

# Stormwater U

## Stormwater Pond Management: Outfalls and Pond Inventories

*The first in a series on stormwater pond management*

### # 5.b: Roundtable Discussions on Inventories and Pond Maintenance Issues

March 18, 2008  
Stillwater, MN



Ramsey-Washington Metro



ST. ANTHONY FALLS LABORATORY

# Stormwater U: Pond Management ~ March 18, 2008

## Round Table Discussions Summary

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**WMO Expertise Topics**

**What stormwater outfall, pond and other system asset related issues did we miss?**

### **General Issues:**

- Departments are spread too thin already; lots of time and staff needed to deal with stormwater.
- More detailed case study: More definitions / understanding of requirements. Information overload today.
- Health of pond overall
- West Nile issue/how deal with
- Wetland vs pond issues
- How do the MS4's determine priorities for maintenance?

### **Inventory and Inspection information gaps:**

- Dry pond definition
- Inspect to design capacity. Flood control – intended purpose of ponds
- During inventory is there other valuable data to collect above min. requirements?
- Examples of specific inventory systems – at least pros and cons of different systems
- Doing pond inspection and maintenance: workshop in the field
- Level of effort for inspections (consultant, pond depths, etc...)
- Private ponds vs public ponds that receive water from public property.
- What is maxi extent practicable – doesn't cure pond maint
- Confusing – what is out full vs. structural facilities control device
- Extreme resistance to infiltration in city what other devices can used?
- What's available from watershed to watershed?
- Minimum requirements information needed to link our systems.
- Mapping jurisdictions – across government levels and units/departments (watershed district help! – Ramsey County)
- Connections upstream
- Do you start from the outfall and move backwards or divide by watershed (one goes to Mississippi and one to St. Croix)
- How accurate do maps have to be? Within feet? GPS
- WMO can overlay MS4 data and setup emerging spill coord.
- If WD/WMO is central database for inventories, what mechanism to get to communities (ie. In case of emergency spill, etc...)

### **Dredging information gaps:**

- When do cities decide when to dredge.
- Dredge disposal liability (managing dredge material); need clear guidelines; toxic sediment guidelines.
- More info on what to do with dredge material/liability with this
- What are cities requiring for dredging (testing of material? etc...)
- How do we get info to people that stormwater runoff is not necessarily putting pollution into groundwater.

- If you want to dredge from a pond, do you need a permit?
  - Depends on size and the watershed rules
  - WCA for natural ponds
  - Erosion control permit for moving soil
- What time of year should you do maintenance?
  - Winter allows you to reach the middle of the pond
- Sophisticated understanding of clean out times – priorities based on resource and budget
- Typically clean out deltas or partial cleaning or full bay cleanout?
- Exceptions to rule of thumb (ie. When ½ full dredge but some examples where not applicable)

**What stormwater system (outfalls, ponds, other assets) information, procedures, tools or skills do you want addressed in future workshops ?**

**Inspection procedures, tools, skills:**

- Field training for inspection of outfalls/ponds
- Teaching inspectors to do the pond, inflow & outflow inspections.
- Teach inspectors on how to do inspection: what to look for, working in public waters, forms and instructions for inspectors (5-15 yr low turnaround)
- How to do pond basin inventory, perhaps level I, II, III. Keep it simple for general people, DM, staff, crews
- What information do you collect in your inspections?
  - Inlets and outlets – Blocked? Maintained?
  - Slopes around pond
  - Depth of pond
- How can IDDE inspections fit with storm pond inspections? Field inspections?
- Wetland determinations – corps, local, state standards, wetland classifications, type

**Linking our systems together:**

- Who are all the players? Jurisdictions, their roles and responsibilities (in regards to SW systems and management)
- Asset, inventory and tracking systems (electronic) – What's available? Who's doing it? Is the WS already doing it? Could the watershed district take the lead in standardizing a system for all cities in the WS?
- Complaint driven prioritization – does this work?
- Detailed case study of a part of the system (pick it apart and apply definitions and specific examples):
  - Outfall
  - PCD
  - Pal information

**Pond cleanout procedures, tools, skills:**

- Partial cleanout of deltas vs full cleanout
- W\_\_ volume; the needed volume, where do we get the data?
- When exactly is cleanout needed (vs ½ full rate of thumb)
- What new technology is out there? to do depth; show us; can we lease them?
- How to figure volume
- Many want to lower storage volume to make space in spring
- Summary of 2008-2009 Ramsey/Washington pond cleaning.
- Management of dredged material – how/when?

- How to deal with contaminated sediment
- Dredging material cost disposal – contractor questions
- Dredging requirements and advise
- Wet ponds vs dry ponds status (re: sed load and dredging needs)
- Follow up on projected projects for '08 for dredging. How much dredging – who's helping, etc...
- Small backhoe is best tool for maintenance.
- Is there an alternative to rip-rap for stabilization of the slope?

**Budgeting:**

- Rough estimate of cost to maintain ponds

**Integrating LID into system maintenance:**

- How does LID get factored into storm pond maintenance?
- How do you make a developer responsible for LID infrastructure and maintenance?

**Nondegradation and TMDL procedures:**

- Nondegradation, TMDL – how to deal with these budgets, etc...
- How to integrate non-degred TMDL studies into MS4s

**What tools or procedures have you tried that did not work well? For example, specific GPS/GIS tools, finding the bottom of a pond, determining pond classifications, determining existing pond levels, software or tracking systems, etc.**

Field experiences:

- Backhoes falling through ponds even in winters when dredging
- Skid loaders, track backhoes don't work as well as mini excavators.
- Design rip-rap for access to do maintenance without loss. Pretreatment area to decrease.
- Look at other methods to stabilize and not hinder maintenance activity.

Classification problems:

- Woodbury has defined any pond with street drainage as a public pond.
- No good pond classification tools
- Need for GPS identified pools

TMDL preparations:

- TMDL studies – budget, get ready?

**What tools or procedures have you tried that were a success? For example, access for inventory work, software or spreadsheets, GPS/GIS tools, any problem that you successfully solved that others might benefit from knowing about.**

- Delta – partial cleanout vs overall cleanup
- Stormwater pond inspections can be done during winter, when there is more time, thru the ice. Easier to measure depth, sediment than taking a boat out.
- Complaint based priorities

**Your Group's 2 or 3 top-most burning comments, issues or ideas related to this workshop experience.**

- Education on the purpose of various structural devices.
- Order control – algae – what can we do in a pond?
- Need for more info on dredging requirements
- Jurisdiction issues – who needs to know

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### **COSTS**

**What stormwater outfall, pond and other system asset related issues did we miss?**

- Financial analysis of SW pond – Mary
- How much is it costing? Just like storm event management. How much does it cost per pond?
- Dredging material cost disposal – contractor questions
- Staff needed to get jobs done
- Staffing levels – minimum levels of effort. Need to meet permit requirement, residents complaints, budget issues are serious
- How to cover costs for all new requirements/maintenance requirements
- Maintenance cost long term – storm utility funds
- Funding mechanisms for merit (i.e. stormwater utility fee/ general fund/ WD)
- Comparing costs for storm pond maintenance? How do you justify stormwater utility fee? Not setbacks in a city so analysis of cost benefits of setbacks
- Budgets for other communities (ie. Pond dredging, other maint)
- How much to budget? Compare to others? \$60K/year
- Website of stormwater fees
- What BMP is more cost effective?
- Priorities based on budget

**What stormwater system (outfalls, ponds, other assets) information, procedures, tools or skills do you want addressed in future workshops ?**

- escrows
- Rough estimate of cost to maintain ponds
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**What tools or procedures have you tried that did not work well? For example, specific GPS/GIS tools, finding the bottom of a pond, determining pond classifications, determining existing pond levels, software or tracking systems, etc.**

- TMDL studies – budget, get ready?

**What tools or procedures have you tried that were a success? For example, access for inventory work, software or spreadsheets, GPS/GIS tools, any problem that you successfully solved that others might benefit from knowing about.**

- Financial analysis of how to manage sfw
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**Your Group's 2 or 3 top-most burning comments, issues or ideas related to this workshop experience.**

- Costs of SW systems

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### Data Management

**What stormwater outfall, pond and other system asset related issues did we miss?**

- Getting starter software available – data management
- Tracking data
- Record keeping
- Make sure we have a good list of contacts.
- Hugo is working on GPS'ing coordinates of basins and outfalls

**What stormwater system (outfalls, ponds, other assets) information, procedures, tools or skills do you want addressed in future workshops ?**

- Forms that have worked well for inspections.
- Clear definitions

**What tools or procedures have you tried that did not work well? For example, specific GPS/GIS tools, finding the bottom of a pond, determining pond classifications, determining existing pond levels, software or tracking systems, etc.**

- Don't know – just give field data to "Engineering"
- Woodbury – 400+ ponds, 3 inspectors P.T. They will increase data base to incorporate with maintenance data. They plan to incorporate into GIS system.
- Programs work best to organize data
- GPS comparing to asbuilts missing many
- GPS everything but don't matter with asbuilts

**What tools or procedures have you tried that were a success? For example, access for inventory work, software or spreadsheets, GPS/GIS tools, any problem that you successfully solved that others might benefit from knowing about.**

- Rowe map but tied to asbuilts...not always accurate.
- Developed access database. Could be shared with others
- Use of maps, paper tracking--not computerized.

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**Ownership, easements, jurisdiction, access**

**What stormwater outfall, pond and other system asset related issues did we miss?**

- Private view of ownership – aesthetic value (access needs to be maintained).
- Citizen ownership – want good quality pond – property rights (will not accept buffer requirement vegetation)
- Past owners did not pass on easements information (trees planted in the easement)
- Residents were sold a bill of goods by somebody (re: sfw infrastructure – realtor, developer, past owner, staff that left)
- Maintenance agreements with MnDOT
- Private ponds vs public ponds that receive water from public property.
- Ways to educate neighbors

**What stormwater system (outfalls, ponds, other assets) information, procedures, tools or skills do you want addressed in future workshops ?**

- How to deal with ponds owned by homeowners associations?
- City can do the work and bill the HOA or give the HOA a list of contractors to arrange to have the work done
- Focus on access when considering tools and equipment to get in and do the required work.
- Easements – permanent or temporary?
- Who are all the players? Jurisdictions, their roles and responsibilities (in regards to SW systems and management)
- Who is doing mapping – crossing definitions; inventory and tracking systems – – duplication?; developer/homeowners association agreements – maintenance agreements with other LGU/MnDOT
- Developer agreements as related to O&M (private systems) beyond what's on the paper. Escrows. City control. Resource dedication by city to do O&M.
- Not setbacks in a city so analysis of cost benefits of setbacks

**What tools or procedures have you tried that did not work well? For example, specific GPS/GIS tools, finding the bottom of a pond, determining pond classifications, determining existing pond levels, software or tracking systems, etc.**

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**What tools or procedures have you tried that were a success? For example, access for inventory work, software or spreadsheets, GPS/GIS tools, any problem that you successfully solved that others might benefit from knowing about.**

- Woodbury Planning Department builds access into the system
- Enforcement through Public Works/Eng
- Woodbury – Environmental Education Committee
- Passing regulation to maintain city right of way

**Your Group's 2 or 3 top-most burning comments, issues or ideas related to this workshop experience.**

- Access agreements or easement ownerships created by ordinance
- Dedicated position activity – public property enforcement officer – part time (20 hours/week)
- Jurisdiction issues – who needs to know

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### Infiltration

**What stormwater outfall, pond and other system asset related issues did we miss?**

- What devices work in fully developed areas with strong resistance to any infiltration
- Public use and alternative use of ponds – is biological treatment possible for mosquito control --West Nile issue/how deal with.
- Upland maint issue – burning of native veg.
- Infiltration structural devices – should they be categorized differently

**What stormwater system (outfalls, ponds, other assets) information, procedures, tools or skills do you want addressed in future workshops ?**

- How does LID get factored into storm pond maintenance?
- How do you make a developer responsible for LID infrastructure and maintenance?

**What tools or procedures have you tried that did not work well? For example, specific GPS/GIS tools, finding the bottom of a pond, determining pond classifications, determining existing pond levels, software or tracking systems, etc.**

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**What tools or procedures have you tried that were a success? For example, access for inventory work, software or spreadsheets, GPS/GIS tools, any problem that you successfully solved that others might benefit from knowing about.**

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**Your Group's 2 or 3 top-most burning comments, issues or ideas related to this workshop experience.**

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**Misc. Issues Missed on March 18**

**What stormwater outfall, pond and other system asset related issues did we miss?**

- Further training
- More detailed case study: More definitions and understanding of requirements
- Lots of information today – hard to absorb it all
- Vendor Day – Show & Tell
- Is there a survey of cities so we can find what they have done?
- Talk about the top 30 cities.
- Staff needs to be able to be on same page. Turn over of staff can not lead to different message about management program.
- Rural section roads/outfalls
- Odors of ponds – fountains, odor still there
- How do regulations relate to cleanout
- Would the survey help cities? Stormwater will fill out.
- Ways to educate neighbors.

**What stormwater system (outfalls, ponds, other assets) information, procedures, tools or skills do you want addressed in future workshops ?**

- Next meeting: not during construction
- Complaint driven prioritization – does this work?
- Infield training (mapping – crossing definitions; inventory and tracking systems – who is doing it – duplication?;
- Developer/homeowners association agreements – maintenance agreements with other LGU/MnDOT
- City can do the work and bill the HOA or give the HOA a list of contractors to arrange to have the work done
- Vendor show and tell
- Odors
- Non-deg – TMDL

**What tools or procedures have you tried that did not work well? For example, specific GPS/GIS tools, finding the bottom of a pond, determining pond classifications, determining existing pond levels, software or tracking systems, etc.**

- Look at other methods to stabilize and not hinder maintenance activity.
- How to get ready for non-deg requirements

**What tools or procedures have you tried that were a success? For example, access for inventory work, software or spreadsheets, GPS/GIS tools, any problem that you successfully solved that others might benefit from knowing about.**

- Woodbury – Environmental Education Committee
- Vendor show & tell – (eg. Software available)
- Neighbor land meetings
- Complaint based priorities

**Your Group's 2 or 3 top-most burning comments, issues or ideas related to this workshop experience.**

- NEMO needs
- Public hearing – NPDES, SWWPP – required meeting. Educate DM on the basics.