

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

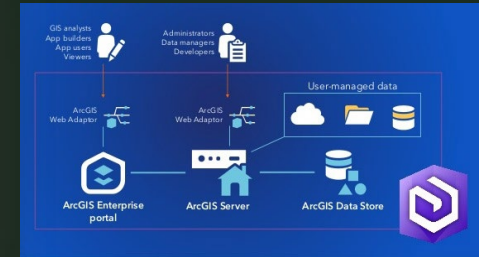
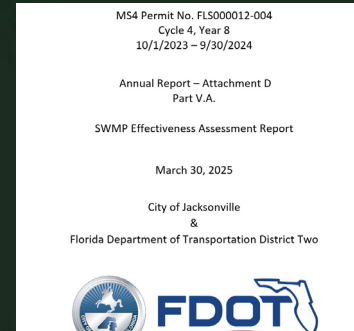
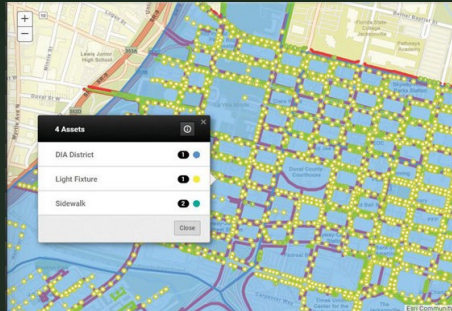


UTILITIES



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).

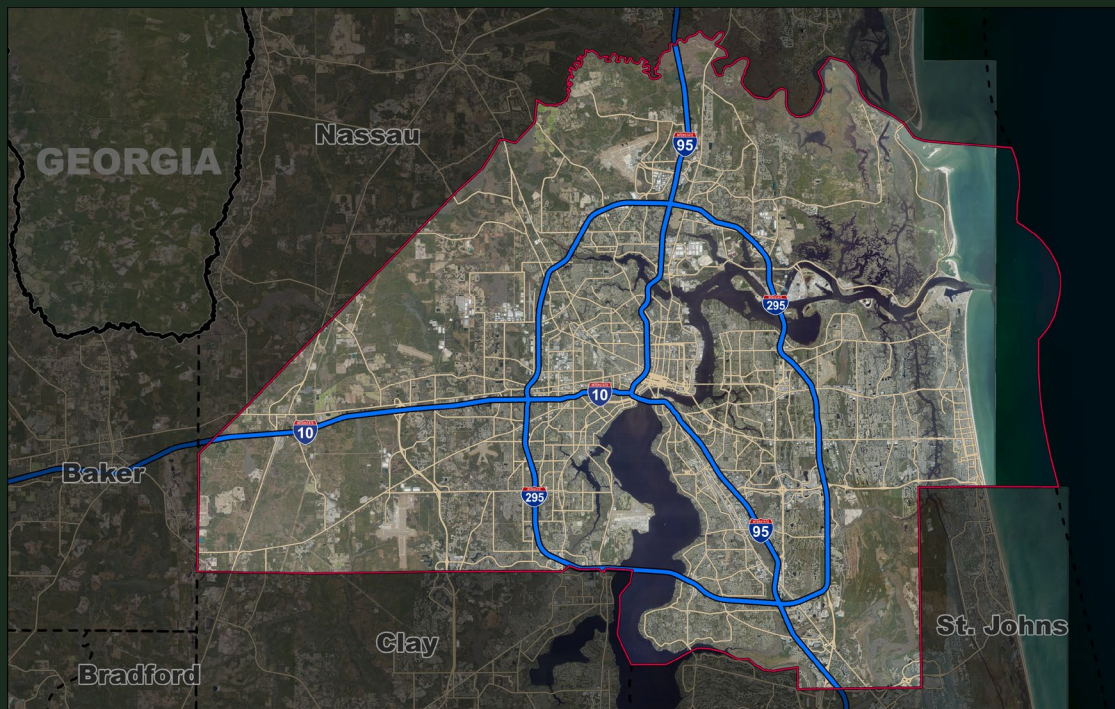


NPDES in Jacksonville

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

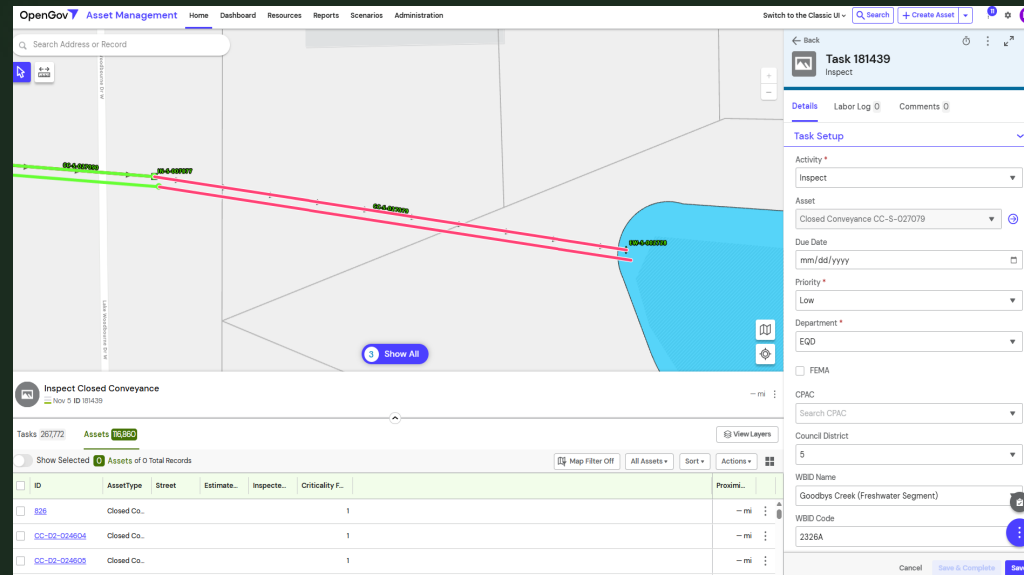
Challenges:

- 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

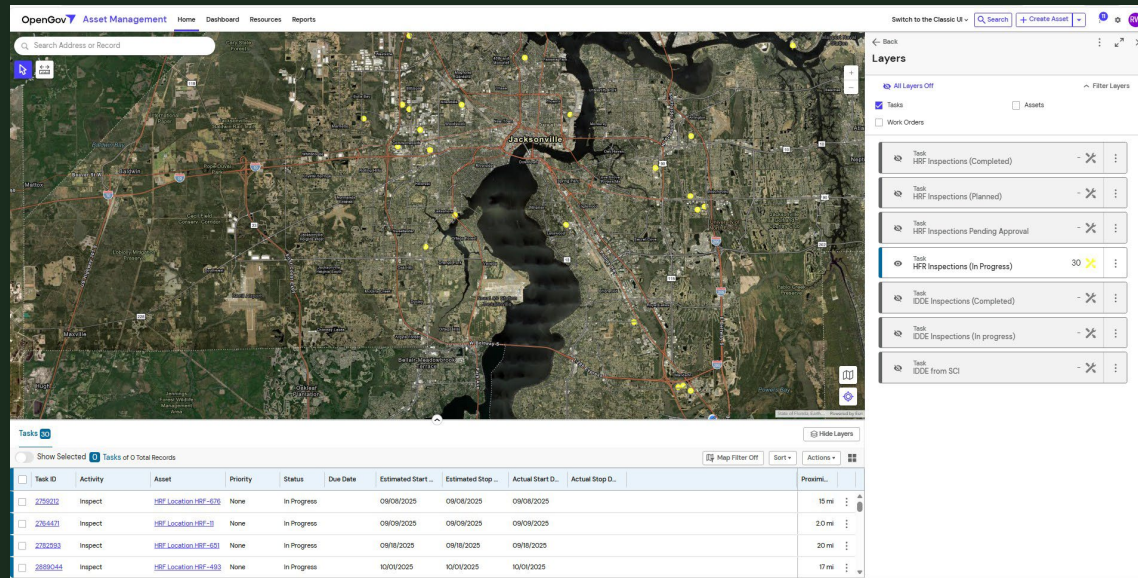
Providing Innovation – New Asset Management – Open Gov Application

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



Assets

See Tasks Against an Asset

OpenGov Asset Management

Home Dashboard Resources Reports Scenarios Administration

Search Address or Record

Switch to the Classic UI Search Create Asset

Map

Map of a residential area with streets like Pine Summit Dr, Gallier Rd S, and Fountainbleu Cres. A red line highlights a specific asset (Ditch Route MOWDR-1816).

Tasks 20

Show Selected 0 Tasks of 0 Total Records

Map Filter Off Sort Actions

| Task ID | Asset | Status | Activity | Due Date | Proximi... |
|---------|-------------------|---------|----------------|------------|------------|
| 289725 | Ditch Route MOWDR | Planned | Outfall Cle... | 10/10/2025 | 14 mi |
| 289725 | Ditch Route MOWDR | Planned | Outfall Cle... | 10/10/2025 | 17 mi |
| 289725 | Ditch Route MOWDR | Planned | Outfall Cle... | 10/10/2025 | 16 mi |
| 2897552 | Ditch Route MOWDR | Planned | Outfall Cle... | 10/10/2025 | 18 mi |

Back

MOWDR-1816
Ditch Route

Details Cleaning Quantities Tasks 20

Create

| 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 |
| 760184 | Treatment | None | Completed | 04/16/2025 |
| 759672 | 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 |
| 738470 | Treatment | None | Completed | 02/13/2024 |
| 706796 | PGR Treatment | None | Completed | |

Cancel Save

Maintenance Tasks

Photos & Attachments, Details

OpenGov

Asset Management

Home

Dashboard

Resources

Reports

Scenarios

Administration

Search Address or Record

Tasks

Show Selected 0 Tasks of 0 Total Records

| Task ID | Asset | Status | Activity | Due Date | Proxim... |
|---------|--------------------|---------|----------------|------------|-----------|
| 28975 | Ditch Route MCOWDB | Planned | Outfall Cle... | 10/10/2025 | 14 mi |
| 28975 | Ditch Route MCOWDB | Planned | Outfall Cle... | 10/10/2025 | 17 mi |
| 28975 | Ditch Route MCOWDB | Planned | Outfall Cle... | 10/10/2025 | 16 mi |
| 2897597 | Ditch Route MCOWDB | Planned | Outfall Cle... | 10/10/2025 | 18 mi |

Switch to the Classic UI

Search

+ Create Asset

AG

Task 688835

Outfall Clean

Details

Labor Log

Comments

Location

Estimated Repair Costs

Task Setup

Activity *

Outfall Clean

Asset

Ditch Route MCOWDR-1816

Due Date

10/10/2023

Priority *

None

Department *

RWSM

FEMA

CPAC

Cancel

Save & Complete

Save

Inspect Tasks- High Risk Facilities

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

The screenshot displays the OpenGov Asset Management web application. The main view is an aerial map of a facility with a red pin indicating a task location. The task details panel on the right shows the following information:

- Task ID:** 2759212
- Task Type:** Inspect
- Details:**
 - HRF Discharge Points:** The other 0.000 gallons are for gasoline. There is also a 000-gallon diesel tank located near the service shop. A spill kit is located near both tanks.
 - Labor Log:** Filter fabric is located on most storm inlets and is changed every six months or sooner if needed. Power washing of boats is conducted on-site, and the wash water goes through a specific inlet which is then pumped and filtered. Sanding of the boats also occurs on-site with vacuums to collect any sanding waste. Site sweeping occurs daily in the interior shop, and the exterior is swept as needed, usually two to three times a week. Trash is picked up daily around the site.
- HRF Facility/Contact Information:**
 - ☐ Pre Inspection Approval
 - ☒ Owner Consent Given
 - Estimated Start Date:** 09/08/2025
 - Estimated Stop Date:** 09/08/2025
 - Industry Status:** Active
 - Industry Type:** N/A
 - Inspection Cycle:** 5 Year
- Facility Information:**
 - Facility Name:** Windward Sadler Point Marina

The bottom of the interface shows a table of tasks:

| Task ID | Asset | Status | Activity | Due Date |
|---------|----------------------|-------------|----------|----------|
| 2759212 | HRF Location HRF-676 | In Progress | Inspect | |
| 2754471 | HRF Location HRF-11 | In Progress | Inspect | |
| 2752593 | HRF Location HRF-651 | In Progress | Inspect | |
| 28890 | HRF Location HRF-493 | In Progress | Inspect | |

Stormwater Structure Inspector workflow

OpenGov Asset Management Home Dashboard Resources Reports

Search Address or Record

Switch to the Classic UI Search Create Asset

Layers

All Layers Off Filter Layers

Tasks Requests Assets Work Orders

- 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

Tasks 794

Show Selected 0 Tasks of 0 Total Records

Map Filter Off Sort Actions

| 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 |
| 2705814 | Inspect | Closed Conveyance... | 453 | 12/02/2024 | 02/28/2025 | SI-F | SOUTH1 | 01/08/2025 | | | 7 mi |
| 2705979 | Inspect | Manhole Mkt-S-0002 | 453 | 12/02/2024 | 02/28/2025 | SI-F | SOUTH1 | 01/08/2025 | | | 7 mi |
| 2741605 | Inspect | Closed Conveyance... | 1584 | 05/21/2025 | 05/21/2025 | W2-I | WEST2 | | | | 20 mi |

Inspect Tasks – Stormwater structures

OpenGov Asset Management

Home Dashboard Resources Reports

Search Address or Record

Tasks 794

Show Selected 0 Tasks of 0 Total Records

Map Filter Off Sort Actions

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

Switch to the Classic UI Search Create Asset

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

Automations & Mobile Application

Automations

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

Mobile App

OpenGov Asset Management

Home Dashboard Resources Reports Scenarios Administration

Search Address or Record

Switch to the Classic UI

Search Create Asset

Back

PROP-45
Property Location

Details Operational Status History Tasks 263

Create

| Task ID | Activity | Priority | Status |
|---------|-------------------|-----------|------------|
| 270732 | Edging | None | Comple... |
| 2701026 | Building Lands... | None | Comple... |
| 2752833 | Building Lands... | Important | Cancele... |
| 2700862 | Building Lands... | None | Comple... |
| 2701668 | Edging | None | Comple... |
| 2747807 | Edging | Important | Comple... |
| 2747806 | Building Lands... | Important | Comple... |
| 2700898 | Building Lands... | None | Comple... |
| 2700834 | Building Lands... | None | Comple... |
| 2701604 | Edging | None | Comple... |
| 2700770 | Building Lands... | None | Comple... |
| 2700708 | Building Lands... | None | Comple... |
| 2701540 | Edging | None | Comple... |
| 2700642 | Building Lands... | None | Comple... |

Tasks 12

Show Selected 0 Tasks of 0 Total Records

| Task ID | Asset | Status | Activity | Due Date |
|---------|-------------------------|----------|---------------|------------|
| 2752633 | Property Location PB... | Canceled | Building L... | 07/01/2025 |
| 2753016 | Property Location PB... | Canceled | Building L... | 07/01/2025 |

Map Filter Off Sort Actions

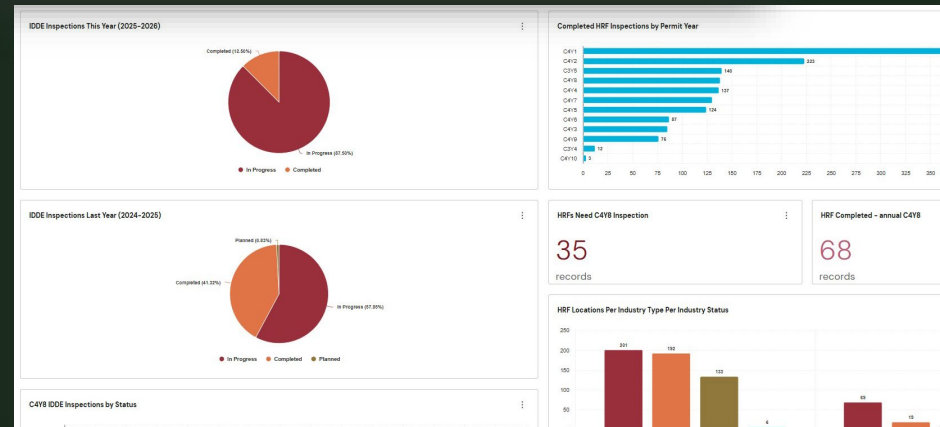
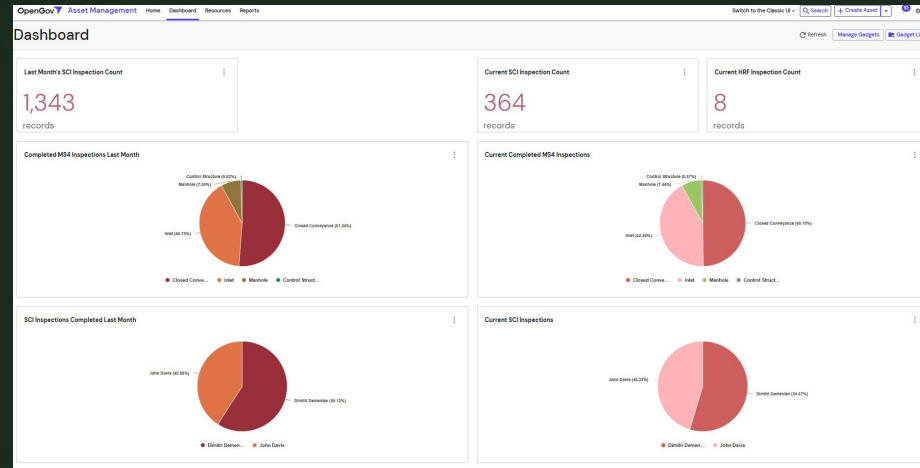
View Layers

Proxim...

9 mi

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

Report Parameters
Council District: Select...

COJ MS4 Structure Inventory
As of 11/7/2025

| | |
|--|-----------------------------------|
| Exfiltration Trench/French Drains | Grass Treatment Swales |
| Total Count: 58 | Total Count: 26 |
| Linear Feet: 3411 | Miles: 2 |
| Wet Detention Systems | Pollutant Control Boxes |
| Total Count: 213 | Total Count: 19 |
| 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 | Total Count: 61471 |
| Miles: 101 | |
| Ditches/Conveyance Swales | Manholes |
| Total Count: 11438 | Total Count: 12616 |
| Miles: 1185 | |
| Dry Retention Systems | MLM Ditch Routes |
| Total Count: 2 | Total Count: 1419 |

OpenGov Custom Report

COJ Maintenance Tasks Report
Report for tasks completed from 10/1/2023 through 9/30/2024

| | | | | |
|--|--------------|-------------------|-----------|------------------|
| Swat Clean Tasks | | | | |
| Total Tasks | 890 | | | |
| MLM Ditch Route Treatment Tasks | | | | |
| Total City Ditch Route Treatment Tasks | 9564 | | | |
| Outfall Ditch Cleaning Tasks | | | | |
| Total Tasks Completed | 871 | | | |
| 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 | 9 | Major Outfall | 5 | |
| Culvert | 0 | Open Conveyance | 0 | |
| Manhole | 4 | Inlet | 96 | |
| Closed Conveyance | 39 | Control Structure | 6 | |
| 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. | B. | | | C. | | D. | E. | F. |
| Permit Citation/ SWMP Element | Permit Requirement/Quantifiable SWMP Activity | | | Number of Activities Performed | | Documentation / Record | Entity Performing the Activity | 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 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.</i> | | | | | | | |
| | Type of Structure | Number of Structures | Number of Inspections | Percent Inspected | Number of Maintenance Activities | Percent Maintained | | |
| | Exfiltration trench (assets / linear feet) | 36/3,411 | 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 (e) | 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 – RWSM & MLM Inspections – EQD & RWSM (Number of Inspections at Asset Level) | |
| | 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 clearing, pipe lining, catch basin cleanouts, 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 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

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Revised 10/5/2016

Demo video

ETM ENGLAND-THIMS & MILLER

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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ETM

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