

Stormwater Quality Processes & Improving Data Management

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HAMPTON VA



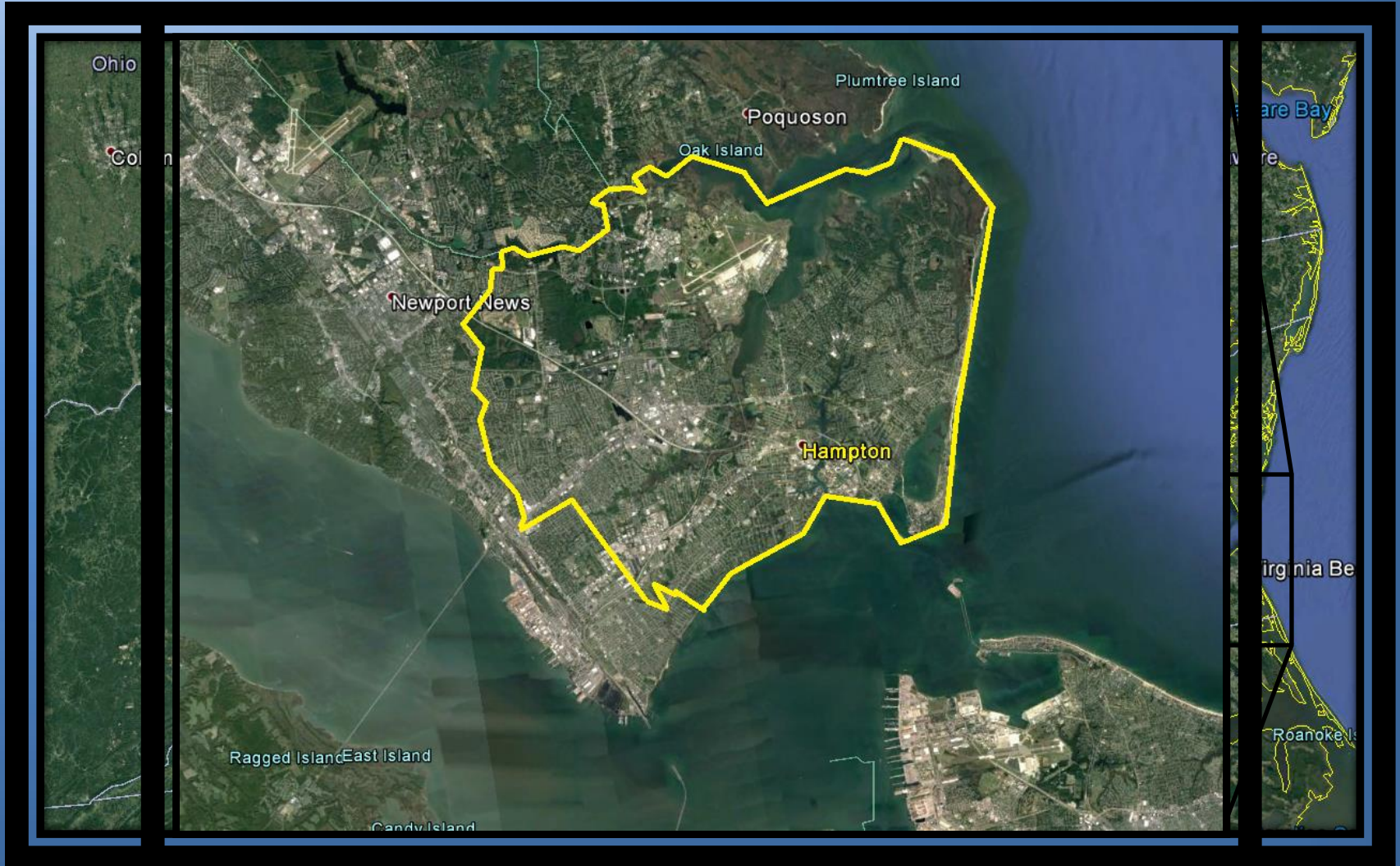
Presentation Overview

- Introduction to the City of Hampton
- MS4 Audit: 2010 & 2015 conducted by:
 - Environmental Protection Agency (EPA)
 - Virginia Department of Environmental Quality (DEQ)
- Municipality Separate Storm Sewer System (MS4) program contents:
 - Stormwater Management Inspection BMP & LD
 - Illicit Discharge Detection & Elimination (IDDE)
 - Industrial Stormwater Site Inspections
 - Public Works Housekeeping (SWPPP)
- Geographic Information System (GIS)
 - Field data collection
 - Lucity integration
- Future Outlook with Lucity Integration

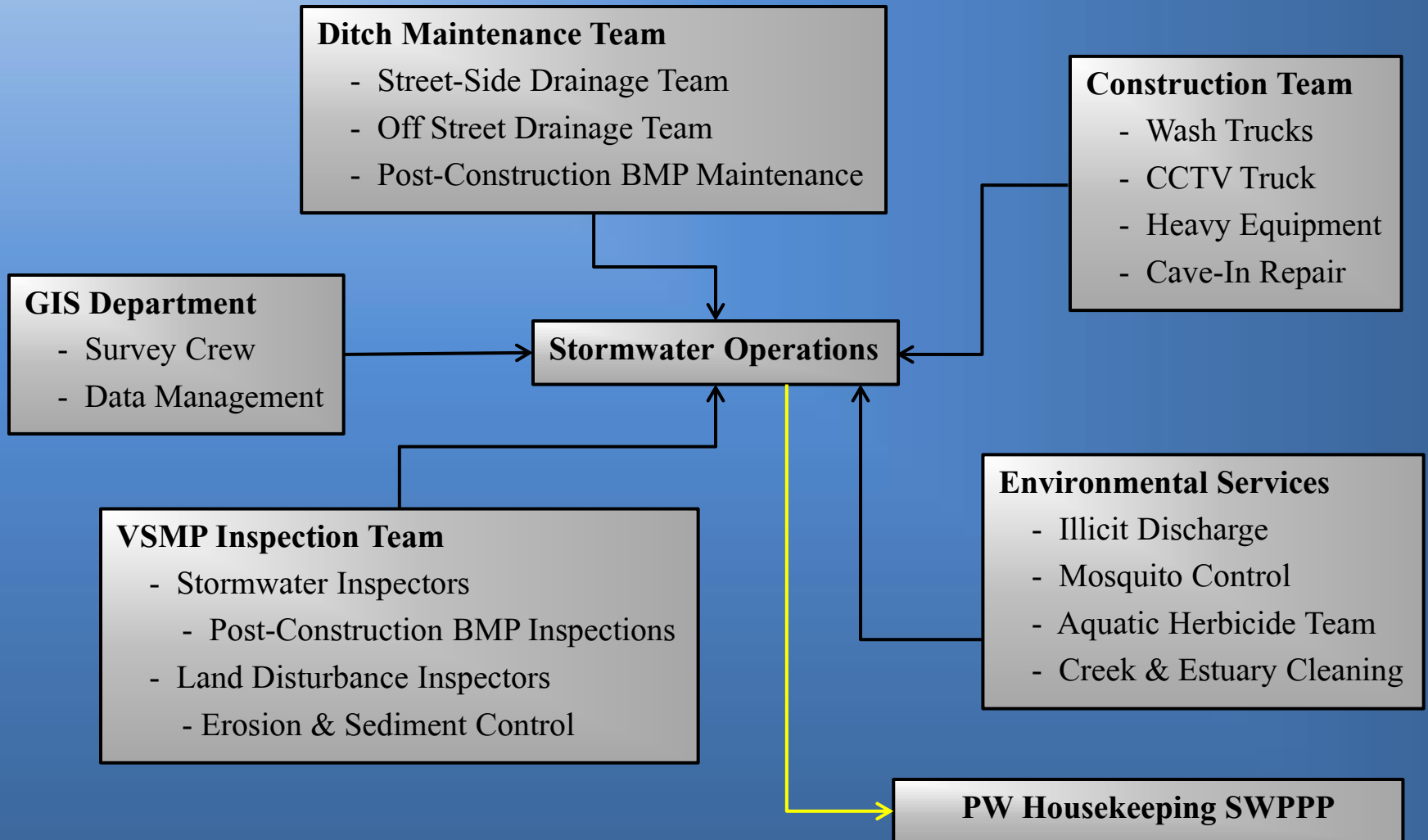
MS4 Compliance = A Happy Storm System



City of Hampton, Virginia



Our Division at a Glance



EPA & DEQ Audit

- Hampton is a Phase I MS4 Permittee (+100,000 in population)
- Dual EPA & DEQ
- Municipal Stormwater Requirements
 - BMP Inspection
 - Land Disturbance
 - Illicit Discharge
 - Industrial Discharge
 - Public Works Compound Pollution Prevention Plan
 - *Office audit of files (electronic & paper) and field inspection of EPA chosen sites.*

“EPA”

Or the

EMERGENCY

PREPAREDNESS

ALERT!!!

I swear, we clean it all the time!



EPA / DEQ Joint Field Inspections

Great opportunity to collaborate

Recommendations after EPA & DEQ Audit

Improved Communication

Permitting Office → VSMP Inspectors

Ensuring Document Creation and Protocols Followed

Original Site Plan Submittal and Review; As-Built; Inspection Reports

Improved Data Management & Tracking

Clean and Thorough Reporting

Stormwater Pollution Prevention Plan

Create and Implement PW Housekeeping Program

BMP Inspection Process



BMP Inspection Process

NOVEMBER 2014 Newsletter

Work Orders - Drainage All

Work Order # 16-011293 Category 460-107 Environmental Services

Status 800 Work Finished Problem 460-010 BMP Basins

Status Date 09/02/2016 08:07 AM Main Task 460-0052 BMP Inspection

WO Location Assets List/Events Tasks/Res Routing Costs Billing Related Requests/Track Links Custom 1 Custom 2 Comments

Asset

Location 2 W PEMBROKE AVE

Cause 460-006 Supporting Others

Assigned Crew

Supervisor 9051 DEHART, CHRISTOPHER W.

Lead Worker

Contractor

Priority 1 High

Account #

Proj No - Acct

Project Text

Work Type 1 City

Received By

Inspected By

Assigned By

Assigned Date // : AM

Start Date 09/01/2016 : AM

End Date 09/01/2016 : AM

Master Project ID

Name

Comment From Request

Override Notifications

Problem O

Overdue O

Lead Worker O

Task O

Supervisor O

Hard Lock WO H

Record 18726 of 18805 View Mode Ready...

BMP Inspection Process

Data Management Plan

Current System

- Maintain Database
- Photos and inspection scanned into PDF Form.
- Maintain both paper and electronic copies of all documents.
- All correspondence typed in Word, converted into PDF for filing and mailing by certified mail.
- Work Order created by Lucity Desktop to track hours and equipment costs.

In Development

- Use of tablet in field with Lucity Web to take and attach photos; Field inspection done in Lucity; with correspondence to be generated by Lucity Web and sent via email to all parties; Work orders can be attached to specific sites and tracked as assets.
- History of all documents pertaining to the specific site being inspected (previous inspections and correspondence) will be available for review in field.

Current Lucidity Progress

The screenshot displays a web application interface for managing site corrective actions. The main window is titled "Edit - Storm BMP Site Corrective Actions - Internet Explorer". The interface is divided into a form area and a data table area.

Site Corrective Actions Form:

- Corrective Action:** Corrective Ac
- Corrective Action Desc:** Corrective Action Description
- Notification Date:** 8/12/2016
- Notes:** Proper outfall protection is needed
- Due Date:** 11/1/2016
- Completed:** Completed
- Completed Date:** [Empty field]

Site Data Table:

Site ID	Site Name	BMP ID	Location	Status	Notes
403	WHEALTON RD 23666	BMP_002	WHEALTON		
41	FLOYD THOMPSON BLVD 23666	BMP_003	FLOYD THOMPSON		
200	FLOYD THOMPSON BLVD 23666	BMP_004	FLOYD THOMPSON		
3413	OLD ARMISTEAD AVE 23666	BMP_005	OLD ARMISTEAD		
150	GENOA DR 23664	BMP_006	GENOA		
	RESEARCH DR 23666	BMP_007	RESEARCH		

The interface also includes a navigation bar with "tdubois" and a search bar. The bottom status bar indicates "Total Filter Records: 350 Total Module Records: 350".

Land Disturbance Inspections



Land Disturbance Inspections

Current System

- Notes and pictures taken in field.
- Upload pictures onto server.
- Fill out inspection report.
- Scan inspection report with pictures
- Attach scanned copy to permit location on different software system.
- Software system will email copies of the reports to all contacts related to permitted site.
- Work Orders entered into Lucity.

Future Plans

- Switch to Lucity?

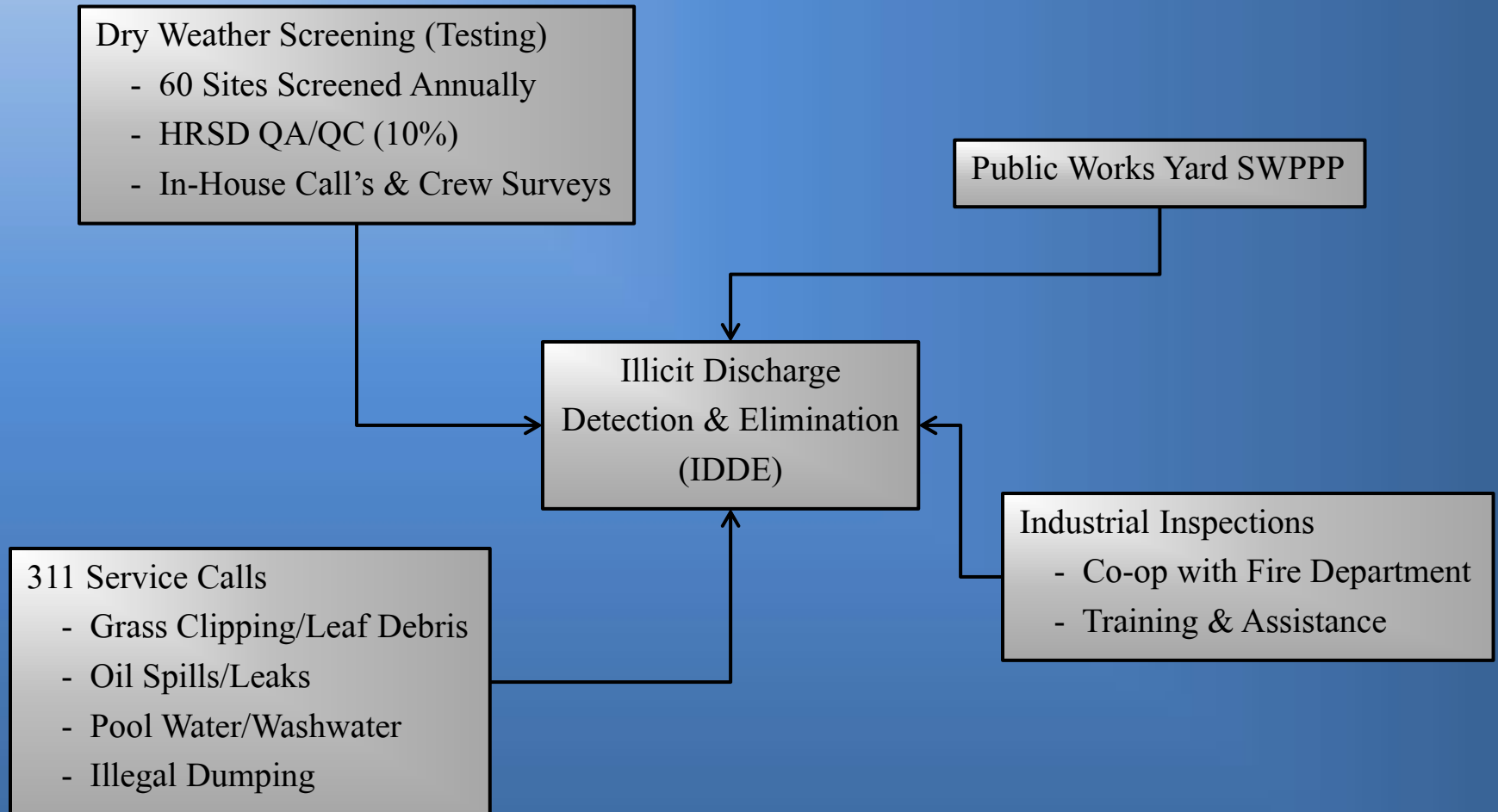
Pro's

- Inspections done in site generates a
- Reduces time spent on paper work ability.
- For each construction phase, LD inspectors
- Ability for post-construction inspector to see what is sufficient; any writing office during construction phase same software system.
- Work Orders can be attached.

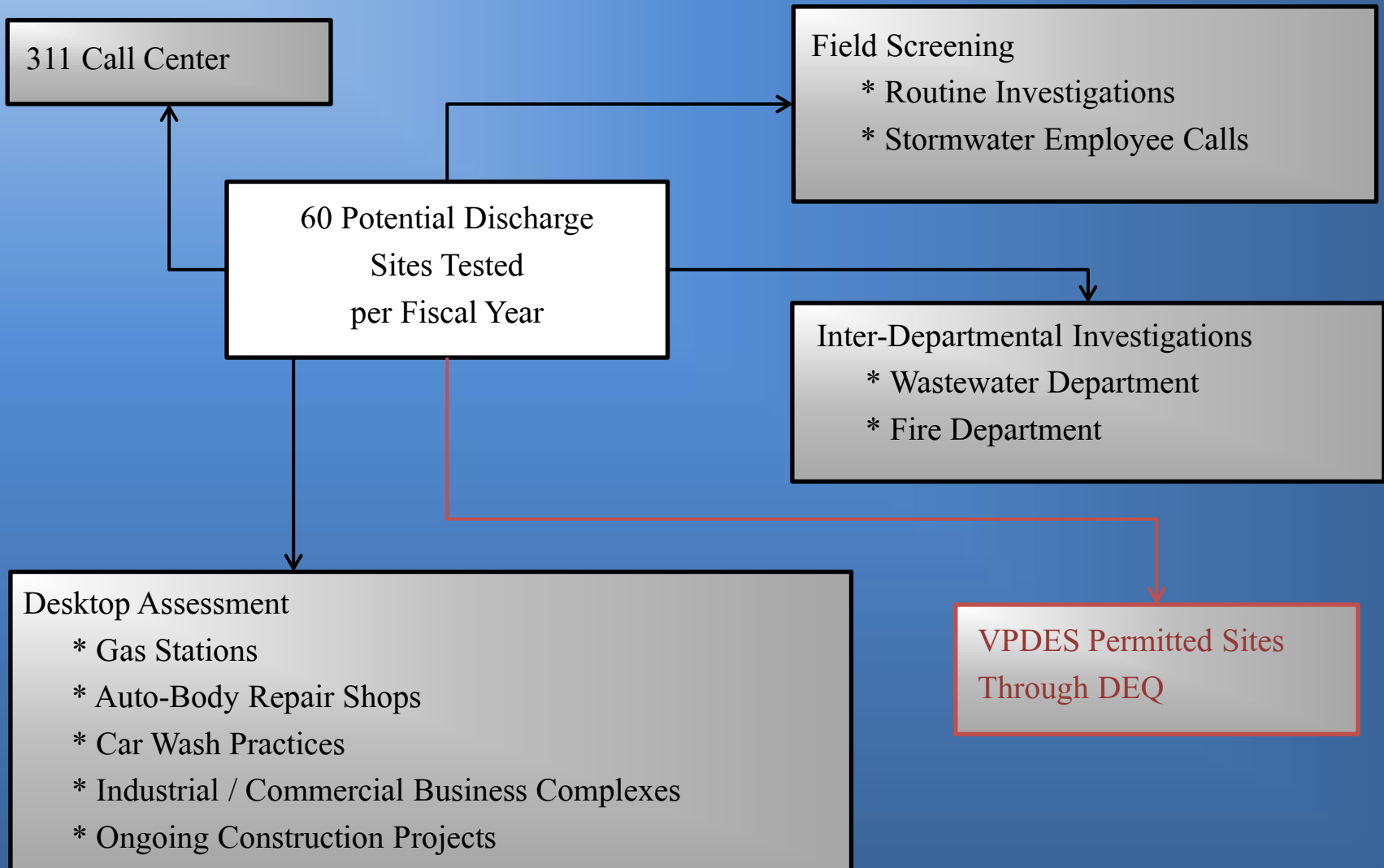
Illicit Discharge & Illegal Dumping Program



Illicit Discharge / Illegal Dumping



Illicit Discharge Screening Sites



IDDE Tracking

- Current management system very similar to BMP Inspection process.
- Field sheet and photos are scanned into PDF forms and saved electronically into individual folders by address.
- Hard copies are filed manually.
- Work orders generated in Lucyty.
- In 2013 we attempted to integrate inspections into Lucyty Desktop for ease of tracking.

Illicit Disch Rec # 44 Tracking # Status Under Investigation

Structure # Structure Rec #

Inspection Team DeHart, Miller, Atkinson, Jackson

Land Use 2 Residential

Source 6 Other

Contaminant 5 None

Watershed 2 No

Flow Status 3 Flow Observed

Conduit Rec # Upstream Structure Downstream Structure

Copper 0.0 Chlorine 1.0 Phenols 0.0 Detergents 0.0

pH 2 5.1 - 9.0

Temp (C) 2 11-15

Structure Type 7 < 12" Open Channel

Record 1 of 6 View Mode Ready...

We encountered minor issues within the fields regarding specificity.

IDDE & Illegal Dumping

Future Plans with Lucy

- Future plans will include streamlining Illicit Discharge inspections and reporting through **Lucy Web** to include all fields with needed specifics.
- Ability to link to 311 requests, BMP Inspections, LD Inspections, Work Orders, and run queries to improve reporting.

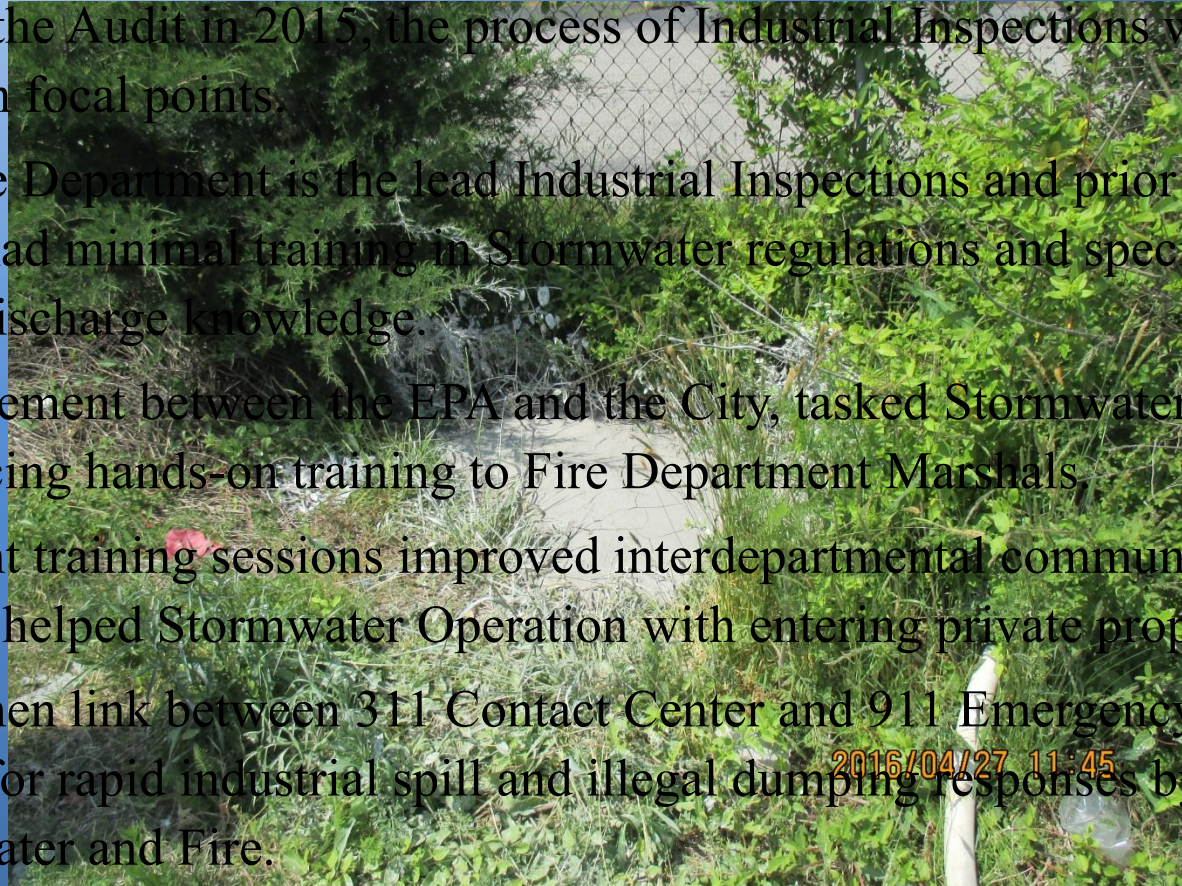
Industrial Inspections

Fire Department & Stormwater Operations



Industrial Inspections

- During the Audit in 2015, the process of Industrial Inspections was one of the main focal points.
- The Fire Department is the lead Industrial Inspections and prior to the 2015 Audit, had minimal training in Stormwater regulations and specifically, Illicit Discharge knowledge.
- An agreement between the EPA and the City, tasked Stormwater with introducing hands-on training to Fire Department Marshals.
- The joint training sessions improved interdepartmental communications and directly helped Stormwater Operation with entering private property sites.
- Strengthen link between 311 Contact Center and 911 Emergency Call Center for rapid industrial spill and illegal dumping responses by Stormwater and Fire.



After training started, we ran into multiple discharge violations that were outstanding training opportunities for both departments

Industrial Inspections

Data Management

- Previous to the EPA Audit, all inspections were solely documented into a separate software system within the Fire Department.
- After training started, all industrial inspections that the Stormwater Team assisted with were also captured in house as Illicit Discharge inspections and filed for Stormwater compliance requirements.
- Moving forward, we are considering either separating these inspections into their own Industrial Inspection section within **Lucity Web**, or continue to document as Illicit Discharge inspections with a drop-down menu option to differentiate them from routine IDDE inspections.
- Add existing field sheet to Lucity IDDE section??? Fire & Storm documentation on group server to simplify MS4 reporting.

Field Sheet into Lucity?

CITY OF HAMPTON ILLCIT DISCHARGE FIELD SHEET

Dry Weather Screening
 311 Investigation
 Routine Stopping
 Other _____

Date: _____
 Location: _____
 Inspection Team: _____
 Last Rain: _____



HAMPTON DIVISION FIRE AND RESCUE FIRE PREVENTION SECTION INSPECTION REPORT NOTICE OF VIOLATION

TO: _____ OCCUPANCY _____
 ADDRESS _____ DATE _____ TIME _____
 FIRE PROTECTION SYSTEMS INSTALLED: _____ USE GROUP _____
 Sprinkler Auto Fire Detector Standpipe Fire Alarm REINSPECTION DATE _____

YOU ARE REQUIRED BY CITY ORDINANCE TO CORRECT THE FOLLOWING VIOLATIONS

_____ Means of Egress
 _____ Housekeeping
 _____ Fire Extinguishers
 _____ Sprinkler & Standpipe Equipment
 _____ Fire Alarm Equipment
 _____ Special Extinguishing Equipment
 _____ Exhaust Equipment
 _____ Electrical Equipment
 _____ Heating Equipment
 _____ Hazardous Materials
 _____ Fire Lanes
 Storm Water Drainage
 _____ Miscellaneous
 _____ Hydrants (NNWW or Private)
 _____ Additional Comments: _____

Dry Weather Screening

Structure #: _____ Structure Type: Pipe Outlet
 Dominant Watershed Land Use: Industrial Commercial R
 Visual Observations: Sediment Buildup Oily Sheen Odor: _____
 Flow Observed: Yes No (If Flow is observed, a separate Dry

311 / Routine Investigations

Ticket #: _____
 Manager Notified: Yes No
 Problem Remediated: Yes No
 Literature Given: Yes No

Oil Spill
 Grass Clip
 Other _____

Comments: _____

The Hampton City Council approved a Re-Inspection Fee of \$50.00 for previously identified violation(s) are found NOT to be in compliance. If the Inspector has to return a second time after the initial inspection the fee will be levied for this visit as well as any other return inspections until the violation(s) is corrected.

Received by: _____
 NO DEFICIENCIES NOTED REINSPECT WITHIN _____ DAYS
 RECEIVED BY: _____ INSPECTED BY: _____

7/11/2013

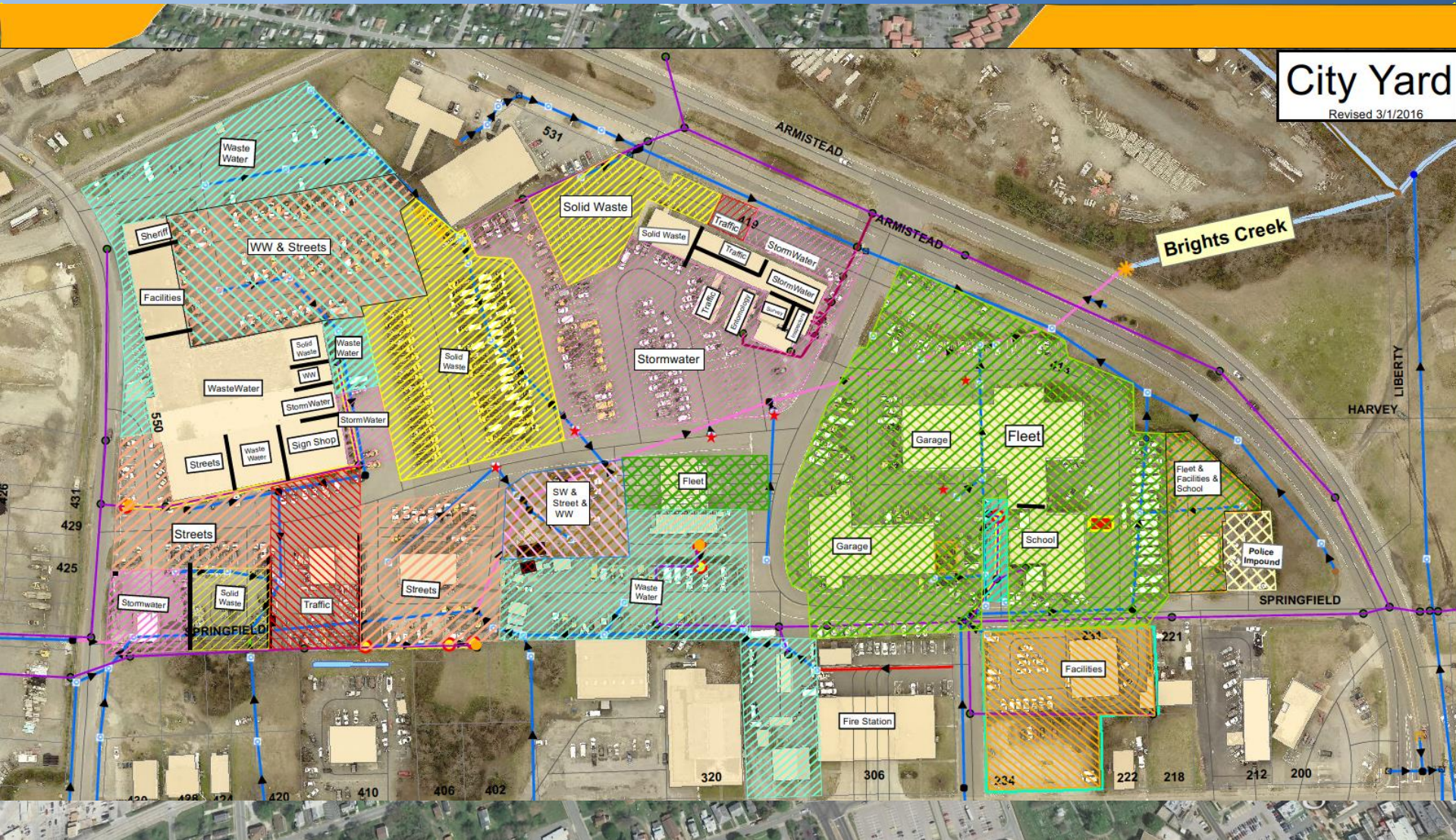
Status: 2 Under Investigation
 Structure Rec #: _____
 Land Use: 2 Residential
 Source: 6 Other
 Contaminant: 5 None
 Watershed: 2 No
 Downstream Structure: _____
 Salinity: 1 1-5%
 pH: 2 5.1-9.0
 Temp (C): 2 11-15
 Structure Type: 7 <12" Open Channel
 Record 1 of 6 View Mode Ready...

Public Works Compound Housekeeping (SWPPP)



03/26/2015 14:17

Public Works Compound



City Yard
Revised 3/1/2016

Public Works SWPPP Inspection

- Stormwater
- Wastewater
- Traffic
- Solid Waste
- Facilities
- Streets & Bridges
- Police
- Schools
- Fleet Services

Public Works

CITY OF HAMPTON PUBLIC WORKS YARD MONTHLY STORMWATER INSPECTION CHECKLIST		HAMPTON VA		
<p>Inspections must be conducted by a person with the knowledge and skills to assess conditions and activities that could impact stormwater quality at the facility, and evaluate the effectiveness of best management practices required by this permit.</p>				
FACILITY NAME:		DATE:		
DIVISION: (Facilities, Fleet, Solid Waste, Stormwater, Streets, Traffic, Police, Waste Water)		INSPECTION TIME:		
WEATHER INFORMATION:				
<ul style="list-style-type: none"> Description of Weather Conditions (e.g., sunny, cloudy, raining, snowing, etc.): 				
<ul style="list-style-type: none"> Was stormwater (e.g., runoff from rain or snowmelt) flowing at outfalls and/or discharge areas shown on the Site Map during the inspection: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Comments: 				
I. Potential Pollutant Source Area Inspection and Best Management Practices Evaluation				
SWPPP and Site Map: Have a copy of the SWPPP and site map with you during the inspection so that you can ensure they are current and accurate. Use it as an aide in recording the location of any issues you identify during the inspection.	Yes	No	N/A	Findings and Remedial Action Documentation: Describe any findings below and the schedule for remedial action completion including the date initiated and date completed or expected to be completed.
<ul style="list-style-type: none"> Is the Site Map current and accurate? 				
<ul style="list-style-type: none"> Is the SWPPP inventory of activities, materials and products current? 				
Any new potential pollutant sources must be added to the map and reflected in the SWPPP. (To include subcontractors performing work in the city yard.)				

Public Works SWPPP



Before

After

Public Works SWPPP

Data Tracking

- Monthly inspections
- Report generated & saved as PDF
- Inspection results sent to division managers for section remediation
- Future goal is to integrate inspection sheet into Lucity for MS4 Reporting-

CITY OF HAMPTON PUBLIC WORKS YARD MONTHLY STORMWATER INSPECTION CHECKLIST		HAMPTON VA		
Inspections must be conducted by a person with the knowledge and skills to assess conditions and activities that could impact stormwater quality at the facility, and evaluate the effectiveness of best management practices required by this permit.				
FACILITY NAME:		DATE:		
DIVISION: (Facilities, Fleet, Solid Waste, Stormwater, Streets, Traffic, Police, Waste Water)		INSPECTION TIME:		
WEATHER INFORMATION:				
• Description of Weather Conditions (e.g., sunny, cloudy, raining, snowing, etc.):				
• Was stormwater (e.g., runoff from rain or snowmelt) flowing at outfalls and/or discharge areas shown on the Site Map during the inspection: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Comments:				
I. Potential Pollutant Source Area Inspection and Best Management Practices Evaluation				
SWPPP and Site Map: Have a copy of the SWPPP and site map with you during the inspection so that you can ensure they are current and accurate. Use it as an aide in recording the location of any issues you identify during the inspection.	Yes	No	N/A	Findings and Remedial Action Documentation: Describe any findings below and the schedule for remedial action completion including the date initiated and date completed or expected to be completed.
• Is the Site Map current and accurate?				
• Is the SWPPP inventory of activities, materials and products current?				
Any new potential pollutant sources must be added to the map and reflected in the SWPPP. (To include subcontractors performing work in the city yard.)				



Storm Observation Ratings - No Filter

Flow Setup Prec # 1

Structural Ratings | Cleaning Ratings | Individual Items Structure Ratings

Code	Description	Struc. #
0	N/A	0
1	Excellent	0
2	Very Good	1
3	Good	5
4	Fair	20
5	Poor	50
6	Immediate Repair	100

Code	Description	Struc. #
0	N/A	0
1	Excellent	0
2	Very Good	1
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4	Fair	20
5	Poor	50
6	Immediate Repair	100

Code	Description	Struc. #
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5	Poor	50
6	Immediate Repair	100

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Code	Description	Struc. #
0	N/A	0
1	Excellent	0
2	Very Good	1
3	Good	5
4	Fair	20
5	Poor	50
6	Immediate Repair	100

Item Factor Cover	[1]
Item Factor Frame	[1]
Item Factor Wall	[1]
Item Factor Bench	[1]
Item Factor Trough	[1]

Record 1 of 1 View Mode Ready...

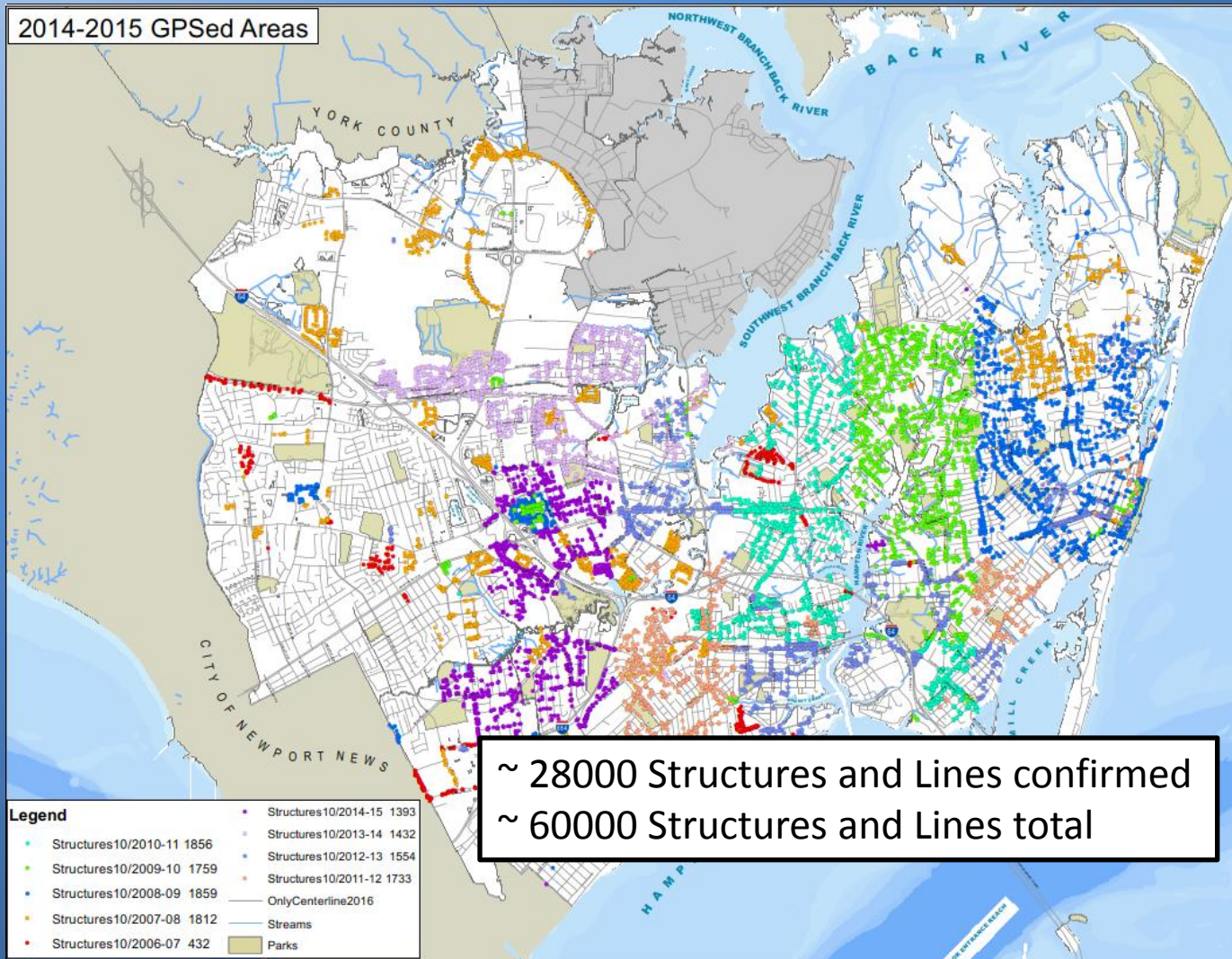
GIS Mapping & Lucity Integration



GIS Mapping & Lucity Integration

- 1950-1995
 - Paper maps with hand-written notes
- 1995-2000
 - Coordinate Geometry (COGO)
 - Contractor made new maps (Digital & Physical)
 - Experienced drainage employees assisted with infrastructure locations from memory
- 2000-2011
 - Infrastructure coordinates entered into GIS
 - Assets not attached to Lucity work orders due to data alignment issues
- 2012-Current
 - Lucity mapping overhaul conducted bringing GIS data into Lucity

GIS Mapping & Lucity Integration



Future Outlook with Lucity Integration

- Finish updating GIS mapping and asset locations within current

Lucity system.
VSMP Inspections

Illicit Discharge

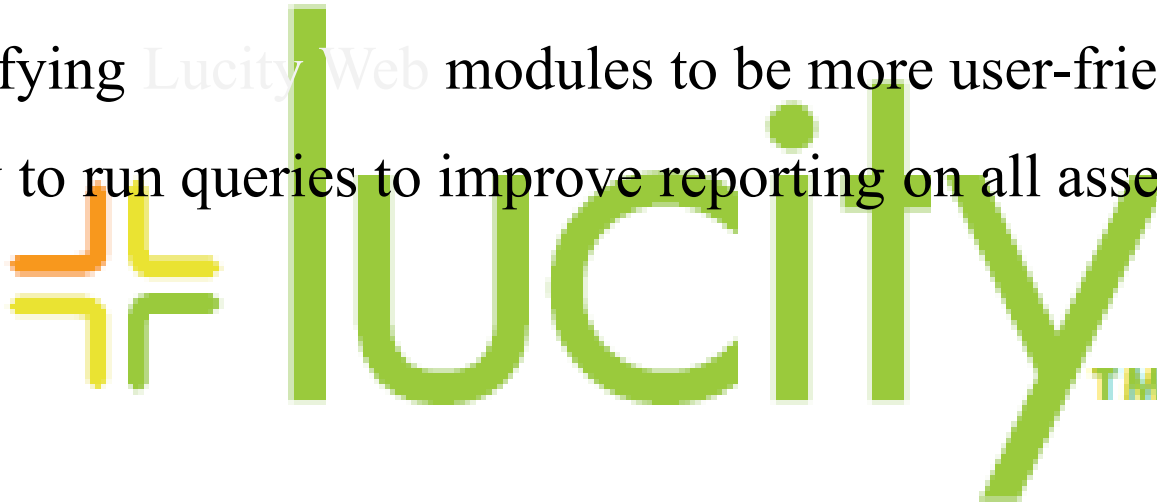
Industrial Inspections

Public Works SWPP

- Integration of all MS4 and VSMP program requirements into

Lucity Web to improve data tracking, reporting and communication.

- Simplifying Lucity Web modules to be more user-friendly.
- Ability to run queries to improve reporting on all assets and work flow.



Hampton's Expectations for Lucity?

To be our AIDE!

*A*ccountability

*I*ntegration

*D*ata Management

*E*fficiency



Questions???

City of Hampton, VA.

Quincy Daniel, Stormwater Operations Manager

qdaniel@hampton.gov

Special thanks to Tim DuBois
Environmental Services Biologist



Thank You...