

Wet Weather Team Solution Ideas Working Draft – September 13, 2007

The following is a list of potential “solution ideas” identified by Wet Weather Team (WWT) members that will be considered in the design of the Wet Weather Program. The list will act as a resource for the technical team as they consider project and program alternatives. These ideas were identified both at WWT meetings and through individual communications with WWT members (e.g., via e-mail). This list will remain “live” throughout the remainder of the WWT effort to capture ideas as they are shared. WWT members are encouraged to send additional ideas to the facilitation team for inclusion in this list.

New ideas will be listed under a “What’s New” section at the beginning of the document for easy reference, as well as under the appropriate section later in the document. After the “What’s New” list, this document is organized into three sections:

- Section I, “Project Alternatives,” is organized into five sub-categories: Stormwater Best Management Practices (Non-Structural), Stormwater Best Management Practices (Structural), CSO and SSO Point Source Controls, General/Other Solutions, and Site-Specific Solutions.
- Section II, “Funding Ideas and Incentives,” is organized into three sub-categories: Cost Allocation Strategies, Financial Incentives, and Funding Sources/Options.
- Section III, “Ideas Partly or Completely Outside the Scope of MSD’s Wet Weather Consent Decree,” includes municipal government actions that are only partly within MSD’s control, MSD actions that are not related to sewer overflow issues, and green infrastructure ideas that are not directly related to sewer overflow issues.

What’s New (August/September 2007)

A large number of new solution ideas have been added in all three sections of this document. As such, specific ideas are italicized in those sections instead of being referenced here. Please note that we have added several new sub-categories this month; as such, some older ideas may be in different places and/or be assigned different numbers. No solution ideas have been taken off of this list.

I. Project Alternatives

A. Stormwater Best Management Practices (Non-Structural)

1. Influence behavior of residential and commercial landowners through education.
 - a. Promote water conservation practices: rain gardens, rain barrels, and responsible alternatives for sump pumps and downspout connections.
 - b. Encourage stewardship: removing invasive vegetation from riparian zones, planting wetlands, litter cleanups, etc.
 - c. *Conduct education on environmentally sustainable ways of using fertilizer and weed killer, and other stormwater best management practices to neighborhood groups.*
 - d. *Discourage chemical treatment of and mowing near waterways to help keep debris from waterways.*
2. Regularly distribute billing inserts (like LG&E’s) to MSD customers with facts and tips to encourage certain behaviors (e.g., lawn chemical management, pet waste management, landscaping practices).

3. Conduct a baseline survey and follow-up surveys of residents to determine whether education and outreach efforts are effective in changing behavior and perceptions on issues related to the Wet Weather Program
4. Hold “CSO Action Days” during or right after a hard rain to promote behavior change (e.g., don’t use your dishwasher, wait to do your laundry, etc.).
5. Develop a pledge for customers that clearly lays out behaviors that will help MSD meet Consent Decree requirements. For an example, see <http://www.watershedpledge.org> (see also II-B-4).
6. Encourage the use of best management practices for chemical use in lawn management practices.
 - a. Inform greenskeepers about best management practices (BMPs), since non-point source runoff is made worse by golf course chemicals.

B. Stormwater Best Management Practices (Structural, including Green Infrastructure Solutions)

1. Use landscaped areas to control stormwater runoff.
2. Encourage homeowners to construct rain gardens and use rain barrels.
3. Install French drains along roads to accept stormwater runoff (see also detailed suggestions listed for Beechwood Village below).
4. Develop specific design parameters or standards for stormwater best management practices and low impact development techniques and include these in an MSD Design Manual. The Design Manual should provide guidance for approaches including, but not limited to, the following:
 - a. Pervious pavement
 - b. Level spreaders
 - c. Riparian buffers
 - d. Vegetated swales
 - e. Wet ponds
 - f. Wet ponds with forebays (small basins that settle out incoming sediment before it is delivered to a stormwater BMP)
 - g. Wetlands
5. Consider incorporating aspects of the LEED green building standards into MSD design manuals for structural BMPs.
6. Increase tree canopy.
 - a. Ensure that urban CSO areas have at least a 30 percent tree canopy.
 - b. *Initiate a tree-planting program with a goal to increase tree canopy in neighborhoods.*
7. Work with the community group “Women of Vision” to create a meditation garden in the West End that could also act as a rain garden or roof runoff demonstration.
8. Conduct demonstration projects (Note: Overlaps with demonstration projects in Education and Outreach Ideas List). Specific ideas for projects include:
 - a. Create a demonstration area in each Jefferson County watershed to demonstrate and interpret healthy stream habitats and what MSD is doing to study and protect them.
 - b. *Create some sustainable lawns as pilot projects*
 - c. *Develop a green infrastructure best management practice site similar to SD1 (Sanitation District Number 1 of Northern Kentucky).*
 - d. *Add green demonstration/education facilities to old urban schools.*
 - e. *Use the Butchertown Greenway Pump Station that is offline for an education and demonstration facility.*

9. *Plant native plants with deep root systems.*
10. *Maintain existing detention/retention basins – many may not function properly due to lack of maintenance.*
11. *Design structural stormwater best management practices to be multiple- use and eco-friendly.*
 - a. *Design detention ponds and stream buffers for recreational use.*
 - b. *Make use of detention facilities as sports fields*
 - c. *Incorporate trails along streams to provide recreational opportunities.*

C. CSO and SSO Point Source Controls

1. Disconnect downspouts and/or sump pumps (e.g., by developing educational initiatives aimed at landowners).
 - a. *One potential target for a downspout disconnection program could be school buildings.*
 - b. *Yard signs similar to those used in Portland’s residential Downspout Disconnection Program could be useful for education and outreach about MSD’s Wet Weather Program [Note: This idea overlaps with the Education Ideas List]. Specific ideas for signs include:*
 - i. *Messages such as “I disconnected my downspout” and/or “I have a rain barrel.”*
 - ii. *The bottom of the sign could invite readers to “ask me” for more information.*
2. Increase enforcement and inspections of downspout and sump pump connections.

D. General/Other Solutions

1. Leverage and coordinate the Wet Weather Program efforts with MSD’s MS4 stormwater management permitting responsibilities.
2. Conduct green infrastructure demonstration projects with monitoring components built in, to help demonstrate the overall effectiveness of green infrastructure solutions.
 - a. Start with small, visible projects (“quick wins” – e.g., in a particular neighborhood, near a Rubbertown plant).
3. *Preserve rural character where possible.*
4. *Create a localized resource database to support green infrastructure development efforts (e.g., provide information on contractors that install pervious pavements). Specific ideas include:*
 - a. *Develop a list of environmentally approved chemicals for use in lawn/landscape management.*
 - b. *Landscape architects could provide green options for projects and developments.*

E. Site-Specific Solutions (Considered in Addition to the Solutions Listed Above)

Beechwood Village

1. Construct a park-like wet detention area in the wooded area of St. Matthews Park.
2. Install new sanitary lines and laterals to homes, and pumps for basement facilities when requested by the homeowner.
3. Install French drains on either side of roadways to accept stormwater runoff. The drains would be continuous trenches filled with gravel and covered by turf. The drains could also accept discharges from sump pumps and downspouts.

4. Install perforated pipe in the French drains so they can discharge more freely when they flood. The piped drain system would need to be a combination of gravity and pump depending on the topography and discharge point(s).
5. If a solid pipe system is used, the system could discharge to constructed wetlands designed to treat stormwater. Possible sites for constructed wetlands are the forest north of the Community Park and the detention pond for the bank on Shelbyville Road at the Beechwood Village entrance.
6. Restore natural stream banks for the Sinking Fork north of Shelbyville Road where the big pump now sits.

Beargrass Creek – Middle Fork

1. Restore the Middle Fork between Grinstead crossing and confluence.
 - a. Restore wetlands and improve aquatic health in the following areas:
 - i. The isolated quarry areas to the north of the interstate between Grinstead and Payne (which receives a small CSO discharge). One specific idea is to remove sediments from these areas.
 - ii. The old meander into which CSO 127 discharges and the wet meadow in its bend.
 - b. Work with the City of Louisville, the Parks, and the private sector to turn this area into a greenway that connects the waterfront with Cherokee and Seneca Parks, and eventually with parks in Saint Matthews, with a bikeway from Saint Matthews to downtown.
 - c. Close CSOs in this area using projects that reduce flooding and improve water quality.
2. *CSOs 125, 126, 127, 144, and 166; and CSOs 86 and 140 could potentially be treated at one facility (some pumping would be required). This could be a visible project that could help link areas in the community.*
3. *Potentially develop the River Metals property (a brownfield near the Girl Scouts Building) as a storage or wetlands treatment area.*
4. *Establish wetlands at Seneca Park and Old Cannons Lane.*

Beargrass Creek – South Fork

1. Restore the South Fork between I-264 and Eastern Parkway.
 - a. Restore the stream channel, along with the wet meadows and woods in the floodplain.
 - b. Coordinate with landowners (e.g., the City of Louisville and Bellarmine College) on the restoration of the stream segment, which is part of a “nature education” corridor and is subject to MSD conservation easements.
 - c. Potentially make this area into a bikeway as part of the solution.

Beargrass Creek – Muddy Fork

1. Restore Eva Bandman Park.
 - a. Convert the park into restored wetlands with a boardwalk for visitors.
 - b. Include the park as part of the solution for the CSOs that discharge at the confluence by having it receive their stormwater.
2. *Tie the impaired section of Beargrass Creek to newly created wetlands, near Eva Bandman Park.*
3. *Incorporate green infrastructure into the Arts Center.*
4. *Turn the MSD pump station into an interpretive center.*

5. *For CSOs 132, 154, and 167:*
 - a. *Conduct a concentrated effort to disconnect downspouts in this area.*
 - b. *Use incentives to get people to help solve the problem in this area. In particular, educate people about ways to reduce non-point source pollution.*
 - c. *Acquire properties in flood-prone areas by paying more than fair market value for the homes (as compensation to homeowners for having to move). These areas could then be used to create detention or retention basins, or other facilities/structures to reduce wet-weather sewer overflows. (Note: Purchasing properties in flood-prone areas is also listed under Section III).*

Floyds Fork Watershed

1. *Look for opportunities for green infrastructure in the Floyds Fork watershed, as it is the last undeveloped area in Jefferson County.*
2. *Protect Floyds Fork with riparian buffers and other preservation efforts.*

Other Watershed and Site-Specific Solutions

1. *Create an 800-acre lake in the southwest portion of Jefferson County. Use a dam/flood wall to build it and include marshes around it.*
2. *Examine other sites for green infrastructure opportunities, such as:*
 - a. *Pond Creek Lake and the southwest pump stations (this area has been studied already by the Corp of Engineers)*
 - b. *The Bradley Property*

II. Funding Ideas and Incentives

A. Cost Allocation Strategies

1. *Equitably assign costs (focus areas for the financial equity value):*
 - a. *Consider the burden on fixed income and low-income populations*
 - b. *Rates and fees that are linked to the cost to serve (i.e., the level of impact)*
2. *Charge residences differently depending on the area of impervious surfaces on properties (and therefore the amount of stormwater runoff that would be generated).*
3. *Require lower development fees for areas that already have sewer capacity (e.g., urban areas in need of re-investment).*
4. *Bill based on increased water usage—the more you use, the higher the rate.*
5. *Develop an equitable plan for joint funding for permeable pavement efforts.*

B. Funding Sources/Options

1. *Consider using volunteers to reduce costs.*
2. *Consider solutions that could meet the objectives of multiple agencies (e.g., water quality and flood control improvements) and therefore could potentially receive funding from multiple sources.*

C. Incentives

1. Provide incentives for “preferred” behaviors.
2. Offer incentives for developers to use cost-effective, eco-friendly solutions (e.g., low impact development techniques, stormwater best management practices).
3. Charge reduced wastewater rates to property owners that use eco-friendly techniques to reduce stormwater runoff.
4. Reduce fees for families or businesses who sign a pledge that clearly lays out behaviors that will help MSD meet Consent Decree requirements (see also I-A-5).
 - a. In critical CSO neighborhoods, provide free rain barrels to people who sign the pledge.
5. *Develop compensation credits to help alleviate financial burden to developers and property owners.*

III. Ideas Partly or Completely Outside the Scope of MSD's Wet Weather Consent Decree

A. Municipal Government Actions (Only Partly within MSD's Control)

Requirements Related to Planning and Zoning

1. Improve the development review process for new subdivisions. Deny permits for subdivisions or any new homes if the plant in the area is above capacity.
2. *Require that regional detention ponds in post-developed areas provide filtration for storms that occur every two years or less.*
3. *Require post-development runoff to be equal to pre-development runoff.*
4. *Develop mandatory or alternative green solutions for development projects (e.g., by changing development codes).*

Opportunities to Encourage/Use Green Infrastructure in Development Projects

1. *Utilize very large basins or lakes in new development areas and in rural areas. For new developments, create larger detention/retention basins.*
2. *Preserve existing natural systems, vegetation, and trees during development, rather than removing and rebuilding them. Take advantage of existing assets in development opportunities.*
3. *Look at green parking opportunities along business corridors.*
4. *Look at opportunities to develop more upward and infill already developed areas (i.e., increase density).*
5. *Develop a “complete streets” program policy to encourage “parkway-like” streets and reduce stormwater run-off.*
6. *Form partnerships with housing developers to minimize impervious surfaces.*
7. *The parking lot on Frankfort Avenue could utilize porous pavement for public parking.*
8. *Develop a recognition program for those who use green infrastructure.*
9. *Opportunities in schools:*
 - a. *Incorporate green elements into the three new research facilities being planned at the University of Louisville.*
 - b. *Turn school grounds into “ecological playgrounds” for neighborhoods.*

Opportunities to Link MSD Efforts to Existing Partnerships and Programs

1. Develop a “comprehensive solution” for local environmental improvement and education efforts.
 - a. Fund and staff a collaborative planning effort to link the environmental education programs of multiple local agencies (MSD, Louisville Water Company, Metro government departments, Mayor’s Office, TARC, etc.) together, develop specific goals and assessment systems, and then hold agencies accountable to those goals.’
2. Encourage local government agencies (e.g., Jefferson County Public Schools, Metro Parks) to adopt preventative practices to decrease stormwater runoff and wastewater volumes (e.g., low-flow toilets, pervious pavement, additional tree coverage, etc.).
3. *Integrate green projects into planning efforts underway.*
4. *Work with the Green City Partnership (an initiative involving the Louisville Metro Government, Jefferson County Public Schools, and the University of Louisville) on green infrastructure efforts. The Metro Green Initiative should be a leader for the community’s Green City Partnership.*
5. *Consider green infrastructure in the context of healthy activity improvement projects and projects that promote greater walk-ability in neighborhoods.*
6. *Make use of neighborhood plans. There could be opportunities to incorporate green infrastructure into the 14 neighborhood plans and 6 neighborhood assessments that are being developed, as well as in neighborhood plans that will be developed in the future.*

Opportunities for MSD to Collaborate with Other Entities

1. *Coordinate with planning and zoning departments and other governmental entities around the value of green infrastructure.*
2. *Partner with schools to relate students’ community service efforts with green projects.*
3. *Coordinate with other regional entities to build a major treatment plant near the Salt River.*

B. MSD Actions Not Related to Sewer Overflow Issues

1. Purchase properties within the floodplain.
 - a. Buy land that is flooded on a regular basis and turn it into parks.
 - b. When building a detention basin, buy properties in the floodplain that are most impacted.
2. Improve implementation and enforcement of the Sediment Control Act.
3. *Partner with local lawn care companies to promote Louisville Green (MSD’s organic fertilizer)*

C. Green Infrastructure Ideas Not Related to Wet Weather Issues

1. *Heine Brothers Coffee is looking for five acres for an urban farm to grow produce and sell to local restaurants.*
2. *The “86-64” community effort to remove portions of I-64 could be an opportunity to reclaim the waterfront and promote public transportation such as light rail.*
3. *Utilitize the open space in parks for green infrastructure.*
4. *Develop and educate residents about urban farming opportunities.*
5. *Teach and promote sensible/responsible development.*
6. *Require parking lots to provide shaded areas.*
7. *Establish a tree ordinance to protect specific trees (identified based on species, age, etc.) and require mitigation if the protect trees are damaged or removed.*

8. *Protect or improve water quality and flood control for developments.*