# APWA Minnesota Chapter
# Fall Conference

## Asset Management

Burnsville

BOLTON & MENK
Engineers & Surveyors

WSB
& Associates Inc.

# Session Overview

- Asset Management Intro.
- City of Burnsville's SWAMP Project;
  - Storm Water Asset Management Plan
- Asset Management;
  - Asset review..
  - Importance of Asset Management..
  - Getting Started..

# The Quandary…

- As public officials and employees, you are charged with maintaining and improving a variety of assets including; streets, water systems, sewer systems, storm sewer systems, fleet, parks and municipal facilities.
- Shrinking budgets and staff size do not allow for sufficient personal to effectively manage assets without a management program.

# The Solution…

## *Asset Management*

"Asset Management is maintaining a desired level of service for what you want your assets to provide at the lowest life cycle cost. Lowest life cycle cost refers to the best appropriate cost for rehabilitating, repairing or replacing an asset. Asset management is implemented through an asset management programmed typically includes a written management plan."

*US EPA Published Document 816-F-08-014 – April 2008*

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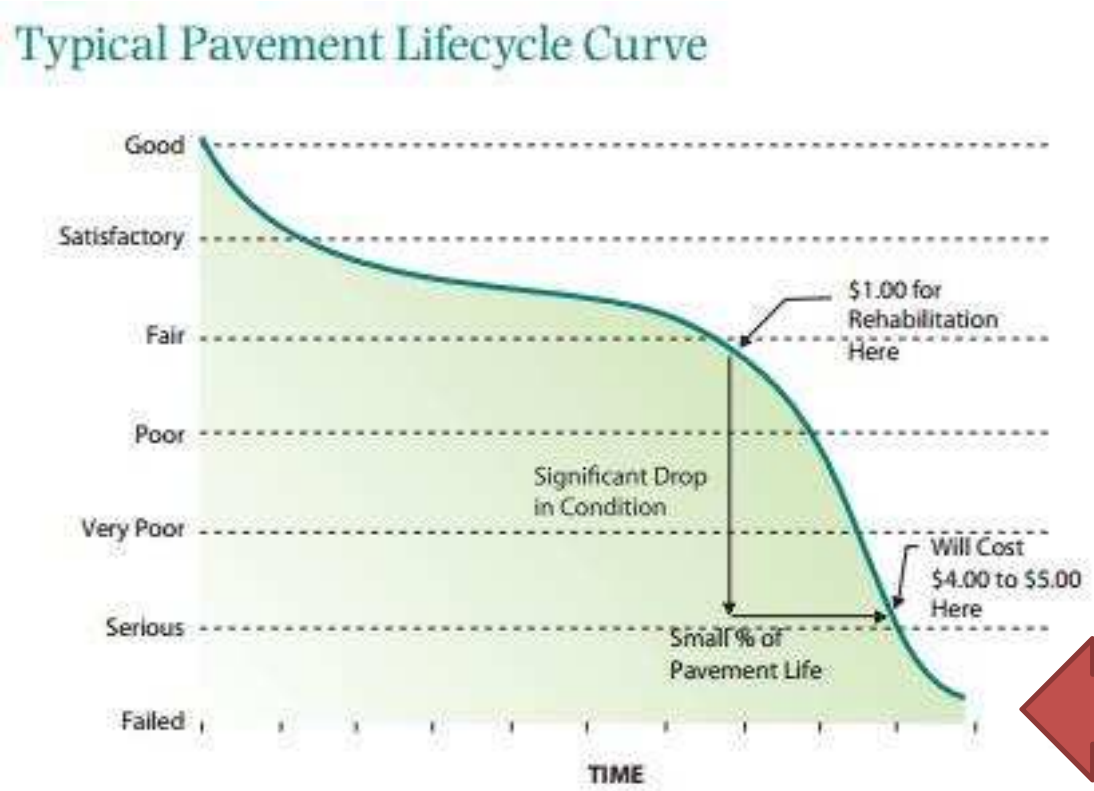
# The Realization…




**No one wants to end up here, at least not on purpose…**

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# The Outcome…

- Asset Management Systems emphasize life of asset cost, recognizing that properly maintained assets will last longer and therefore costing less money.
- Better use of available dollars.
- Better decision making.
- **Do more with Less**.

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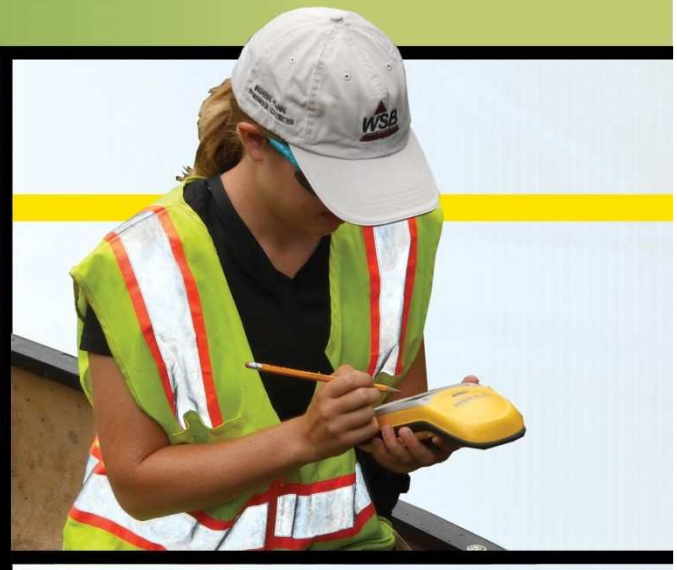
# S.W.A.M.P.

## Storm Water Asset Management Program



Ryan Peterson, PE – City of Burnsville
Todd Hubmer, PE – WSB & Associates, Inc.

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# OUTLINE

- Purpose
- History
- Application Development
- Examples
- Questions

# City of Burnsville Process

- Why did Burnsville want this product?
  - Have annual pond cleanout project, want to be most efficient with funding
  - Knew that inventory was going to be necessary for NPDES MS4
  - Help us determine capacity of our pond system
  - Improvements to processing annual 20% of outfalls inspections

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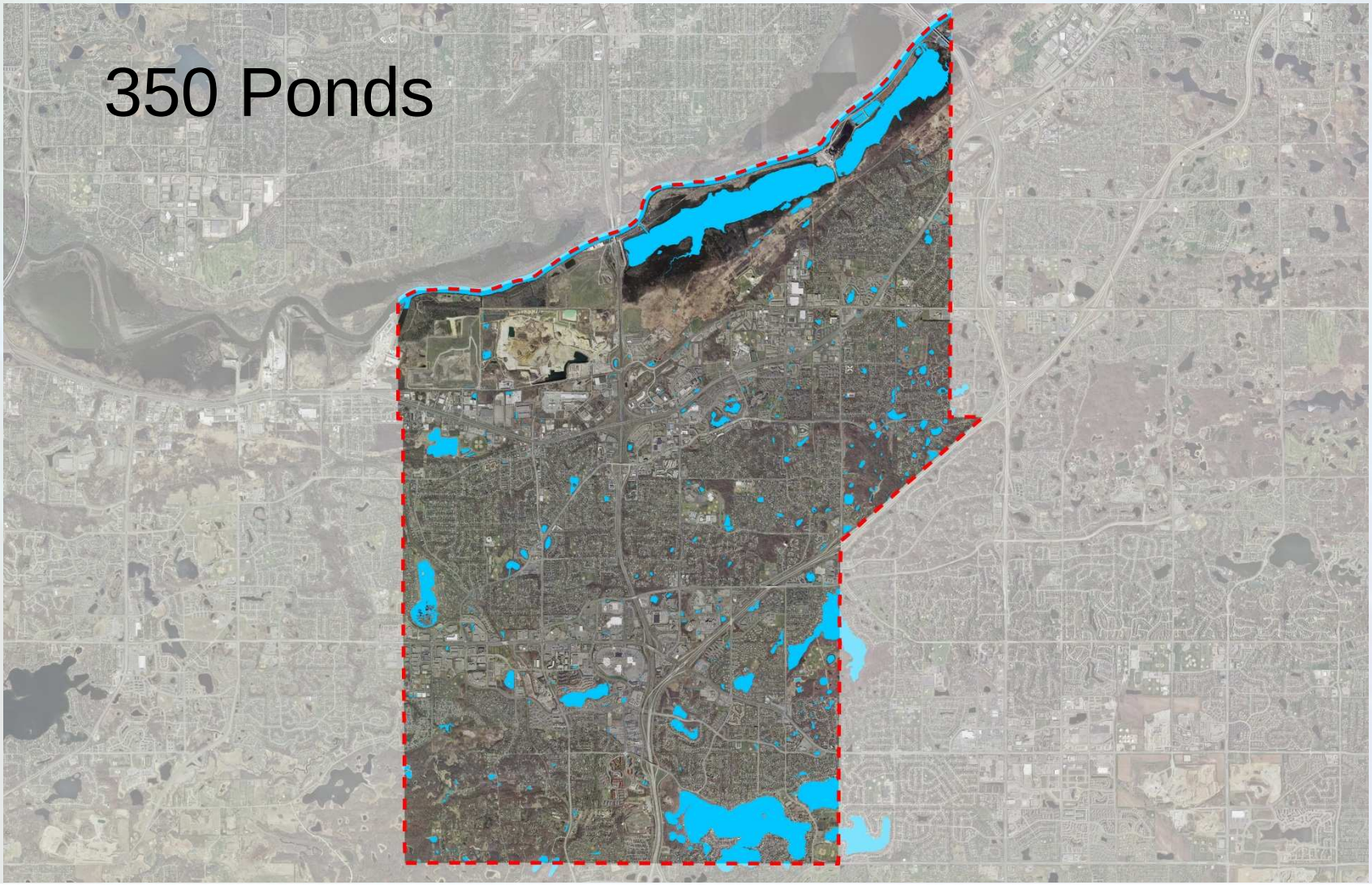
# City of Burnsville Process

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# City of Burnsville Process

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# City of Burnsville Uses

- Cost of SWAMP Development/Funding
  - Burnsville has annual pond cleanout funding of $300,000
  - SWAMP Development Cost $160,000
    - Initial Program Set-up
    - Included 190 surveys
  - Funded from the pond cleanout program/skipped one year of cleanouts

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# PURPOSE

- Stormwater BMPs are assets

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# PURPOSE

- Stormwater BMPs are assets
- Manage benefits of BMPs in perpetuity

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# PURPOSE

- Stormwater BMPs are assets
- Manage benefits of BMPs in perpetuity
- Simplify operations and maintenance of stormwater BMPs

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# PURPOSE

- Stormwater BMPs are assets
- Manage benefits of BMPs in perpetuity
- Simplify operations and maintenance of stormwater BMPs
- Prioritize inspection/maintenance history

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# PURPOSE

- Stormwater BMPs are assets
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- Remove perceived politics from maintenance scheduling and budgeting

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# PURPOSE

- Stormwater BMPs are assets
- Manage benefits of BMPs in perpetuity
- Simplify operations and maintenance of stormwater BMPs
- Prioritize inspection/maintenance history
- Remove perceived politics from maintenance scheduling and budgeting
- Meet regulatory permit requirements

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# HISTORY

- Not feasible to inspect basins annually [350 basins in City of Burnsville]
- Find a way to efficiently manage stormwater BMPs
- Developed similar to infrastructure management programs
- Multi-platform web application

  - Tablets  - Smart phones  - Desktops

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# APPLICATION INPUTS

- Basin Depths [bathymetry]
- Watershed Characteristics
- Desired Water Quality Volume [ponds]
- Calibration

  -Sediment Studies  -Field Verification Surveys
- Web Application – input data from anywhere

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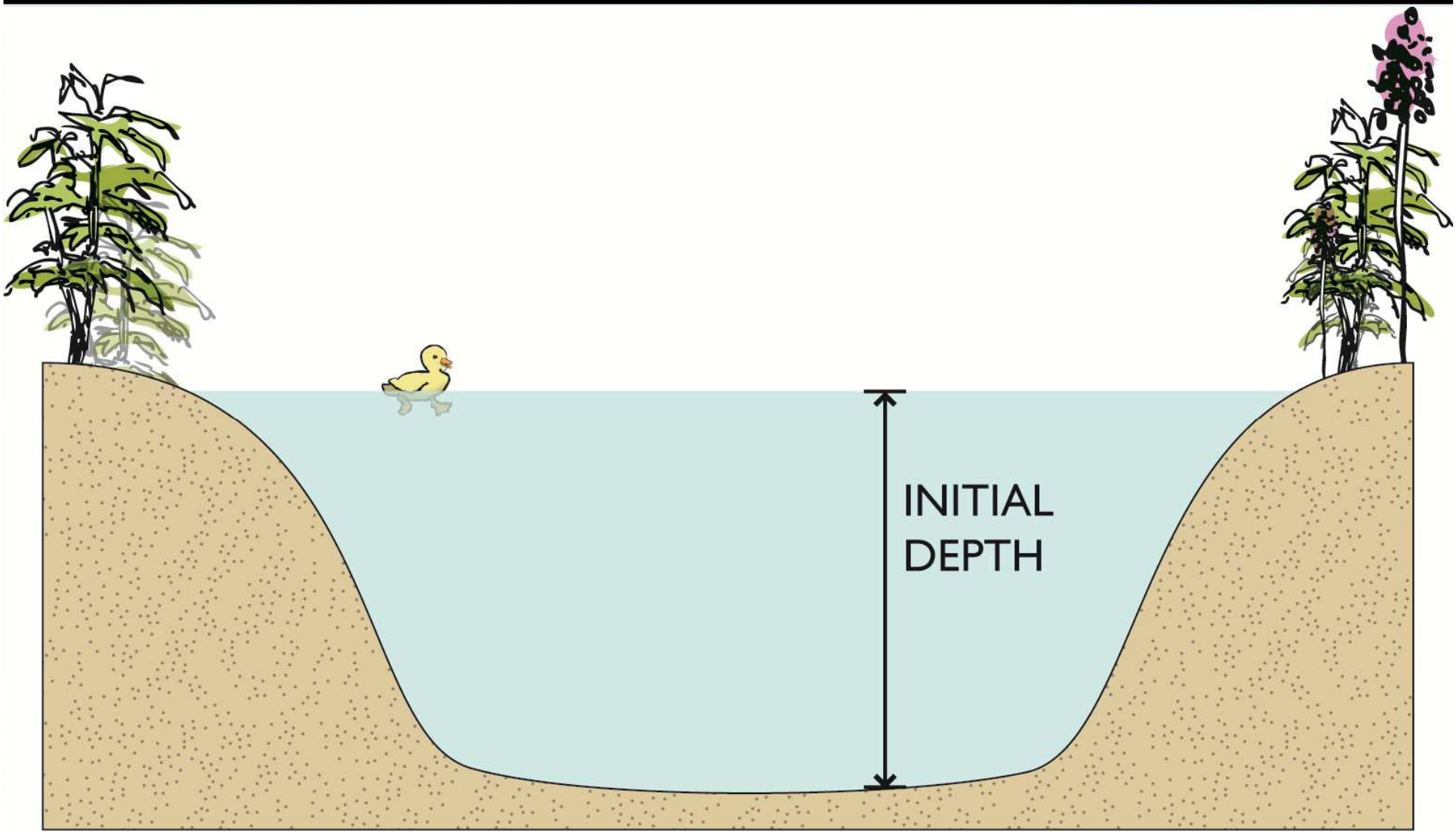
# DEVELOPMENT: BASIN DEPTHS

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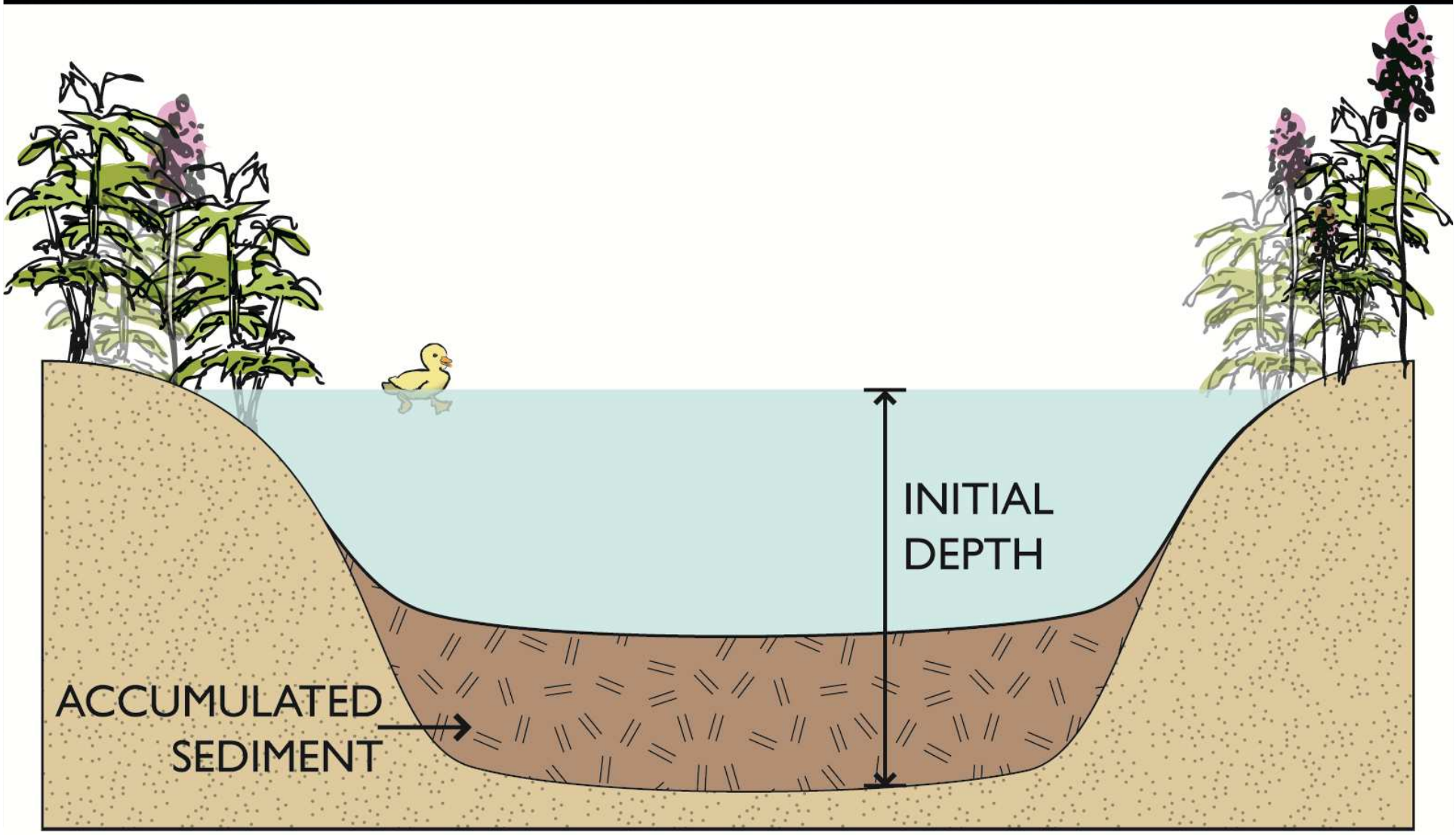


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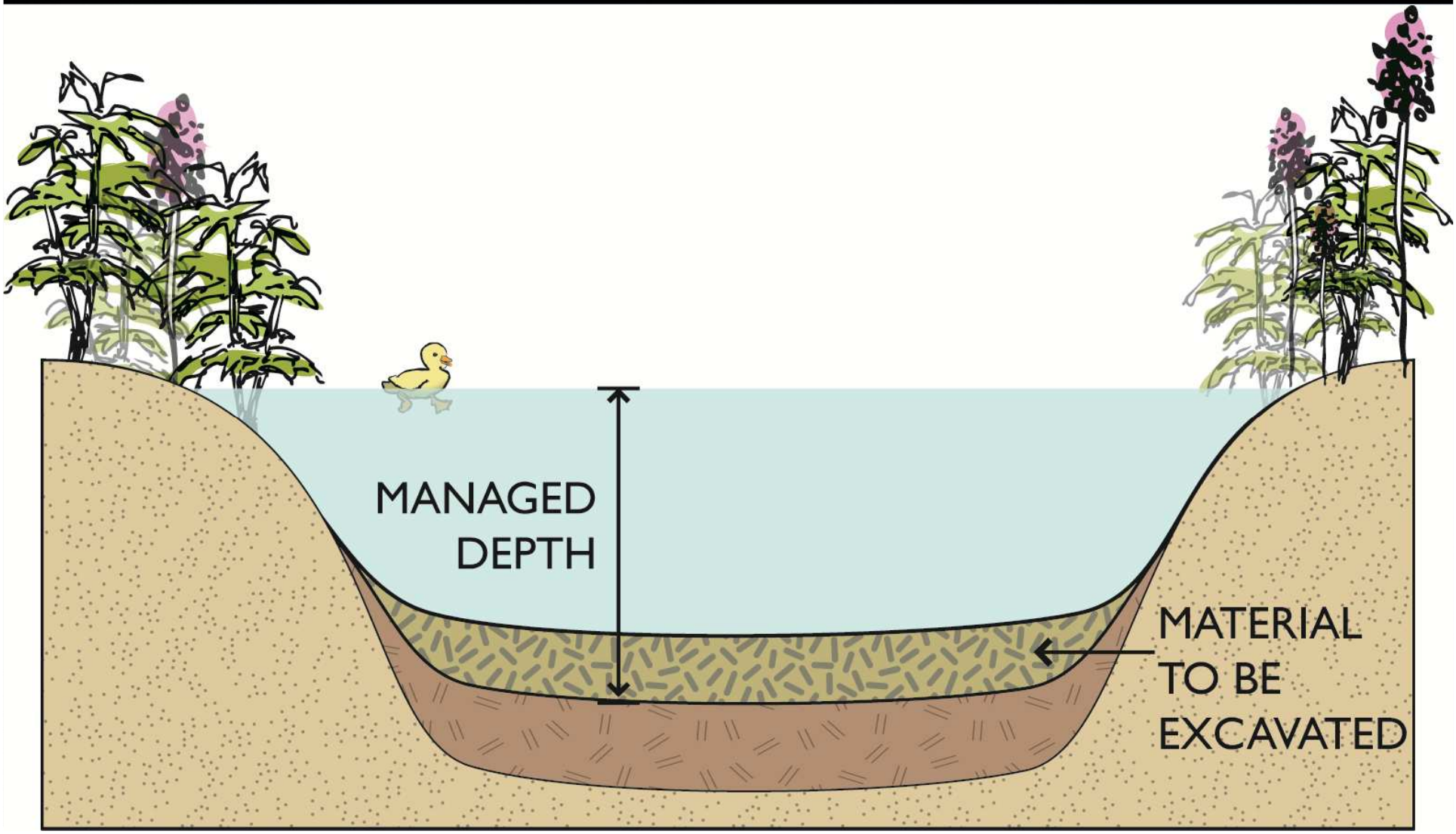


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# SWAMP ANALYTICS

- Sediment load from watershed
- Vegetation encroachment
- Anticipated removal rates
- Annual load accumulation
- Imperviousness in watershed
- Field inspection results

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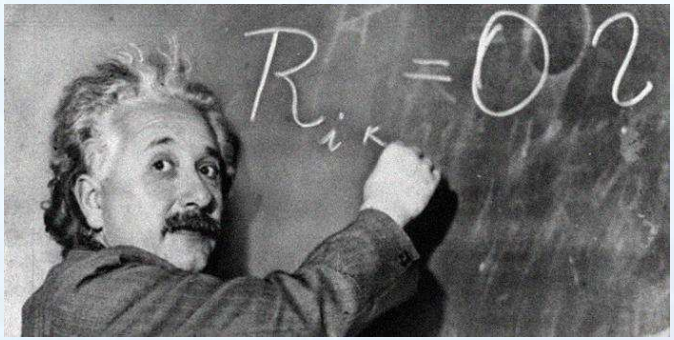
# SWAMP SCORE

- Out of 100
- SWAMP = 100 – K*[1-($V_C$/$V_M$)]*100
  - K = Sensitivity factor
  - $V_C$ = Current volume of pond
  - $V_M$ = Managed volume of pond

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# APPLICATIONS

- Maintenance and Projects
- Planning Applications

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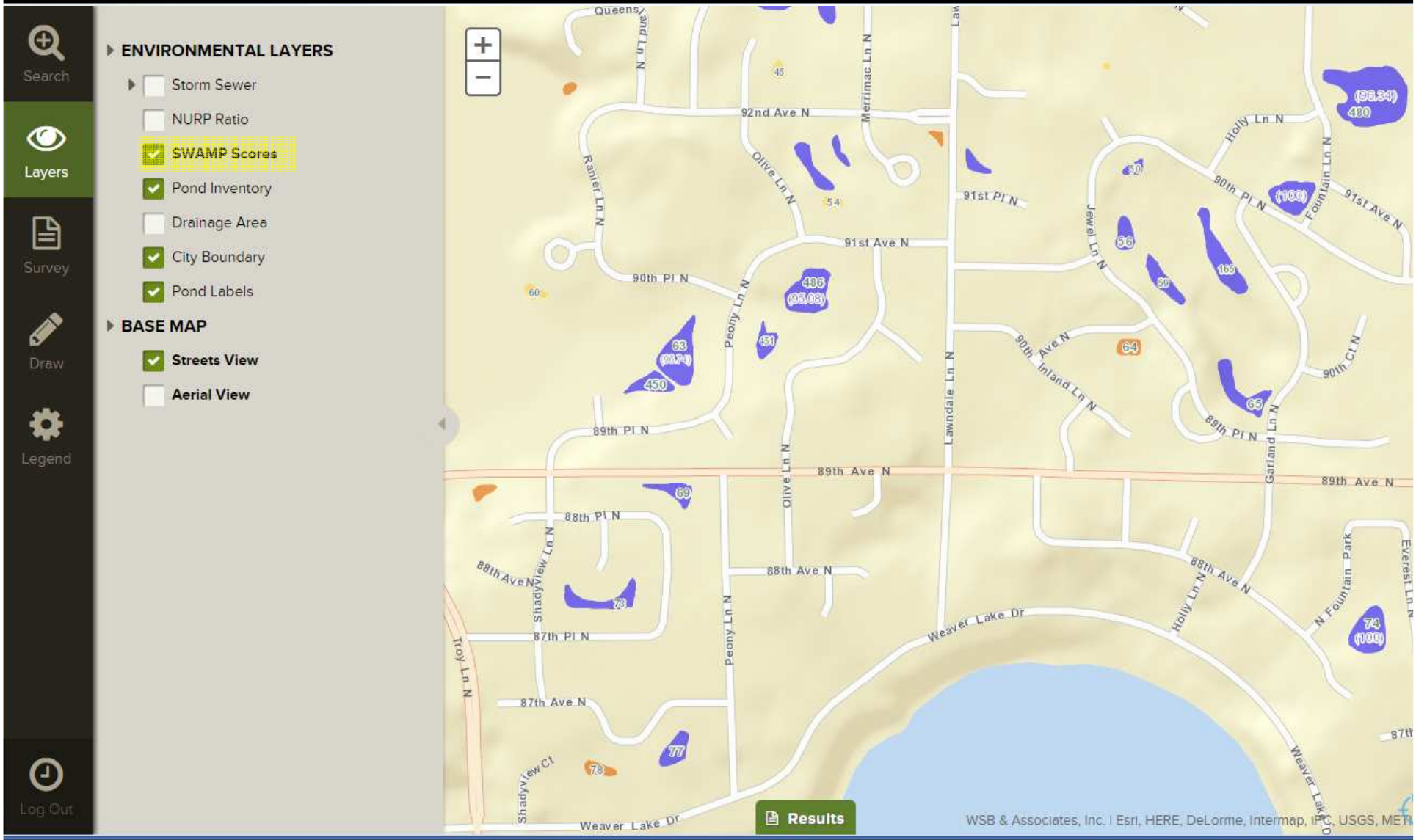
# SWAMP WEB APPLICATION

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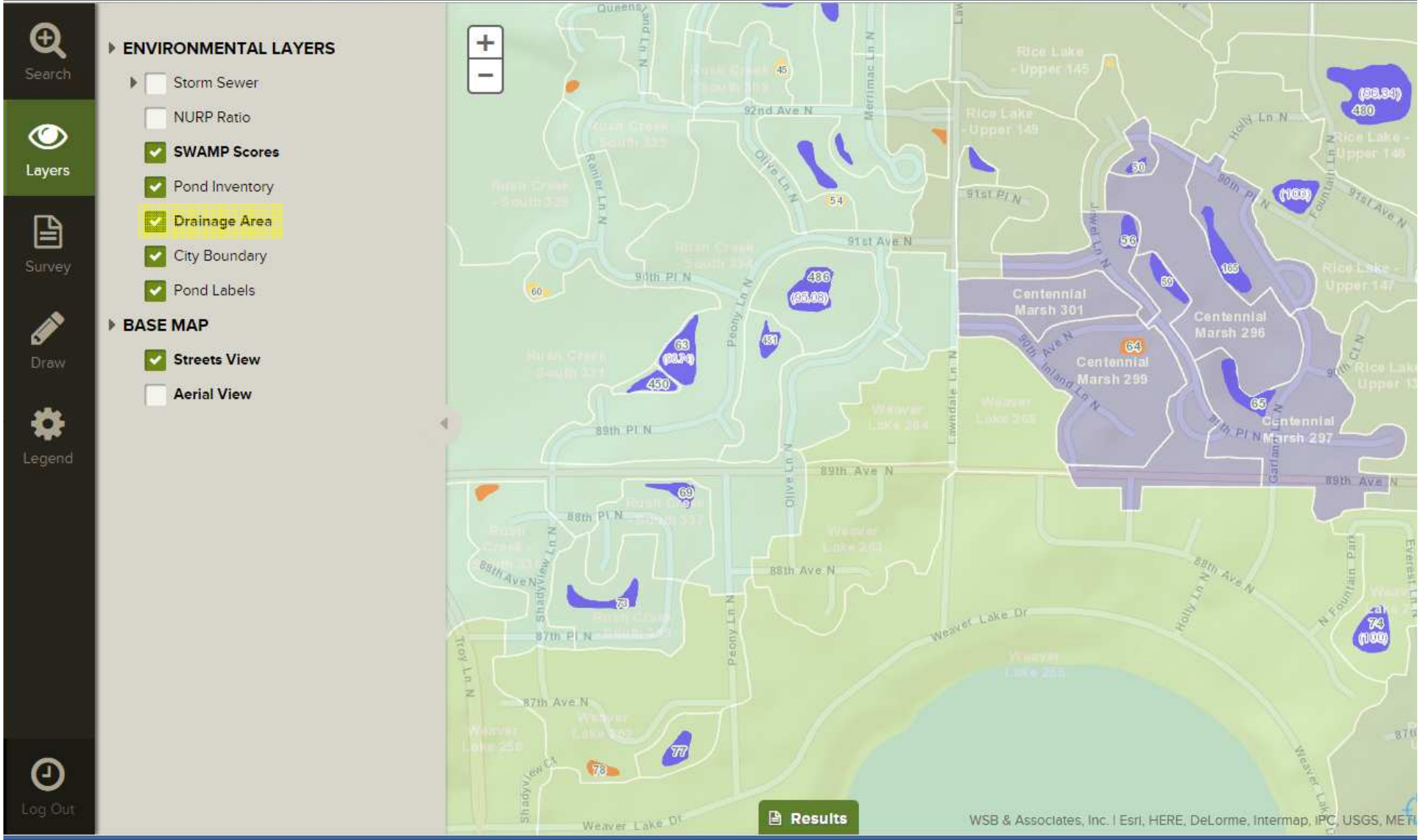


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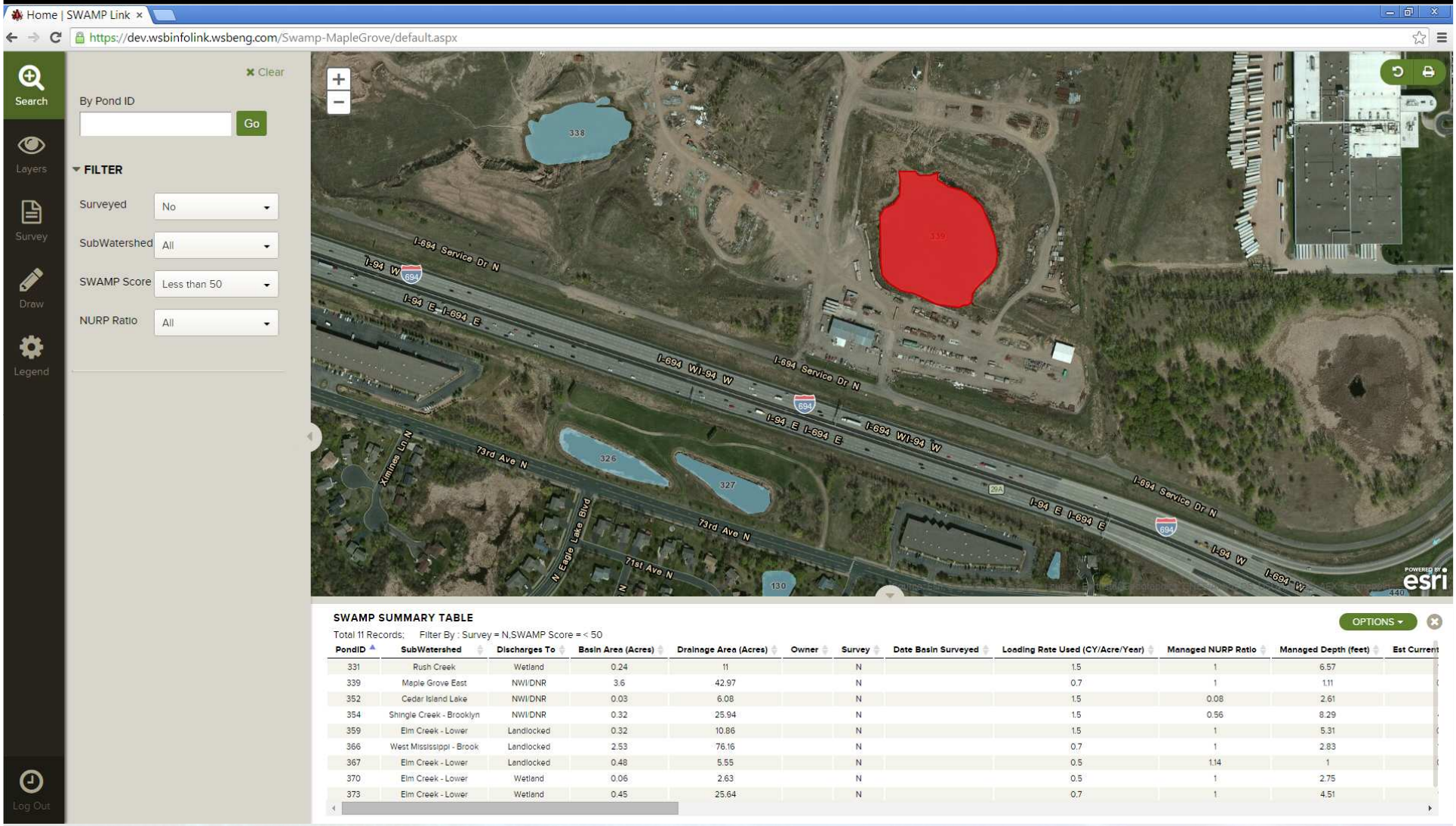
# APPLICATIONS: SCHEDULING INSPECTIONS




| PondID | SubWatershed | Discharges To | Basin Area (Acres) | Drainage Area (Acres) | Owner | Survey | Date Basin Surveyed | Loading Rate Used (CY/Acre/Year) | Managed NURP Ratio | Managed Depth (feet) | Est Current |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 331 | Rush Creek | Wetland | 0.24 | 11 | | N | | 1.5 | 1 | 6.57 | |
| 339 | Maple Grove East | NWI/DNR | 3.6 | 42.97 | | N | | 0.7 | 1 | 1.11 | |
| 352 | Cedar Island Lake | NWI/DNR | 0.03 | 6.08 | | N | | 1.5 | 0.08 | 2.61 | |
| 354 | Shingle Creek - Brooklyn | NWI/DNR | 0.32 | 25.94 | | N | | 1.5 | 0.56 | 8.29 | |
| 359 | Elm Creek - Lower | Landlocked | 0.32 | 10.86 | | N | | 1.5 | 1 | 5.31 | |
| 366 | West Mississippi - Brook | Landlocked | 2.53 | 76.16 | | N | | 0.7 | 1 | 2.83 | |
| 367 | Elm Creek - Lower | Landlocked | 0.48 | 5.55 | | N | | 0.5 | 1.14 | 1 | |
| 370 | Elm Creek - Lower | Wetland | 0.06 | 2.63 | | N | | 0.5 | 1 | 2.75 | |
| 373 | Elm Creek - Lower | Wetland | 0.45 | 25.64 | | N | | 0.7 | 1 | 4.51 | |

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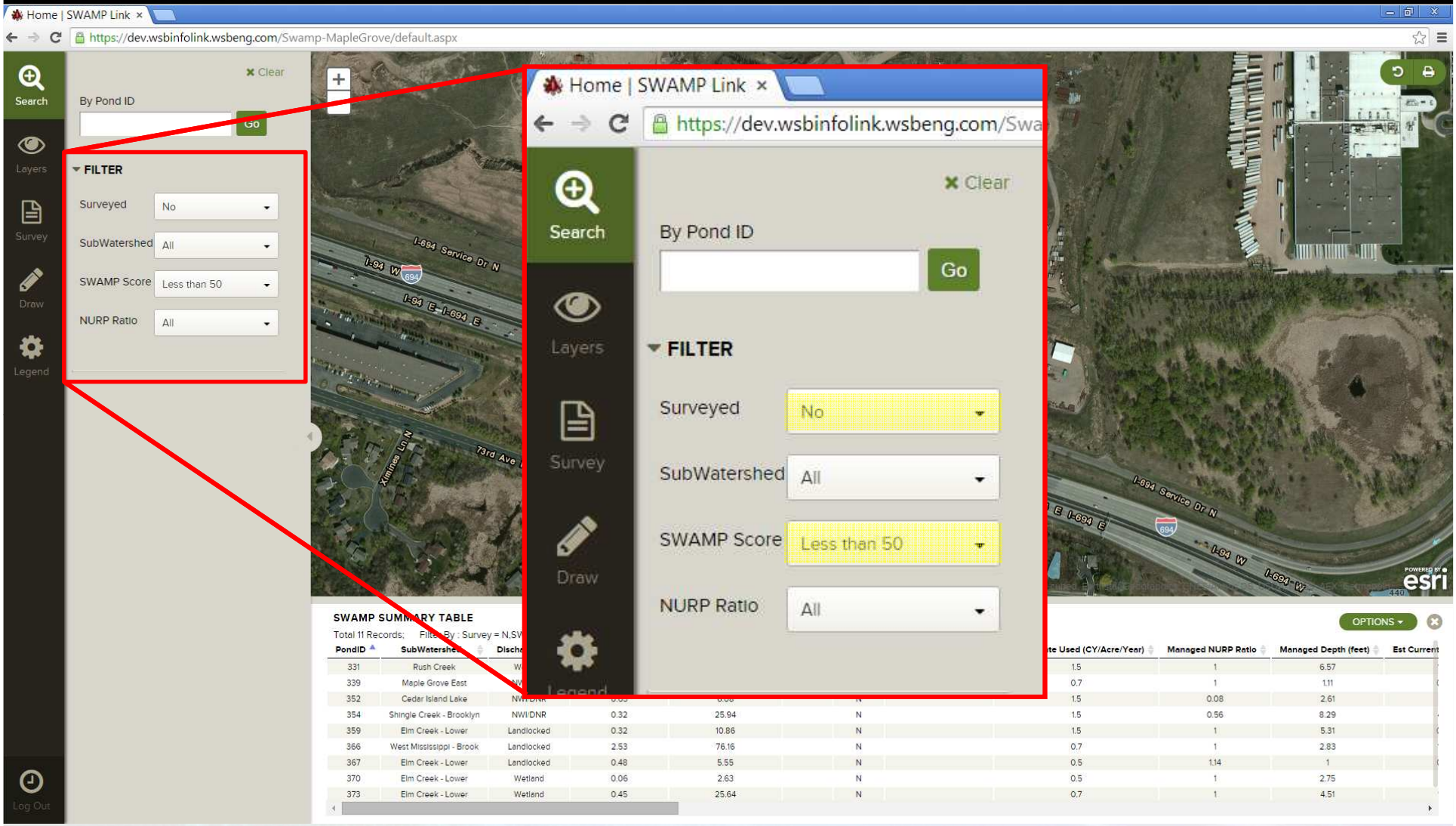


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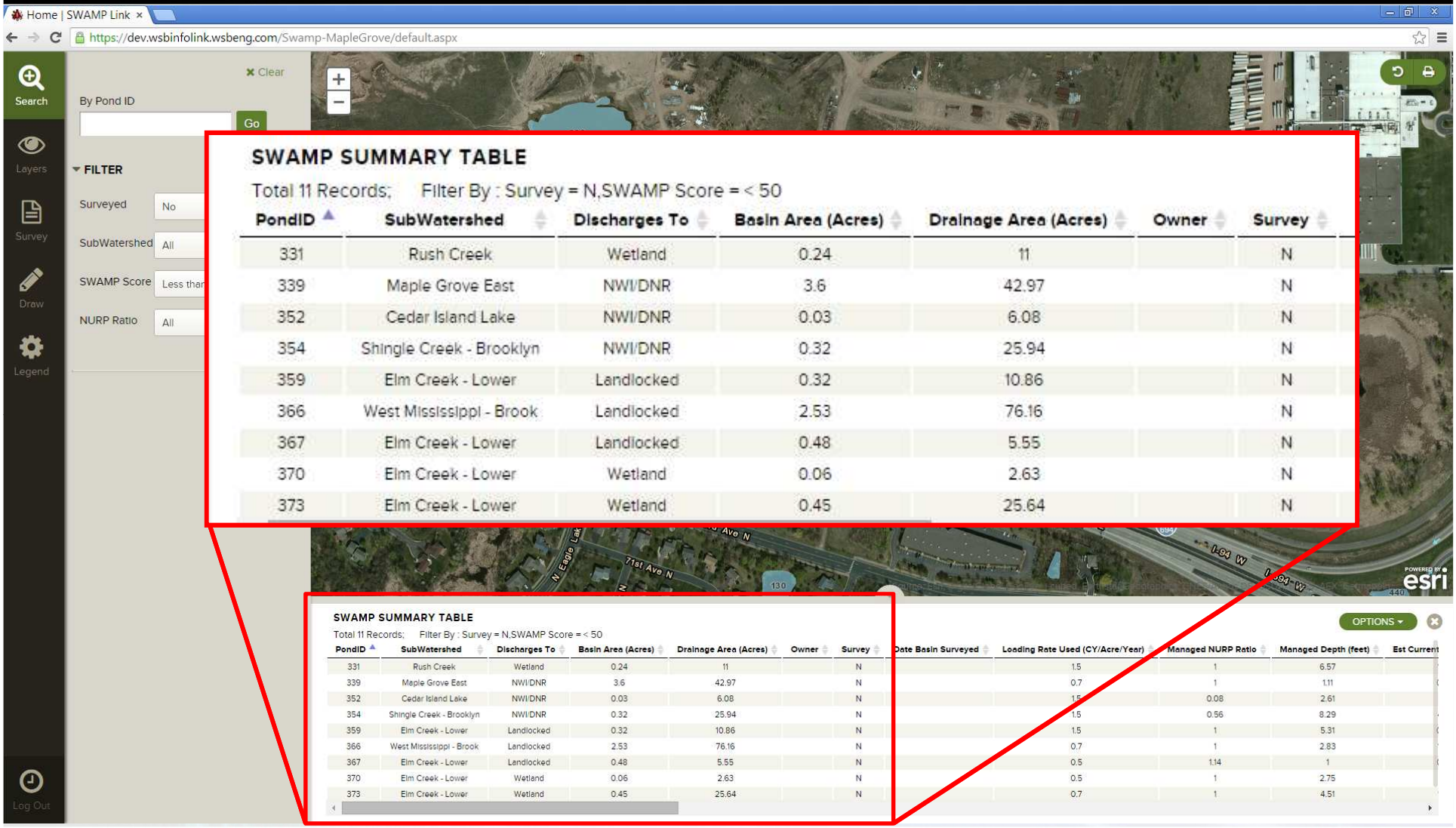


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# APPLICATIONS: SCHEDULING INSPECTIONS

| | A | B | C | D |
|---|---|---|---|---|
| 1 | **City of Anytown, USA** | | | |
| 2 | **Inspection Prioritization Report** | | | |
| 3 | | | | |
| 4 | **Inspection Rank** | Pond ID | Current SWAMP Score | Survey |
| 5 | 1 | 352 | 0.0 | N |
| 6 | 2 | 359 | 5.9 | N |
| 7 | 3 | 452 | 15.8 | N |
| 8 | 4 | 331 | 24.8 | N |
| 9 | 5 | 423 | 27.0 | N |
| 10 | 6 | 373 | 37.1 | N |
| 11 | 7 | 367 | 42.8 | N |
| 12 | 8 | 339 | 44.3 | N |
| 13 | 9 | 366 | 47.5 | N |
| 14 | 10 | 370 | 47.5 | N |
| 15 | 11 | 354 | 48.0 | N |
| 16 | 12 | 502 | 52.4 | N |

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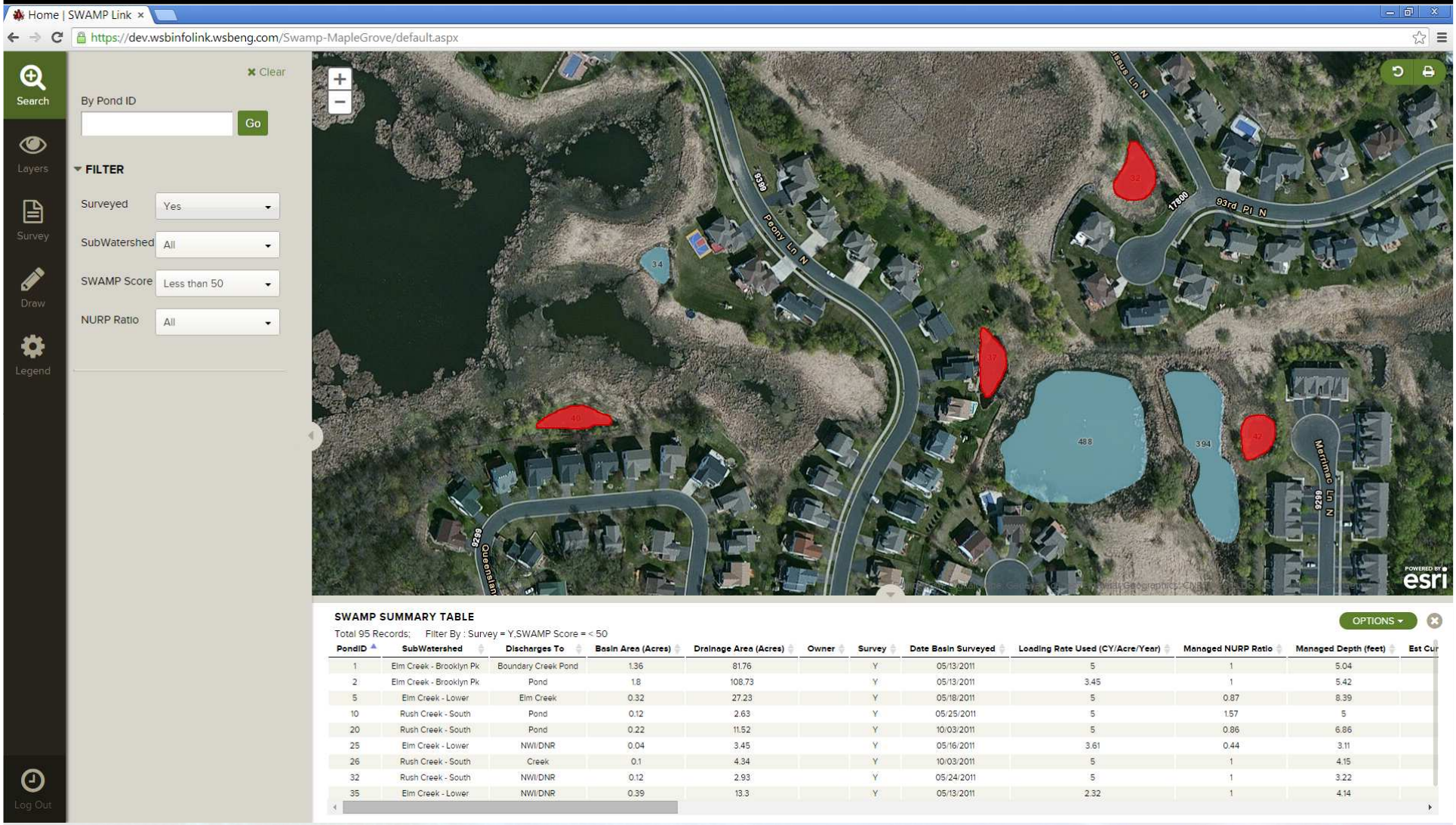
# APPLICATIONS: PRIORITIZING MAINTENANCE




**SWAMP SUMMARY TABLE**

OPTIONS

Total 95 Records; Filter By : Survey = Y,SWAMP Score = < 50

| PondID | SubWatershed | Discharges To | Basin Area (Acres) | Drainage Area (Acres) | Owner | Survey | Date Basin Surveyed | Loading Rate Used (CY/Acre/Year) | Managed NURP Ratio | Managed Depth (feet) | Est Cur |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Elm Creek - Brooklyn Pk | Boundary Creek Pond | 1.36 | 81.76 | | Y | 05/13/2011 | 5 | 1 | 5.04 | |
| 2 | Elm Creek - Brooklyn Pk | Pond | 1.8 | 108.73 | | Y | 05/13/2011 | 3.45 | 1 | 5.42 | |
| 5 | Elm Creek - Lower | Elm Creek | 0.32 | 27.23 | | Y | 05/18/2011 | 5 | 0.87 | 8.39 | |
| 10 | Rush Creek - South | Pond | 0.12 | 2.63 | | Y | 05/25/2011 | 5 | 1.57 | 5 | |
| 20 | Rush Creek - South | Pond | 0.22 | 11.52 | | Y | 10/03/2011 | 5 | 0.86 | 6.86 | |
| 25 | Elm Creek - Lower | NWI/DNR | 0.04 | 3.45 | | Y | 05/16/2011 | 3.61 | 0.44 | 3.11 | |
| 26 | Rush Creek - South | Creek | 0.1 | 4.34 | | Y | 10/03/2011 | 5 | 1 | 4.15 | |
| 32 | Rush Creek - South | NWI/DNR | 0.12 | 2.93 | | Y | 05/24/2011 | 5 | 1 | 3.22 | |
| 35 | Elm Creek - Lower | NWI/DNR | 0.39 | 13.3 | | Y | 05/13/2011 | 2.32 | 1 | 4.14 | |

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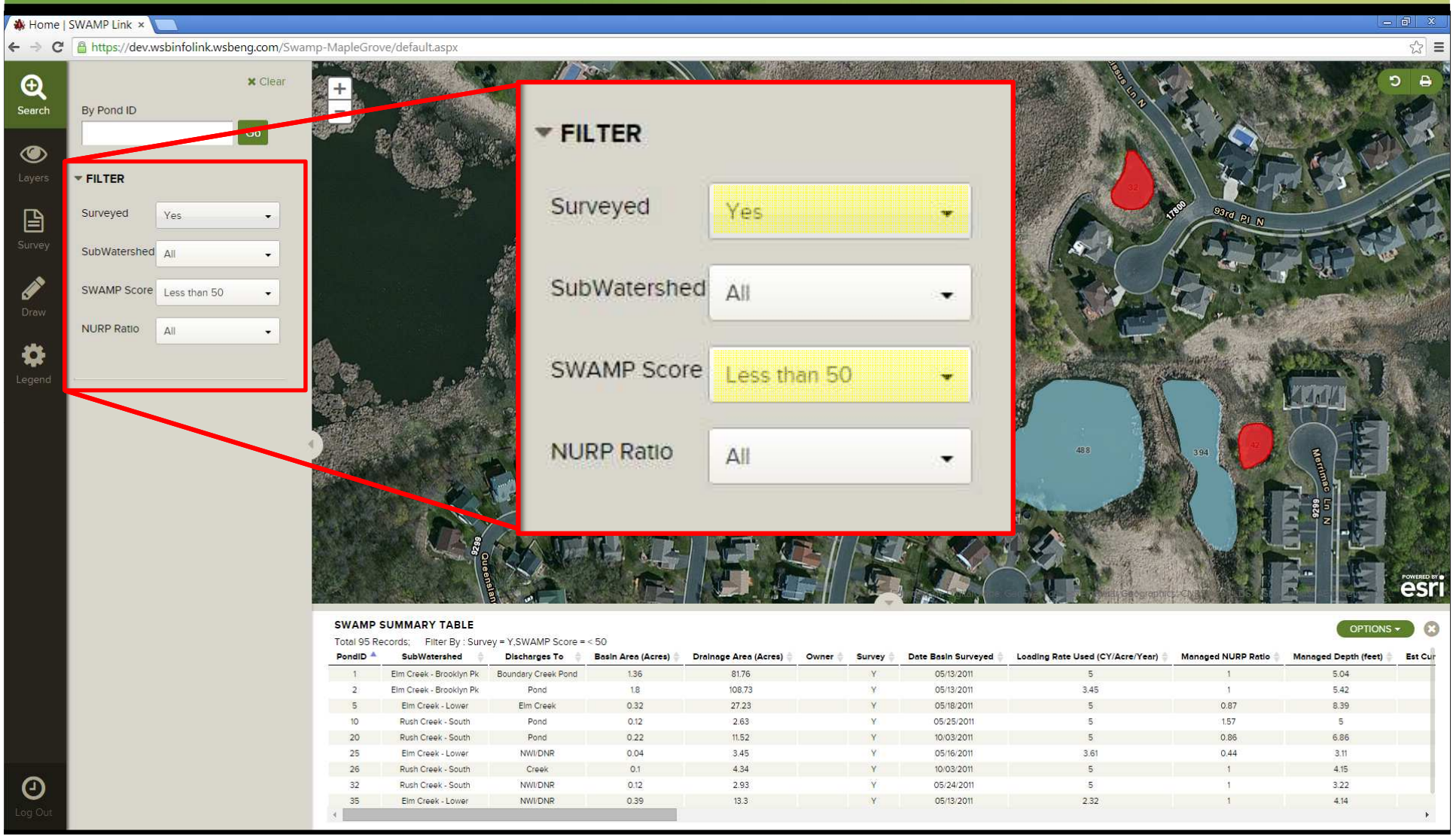
# APPLICATIONS: PRIORITIZING MAINTENANCE

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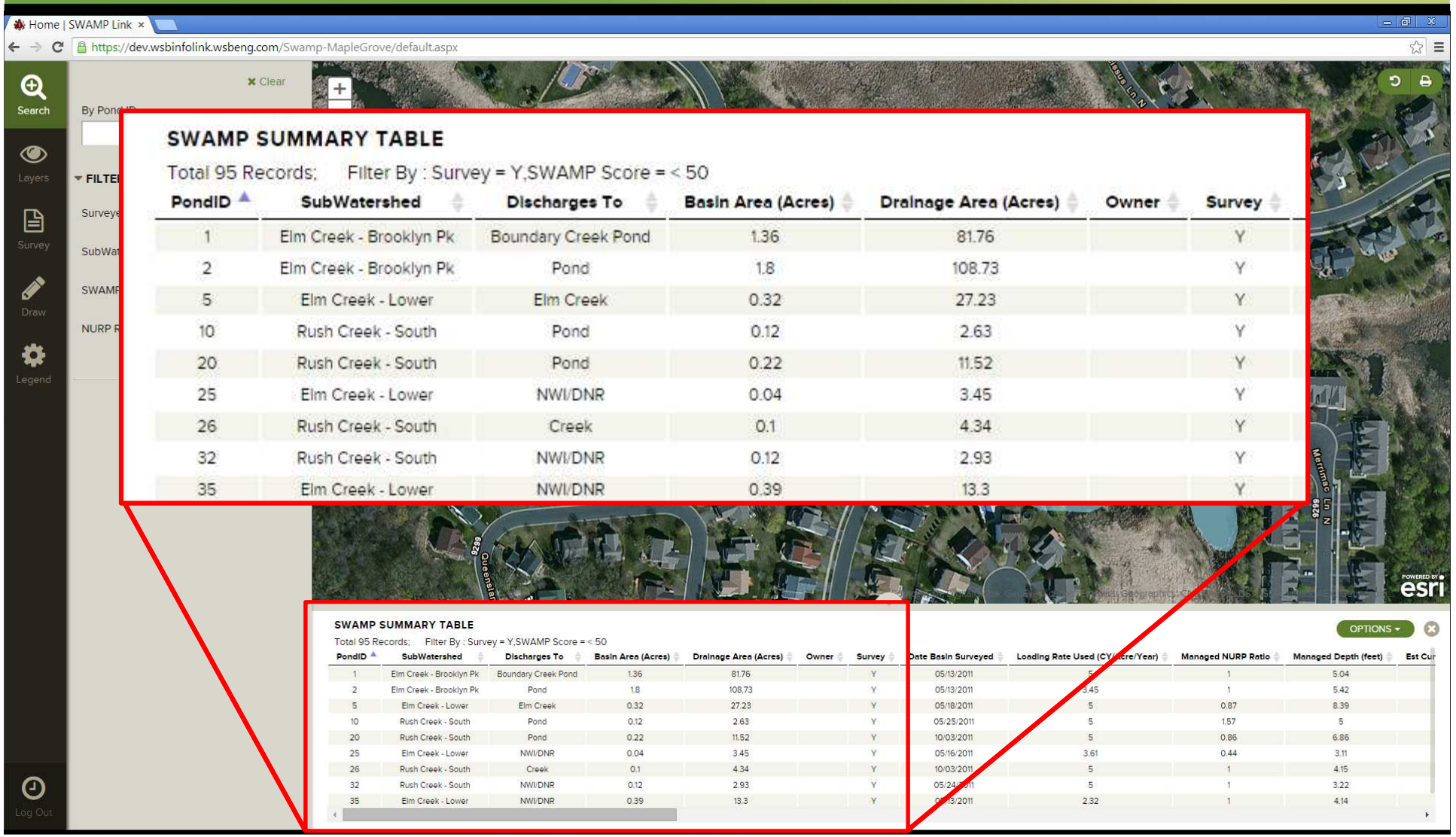
# APPLICATIONS: PRIORITIZING MAINTENANCE

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# APPLICATIONS: PRIORITIZING MAINTENANCE

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | **City of Anytown, USA** | | | | |
| 2 | **SWAMP Maintenance Report** | | | | |
| 3 | | | | | |
| 4 | **Maintenance Rank** | | Pond ID | Current SWAMP Score | Survey |
| 5 | **1** | 1 | 108 | 0.00 | Y |
| 6 | **1** | 1 | 118 | 0.00 | Y |
| 7 | **1** | 1 | 12 | 0.00 | Y |
| 8 | **1** | 1 | 130 | 0.00 | Y |
| 9 | **1** | 1 | 141 | 0.00 | Y |
| 10 | **1** | 1 | 201 | 0.00 | Y |
| 11 | **1** | 1 | 212 | 0.00 | Y |
| 12 | **1** | 1 | 41 | 0.00 | Y |
| 13 | **1** | 1 | 42 | 0.00 | Y |
| 14 | **10** | 10 | 137 | 4.98 | Y |
| 15 | **11** | 11 | 104 | 5.01 | Y |
| 16 | **12** | 12 | 74 | 5.50 | Y |
| 17 | **13** | 13 | 219 | 6.90 | Y |

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# APPLICATIONS: PRIORITIZING MAINTENANCE

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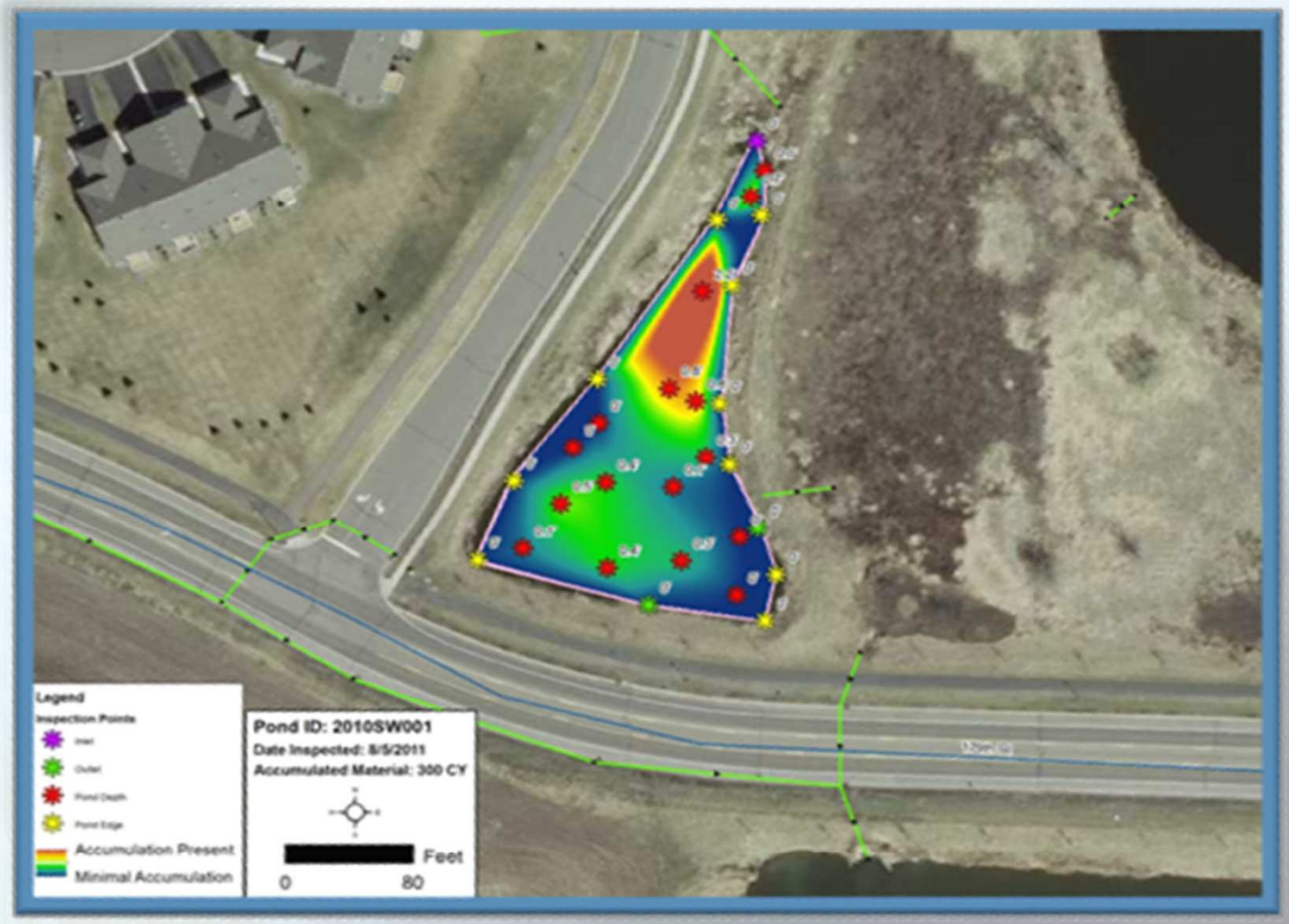


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# APPLICATIONS: COST-BENEFIT ANALYSIS

- Identify which BMPs provide the most improvement opportunity for maintenance projects
- Cost over the projected lifespan per pound of pollutant removed
- Ponds with lower cost per pound tend to provide most improvement per dollar

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# PLANNING APPLICATIONS

- Complete capital improvement project planning

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# PLANNING APPLICATIONS

- Complete capital improvement project planning
- Accurately budget for stormwater inspection and maintenance costs

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# PLANNING APPLICATIONS

- Complete capital improvement project planning
- Accurately budget for stormwater inspection and maintenance costs
- Estimate annual maintenance budget for all BMPs

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# PLANNING APPLICATIONS

- Complete capital improvement project planning
- Accurately budget for stormwater inspection and maintenance costs
- Estimate annual maintenance budget for all BMPs
- Graphics and tabular options

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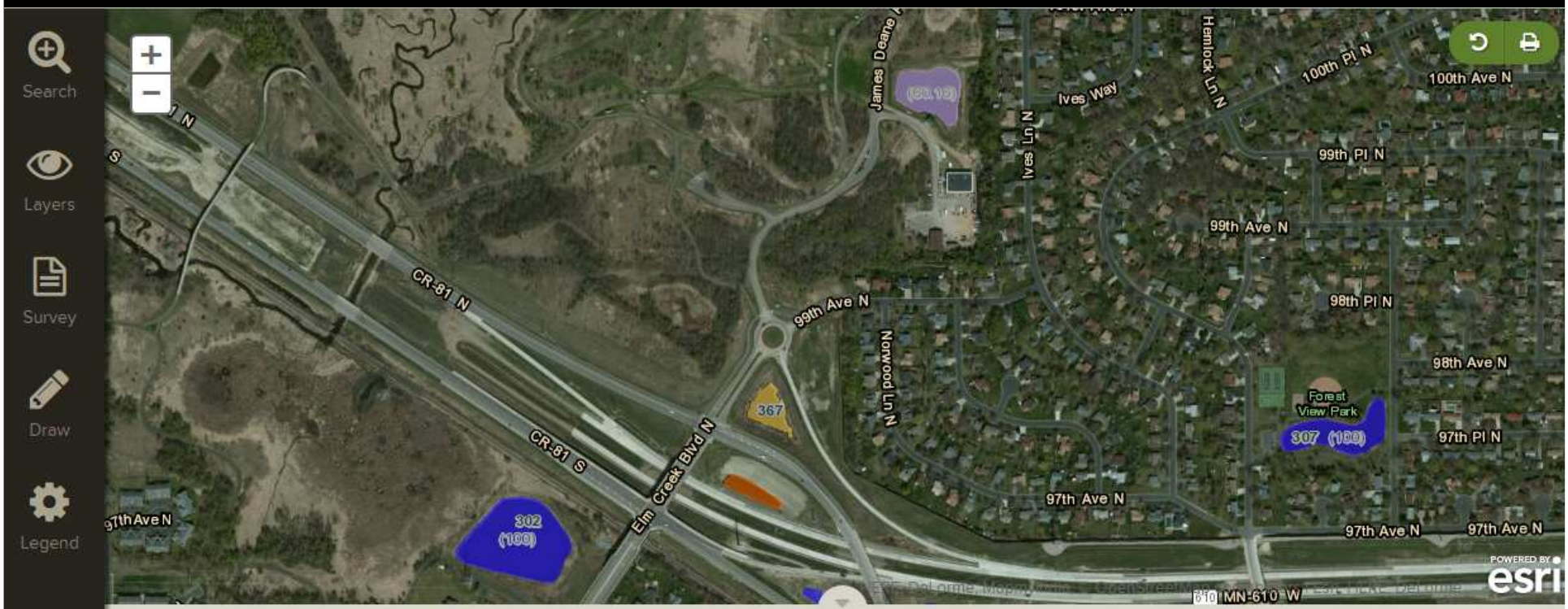
# PLANNING: CAPITAL IMPROVEMENT




## SWAMP SUMMARY TABLE

Total 463 Records

OPTIONS

- Export To CSV
- Show Graph
- Budgeting Report
- Maintenance Prioritization Report
- Inspection Prioritization Report
- TMDL Report

| PondID | SubWatershed | Discharges To | Basin Area (Acres) | Drainage Area (Acres) | Owner | Survey | Date Basin Surve | ır) |
|---|---|---|---|---|---|---|---|---|
| 1 | Elm Creek - Brooklyn Pk | Boundary Creek Pond | 1.36 | 81.76 | | Y | 05/13/2011 | |
| 2 | Elm Creek - Brooklyn Pk | Pond | 1.8 | 108.73 | | Y | 05/13/2011 | |
| 3 | Mud Lake | Wetland | 2.5 | 18 | | Y | 05/13/2011 | |
| 4 | Elm Creek - Brooklyn Pk | Boundary Creek Pond | 2.66 | 143.84 | | Y | 04/28/2011 | |
| 5 | Elm Creek - Lower | Elm Creek | 0.32 | 27.23 | | Y | 05/18/2011 | |
| 8 | Elm Creek - Lower | Elm Creek | 0.91 | 18.51 | | Y | 05/18/2011 | |
| 9 | Rice Lake - Lower | NWI/DNR | 0.58 | 12.75 | | Y | 05/13/2011 | 0.9 |

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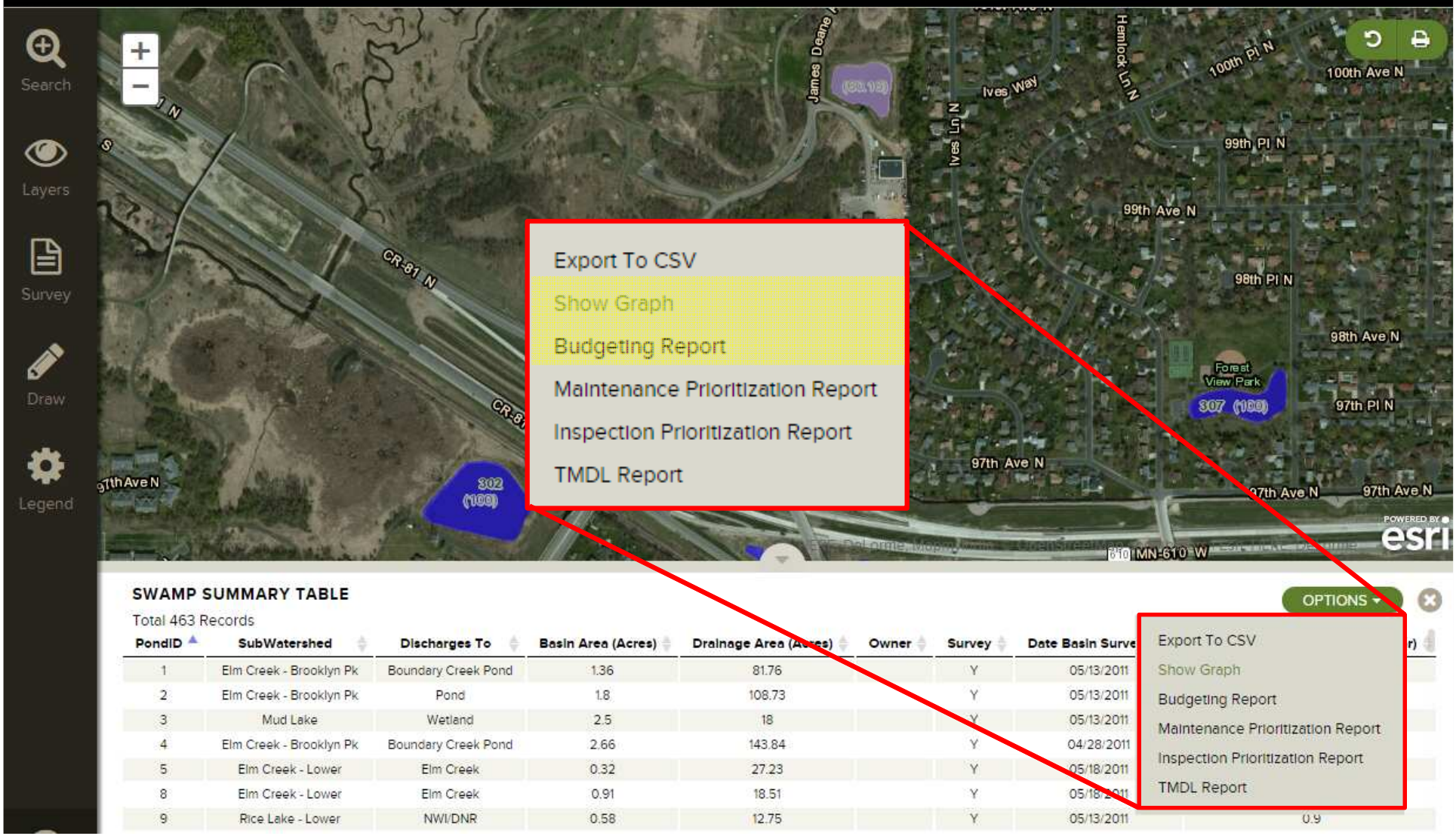
# PLANNING: CAPITAL IMPROVEMENT

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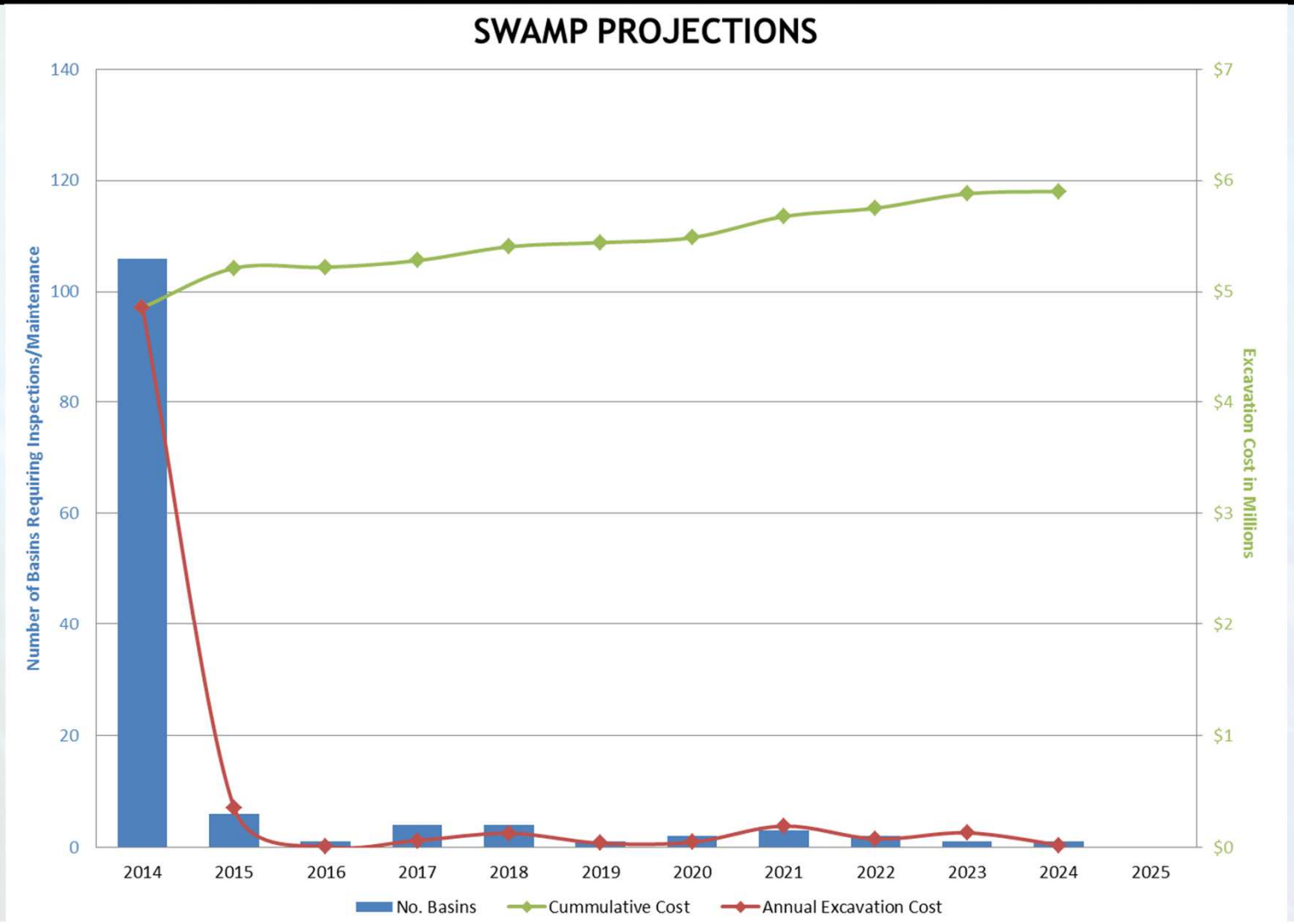


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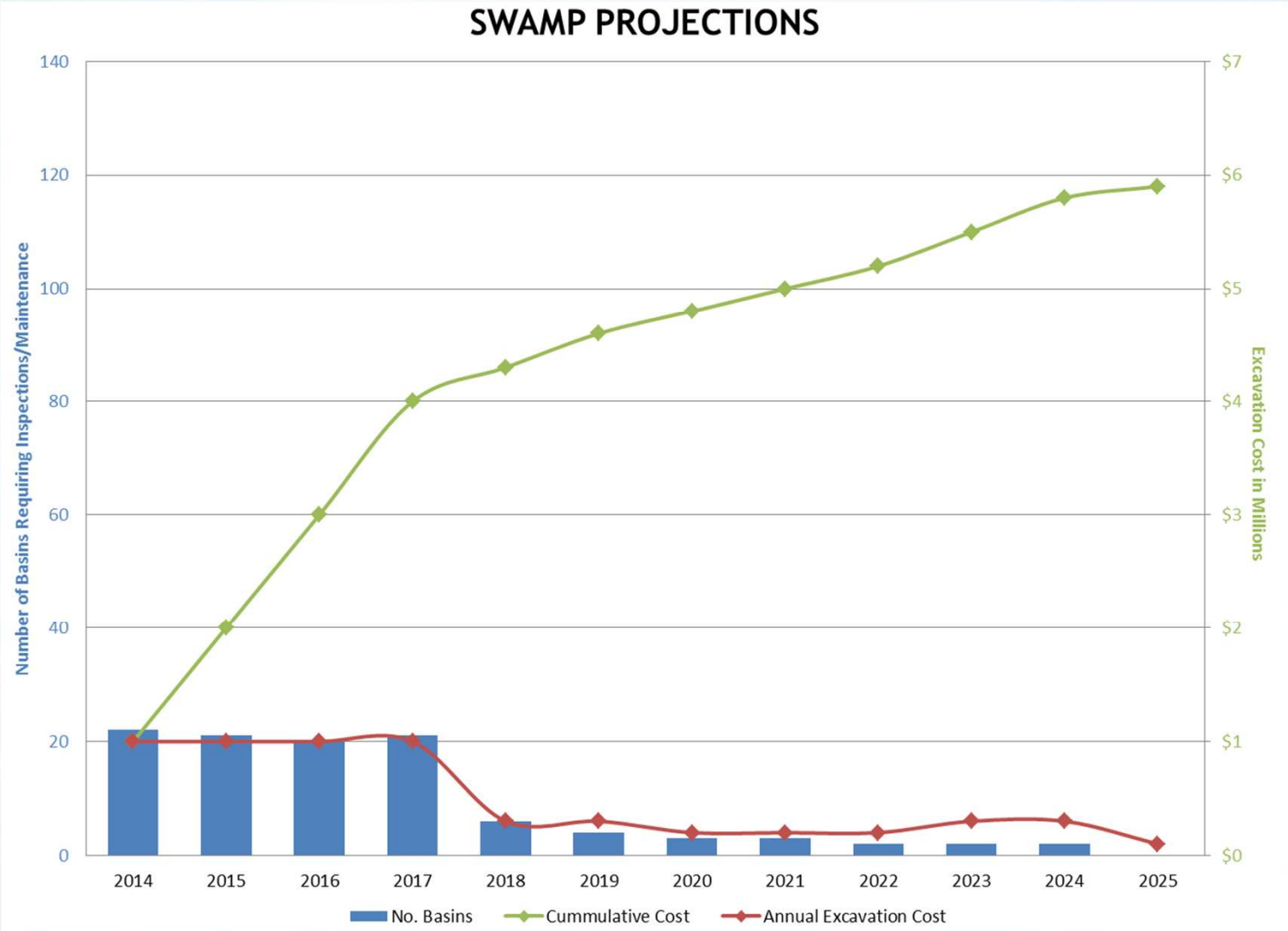
# PLANNING: CAPITAL IMPROVEMENT

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- SWAMP estimates when BMPs will be 50% full or no longer functions as intended

## PLANNING: CAPITAL IMPROVEMENT

- SWAMP estimates when BMPs will be 50% full or no longer functions as intended
- Inspection scheduling and prioritization can be used as a resource for determining maintenance timelines

## PLANNING: CAPITAL IMPROVEMENT

- SWAMP estimates when BMPs will be 50% full or no longer functions as intended
- Inspection scheduling and prioritization can be used as a resource for determining maintenance timelines
- Develop a long-term plan for projects

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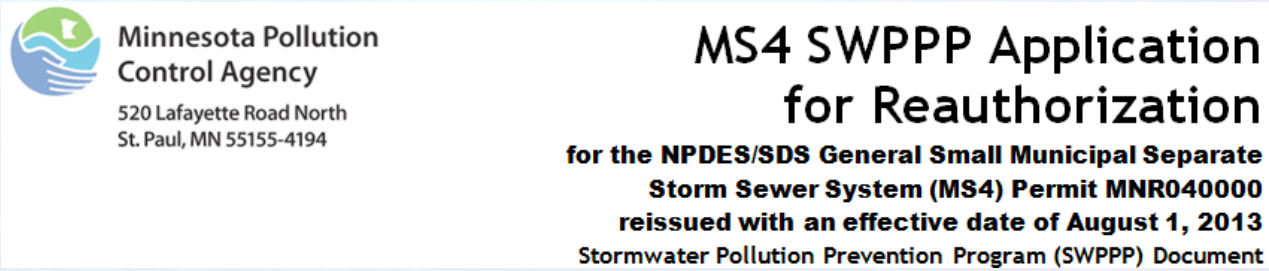
# PLANNING: MS4 PERMIT REQUIREMENTS

- Minnesota Pollution Control Agency and MS4 permit require cities to have a SOP for inspection and maintenance of all municipally-owned and operated BMPs.

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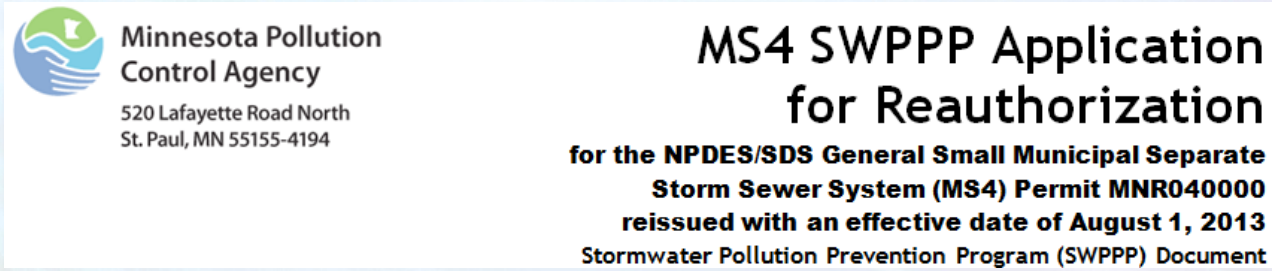
# PLANNING: MS4 PERMIT REQUIREMENTS

- Minnesota Pollution Control Agency and MS4 permit require cities to have a SOP for inspection and maintenance of all municipally-owned and operated BMPs.
- Also requires cities to determine treatment effectiveness of stormwater basins

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## PLANNING: POLLUTANT TRACKING

- Track and estimate total phosphorus and total suspended solids removal rates

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## PLANNING: POLLUTANT TRACKING

- Track and estimate total phosphorus and total suspended solids removal rates
- Efficient accounting of pollutant removal needs (TMDL, WRAPS, etc.)

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## PLANNING: POLLUTANT TRACKING

- Track and estimate total phosphorus and total suspended solids removal rates
- Efficient accounting of pollutant removal needs (TMDL, WRAPS, etc.)
- Determine which BMPs offer the best pollutant removal benefits

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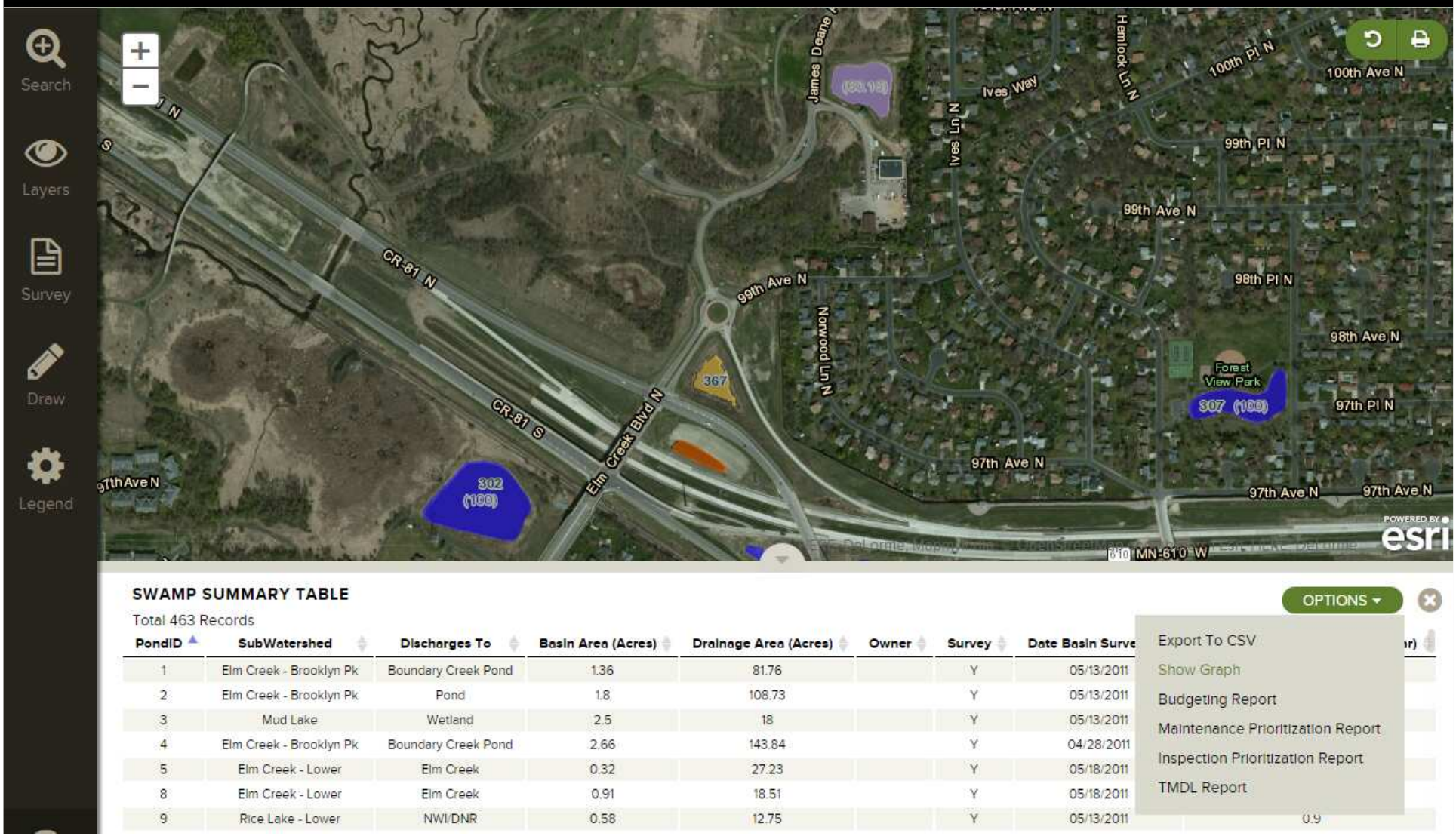
# PLANNING: POLLUTANT TRACKING




**SWAMP SUMMARY TABLE**

Total 463 Records

OPTIONS

- Export To CSV
- Show Graph
- Budgeting Report
- Maintenance Prioritization Report
- Inspection Prioritization Report
- TMDL Report

| PondID | SubWatershed | Discharges To | Basin Area (Acres) | Drainage Area (Acres) | Owner | Survey | Date Basin Surve | ır) |
|---|---|---|---|---|---|---|---|---|
| 1 | Elm Creek - Brooklyn Pk | Boundary Creek Pond | 1.36 | 81.76 | | Y | 05/13/2011 | |
| 2 | Elm Creek - Brooklyn Pk | Pond | 1.8 | 108.73 | | Y | 05/13/2011 | |
| 3 | Mud Lake | Wetland | 2.5 | 18 | | Y | 05/13/2011 | |
| 4 | Elm Creek - Brooklyn Pk | Boundary Creek Pond | 2.66 | 143.84 | | Y | 04/28/2011 | |
| 5 | Elm Creek - Lower | Elm Creek | 0.32 | 27.23 | | Y | 05/18/2011 | |
| 8 | Elm Creek - Lower | Elm Creek | 0.91 | 18.51 | | Y | 05/18/2011 | |
| 9 | Rice Lake - Lower | NWI/DNR | 0.58 | 12.75 | | Y | 05/13/2011 | 0.9 |

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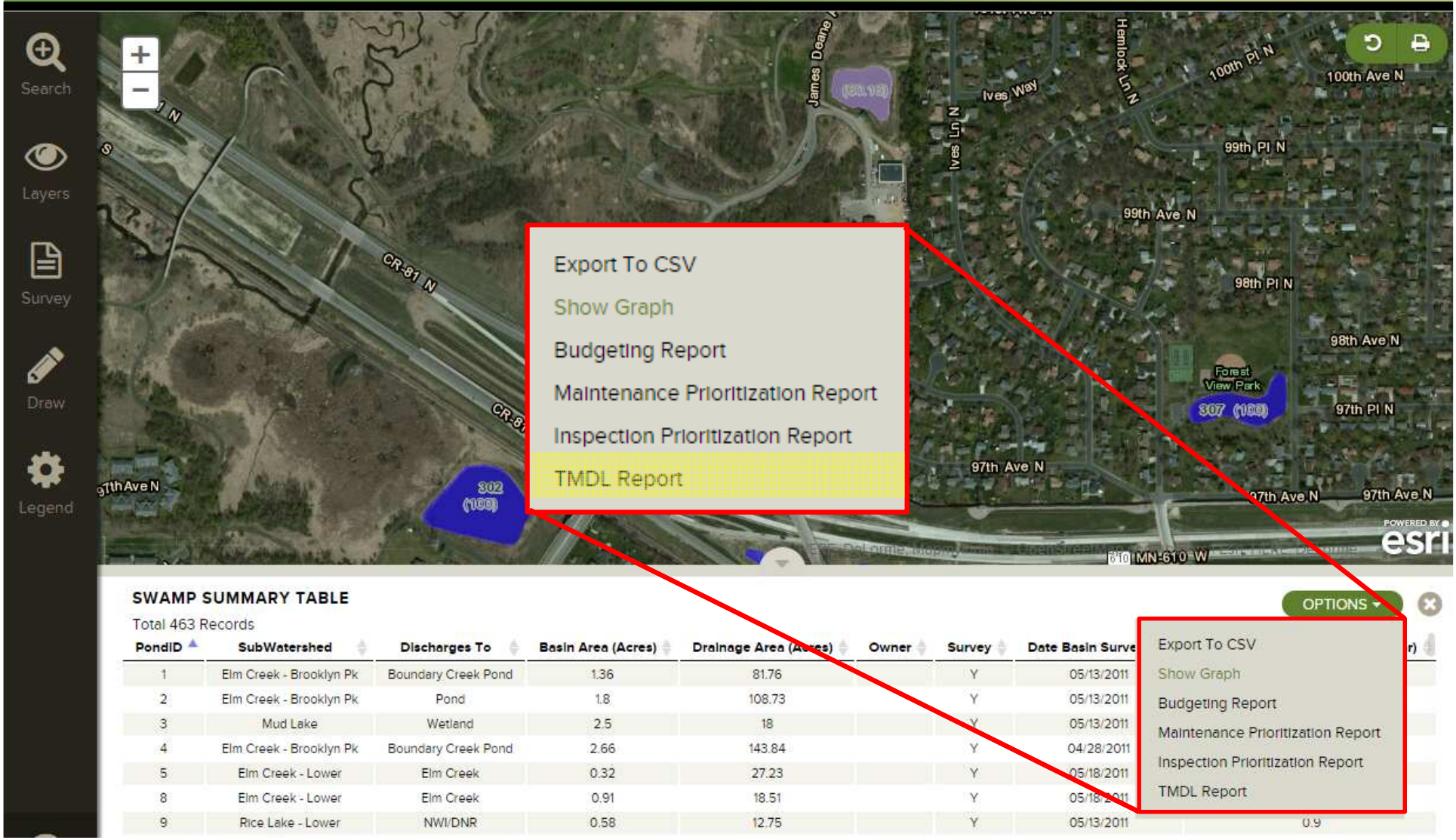
# PLANNING: POLLUTANT TRACKING

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# PLANNING: POLLUTANT TRACKING

| A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|
| **City of Anytown, USA** | | | | | | | | | | |
| **SWAMP TMDL Report** | | | | | | | | | | |
| Pond ID | Major Subwatershed | Receiving Water | Current TP Removal % | Current TP Removal (lbs/yr) | TP Removal at Managed Vol % | TP Removal at Managed Vol. (lbs/yr) | Current TSS Removal (%) | Current TSS Removal (tons/yr) | TSS Removal at Managed Vol (%) | TSS Removal at Managed Vol (tons/y |
| 352 | Cedar Island Lake | NWI/DNR | 0 | 0.00 | 25.82 | 2.20 | 0 | 0 | 51 | 0.66 |
| 320 | Cedar Island Lake | NWI/DNR | 45 | 0.36 | 45.81 | 0.36 | 72 | 0.09 | 72 | 0.09 |
| 313 | Cedar Island Lake | NWI/DNR | 71 | 0.46 | 63.14 | 0.41 | 93 | 0.09 | 93 | 0.09 |
| 323 | Cedar Island Lake | NWI/DNR | 44 | 1.43 | 46.40 | 1.49 | 70 | 0.34 | 74 | 0.36 |
| 123 | Cedar Island Lake | NWI/DNR | 62 | 1.99 | 43.31 | 1.38 | 93 | 0.45 | 69 | 0.33 |
| 322 | Cedar Island Lake | NWI/DNR | 52 | 2.50 | 54.48 | 2.62 | 87.5 | 0.64 | 92 | 0.67 |
| 349 | Cedar Island Lake | Ditch | 48 | 3.37 | 50.82 | 3.58 | 76 | 0.81 | 83 | 0.89 |
| 351 | Cedar Island Lake | Ditch | 56 | 4.39 | 57.28 | 4.49 | 93 | 1.10 | 93 | 1.10 |
| 350 | Cedar Island Lake | Cedar Island Lake | 55 | 6.16 | 56.59 | 6.35 | 91.5 | 1.56 | 93 | 1.58 |
| 319 | Cedar Island Lake | NWI/DNR | 49 | 9.72 | 50.19 | 10.00 | 78.5 | 2.37 | 83 | 2.51 |
| 300 | Cedar Island Lake | NWI/DNR | 55 | 13.20 | 48.39 | 11.54 | 93 | 3.36 | 79 | 2.84 |
| 321 | Cedar Island Lake | NWI/DNR | 57 | 14.08 | 61.53 | 15.21 | 93 | 3.48 | 93 | 3.48 |
| 299 | Cedar Island Lake | Cedar Island Lake | 63 | 26.03 | 43.39 | 17.87 | 93 | 5.80 | 69 | 4.33 |
| **Cedar Island Lake Removal Subtotal** | | | | **83.69** | | **77.49** | | **20.09** | | **18.92** |
| 50 | Centennial Marsh | NWI/DNR | 50 | 0.33 | 43.25 | 0.29 | 83 | 0.08 | 69 | 0.07 |
| 56 | Centennial Marsh | NWI/DNR | 50 | 1.82 | 47.41 | 1.72 | 83 | 0.46 | 76 | 0.42 |
| 165 | Centennial Marsh | NWI/DNR | 64 | 3.44 | 42.05 | 2.26 | 93 | 0.76 | 69 | 0.56 |
| 64 | Centennial Marsh | NWI/DNR | 39 | 4.30 | 60.53 | 6.66 | 66 | 1.10 | 93 | 1.55 |
| 59 | Centennial Marsh | NWI/DNR | 58 | 4.46 | 52.21 | 4.05 | 93 | 1.09 | 88 | 1.03 |
| 65 | Centennial Marsh | NWI/DNR | 54 | 6.60 | 52.59 | 6.49 | 90 | 1.68 | 88 | 1.64 |
| **Centennial Marsh Removal Subtotal** | | | | **20.95** | | **21.45** | | **5.17** | | **5.26** |

# PLANNING: POLLUTANT TRACKING

**City of Anytown, USA**

**SWAMP TMDL Report**

| Pond ID | Major Subwatershed | Receiving Water | Current TP Removal % | Current TP Removal (lbs/yr) | TP Removal at Managed Vol % | TP Removal at Managed Vol. (lbs/yr) |
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| 64 | Centennial Marsh | NWI/DNR | 39 | 4.30 | 60.53 | 6.66 |
| 59 | Centennial Marsh | NWI/DNR | 58 | 4.46 | 52.21 | 4.05 |
| 65 | Centennial Marsh | NWI/DNR | 54 | 6.60 | 52.59 | 6.49 |
| **Centennial Marsh Removal Subtotal** | | | | **20.95** | | **21.45** |

| Pond ID | Major Subwatershed | Receiving Water | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 352 | Cedar Island | | | | | | | | | |
| 320 | Cedar Island | | | | | | | | | |
| 313 | Cedar Island | | | | | | | | | |
| 323 | Cedar Island | | | | | | | | | |
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| 319 | Cedar Island | | | | | | | | | |
| 300 | Cedar Island Lake | NWI/DNR | 55 | 15.20 | 48.55 | 11.54 | 93 | 3.50 | 79 | 2.94 |
| 321 | Cedar Island Lake | NWI/DNR | 57 | 14.08 | 61.53 | 15.21 | 93 | 3.48 | 93 | 3.48 |
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| 165 | Centennial Marsh | NWI/DNR | 64 | 3.44 | 42.05 | 2.26 | 93 | 0.76 | 69 | 0.56 |
| 64 | Centennial Marsh | NWI/DNR | 39 | 4.30 | 60.53 | 6.66 | 66 | 1.10 | 93 | 1.55 |
| 59 | Centennial Marsh | NWI/DNR | 58 | 4.46 | 52.21 | 4.05 | 93 | 1.09 | 88 | 1.03 |
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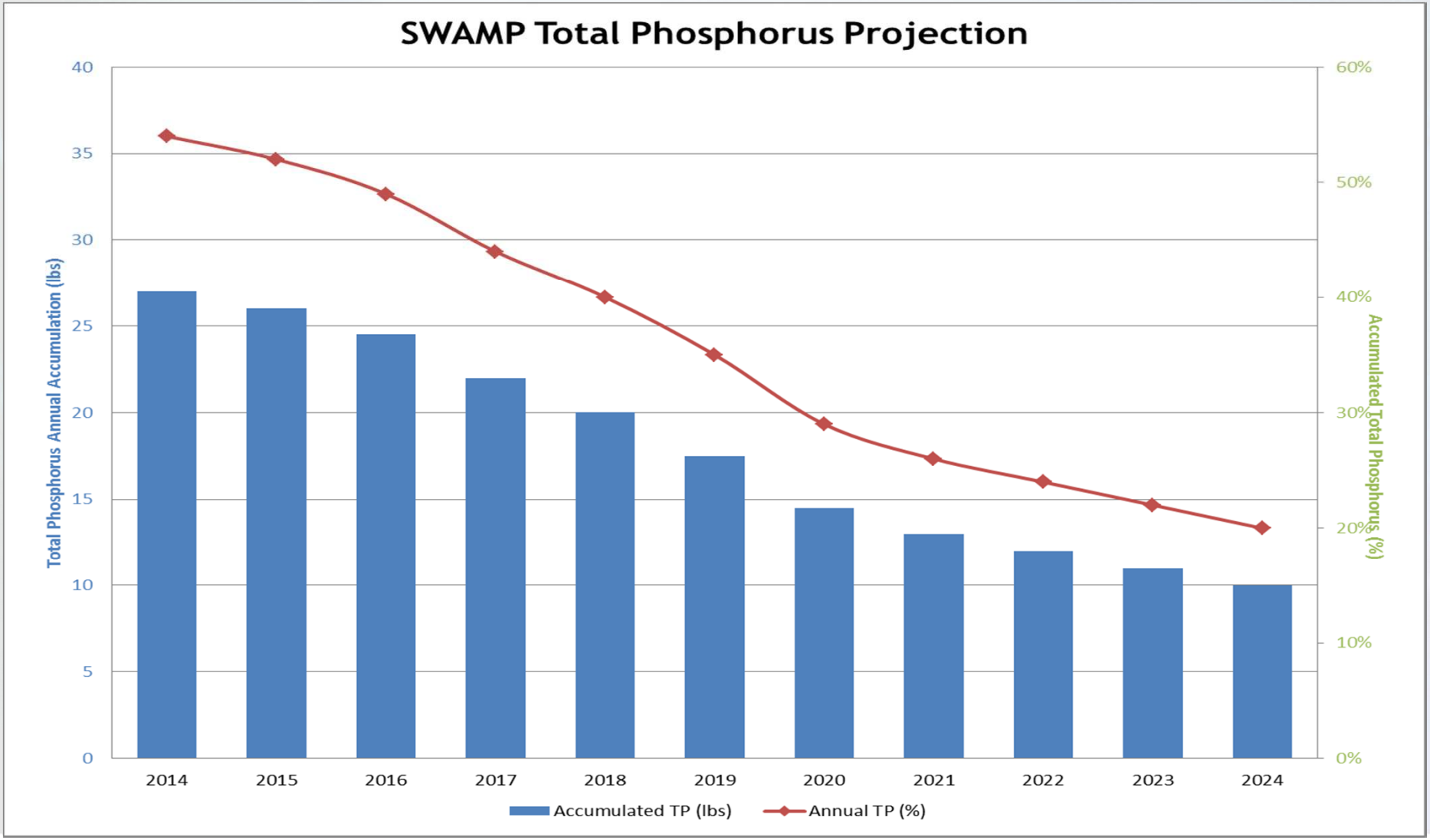
# PLANNING: POLLUTANT TRACKING

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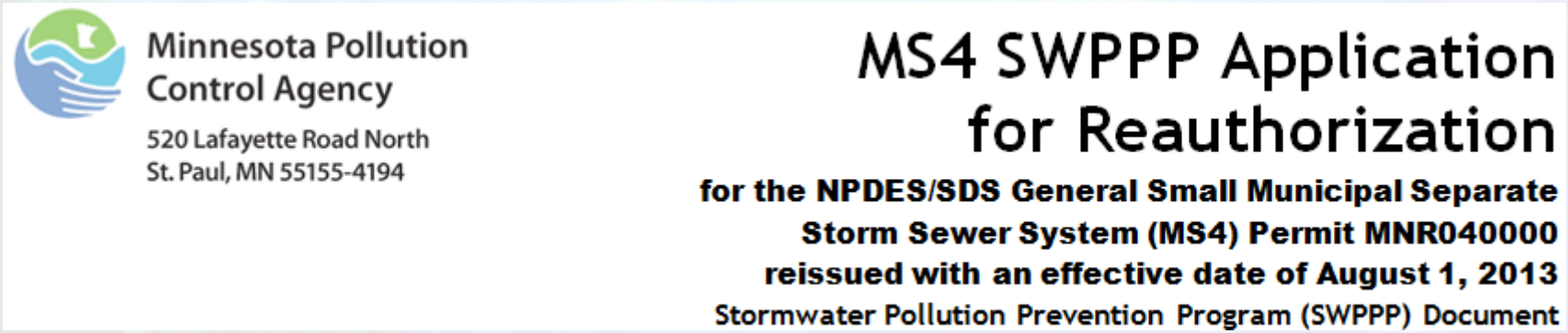
# City of Burnsville Uses

- Pond Cleanout Program
  1. We sort by SWAMP Priority Ranking
  2. Review current amount of TP removed now
  3. Review TP removed if brought to managed volume
  4. Review Volume of Material Necessary to do this
  5. Determine if City gets good value for cleanout
  6. Other factors

# City of Burnsville Uses

- NPDES MS4 Inventory
  - Helps to meet requirements of the new permit
  - IV. Storm Sewer System Map and Inventory
    - All Outfalls Mapped
    - Unique ID and Type of all BMPs/waterbodies
    - Geographic Coordinates Available
    - Type of BMP

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# City of Burnsville Uses

- Capacity of existing system
  - Upstream Land Development
    - Can use SWAMP to determine if there is excess capacity or not
    - If yes, then could do further study on watershed for land development
  - Downstream effects easy to comprehend
    - If downstream ponds all have low SWAMP score, not a good candidate for use as a regional pond

# City of Burnsville Uses

- Outfall Inspection Improvement
  - NPDES Requirement to inspect 20% outfalls annually
  - Old method - paper
    - Old method was print out each pond
    - Print out inspection sheet for each

  - New Method
    - WSB helped develop our checklist in City's Vuework Asset Management System with SWAMP Development
    - Graphic of each pond with outfalls
    - Digital checkbox pond inspection form
    - Use of a ruggedized tablet to complete inspections

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# City of Burnsville Uses

Assets

gged By: Michael Kramer 06/25/2014 2:56 PM

Type* General

partment* Storm Sewer

Group* Ponds

Unassigned 06/25/2014 2:56 PM

Status Closed Priority: 1

Begin Date / Time

06/25/2014 2:56 PM Now

End Date / Time

06/25/2014 3:56 PM Now

Closed By Michael Kramer 06/25/2014 2:57 PM

Send Email to Notification List on Save

Set Recurring Calendar

Assets | Documents | Work Orders | Comments

Pond ID

E2-A3

**Any "YES" response requires additional follow-up and a discussion as to the source of the observation.**

| | | | Describe |
|---|---|---|---|
| Odor or discharge? | YES | NO | |
| Color to discharge? | YES | NO | |
| Floatables in discharge? | YES | NO | |
| Stains/Deposits in structure? | YES | NO | |
| Rain within last 7 days? | YES | NO | |

**0 - Condition is acceptable**
**1 - Item needs maintenance**
**2 - Item needs immediate repair**

| | RATING |
|---|---|
| Stabilization Condition | 0 |
| Structural Condition | 0 |
| Flow Description | NONE |
| Approx. Depth of Flow | |
| Visible Sediment Build-up at Outfall | YES NO |
| Amount of Sediment Build-up | |

low up

oval. Otherwise, structure is in good condition.

# City of Burnsville Conclusion

- Initial development costs seem high, but…
  - Know we are getting best value pond cleanouts now
  - Assisted with NPDES requirement for inventory
  - Help with easy first glance of existing pond capacity for development purposes
  - Improved our outfall inspection process and tracking

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# QUESTIONS

Ryan Peterson, PE

ryan.peterson@ci.burnsville.mn.us

952.895.4459

Todd Hubmer, PE

thubmer@wsbeng.com

763.287.7182

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# Asset Management - (AMS)

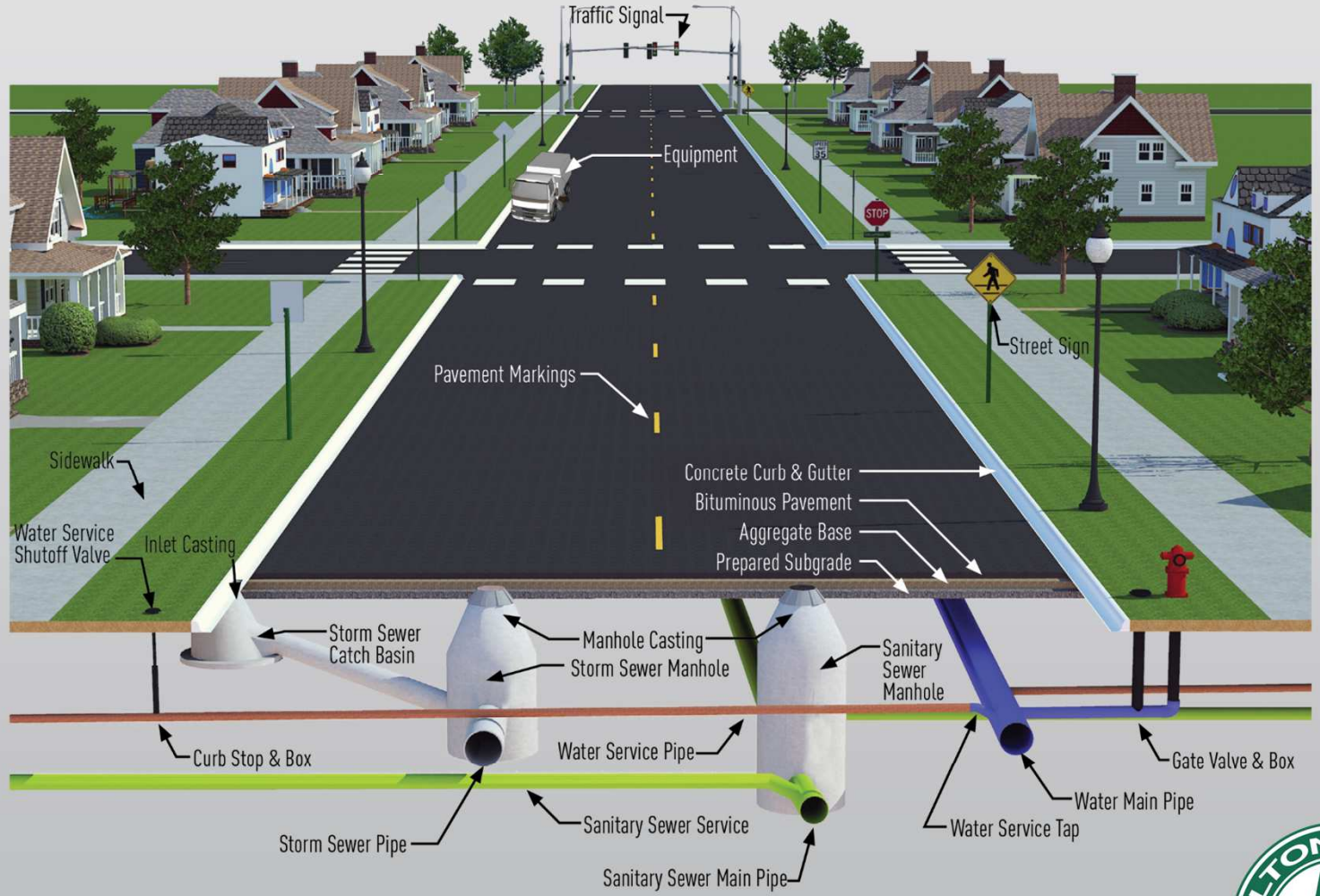
- The GIS Question…
- What are Assets…
- Why is it important…
- Benefits of Asset Management…
- Getting started…
- Choosing and Asset Management System…
- How Asset Management Systems Works…

# The GIS Question

- GIS verse Asset Management
- GIS gives you the What & Where…
- Asset Management give you the Who, Why and When…

BOLTON & MENK
Engineers & Surveyors

# What are Assets

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Engineers & Surveyors

# What We Know About Assets…

- Not all are created equal.
- Out of sight, out of mind.
- They do and will fail.
- Failures directly effect system performance.
- Don’t always know the current state of your assets.

# What do you know about your Assets…

- What is the current state of your assets…
  - What do you own?
  - Where is it?
  - What is it's condition?
  - Age?
  - Prior maintenance?
  - Where do we have, or, can we get this data?

# Why is it Important

- Utility systems are large, expensive, long-lived and often buried.
- Well maintained assets are essential to protect public health.
- Economic development depends on reliable delivery and collection systems.
- Expected uninterrupted delivery of service.

# What does it mean to you…

- Back up budget talks with solid facts.
- Boost utility efficiency.
- Save staff time.
- Improve customer service.
- Better long term CIP & strategic planning.
- Helps address & prepare for both anticipated & unexpected problems.

# Why is it needed…

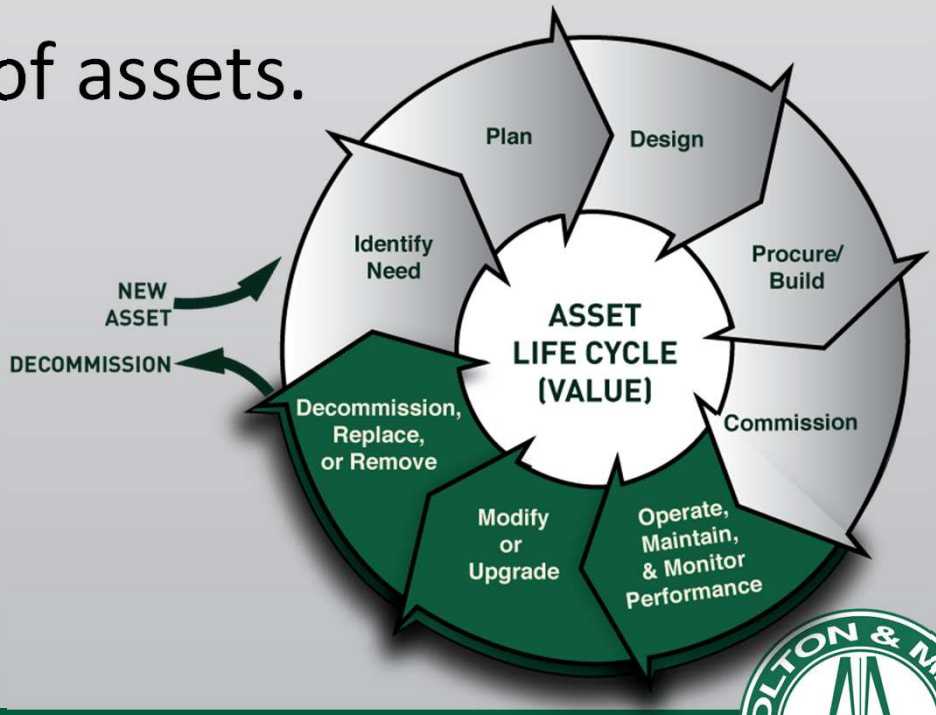
- Federal agencies
  - More accurate reporting; GASB compliant
  - Mandates
- State agencies
  - MPCA
  - MDH
- Local government agencies
  - Administrators and Council want better data for decision making.

# Benefits of Asset Management

- Centralize information.
- Streamline workflow and eliminate inefficiencies.
- Eliminate dependence on institutional knowledge.
- Make staff more efficient & accountable.
- Track true cost of infrastructure.
- Accurate and up-to-date reporting.

# Benefits of Asset Management…

- More efficient planning and use of dollars.
- Promotes a Proactive verse Reactive model.
- Lifecycle tracking of assets.

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# Benefits of Asset Management…

- GASB 34;
  - Governmental Accounting Standards Board: Statement 34.
- Two methods of reporting;
  - Depreciation Method
  - Modified Approach Method
- Most asset management systems allow for using either method.

# The End Result…

- Ultimately, implementing as asset management plan and system will help;
  - Identify the full and true costs of operations.
  - Prioritize needs for performance.
  - Increase and sustain a expected level of service.
  - Move from being Reactive to Proactive.
  - Identification of critical assets.

# Getting Started

- Assemble the appropriate team.
- Develop Mission Statement.
- Staff / Department Considerations.
  - Organizational and cultural changes.
  - Varying Department needs.

# Getting Started

- Assemble the appropriate team.
- Develop Mission Statement.
- Staff / Department Considerations.
- Review existing asset information.
  - What do we have.
  - Determine condition and rating assessment.
  - Determine useful life assessment.

# Getting Started

- Assemble the appropriate team.
- Develop Mission Statement.
- Staff / Department Considerations.
- Review existing asset information.
- Review current work processes.
  - Existing applications in use.
  - Existing S.O.P.’s.

# Getting Started

- Assemble the appropriate team.
- Develop Mission Statement.
- Staff / Department Considerations.
- Review existing asset information.
- Review current work processes.
- Quantify the results.
  - Develop Project Goals & Scope

# Getting Started

- Review & Select AMS.
- Implement AMS.
  - Start with a small pilot project.
  - Implement in phases.
  - Stay within plan's scope.
  - Seek assistance.

Cartegraph
lucity
ORACLE
Cityworks
enerGov
vueworks
IBM maximo
MICROPAVER
Accela
infor
GOODPOINTE TECHNOLOGY
PubWorks
The Software For Public Works
BOLTON & MENK
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# System Features…

- Is it easy to use, and is it customizable.
- Data – Proprietary or Standard file format.
- Customizable Reporting.
- GIS Integration;
  - Standalone or GIS-Centric.
- Web Integration.
- Mobile.

# Asset Features…

- Monitor, Maintain and Manage assets.
- Generate Work Requests / Work Orders.
- Associate Work Orders to assets.
- Associate and track Labor, Materials and Equipment costs to assets.
- Spatially map assets in GIS.

# How Asset Management Works

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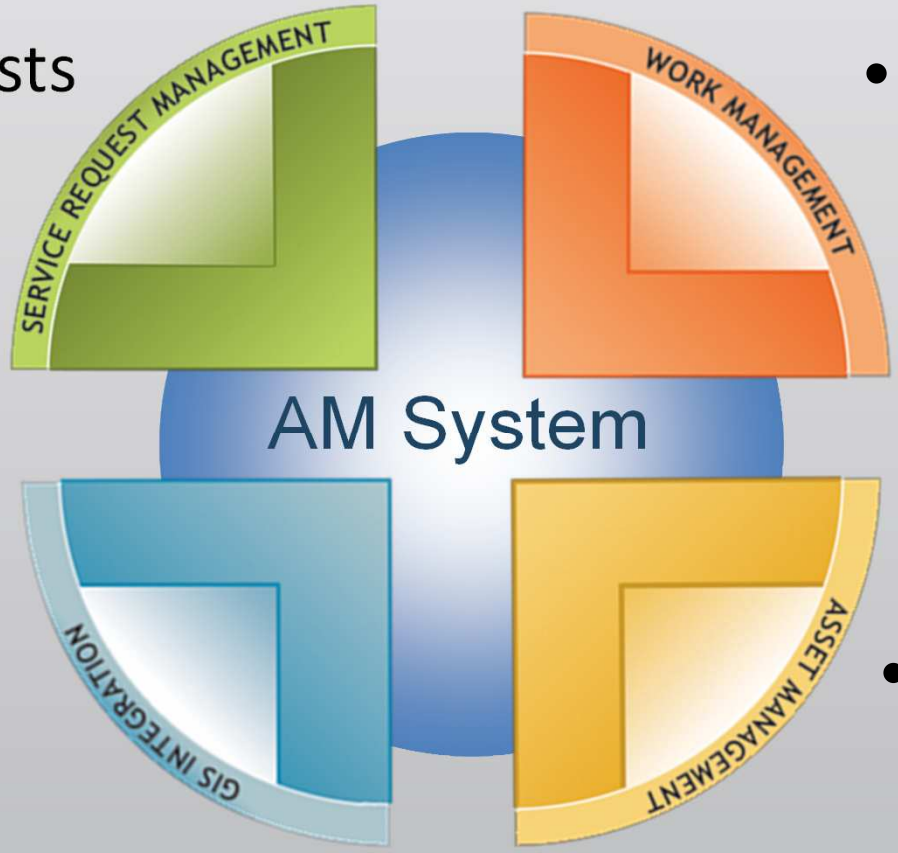
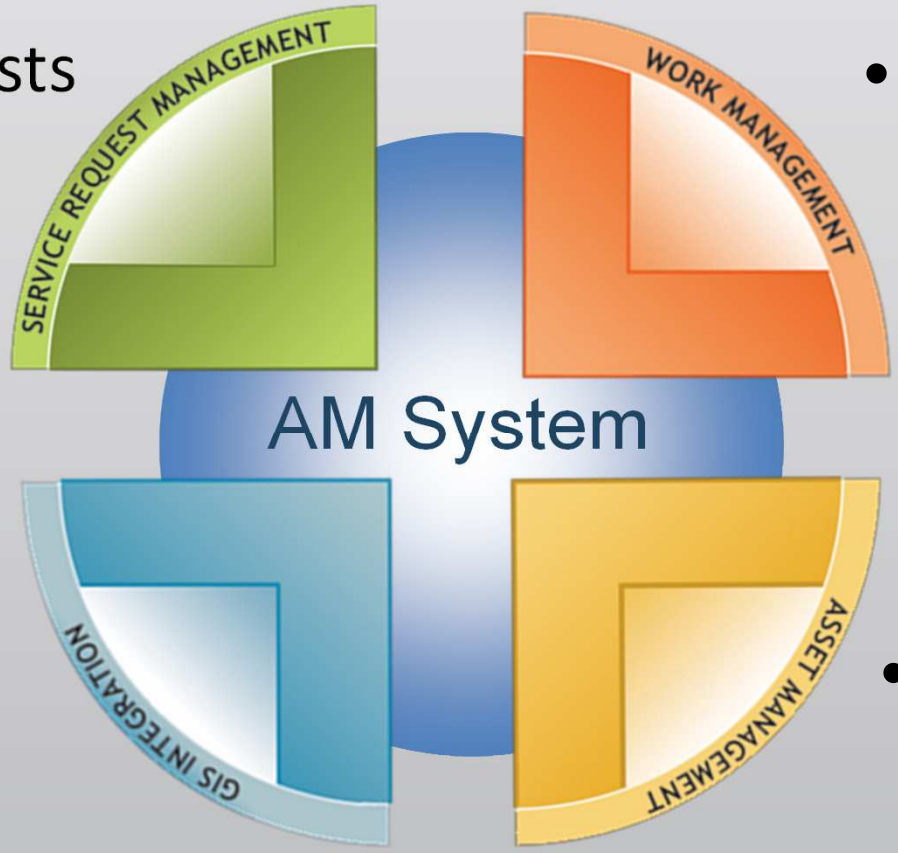
# Typical AMS System…

- Requests
- Work Management
- GIS
- Asset Management

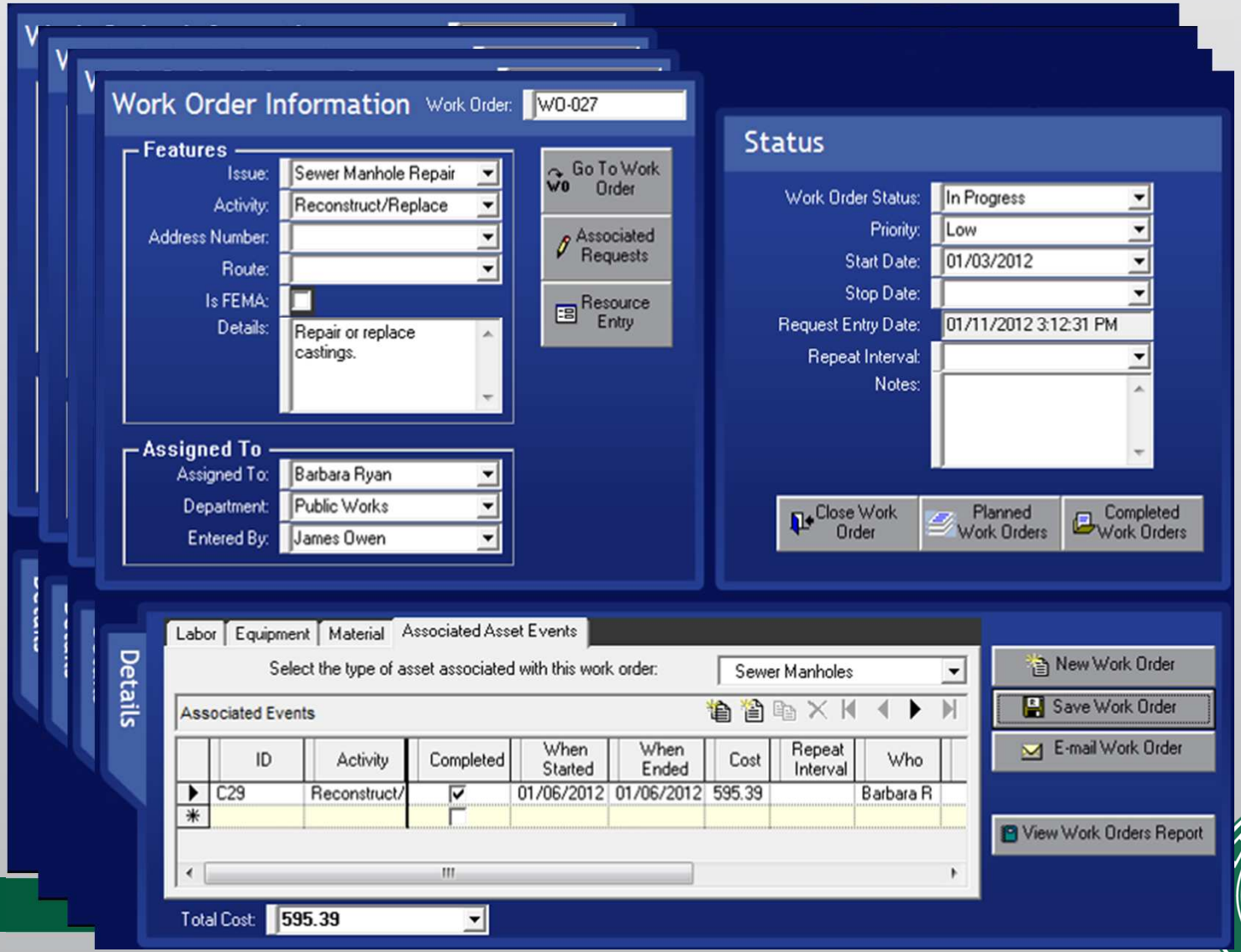


# Typical AMS System…

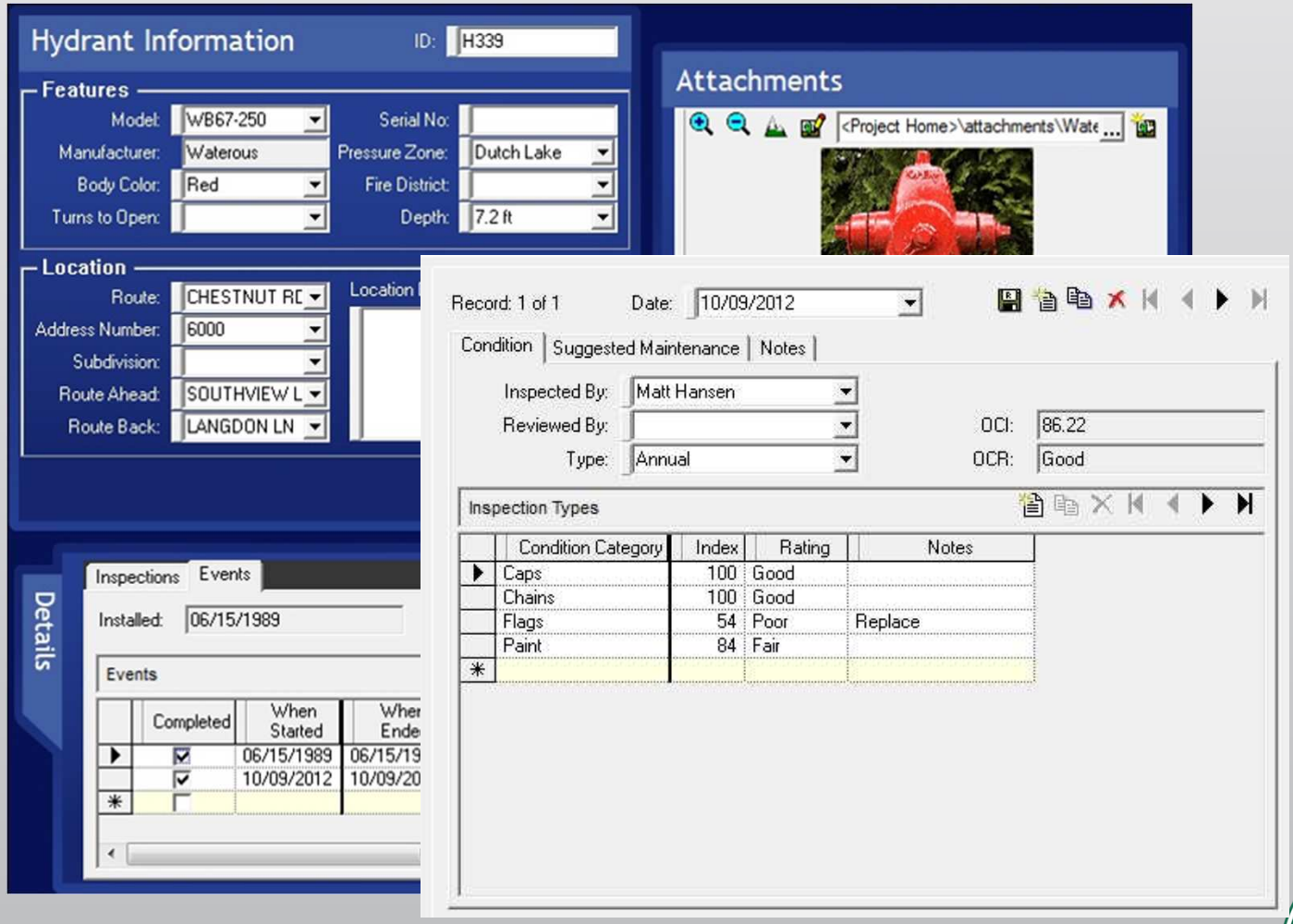
- Requests
- Work Management
- GIS
- Asset Management



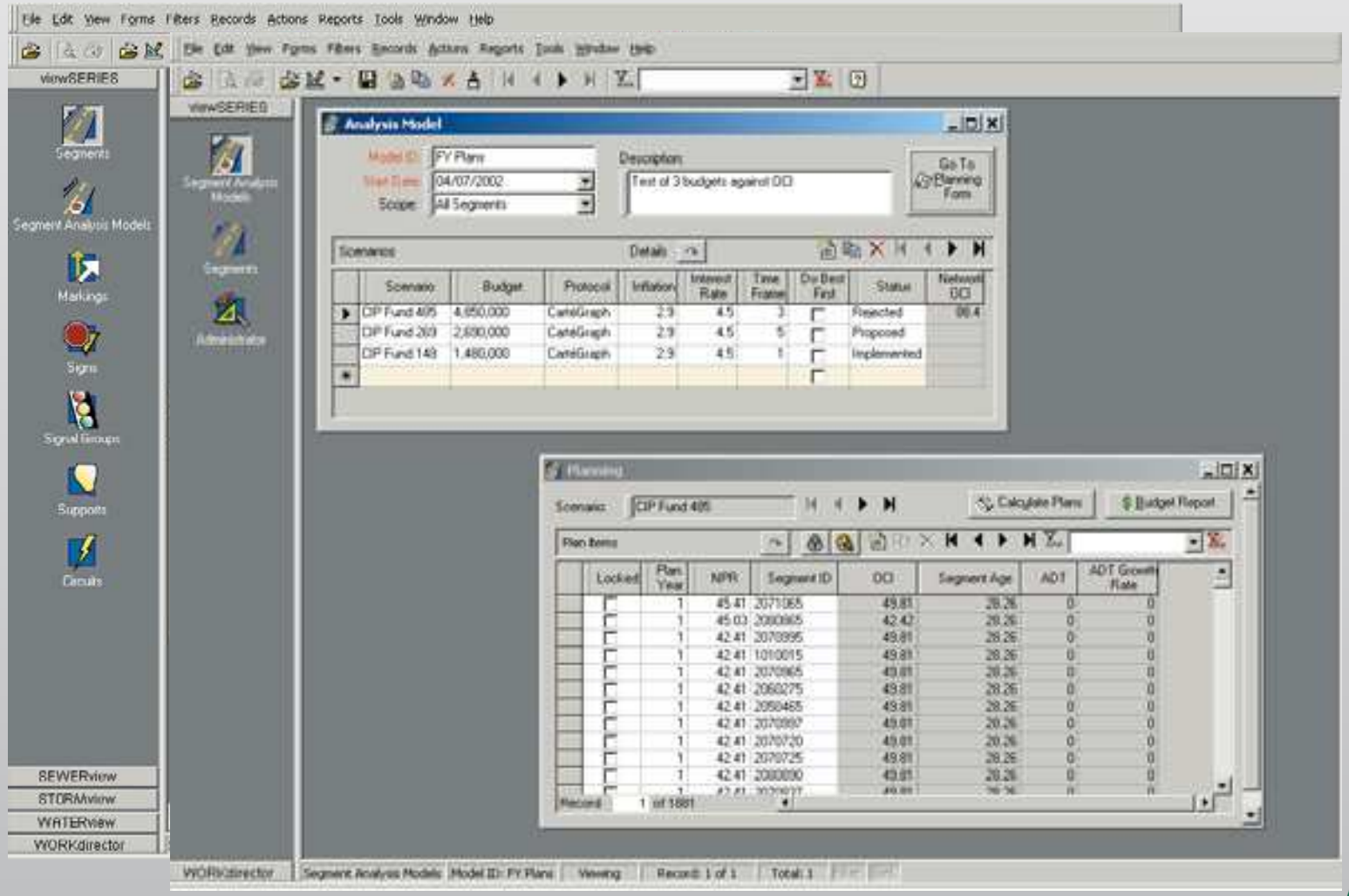
# Typical AMS Workflow process…



# Asset Condition Rating…



# Road Data and Ratings…



# Budget Scenarios…

**Scenario** Do Nothing **Time Frame** 3
**Protocol** Cartegraph 2013 Three **Budget** No Funds

**Scenario** 2013 Budget A **Time Frame** 3
**Protocol** Cartegraph 2013 Three **Budget** 2013 Three Year

**Scenario** 2013 Budget B **Time Frame** 3
**Protocol** Cartegraph 2013 Three **Budget** 2013 Three Year

**Scenario** 2013 Budget C **Time Frame** 3
**Protocol** Cartegraph 2013 Three Year Look A **Budget** 2013 Three Year Budget C
**Is OCI Driven** No **Inflation** 2.90
**Do Best First** Yes **Interest Rate** 4.50
**Description** 2013 BUdget C

**Plan Year** *1*

**Target Network OCI** 100.00
**Unimproved Network OCI =** 71.25
**Improved Network OCI =** 72.89
**Cost of Improvement =** $3,172,754.44

**Plan Year** *2*

**Target Network OCI** 100.00
**Unimproved Network OCI =** 70.37
**Improved Network OCI =** 73.12
**Cost of Improvement =** $3,329,228.60

**Plan Year** *3*

**Target Network OCI** 100.00
**Unimproved Network OCI =** 70.58
**Improved Network OCI =** 73.36
**Cost of Improvement =** $3,025,555.31

**Total Plan Cost = $9,527,538.35**

# Taking it into the Field…

BOLTON & MENK
Engineers & Surveyors

# Conclusion

**Do more with less**.

Asset Management is a proven tool to help you and your staff accomplish this need.

**Mark Schulz, GISP**

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