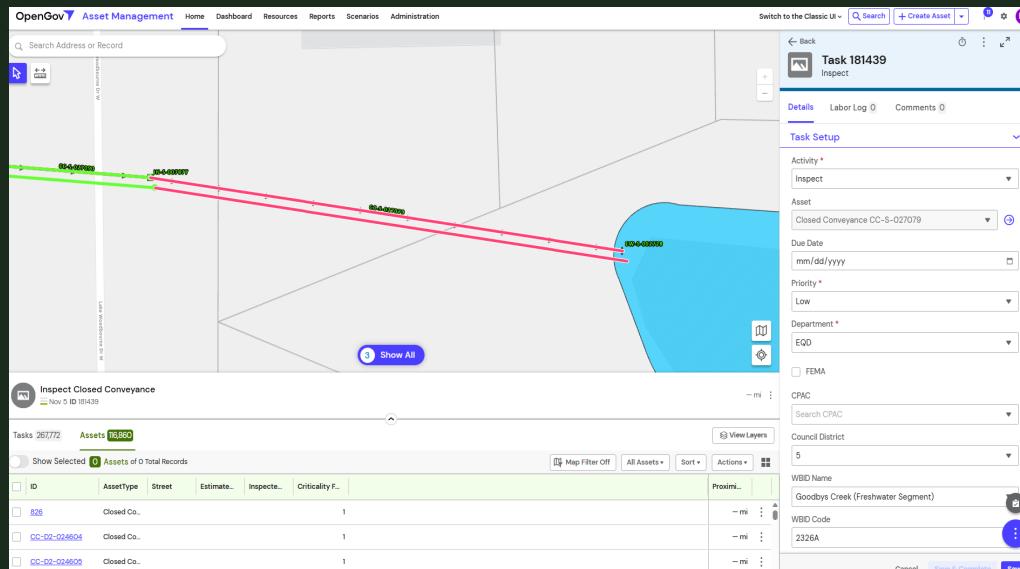
Challenges:

- 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

The screenshot displays the OpenGov Asset Management application interface. At the top, there is a navigation bar with links for Home, Dashboard, Resources, and Reports. Below the navigation bar is a search bar labeled 'Search Address or Record'. The main area features a satellite map of Jacksonville, Florida, with numerous yellow dots representing assets. A large black polygon is overlaid on the map, likely indicating a specific geographic area of interest. To the right of the map, there is a sidebar titled 'Layers' which includes sections for Tasks and Work Orders. The 'Tasks' section lists several inspection tasks, each with a status indicator (e.g., Completed, Planned, Pending Approval, In Progress, In progress, from SCI). Below the map and sidebar is a table titled 'Tasks' with the following data:

Task ID	Activity	Asset	Priority	Status	Due Date	Estimated Start Date	Actual Start Date	Actual Stop Date	Proximity
Z795010	Inspect	HRF Location HRF-076	None	In Progress	09/06/2025	09/08/2025			15 mi
Z264467	Inspect	HRF Location HRF-31	None	In Progress	09/06/2025	09/08/2025			20 mi
Z793283	Inspect	HRF Location HRF-601	None	In Progress	09/06/2025	09/08/2025	09/08/2025		20 mi
Z890944	Inspect	HRF Location HRF-103	None	In Progress	10/01/2025	10/01/2025	10/01/2025		17 mi

Assets

See Tasks Against an Asset

The screenshot displays the OpenGov Asset Management software interface. On the left, a map shows a residential area with various streets and roads. A specific route, labeled 'Red Bay Branch', is highlighted in red. On the right, a detailed view of this route is shown with the title 'MOWDR-1816 Ditch Route'. Below the title, there are tabs for 'Details', 'Cleaning Quantities', and 'Tasks'. The 'Tasks' tab is selected, showing a table of 15 tasks. The table includes columns for Task ID, Activity, Priority, Status, and Due Date. Most tasks are listed as 'Treatment' with a priority of 'None' and are in a 'Planned' status. The tasks are dated from 2025 to 2026. At the bottom of the table, there are buttons for 'Cancel' and 'Save'.

Task ID	Activity	Priority	Status	Due Date
2897554	Outfall Clean	None	Planned	10/10/2025
2788555	Treatment	None	Planned	08/20/2026
2788554	Treatment	None	Planned	06/18/2026
2788553	Treatment	None	Planned	04/16/2026
2788552	Treatment	None	Planned	02/13/2026
2788551	Treatment	None	Planned	12/12/2025
2680241	PGR Treatment	None	Completed	
761833	Outfall Clean	None	Completed	10/10/2024
761247	Treatment	None	Completed	08/20/2025
760717	Treatment	None	Completed	06/18/2025
760194	Treatment	None	Completed	04/16/2025
759872	Treatment	None	Completed	02/13/2025
759147	Treatment	None	Completed	12/12/2024
738940	Treatment	None	Completed	06/18/2024
738655	Treatment	None	Completed	04/16/2024
736470	Treatment	None	Completed	02/13/2024
708795	PGR Treatment	None	Completed	

Maintenance Tasks

Photos & Attachments, Details

The screenshot displays the OpenGov Asset Management software interface. On the left, a map shows a residential area with various streets and water bodies. A red line highlights a specific route labeled 'Red Bay Branch'. On the right, a detailed view of 'Task 688835' is shown, which is an 'Outfall Clean' task. The task details include:

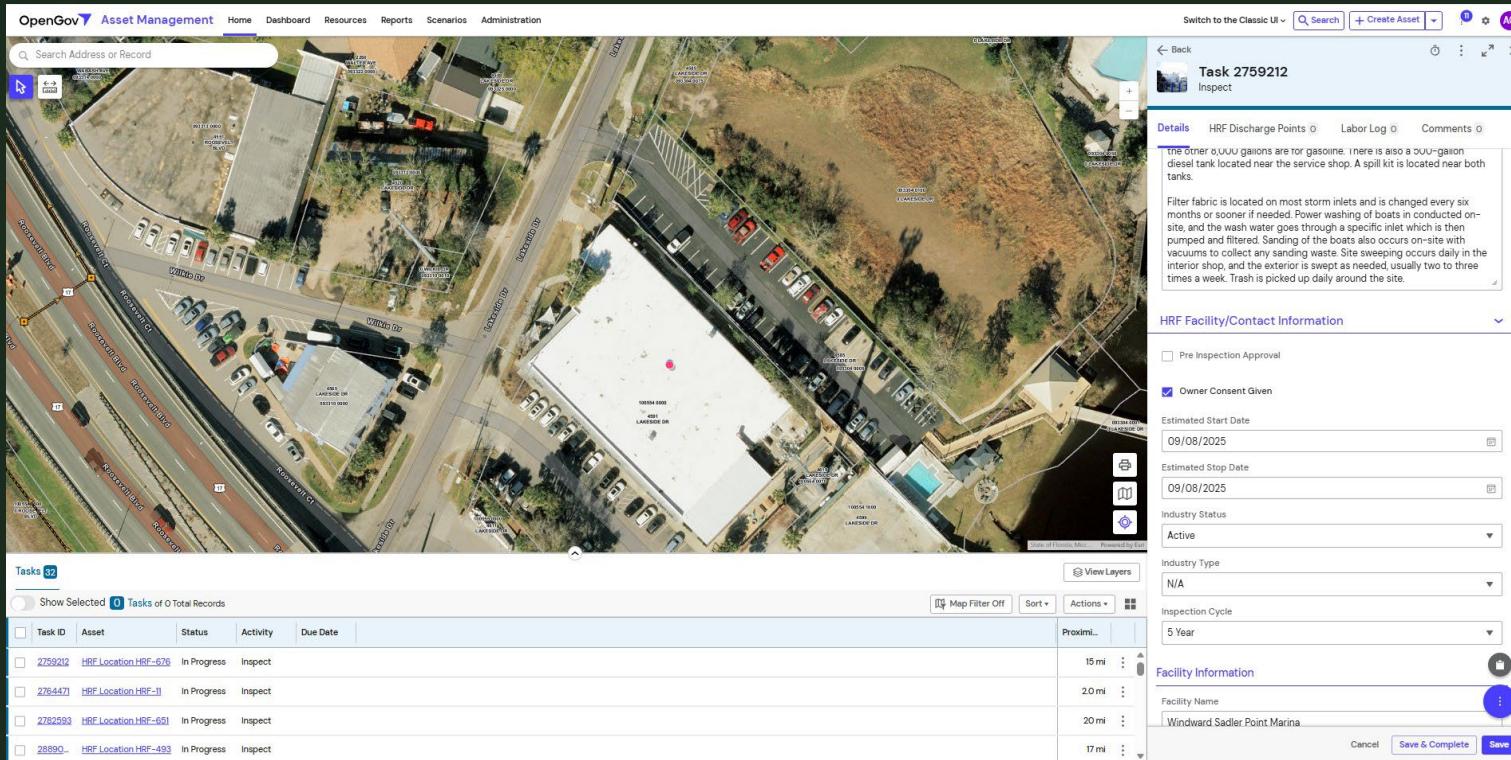
- Activity:** Outfall Clean
- Asset:** Ditch Route MOWDR-1816
- Due Date:** 10/10/2023
- Priority:** None
- Department:** RWSM

The task list on the left shows four entries for 'Ditch Route MOWDR' with a due date of 10/10/2025. The bottom right corner of the interface has 'Cancel', 'Save & Complete', and 'Save' buttons.

Task ID	Asset	Status	Activity	Due Date	Proximity
28975	Ditch Route MOWDR	Planned	Outfall Cle..	10/10/2025	14 mi
28975	Ditch Route MOWDR	Planned	Outfall Cle..	10/10/2025	17 mi
28975	Ditch Route MOWDR	Planned	Outfall Cle..	10/10/2025	16 mi
2897557	Ditch Route MOWDR	Planned	Outfall Cle..	10/10/2025	18 mi

Inspect Tasks- High Risk Facilities

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



The screenshot displays the OpenGov Asset Management platform. On the left, a map shows a marina with several boats in a large body of water, surrounded by land and roads. The map includes street names like Lakeside Dr, Windward Dr, and Lakeside Ct. On the right, a detailed inspection task card is open for "Task 2759212". The card has a "Details" section with a note about filter fabric being changed every six months. It also includes sections for "HRF Facility/Contact Information" (with checkboxes for "Pre inspection Approval" and "Owner Consent Given"), "Estimated Start Date" (09/08/2025), "Estimated Stop Date" (09/08/2025), "Industry Status" (Active), "Industry Type" (N/A), and "Inspection Cycle" (5 Year). At the bottom, there are buttons for "Cancel", "Save & Complete", and "Save".

Task ID	Asset	Status	Activity	Due Date	Proximity
2759212	HRF Location HRF-676	In Progress	Inspect		15 mi
2784471	HRF Location HRF-11	In Progress	Inspect		2.0 mi
2782593	HRF Location HRF-651	In Progress	Inspect		20 mi
28890	HRF Location HRF-493	In Progress	Inspect		17 mi

Stormwater Structure Inspector workflow

OpenGov Asset Management Home Dashboard Resources Reports

Switch to the Classic UI

Layers

All Layers Off Tasks Assets Requests Work Orders

Filter Layers

Tasks

Task Dimitri D. Assigned Work - Pipes 427

Task Dimitri D. Assigned Work - Inlets 308

Task Dimitri D. Assigned Work - Manholes 58

Task Dimitri D. Assigned Work - Control Structures 1

Map Filter Off Sort Actions

Tasks 794

Show Selected Tasks of 0 Total Records

Task ID	Activity	Asset	RWSM Grid	Due Date	Estimated Start...	Estimated Stop...	Maintena...	Maintena...	Actual Start D...	Actual Stop D...	Proximi...
2704869	Inspect	Closed Conveyance...	453	12/02/2024	02/28/2025	SI-F	SOUTH1	01/08/2025		7 mi	<input type="button" value="..."/>
2705814	Inspect	Closed Conveyance...	453	12/02/2024	02/28/2025	SI-F	SOUTH1	01/08/2025		7 mi	<input type="button" value="..."/>
2705979	Inspect	Manhole MH-S-0002...	453	12/02/2024	02/28/2025	SI-F	SOUTH1	01/08/2025		7 mi	<input type="button" value="..."/>
2741605	Inspect	Closed Conveyance...	1584	05/21/2025	05/21/2025	W2-I	WEST2			20 mi	<input type="button" value="..."/>

Inspect Tasks – Stormwater structures

OpenGov Asset Management Home Dashboard Resources Reports

Search Address or Record



Switch to the Classic UI Search Create Asset DD

← Back

Inspection 104379
01/08/2025

Details

Down Stream Sediment

Maintenance

Sedimentation Conditions

Search Sedimentation Conditions

Debris

Needs Maintenance

Structure Needs Cleaning

Needs Emergency Maintenance

Deficiency Notes

Enter Text

Illicit Connection Findings

Potential Illicit Connection

Discharge Color

Discharge Odor

Illicit Connection Comments

Enter Text

Inspection Notes

Cancel Save & Complete Save

Tasks 794

Show Selected 0 Tasks of 0 Total Records

View Layers Map Filter Off Sort Actions

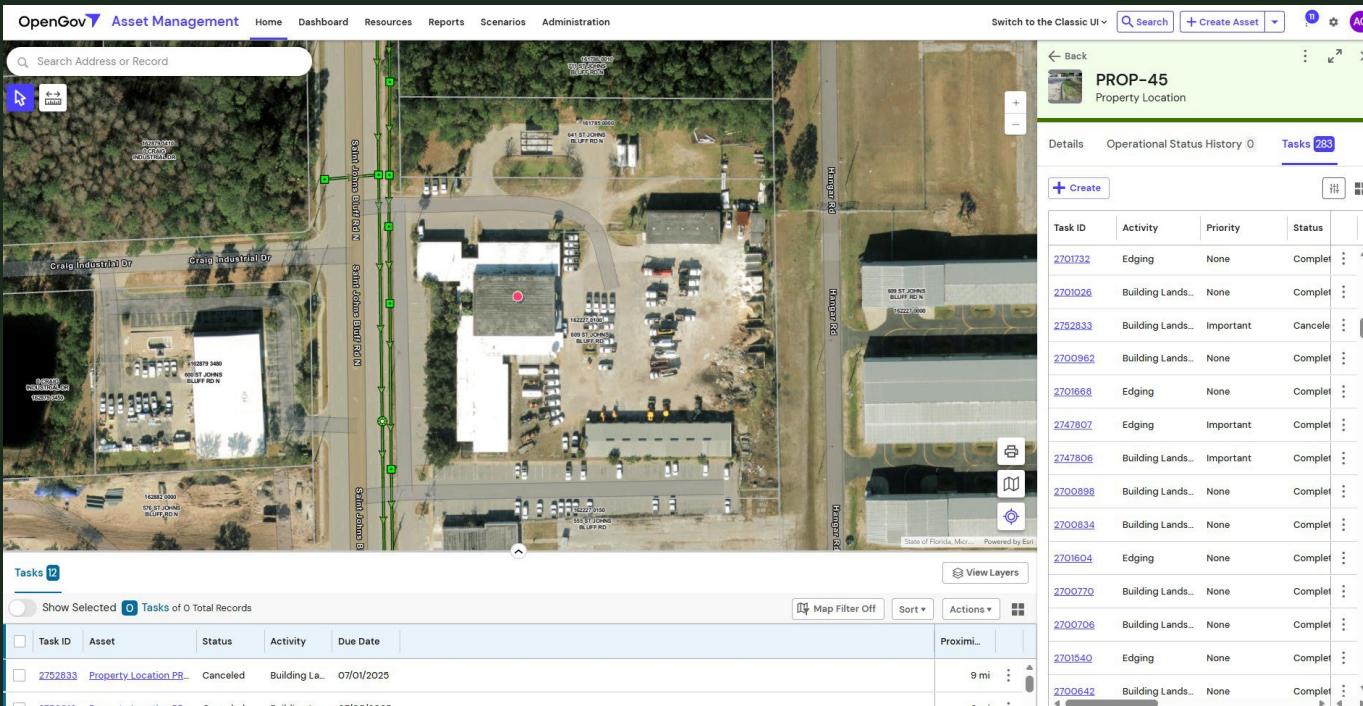
Task ID	Activity	Asset	RWSM Grid	Due Date	Estimated Start Date	Estimated Stop Date	Maintainance	Maintainance	Actual Start Date	Actual Stop Date	Proximity	Actions
2704869	Inspect	Closed Conveyance	453	12/02/2024	02/28/2025	SI-F	SOUTH1	01/08/2025			7 mi	<input type="button"/>
2705814	Inspect	Closed Conveyance	453	12/02/2024	02/28/2025	SI-F	SOUTH1	01/08/2025			7 mi	<input type="button"/>
2705979	Inspect	Manhole MH-S-0002	453	12/02/2024	02/28/2025	SI-F	SOUTH1	01/08/2025			7 mi	<input type="button"/>
2741605	Inspect	Closed Conveyance	1584	05/21/2025	05/21/2025	W2-I	WEST2				20 mi	<input type="button"/>

Automations & Mobile Application

Automations

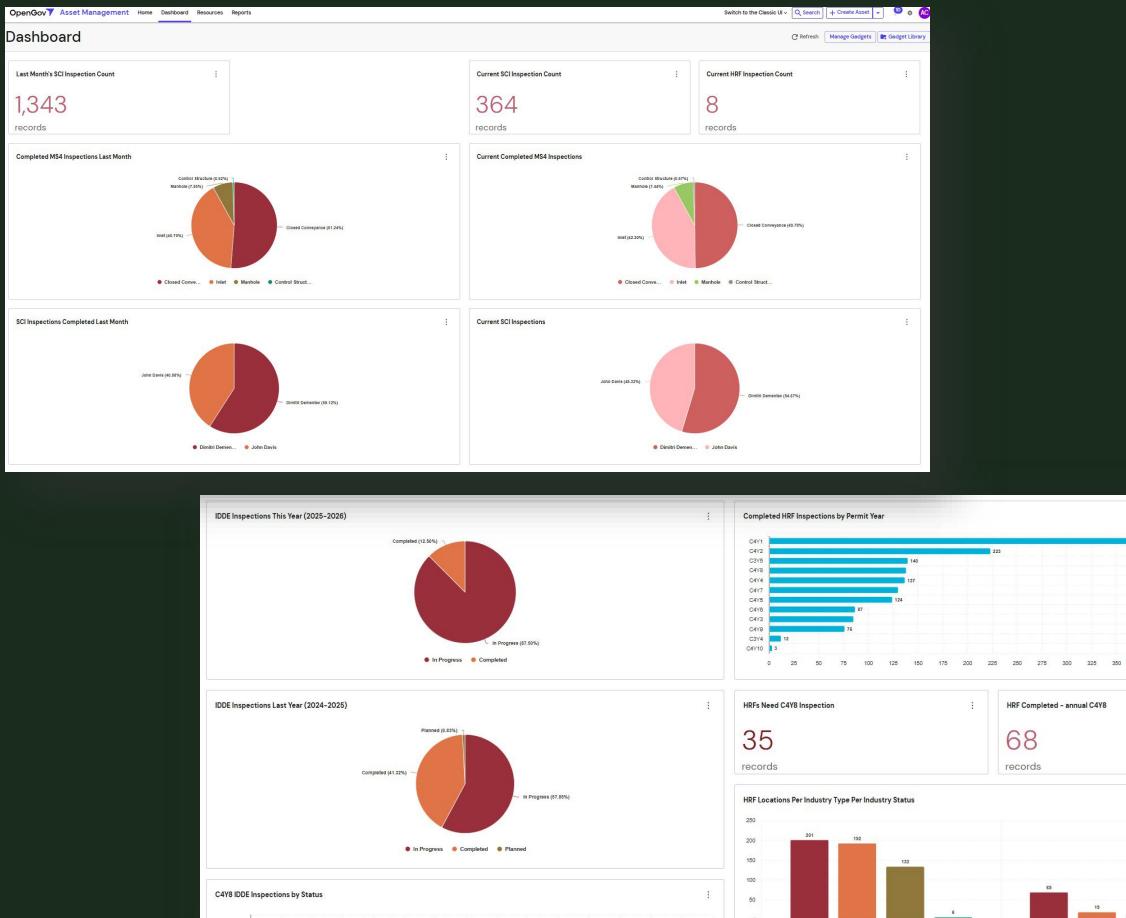
- Increase efficiency
- Helps workflow
- Improves accuracy
- Reduces time spent

Mobile App



Dashboards

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



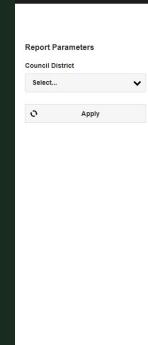
Reporting

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



COJ MS4 Structure Inventory
As of 11/7/2025

Exfiltration Trench/French Drains		Grass Treatment Swales	
Total Count: 38	Linear Feet: 3411	Total Count: 26	Miles: 2
Wet Detention Systems		Pollutant Control Boxes	
Total Count: 213		Total Count: 10	
Stormwater Pump Stations		Major Stormwater Outfalls	
Total Count: 10		Total Count: 442	
Weirs or Other Control Structures		MS4 Pipes	
Total Count: 563		Total Count: 80395	Miles: 1448
MS4 Culverts		Inlets/Catch Basins/Grates	
Total Count: 13261	Miles: 101	Total Count: 61471	
Ditches/Conveyance Swales		Manholes	
Total Count: 11438	Miles: 1185	Total Count: 12616	
Dry Retention Systems		MLM Ditch Routes	
Total Count: 2		Total Count: 1419	



COJ Maintenance Tasks Summ...

COJ Maintenance Tasks Report				
Report for tasks completed from 10/1/2023 through 9/30/2024				
Swat Clean Tasks				
Total Tasks	690			
MLM Ditch Route Treatment Tasks				
Total City Ditch Route Treatment Tasks	9564			
Outfall Ditch Cleaning Tasks				
Total Tasks Completed	371			
Ponds				
Total Amount of Ponds	204			
Pond MLM Pond Maintenance Tasks				
Trash Pickup ac	Treatment ac	Litter Pickup ac	Mowing ac	Total Pond Tasks
3900.91	9569.63	11117.25	4204.43	9379
MS4 Maintenance Requests				
Management Facility	Major Outfall			
Culvert	Open Conveyance			
Manhole	Inlet			
Closed Conveyance	Control Structure			
Total Number of MS4 Maintenance Requests	159			

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.					
	<i>Note: Delete structures that are not in your MSA'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.</i>					
	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	466	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	100% (d)	
Manholes / vaults	12,622	1,679	13%	317	3% (d)	
MS4 INSPECTIONS EQD – MS4 Structural Inspections – Tivoli Work Order number of inspections and percent inspected reported at the asset level MLM – Mowing Inspection Database RWMSI – Pump Station and Baffle Box Database RWMSI includes inspections by RWMSI from the SWAT and Outfall ditch cleaning initiatives. Maintenance Activities RWMSI 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 cleaning through internal spreadsheets MLM is responsible for routine maintenance of ditches and ponds. Contractor work tracked in MLM database.						
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 bi-monthly 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, 1,393 Maximo reactive tasks, 9,585 mow or treatment tasks, and 890 clean SWAT						

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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