

Wet Weather Team Idea List Crosswalk Working Draft – September 10, 2008

The following is an annotated list of the solution ideas, education and outreach ideas, and data requests and monitoring suggestions identified by Wet Weather Team (WWT) members. The Louisville and Jefferson County Metropolitan Sewer District (MSD) has reviewed these ideas over the course of the WWT process and has included many of the ideas in MSD's draft Integrated Overflow Abatement Plan (IOAP). Other ideas have not been included in the IOAP because they were not feasible or out of scope.

Color Guide

This document uses color-coded annotations to distinguish between items that were considered and/or are included in the IOAP and items that were not considered or not included in the IOAP.

Annotation	Color Guide
[Included], [Implicitly Included], [Considered]	Items that are followed by green text were considered for the IOAP and are either included or implicitly included in the IOAP.
[Considered, But Not Included]	Items that are followed by red text were considered but not included in the IOAP.
[Not Considered, Out of Scope]	Finally, items in blue text were not considered as they were considered to be out of scope.

When known, additional notes about how MSD and the technical team have addressed an idea is provided. The idea lists appear in this document in this order: (1) solution ideas, (2) education and outreach ideas, and (3) data requests and monitoring suggestions. The ideas and numbering systems from the idea lists have not changed, but annotations have been added.

What's New (July-September Updates to the Idea Lists)

Solution Ideas

1. (II-A-10) – Consider alternatives for the billing structure that would address the communication challenges associated with having a separate consent decree surcharge. Suggestions include:
 - a. Get rid of (or phase out) the separate consent decree surcharge. **[Phase out is under consideration and will likely be recommended by staff – final decision is by MSD Board]**
 - b. Increase the consent decree surcharge so it covers all of the capital costs for constructed consent decree projects. **[Considered, but determined to be difficult to implement due to an inability to definitively separate the consent decree (CD) costs from non-consent decree costs]**

Education and Outreach Ideas

1. (I-B-12-f) – Find a truthful and transparent way to explain the rate increases to the public, including describing what the rate increases are paying for (consent decree and other expenditures). **[Will be included in presentation made for final round of public meetings]**

Data Requests and Monitoring Suggestions

1. (I-A-10) – Prepare a chart showing how a typical bill would change each year, including the wastewater and drainage fees and the consent decree surcharge. Also, show how MSD's rates compare to those of other communities. **[Have distributed this information to the stakeholder group, and will include this in presentation made for final round of public meetings.]**

2. (I-A-11) – Provide a breakdown of the anticipated consent decree capital expenditures and anticipated other capital expenditures each year of funding the consent decree. **[Will be addressed in cash flow discussion, IOAP Vol. 1, Ch. 6]**
3. (I-A-12) – Additional explanation of the IOAP and examples of how the consent decree has changed (or will change) the schedule of other MSD projects. **[Will be included as part of overall cash flow discussion, IOAP Vol. 1, Ch. 6.]**

Solution Ideas

I. Project Alternatives

A. Stormwater Best Management Practices (Non-Structural)

1. Influence behavior of residential and commercial landowners through education. [Note: See the Education and Outreach Idea List for more ideas about educational efforts to influence behaviors.] **[Included in Project WIN Public Information, Education, and Involvement Plan (Education Plan) IOAP Vol. 1, Ch. 6]**
 - 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). **[Included in Education Plan]**
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 IOAP. **[Included in Education Plan]**
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.). [Note: More details on this idea are in the Education and Outreach Ideas List.] **[Considered for Education Plan]**
5. Encourage the use of best management practices for chemical use in lawn management practices. **[Considered but out of scope for IOAP, will be referred to the municipal separate storm sewer system (MS4) program]**
 - a. Inform greens keepers about best management practices (BMPs), since non-point source runoff is made worse by golf course chemicals.
6. 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-C-4). **[Considered for Education Plan, something similar is planned under recognition program]**
7. Invite people to “join” Project WIN by installing rain gardens, rain barrels, reducing their use of lawn chemicals, etc. **[Included in Education Plan]**
 - a. Add a page to MSD’s website where people can submit notes or pictures of their efforts.
 - b. Give out plaques or other awards to those who “join.”

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

1. Use landscaped areas to control stormwater runoff. **[Included in Green Infrastructure Projects and Programs]**
2. Encourage homeowners to construct rain gardens and use rain barrels. **[Included in Green Infrastructure Programs and Education Plan]**
3. Install French drains along roads to accept stormwater runoff (see also detailed suggestions listed for Beechwood Village below). **[Considered, but not included; green streets are the preferred approach]**
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**[Will be addressed in MS4 program]**
5. Consider incorporating aspects of the LEED green building standards into MSD design manuals for structural BMPs. **[Considered but will not be required, incentives are the preferred approach]**
6. Increase tree canopy. **[Included in Green Infrastructure Projects and Programs]**
 - 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. **[Included in Green Infrastructure Projects and Programs]**
8. Conduct demonstration projects. [Note: Overlaps with demonstration projects in Education and Outreach Ideas List.] Specific ideas for projects include: **[Included in Green Infrastructure Projects and Education Plan]**
 - 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. **[Considered]**
 - b. Create some sustainable lawns as pilot projects. **[Not included – Sustainable lawns are not part of green infrastructure projects for runoff reduction]**
 - c. Develop a green infrastructure best management practice site similar to SD1 (Sanitation District Number 1 of Northern Kentucky). **[Under active consideration]**
 - d. Add green demonstration/education facilities to old urban schools. **[Considered]**
 - e. Use the Butchertown Greenway Pump Station that is offline for an education and demonstration facility. **[Considered but not included]**
9. Plant native plants with deep root systems. **[Included as part of Green Infrastructure rain gardens and green streets]**

10. Maintain existing detention/retention basins – many may not function properly due to lack of maintenance. **[Implicitly Included for MSD owned facilities, primarily an MS4 issue for non-MSD facilities]**
11. Design structural stormwater best management practices to be multiple use and eco-friendly. **[Implicitly Included, see Eco-Friendly Solutions Performance Measurement Matrix]**
 - 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.
12. Convert alley stormwater systems into infiltration systems using pervious pavement. **[Included in Green Infrastructure Projects]**
 - a. Potential areas could include the central business district and the west end.

C. CSO and SSO Point Source Controls

1. Disconnect downspouts and/or sump pumps (e.g., by developing educational initiatives aimed at landowners). **[Included in Green Infrastructure Programs and Education Plan]**
 - a. One potential target for a downspout disconnection program could be school buildings.
2. Yard signs similar to those used in Portland’s residential Downspout Disconnection Program could be useful for education and outreach about MSD’s IOAP. [Note: This idea overlaps with the Education Ideas List.] Specific ideas for signs include: **[Included in Education Plan]**
 - 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.
3. Increase enforcement and inspections of downspout and sump pump connections. **[Considered, see January 2008 Ordinance Presentation]**
 - a. Incorporate inspections into the property-transfer process (e.g., as another inspection with the sale of existing homes). For example, MSD could deputize the state plumbing inspector, which has the authority to go into private property, to conduct inspections of downspouts. MSD could pay on a per building basis for those inspections. **[Considered, see January 2008 Ordinance Presentation]**
4. Look at large parking lots as potential sites for wastewater storage facilities. Organizations might be willing to have a covered storage facility built below a ground-level parking lot. In addition, there could be opportunities to add value for the property owner, by building a parking garage as a replacement and/or by providing credit for any non-point source pollution reduction associated with the project. **[Considered, will implement storage under Public Works East Yard, and potentially under a privately owned car wash]**
5. Repair and seal all building laterals. **[Considered and included in infiltration and inflow (I&I) reduction plans]**
6. Act on any sump pump or other illegal connection issues uncovered during the course of MSD’s regular operations and maintenance work on the sanitary and combined sewer systems. **[Implicitly Included]**

D. General/Other Solutions

1. Leverage and coordinate the IOAP efforts with MSD’s MS4 stormwater management permitting responsibilities. **[Included in Vision]**
2. Conduct green infrastructure demonstration projects with monitoring components built in, to help demonstrate the overall effectiveness of green infrastructure solutions. **[Included]**

- a. Start with small, visible projects (“quick wins” – e.g., in a particular neighborhood, near a Rubbertown plant). **[Included]**
3. Preserve rural character where possible. **[Considered as part of benefit cost performance evaluation framework]**
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.**[Assigned to Stormwater Committee of The Partnership for a Green City (Green City Partnership)]**
5. Do not rule out flow-reduction techniques to address SSOs for any watershed. **[Implicitly Included – I&I reduction assumptions built into the development of SSO projects]**
6. Look at combining different types of control options, including opportunities to reduce flows of water into the sewer system (e.g., from housing units) in tandem with other types of solutions. For example, combining storage and flow-reduction approaches could make it possible to use a smaller-sized storage facility. **[Included, see Vision and CSO Understandings Document]**
7. Involve community members in addressing the root causes of SSOs (e.g., by working with the Metro Council, community organizers, and neighborhood groups). **[Included in Education Plan]**
8. Challenge preconceived notions of what U.S. EPA will accept in terms of the role of source control in an SSO elimination plan. **[Implicitly Included, see SSO Understandings Document]**
 - a. Use technical feasibility and cost effectiveness as the primary basis for deciding the level of source control to meet regulatory compliance obligations, and work with relevant regulatory bodies to justify the basis for this approach. **[Implicitly Included, see SSO Understandings Document]**
9. Consider wet weather sewer overflow control strategies that reduce future maintenance issues. **[Considered, benefit-cost ratio based on Total Present Worth Costs that include future maintenance costs]**
10. When choosing initial green infrastructure projects, consider avoiding areas where there were problems with seepage and backups during the 1997 storm, as it may be useful to avoid known problem areas. **[Considered, green infrastructure program includes recommendation of site-specific geotechnical evaluations]**

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. **[Considered, but not included since the park is outside the CSO area, and St. Mathews Park handles its own drainage]**
2. Install new sanitary lines and laterals to homes, and pumps for basement facilities when requested by the homeowner. **[Considered and included in final design]**
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. **[Considered but not included, selected approach installs new sanitary sewers and reuses existing sewers for stormwater and sump pump discharges]**

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). **[Considered, but not included, as green streets are the preferred approach]**
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. **[Considered but not included, since water in existing sewers is expected to be primarily groundwater, already very clean. Constructed wetlands for stormwater treatment will be referred to MS4 program.]**
6. Restore natural stream banks for the Sinking Fork north of Shelbyville Road where the big pump now sits. **[Considered but outside the scope of the IOAP]**

Beargrass Creek – Middle Fork

1. Restore the Middle Fork between Grinstead crossing and confluence. **[Outside the scope of the IOAP, except as noted below]**
 - 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. **[Considered and included in the final plan]**
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. **[Consolidation of CSOs was considered, and most Middle Fork CSOs consolidated into regional solutions]**
3. Potentially develop the River Metals property (a brownfield near the Girl Scouts Building) as a storage or wetlands treatment area. **[Considered – storage will be recommended near the River Metals property, but only a small part of the parcel is needed]**
4. Establish wetlands at Seneca Park and Old Cannons Lane. **[Outside the scope of the IOAP]**
5. Consider locations/sites for storage solutions that are closer to the SSOs in the Anchor Estates Pump Station watershed than the potential location presented at the 9/20/07 WWT meeting. **[Considered a variety of sites. Final plan eliminates all but one SSO by added conveyance. Remaining storage solution is accomplished within existing MSD pump station site.]**
6. Utilize parks property orphaned by I-64 as a detention basin for the Beals Branch sewer watershed CSO. Restore the sediment-filled wetland at the confluence of Beals Branch and the Middle Fork as a treatment wetland for the basin's discharge. **[Considered property but a different location was selected. Wetland treatment of CSOs is not permitted in areas of potential public contact (considered sewage treatment plant).]**

Beargrass Creek – South Fork

1. Restore the South Fork between I-264 and Eastern Parkway. **[Outside the scope of the IOAP]**
 - 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.
2. Create a rain garden in the Germantown area to intercept stormwater flowing to a variety of minor CSOs at the old trolley turnaround. **[Considered in green infrastructure evaluation]**

Beargrass Creek – Muddy Fork

1. Restore Eva Bandman Park.
 - a. Convert the park into restored wetlands with a boardwalk for visitors. **[Outside the scope of the IOAP]**
 - b. Include the park as part of the solution for the CSOs that discharge at the confluence by having it receive their stormwater. **[Considered but drainage basin for these CSOs extend long distances from the confluence, costs favored another solution]**
2. Tie the impaired section of Beargrass Creek to newly created wetlands, near Eva Bandman Park. **[Outside the scope of the IOAP]**
3. Incorporate green infrastructure into the Arts Center. **[Comment unclear, but green infrastructure being considered for all new major construction by Louisville Metro]**
4. Turn the MSD pump station into an interpretive center. **[Considered but not included due to benefit-cost considerations]**
5. For CSOs 132, 154, and 167:
 - a. Conduct a concentrated effort to disconnect downspouts in this area. **[Considered for Green Infrastructure Programs]**
 - 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. **[Considered for Education Plan]**
 - 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 in Section III.] **[Not Considered, Out of Scope]**

Downtown Louisville/Central Business District

1. Consider taking advantage of planned construction on Main Street in downtown Louisville to construct the CSO solutions at a lower cost. **[Considered and included in green infrastructure considerations]**

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. **[Floyds Fork is in the separate sewer area, so green infrastructure in that area is an MS4 issue]**
2. Protect Floyds Fork with riparian buffers and other preservation efforts. **[Same as 1 above]**

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. **[Considered, But Not Included]**
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) **[This is in separate sewer area so green infrastructure is an MS4 issue]**
 - b. The Bradley Property **[Same as 2a above]**

II. Funding Ideas and Incentives

A. Cost Allocation Strategies

1. Equitably assign costs (focus areas for the financial equity value): **[Considered for Funding Plan]**
 - a. Consider the burden on fixed income and low-income populations. **[Considered for Funding Plan]**
 - i. Spread payments over a longer time period if this would reduce the burden on lower income residents.
 - b. Rates and fees that are linked to the cost to serve (i.e., the level of impact). **[Considered for Funding Plan]**
 - c. Consider how the community develops to make sure that everyone pays into the solution. **[Considered for Funding Plan]**
2. Charge residences differently depending on the area of impervious surfaces on properties (and therefore the amount of stormwater runoff that would be generated). **[Considered for green infrastructure incentive program; it has not yet been determined whether the program will include construction subsidies, drainage credits, or both. Currently residential properties are all charged same fee, so implementing this would require modifying the drainage rate structure.]**
3. Require lower development fees for areas that already have sewer capacity (e.g., urban areas in need of re-investment). **[Not an IOAP issue]**
4. Bill based on increased water usage—the more you use, the higher the rate. **[Considered, But Not Included in lieu of winter averaging]**
5. Develop an equitable plan for joint funding for permeable pavement efforts. **[Considered for Green Infrastructure Programs and Projects]**
6. Extend MSD's senior citizen's discount program to ensure that it helps people who face financial hardship. Ideas include: **[Included, see July 2008 Funding Plan Presentation]**
 - a. Consider people's ability to pay, not simply their age, and provide assistance and/or discounts to low-income populations.
 - b. Evaluate whether the square footage of people's homes could be used as an indicator of the need for financial assistance.
 - c. Examine the verification and process and criteria that LG&E uses for its Winterhelp program.
7. General principles for funding and cost allocation:

- a. Have higher rates in the near term to avoid future balloon payments. **[Considered for Funding Plan]**
 - b. Create balance between what the community pays now and what the community will pay later. **[Considered for Funding Plan]**
 - c. Do not increase rates so much that they drive companies or residents to move elsewhere. **[Included, see Vision and July 2008 Funding Plan Presentation]**
 - d. Use the community's resources wisely. This will involved dealing with issues such as the Big 4 SSOs, but also working on long-term strategies to improve water quality such as promoting behavior change through education. **[Implicitly Included, see WWT financial values]**
8. Charge higher rates for people with the ability to pay in order to provide resources to offer incentives to people who "do the right thing" and discounts to people who need financial assistance. **[Considered for Funding Plan]**
 9. Consider charging residences that have septic tanks more on their drainage bills than other residences. **[Considered, but not included due to questions about legality]**
 10. Consider alternatives for the billing structure that would address the communication challenges associated with having a separate consent decree surcharge. Suggestions include:
 - a. Get rid of (or phase out) the separate consent decree surcharge. **[Phase out is under consideration and will likely be recommended by staff; final decision is by MSD Board]**
 - b. Increase the consent decree surcharge so it covers all of the capital costs for constructed consent decree projects. **[Considered, but determined to be difficult to implement due to an inability to definitively separate consent decree from non-consent decree costs]**

B. Funding Sources/Options

1. Consider using volunteers to reduce costs. **[Considered and will be incorporated where possible, but not a reliable resource that can be committed to in the IOAP]**
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. **[Considered and incorporated into green infrastructure program]**
3. Consider additional user charges that could be used as a result of adopting a different rate schedule. **[Considered, but not included at this time]**
4. Maintaining a certain level of bond rating could be a way of setting limits on how much money MSD borrows versus how much it generates in internal revenues. **[Included, see Vision and July 2008 Funding Plan Presentation]**
5. Consider not borrowing any money. **[Considered, But Not Included]**
6. Balance the impact of potential financial packages on MSD's bond rating, rates, and cash flow/liquidity. **[Included, see Vision and July 2008 Funding Plan Presentation]**

C. Incentives *[Note: Incentives related to a potential ordinance to address private sources of infiltration and inflow (I&I) are located in Section III-A-Regulatory Requirements/Policies]*

1. Provide incentives for "preferred" behaviors, such as: **[Included in Green Infrastructure Programs]**
 - a. Installing/using green roofs and permeable pavement. **[Included in Green Infrastructure Programs]**

- b. Increasing tree canopy, changing plantings, and other activities to reduce runoff from people's yards. **[Included in Green Infrastructure Programs]**
 - c. Reducing use of lawn chemicals. **[Not Considered, Out of Scope]**
 - d. Controlling the spread of invasive species. **[Not Considered, Out of Scope]**
- 2. Offer incentives for developers to use cost-effective, eco-friendly solutions (e.g., low impact development techniques, stormwater best management practices). **[Included in Green Infrastructure Programs]**
 - a. One idea for an incentive is to offer drainage credits. **[Considered, may be part of green infrastructure program, see April 2008 Funding Presentation]**
 - i. Offer drainage credits to companies that put money into water education for the community. For example, give companies a one dollar discount for every five dollars spent on community education. **[Considered but not included]**
 - b. Develop incentives for developers to use the greenest and simplest solutions for new development (e.g., moving permit applications to the front of the review line). **[Considered but not included]**
- 3. Charge reduced wastewater rates to property owners that use eco-friendly techniques to reduce stormwater runoff. **[Considered, see April 2008 Funding Presentation]**
- 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-6). **[Considered but not included due to sustainability and validation uncertainties]**
 - a. In critical CSO neighborhoods, provide free rain barrels to people who sign the pledge. **[Considered as part of the green infrastructure program]**
- 5. Develop compensation credits to help alleviate financial burden to developers and property owners. **[Incentives considered as part of green infrastructure program]**
- 6. Reduce rates for houses that are certified (i.e., through inspections) as eliminating inflow from their properties into the sewer systems. **[Considered, see April 2008 Funding Presentation]**
- 7. Develop and administer a "forgivable loan" program that would cover the replacement of a private lateral line when an inspection reveals that it contributes to an SSO. **[Considered, see January 2008 Ordinance Presentation]**
 - a. The loan would be up to a maximum amount set by MSD for the private contracting work and would be forgiven at the end of, for example, 20 years, if the homeowner made no illicit connections. If illicit connections were made, the loan would be due in its full amount, civil penalties would apply, and water would be disconnected after a grace period if the illicit connections weren't removed.
 - b. The loan program would require regular inspections.
 - c. The loan would come due via lien if the homeowner sold the property, but the new homeowner could negotiate with MSD for a new loan but with a new twenty year term.
- 8. Consider not charging based on winter water usage, as this could potentially remove an incentive to conserve water, since water usage varies more in the summer. **[Considered, But Not Included, see July 2008 Funding Presentation]**
- 9. Consider incentives for development in areas where there is less impact on the sewer system (i.e., encouraging lower impact development). **[Considered incentives in green infrastructure program]**
 - a. There could be a role for impact fees in encouraging development in areas where there is less impact on the sewer system. **[Considered to be outside the scope of IOAP]**

10. Consider using requirements when needed in addition to incentives to ensure that solutions are maintained. **[Considered, see January 2008 Ordinance Presentation and SSO Understandings Document]**
11. Consider revising the potential financial incentive for vegetated roofs; \$4 per square foot might not be sufficient. **[Considered; incentives developed through business case evaluation, but likely will have different levels of incentives for downtown area, and to get the program started]**

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)

Regulatory Requirements/Policies

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. **[Implemented in MSD's System Capacity Assurance Plan (SCAP), which is a part of MSD's Capacity, Management, Operation, and Maintenance (CMOM) Program, but not part of the IOAP]**
2. Require that regional detention ponds in post-developed areas provide filtration for storms that occur every two years or less. **[Out of Scope –MS4 issue]**
3. Require post-development runoff to be equal to pre-development runoff. **[Out of Scope –MS4 issue]**
4. Develop mandatory or alternative green solutions for development projects (e.g., by changing development codes). **[Not an MSD issue]**
5. Determine impervious surface limits for individual watersheds. **[Impervious percentage only one part of land-use planning relative to water quality – not an MSD issue]**
6. Deny permits for sites within CSO or SSO sewersheds that have any incidents of illegal connections to the sewer system to limit impacts on already overloaded systems. **[Wet weather offsets are required (as noted in the IOAP Vision), but permits are not denied if the waste water treatment plant has capacity, per MSD's SCAP]**
7. Use wet weather capacity (instead of dry weather capacity) of the sewer system as the baseline for approving new development. **[Both considered in MSD's SCAP]**
8. Develop an ordinance to address private sources of infiltration and inflow. Ideas related to a potential ordinance include: **[Considered (along with all items below), see January 2008 Ordinance Presentation and SSO Understandings Document]**

Authority and Responsibility for Inspections and Enforcement

- a. Develop an ordinance that would allow MSD or a plumbing inspector to enter homes to identify sources of infiltration and inflow (e.g., broken foundation drains). MSD could subsidize or help pay for the costs of the inspections.
- b. Require contractors and plumbers working on private property to check for sources infiltration and inflow.
- c. Adopt a requirement for inspections of private properties for sources of infiltration and inflow any time a building permit is issued (e.g., for an addition to an existing home).
- d. The ordinance should have the flexibility to allow people other than plumbing inspectors to conduct inspections of private properties.
 - i. Allow other types of inspectors to do the inspections.
 - ii. Allow property owners to make repairs themselves and then have certified inspectors inspect the repairs.

- iii. It may be better from an accountability perspective to not have MSD do the inspections, repair work, and enforcement.

Trigger for Inspections

- e. Use a proactive approach to inspecting properties (such as the approach used in Johnson County, KS) that would allow MSD to target high-priority areas.
- f. Use two approaches for triggering property inspections: require inspections during the property transfer process, and also proactively target certain neighborhoods/areas for inspections.

Scope

- g. Have the ordinance address issues with the combined sewer system as well as the sanitary sewer system (e.g., look at ways to reduce runoff and limit impervious cover in the CSO area).
- h. Expand the scope of the ordinance to include:
 - i. An outright ban on downspouts, sump pumps, and basement drains.
 - ii. A requirement that new parking lots and parking lots that are going to be repaved have more stormwater controls.

Financial Assistance

- i. MSD should provide financial assistance to the community related to the ordinance.
- j. The ordinance should include a cost-sharing component.

Other

- k. Develop legislation related to private sources of infiltration and inflow that would:
 - i. Prohibit clear water connections to the sanitary system.
 - ii. Require homeowners to maintain the lateral line.
 - iii. Provide for civil penalties for homeowners and plumbers for illicit connections or failure to repair the lateral line.
 - iv. Disconnect water supply after a brief grace period if the problems aren't corrected.
 - v. Give MSD the authority to inspect when an SSO occurs downstream of any sanitary connection.
 - vi. Describe a process MSD would use when it must inspect sanitary connections upstream from an SSO, including notice and information about the program.
 - vii. This new inspection process should begin immediately with the "Big 4" SSOs, but could be implemented when MSD detects others.
- l. A draft ordinance should be reviewed by a county/city attorney.

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. **[Out of Scope – MS4 issue]**
- 2. Preserve existing natural systems, vegetation, and trees during development, rather than removing and rebuilding them. Take advantage of existing assets in development opportunities. **[Out of Scope – MS4 issue]**
- 3. Look at green parking opportunities along business corridors. **[Considered for Green Infrastructure Projects]**

4. Look at opportunities to develop more upward and infill already developed areas (i.e., increase density). **[Not in MSD control]**
5. Develop a “complete streets” program policy to encourage “parkway-like” streets and reduce stormwater run-off. **[Not in MSD control]**
6. Form partnerships with housing developers to minimize impervious surfaces. **[Not in MSD control]**
7. The parking lot on Frankfort Avenue could utilize porous pavement for public parking. **[Incentives for pervious pavement parking lots included in green infrastructure program]**
8. Develop a recognition program for those who use green infrastructure. **[Included in Education Plan]**
9. Opportunities in schools: **[Considered for green infrastructure projects and partnerships]**
 - 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.
10. Look at opportunities to incorporate green infrastructure into brownfield development (e.g., in Park Hill Corridor). **[Not in MSD control]**
11. Prepare a draft best management practice for developers on using green infrastructure. **[Not in MSD control]**

Opportunities to Link MSD Efforts to Existing Partnerships and Programs

1. Develop a “comprehensive solution” for local environmental improvement and education efforts. **[Outside the Scope of IOAP]**
 - 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.). **[Considered for Green Infrastructure Programs]**
3. Integrate green projects into planning efforts underway. **[Considered and 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. **[Included, see Vision and already underway]**
5. Consider green infrastructure in the context of healthy activity improvement projects and projects that promote greater walk-ability in neighborhoods. **[Outside the scope of IOAP]**
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. **[Will be part of Green City Partnership participation]**
7. Convene a group of local authority figures (e.g., the mayor, the president of the University of Louisville, and others) to coordinate and work collaboratively on community environmental improvement initiatives. (WWT members suggested that an appropriate time for a meeting like this might be summer 2008, when more of the details of MSD’s draft IOAP are known.) **[Meeting convened in August 2008, and IOAP vision of green collaboration was presented]**

and endorsed. Note: This meeting will be mentioned in the WWT project updates session at the September WWT meeting.]

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. **[Considered for Green Infrastructure Programs]**
2. Partner with schools to relate students' community service efforts with green projects. **[Considered for Education Plan]**
3. Coordinate with other regional entities to build a major treatment plant near the Salt River. **[Outside the Scope of IOAP]**
4. Consider linking IOAP construction projects to road construction efforts. **[Will coordinate schedules when possible – existing process in place to do this to some extent]**
 - a. One potential place for such a linkage is the road construction occurring in the Goose Creek Pump Station area.
5. Work with governmental entities to “lead by example” by eliminating infiltration and inflow entering the sewer systems from government-owned properties. **[Included in Green Infrastructure Programs and Projects]**
6. Consider where development will occur in the future, in order to avoid having similar wet weather problems related to private sources of infiltration and inflow in the future. **[Considered in build-out evaluation during hydraulic modeling of sewers]**
7. Partner with other cities and states that have wet weather consent decrees to collectively ask federal representatives to seek additional government funds for wastewater and stormwater management improvement efforts. **[MSD is part of National Association of Clean Water Agencies (NACWA) which is spearheading this effort]**
8. Coordinate with other agencies to examine the total impacts of all utility costs (water, wastewater, energy, gas) on customers. **[Will be considered in affordability analysis]**
9. Help the community implement a watershed approach to improving water quality that includes addressing stormwater and non-point source pollution in addition to CSOs and SSOs. **[Out of Scope – MS4 issue]**
10. Form partnerships with people and agencies who work on climate change issues (e.g., the new committee in the Green City Partnership). **[MSD is working with Green City Partnership]**
11. Network with partners on education activities. **[Included in Education Plan]**
12. Work with the Green City Partnership to develop potential incentives. **[Underway]**
13. Develop a collaborative agreement on green infrastructure with other entities (e.g., schools, city and county government) such as the Memorandum of Understanding between Cincinnati Public Schools, the City of Cincinnati, and the County of Hamilton, Ohio regarding sustainable design “green” guidelines. **[Working as part of Green City Partnership]**
14. At the intersection of Grinstead and Lexington Road, work with the Kentucky Department of Transportation to redirect stormwater flows from the interchange into a wetland. **[Project currently in design]**
15. Work with Metro Parks to collect stormwater into a cistern at Beringer Spring. **[Outside the scope of IOAP]**

B. MSD Actions Not Related to Sewer Overflow Issues

1. Purchase properties within the floodplain. **[Not Considered, Out of Scope]**
 - 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. **[Not Considered, Out of Scope]**
3. Partner with local lawn care companies to promote Louisville Green (MSD's organic fertilizer). **[Not Considered, Out of Scope]**
4. Do not give rebates during droughts and do not give special rates for irrigation meters for residential or commercial entities for lawn care, as this could be seen as encouraging lawns, which can contribute to water quality problems (e.g., runoff containing fertilizers and pesticides). **[Planned changes in rates would charge based on winter months, so drought and irrigation credits no longer will be given]**

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. **[Not Considered, Out of Scope]**
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. **[Not Considered, Out of Scope]**
3. Utilize the open space in parks for green infrastructure. **[Considered]**
4. Develop and educate residents about urban farming opportunities. **[Not Considered, Out of Scope]**
5. Teach and promote sensible/responsible development. **[Part of this is included in green infrastructure and public education programs]**
6. Require parking lots to provide shaded areas. **[Not Considered, Out of Scope]**
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. **[Not Considered, Out of Scope]**
8. Protect or improve water quality and flood control for developments. **[Out of Scope – MS4 issue]**

Education and Outreach Ideas

I. MSD Integrated Overflow Abatement Plan Education and Outreach Efforts

A. Education/Outreach Program Characteristics

1. MSD should expand upon its existing education and outreach efforts, including Project WIN and other MSD programs such as Living Lands and Waters. **[Included in Education Plan]**
2. Education efforts should be comprehensive, adequately resourced, and human scale to encourage behavior changes (e.g., stewardship practices). **[Considered]**
3. To be successful, public involvement efforts should include: **[Included in Education Plan]**
 - a. A corporate or programmatic identity: logo, leader, advisory board, budget, mission, goals, website, etc.
 - b. Communications: announcements, fliers, newsletters, radio/TV appearances, etc.
 - c. Stewardship: removing invasive vegetation from riparian zones, planting wetlands, [and yes] litter cleanups
 - d. Education: stream science, water quality monitoring
 - e. Conservation: promoting rain gardens, rain barrels, and responsible alternatives for sump pumps and downspout connections.
 - f. Coordination: linking the public involvement activity with MSD and the wet weather team
 - g. Celebration: festivals, canoe floats, and other events that call positive attention to the area's waterways
4. Outreach efforts should show people that there is an open and transparent process within which MSD is making decisions on behalf of the community. **[Included, see Project WIN website]**

B. Audiences, Objectives, and Messages

1. Target education efforts in “critical CSO neighborhoods” and schools in those areas. **[Included in Education Plan]**
 - a. Use a targeted direct-mail approach to help address local, site-specific problems.
2. Involve commercial and industrial customers and solutions through PR and planning, not just residential customers. **[Included in Education Plan]**
3. Make a presentation to the full Metro Council. **[Done once and will be repeated during the public comment period for the draft IOAP]**
4. Work with schools (in conjunction with Earth Day and river/creek cleanups) to involve both students and parents. **[Included in Education Plan]**
5. Message ideas:
 - a. Develop positive educational messages about the value of clean water to supplement other education and outreach messages. (CSO warning signs, river sweeps, and other elements of MSD's outreach activities send a negative message about the community's water resources.) **[Included in Education Plan]**
 - b. Can the “water is dirty, stay away from it” signs that EPA designated include a promise that the public can change the situation? **[Considered for future implementation in Education Plan]**
 - c. Translate Consent Decree activities into dollar impacts for residents. **[Considered for Education Plan]**

- d. Communicate that we have no choice but must comply with the requirements of the consent decree in a timely manner. **[Considered for Education Plan]**
 - e. Help people understand how they are connected to the problem. **[Included in Education Plan]**
 - f. Help change the perception people have of streams to a positive one (people think that streams are “dead”). **[Implicitly Included, see Education Plan key messages]**
 - g. Help people understand that green infrastructure can be incorporated into urban areas, since urban areas can be redeveloped. **[Considered for Green Infrastructure Projects]**
 - h. Craft messages explaining the importance of addressing private sources of infiltration and inflow, and people’s personal responsibility for addressing it. **[Included in Education Plan]**
 - i. Create community ownership of the solutions. **[Included in Education Plan]**
 - j. Stress that there are two sides to EPA compliance, and note that programs will affect some people more directly than others because of the way the sewer system has developed over time: **[Considered for Education Plan]**
 - i. What MSD is going to do with its infrastructure that will affect the whole community.
 - ii. What citizens and businesses will be asked to do.
 - k. Inform the community that EPA is targeting three parts of the sewer system: CSO sewersheds, the “Big 4” SSO sewersheds, and the other SSO sewersheds. **[Considered for Education Plan]**
 - l. Help people understand that, even though people are paying for MSD to address its Consent Decree responsibilities through the Consent Decree rate surcharge, the community as a whole must help solve the problem. **[Included in Education Plan]**
 - m. Help people understand the differences between the combined sewer system and the sanitary sewer system. **[Included in Education Plan and on Project WIN website]**
 - n. Explain funding concepts and choices to the public. Showing side-by-side cost comparisons could be a particularly useful way of doing this. **[Will be included in presentation for fourth round of public meetings]**
 - o. Thoroughly explain the financial assistance component of any private infiltration and inflow reduction program. **[Considered, see SSO Understandings Document and January 2008 Ordinance Presentation]**
 - p. Some information from MSD’s Sewer Overflow Response Protocol training (such as how MSD prepares for wet weather events) could be useful to share with the public, potentially during weather forecasts. **[Considered for Education Plan]**
 - q. Educate people about the benefits of green projects that are the result of partnerships between MSD and other agencies. **[Considered for Green Infrastructure Programs]**
6. Involve neighborhoods in identifying potential green infrastructure solutions (e.g., by having a neighborhood competition to get grassroots ideas for potential solutions). **[Incorporated into Project WIN public meetings]**
 7. Develop education programs for schools that allow children to take information home. **[Included in Education Plan]**
 - a. Participate in the two existing environmental education school magnet programs. (These programs are located at Portland and Cane Run elementary schools.)

8. Educate local leaders on the need for source reduction. One way to do this would be to show them the cost of specific solutions to SSO and CSO problems. **[Will be done as part of private property ordinance support]**
9. Explain problems and programs related to SSOs directly to homeowners (individually if necessary), and enlist neighborhood associations and other neighborhood institutions to help when appropriate. **[Considered for Education Plan]**
10. Conduct an aggressive education effort before instituting any new requirement that would address private-side infiltration and inflow sources. **[Considered, see January 2008 Ordinance Presentation and SSO Understandings Document]**
11. Develop and implement a public information and involvement strategy for each of the three parts of the sewer system that EPA is targeting: the “Big 4” SSO sewersheds, the other SSO sewersheds, and the CSO sewersheds. **[Considered for Education Plan]**
 - a. Each area should be mapped and made publicly available on MSD’s website.
 - b. Public information should roll out in consecutive waves so the different programs can be explained to the larger community and the direct effects can be explained to the parts of the community that may need to do more to make them work.
 - c. The first wave of public information should address the “Big 4” SSO sewersheds, followed by the other SSO sewersheds, and then the CSO sewersheds.
12. Communicate effectively with the community regarding rate increases. **[Considered for Education Plan]**
 - a. Keep the message positive. **[Included in Education Plan]**
 - b. Include as part of the message that the alternative to the IOAP is having the federal courts impose requirements on the community.
 - c. Tell residents what they are getting for their money and how these efforts are improving public health. **[Included in Education Plan]**
 - d. Help people feel involved in the process and understand that they have some responsibility for helping solve the problem (e.g., through communications that ask, “can you help us?” instead of “we’re going to do this”). **[Included in Education Plan]**
 - e. Help residents understand what they are paying for and what the community has to do to improve water quality and comply with the Consent Decree. **[Included in Education Plan]**
 - f. Find a truthful and transparent way to explain the rate increases to the public, including describing what the rate increases are paying for (consent decree and other expenditures). **[Will be included in presentation made for final round of public meetings]**
13. Share the messages from MSD’s IOAP Vision at Project WIN public meetings and with builders and other contractors. **[Considered for Education Plan]**
14. Develop a continuing education program for elected officials and other government bodies such as the Planning Commission and governing boards of other cities in Jefferson County. **[Outside the scope of IOAP]**

C. General Outreach and Education Strategies and Techniques

1. Use a variety of communication media to inform Louisville residents about issues, opportunities, and activities related to the IOAP and the Consent Decree. Examples include: **[Included in Education Plan]**
 - a. feature articles and/or advertisements in the Courier Journal **[Included]**
 - b. direct mail **[Included]**

- c. public service announcements on television **[Included]**
 - d. radio (WLOU/WLLV 1350 and 101.3 FM for the west) **[Included]**
 - e. e-mail lists (“UofL announcements” to University of Louisville employees, e-mail lists for Metro Council members) **[Included]**
 - f. website(s) (provide information, as well as solicit input and questions) **[Included]**
 - g. community meetings (“piggy back” on other events/meetings such as the Mayor’s Night Out, community association meetings, Metro Council meetings, etc.) **[Considered for Project WIN meetings]**
 - h. media “groundbreaking” events **[Included]**
 - i. 5-minute DVD video (highlight the central issues and indicate the short and long-term consequences) **[Included]**
 - j. hold a “creek concert” to raise awareness of stream issues to young people **[May be considered in future, but not currently in the plan]**
 - k. develop/use a Kentucky State Fair Exhibit (permanent or traveling) **[Included]**
 - l. hold a speaker’s forum and/or have a group of people available that could speak at community meetings and events **[Included]**
 - m. work with the Mayor’s press staff and the Louisville Metro Neighborhoods Department to get the word out **[Included]**
 - n. hold a press conference **[Included]**
 - o. communicate about Project WIN through small city newsletters **[Considered and will be included for targeted neighborhood messages when appropriate]**
2. Develop/use posters and visual displays to illustrate concepts to the public and provide context to IOAP activities. Specific suggestions include: **[Included in Project WIN public meetings, in Education Plan, and Project WIN website]**
- a. Schematic of a combined sewer overflow **[Included]**
 - b. Schematic of sump pumps and downspouts connected to sanitary sewers **[Included]**
 - c. Map of the combined sewer area and outfalls against blue line streams and landmarks (road system would do) **[Included]**
 - d. Map of SSO outfalls including the sewersheds of the “big four,” as above **[Included]**
 - e. Water Quality maps from the Beargrass Creek report card, also water quality info about Ohio River related to CSO outfalls. **[Water quality information to be included on Project WIN web site, water quality outcomes will be part of public meetings]**
 - f. Comparison of city sewer rates indicating which cities have consent decrees **[Included]**
 - g. Time frames for the major deliverables in the Consent Decree **[Included]**
 - h. Create visible representations of the solution, since they can be helpful for explaining project concepts to the public. Use these visual representations when soliciting community input. **[Included]**
3. Initiate a dialog with neighborhoods, potentially including door-to-door outreach, to better understand local water quality problems and to solicit local input on potential solutions. **[Considered but not used except in limited situations due to resource requirements]**
4. Develop a speakers bureau to attend chamber/business association meetings and other groups that use speakers. **[Included in Education Plan]**
5. Conduct demonstration projects (Note: Overlaps with demonstration projects in Solution Ideas List). Specific ideas include: **[Included in Green Infrastructure Projects and Education Plan]**

- 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. **[Considered]**
 - b. Strategically place demonstration projects (e.g., porous pavement) near neighborhoods. **[Considered]**
 - c. Create some sustainable lawns as pilot projects. **[Not included – sustainable lawns are not part of green infrastructure projects for runoff reduction]**
 - d. Develop a green infrastructure best management practice site similar to SD1 (Sanitation District Number 1 of Northern Kentucky). **[Under active consideration]**
 - e. Add green demonstration/education facilities to old urban schools. **[Considered]**
 - f. The Clifton neighborhood is motivated, so would be a good demonstration area to show the effects of behavior change. **[Considered, but geology is not favorable for large scale demonstration]**
 - g. Use the Butchertown Greenway Pump Station that is offline for an education and demonstration facility. **[Considered but not included]**
 - h. Cluster demonstration projects in one spot, so that people can view and compare multiple approaches to reducing flows into the sewer stream. **[Considered but logistically difficult]**
6. Present “Where is your CSO or SSO?” information on-line: On the MSD or LOGIC website, have the ability to type in your address and have it call up the location of the CSO or SSO that the property owner’s waste goes to. The website could describe the watershed that contributes water and runoff to that individual CSO or SSO. **[Considered but not included at this time]**
 7. Support the identification of public watershed advocates for each Jefferson County watershed. Each watershed needs a public advocate. It could be connected with a nature center, or be an independent citizen advocacy group. **[Considered but not included at this time]**
 8. Make MSD facilities visitor friendly. For example, add educational exhibits around the flood wall, the history of flooding, etc. to the Beargrass Creek Pump Station and near the flood detention basins at the Fairgrounds. **[Not Considered, Out of Scope]**
 9. Have MSD employees be educational ambassadors, as a way of making Louisville environmentally literate. **[Considered]**
 10. Public meeting ideas: **[Considered for Project WIN public meetings]**
 - a. To increase attendance, consider latching onto other meetings. **[Considered]**
 - b. Ideas for places/ways to advertise the public meetings: **[All items Considered]**
 - i. Churches
 - ii. PTA meetings.
 - iii. Metro Council and neighborhood newsletters
 - iv. Channel 25 (Metro Louisville programming)
 - v. Short recorded messages on phones
 - vi. Send announcements about the public meetings through the Department of Neighborhoods distribution list to get word out to neighborhood groups.
 - vii. Listservs
 - viii. Get the word out at local schools so kids can take information home to their parents.
 - ix. Local TV or NPR piece
 - x. Homeowners Association newsletters

- xi. Suburban city newsletters
- c. Start public meeting presentations with information on rates to get people's attention. **[Considered]**
- d. At public meetings, consider the fact that people need time to digest information from presentations and written materials. **[Considered]**
- e. Avoid using acronyms in presentations and discussions with community members. **[Considered]**
- f. Conduct direct outreach to block watch groups, neighborhood associations, and business associations to identify neighborhood leaders. **[Considered]**
- g. Give people at least two weeks advance notice of the public meetings. **[Did for Project WIN public meetings]**
- h. Have the Metro Council representative for the local area host the public meetings. **[Considered and often accomplished]**
- i. Hold public meetings at local schools, maybe in conjunction with other meetings that are already taking place. **[Considered]**
- j. Give information that is as specific in terms of location as possible at the public meetings. **[Did for Project WIN public meetings]**
- k. Advertise some of the potential solutions being considered, and hold the meetings near some of the likely places of disruption, as a way to get people to attend public meetings. **[Considered and will be part of public comment announcement]**
- l. Bring up the green aspects of the IOAP at public meetings in order to find more partners for MSD to collaborate with on green projects. **[Considered]**
- 11. Add a portal to MSD's website where people can submit comments on Project WIN; run a public service announcement to inform people about the issues and the website address for submitting comments. **[Considered for Education Plan]**
 - a. Add a feature to the enhanced web portal that will allow homeowners to enter their addresses to see their proximity to local SSO and CSO zones and the problems associated with the zones. MSD could use its LOJIC database to design this feature.
 - b. On the web portal, indicate whether projects are green or gray solutions, or whether the projects combine green and gray techniques.
- 12. Develop and run an information booth at selected festivals in the community (similar to the booth used for Project XL). **[Part of current MSD program]**
- 13. Use the potential disruption along Hikes Lane (part of the Big Four SSO plan) as an opportunity for broader education of the public about wet weather sewer overflow issues. **[Considered as tie in for public meetings about the project]**
- 14. Yard signs similar to those used in Portland's residential Downspout Disconnection Program could be useful for education and outreach about MSD's IOAP. [Note: Overlaps with CSO and SSO Point Source Controls in Solution Ideas List.] Specific ideas for signs include: **[Included in Education Plan]**
 - a. Messages such as "I disconnected my downspout" and/or "I have a rain barrel."
 - b. The bottom of the sign could invite readers to "ask me" for more information.
- 15. Invite people to "join" Project WIN by installing rain gardens, rain barrels, reducing their use of lawn chemicals, etc. **[Included in Education Plan]**
 - a. Add a page to MSD's website where people can submit notes or pictures of their efforts.
 - b. Give out plaques or other awards to those who "join."

16. Consider strategies for conducting targeted outreach and providing feedback about monitoring results to specific neighborhoods. Ideas include:
 - a. Create displays about specific green infrastructure projects (porous pavement, a green roof, etc.) that describes the project, its expected benefits, and what the results have been. **[Considered for Green Infrastructure Projects and Education Plan]**
17. Develop additional educational challenges related to Project WIN, similar to the Project WIN marketing campaign competition conducted with local high schools in spring 2008. One opportunity for such an activity is Public Health Week. **[Will be considered in on-going program]**
18. Develop an educational facility (potentially near MSD's office) similar to the Northern Kentucky Sanitation District No. 1 "Public Service Park" (<http://www.sd1.org/psp/psp.asp>), which includes examples of green infrastructure and stormwater best management practices, hands-on exhibits illustrating how pollutants enter local waterways, and other information. **[Under consideration]**
19. Develop videos that MSD could show on Metro TV (Chanel 25) or distribute by other means. Ideas include:
 - a. Show potential disasters or other problems that could happen (e.g., water issues in Sudan) as a "hook" to get people's attention. **[Considered but advertising consultants advise against it]**
 - b. Provide the history of MSD as an agency (e.g., the problems Louisville faced in the past, why MSD was created, etc.) as a "hook" to encourage people to learn more about what challenges MSD and the community face and what will be coming in the future. **[Underway]**
 - c. Show how MSD's infrastructure works and how common problems occur (e.g., when sump pumps are always running). **[Underway]**
20. Provide parents with information at children's sporting events by setting up a tent or kiosk. **[Considered, especially when tied to specific neighborhood upcoming project or emerging issue]**
21. Consider "stepping up" outreach and education efforts when there is a crisis. In particular, remind people about the causes of the problem and explain how they can help reduce and prevent future problems. **[Considered and will be incorporated]**
22. Establish a "block watch" style targeted outreach approach for neighborhoods associated with individual CSO or SSO areas. **[Considered but not implemented]**

D. Education to Change Behavior [Overlaps with Behavior Change Strategies in Solution Ideas List]

1. Influence behavior of residential and commercial landowners through education. **[Included in Education Plan]**
 - a. Promote water conservation practices: rain gardens, rain barrels, and responsible alternatives for sump pumps and downspout connections. **[Included]**
 - b. Encourage stewardship: removing invasive vegetation from riparian zones, planting wetlands, litter cleanups, etc. **[Considered for green infrastructure programs and Education Plan]**
 - c. Conduct education regarding fertilizer, weed killer, and other stormwater best management practices to neighborhood groups. **[Not Considered, Out of Scope]**
 - d. Develop and educate residents about urban farming opportunities. **[Not Considered, Out of Scope]**

- e. Teach and promote sensible/responsible development. **[Considered for MSD participation, but not primarily MSD issue]**
 - f. Discourage chemical treatment and mowing near waterways to help keep debris from waterways. **[Not Considered, Out of Scope]**
 - g. Provide information on where people can obtain rain barrels, plants for rain gardens, and other resources for reducing stormwater runoff and infiltration and inflow (I&I) to the sewer system, as well as information on how to find contractors to fix I&I issues and/or to construct green infrastructure solutions. **[Included in Education Plan and Green Infrastructure Program]**
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). **[Included in Education Plan]**
 3. Hold "CSO Action Days" (like Ozone Action Days) during or right after a hard rain to raise awareness and promote behavior change (e.g., don't use your dishwasher or clothes washer, wait to drain your bathtub, etc.). **[Considered for Education Plan]**
 - a. This "Action Day" strategy could leverage existing communication networks or set up an e-mail list to periodically distribute notices that describe actions people can take to reduce their impacts.
 4. 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> **[Considered but not implemented]**
 5. Encourage the use of best management practices for chemical use in lawn management practices. **[Out of Scope – MS4 issue]**
 - a. Inform greens keepers about best management practices (BMPs), since non-point source runoff is made worse by golf course chemicals.
 6. Provide technical assistance to support behavior-change efforts. **[Part of MSD's current operations]**
 7. Develop a program in which residents could pay a small fee for MSD or another agency to conduct a water/wastewater audit on a house similar to the energy audits offered by LG&E. **[Not Considered, Out of Scope]**
 8. Establish a recognition program for neighborhood efforts to implement, maintain, and monitor green infrastructure projects. **[Included in Education Plan]**
 - a. Look for opportunities (similar to the lawn sign idea) that recognize individual accomplishments and also advertise for Project WIN.
 9. Encourage community opinion leaders to change their behavior by adopting green solutions and communicate these efforts through Project WIN. **[Included]**
 10. Create a direct link between neighborhoods and the CSOs they border and make the neighborhoods responsible for the maintenance and monitoring of the area. **[Considered but not included due to uncertainty of sustainability]**
 11. Consider involving adults (as well as school children) in activities such as monitoring, maintenance of green infrastructure projects, and stream/river cleanups. **[Part of existing river sweeps]**
 - a. Consider using canoes in the creek cleanup events. **[Part of Floyds Fork river sweep]**

E. Monitoring, Evaluation, and Accountability

1. Conduct a baseline survey and follow-up surveys of residents to determine whether education and outreach efforts are effective in raising awareness and in changing behavior and perceptions on issues related to the IOAP. [Note: This is also in the Data Request and Monitoring Suggestions List.] **[Included in Education Plan and Monitoring Plan]**
 - a. Develop a survey instrument (potentially with a coalition of cities) and use it every year.
 - b. Include questions about who watches Metro TV and how people value the community's water resources in surveys about the effectiveness of Project WIN education and outreach efforts.
2. Collect baseline data, monitor performance, and ensure "high stakes accountability" for all of the education and outreach objectives of the IOAP. **[Considered for Monitoring Plan]**
 - a. Evaluate the extent to which citizens value clean water, support MSD, understand best management practices for homes and businesses, and have a basic understanding of ecological conditions and processes.
3. Consider creating/supporting an evaluation center to evaluate and document the effectiveness of education and outreach programs. **[Considered and implemented on limited basis]**
4. Develop a "report card" for MSD's IOAP to post on MSD's Project WIN website and publish it in print format regularly (e.g., annually). This report card would report on performance measures related to the goals of MSD's IOAP and implementation of the consent decree. **[Considered and will be implemented over the next year]**
5. Support volunteer monitoring efforts. **[Out of scope of IOAP]**
 - a. Support efforts such as those practiced by the Salt River Watershed Watch program (<http://kywater.org/watch/salt/>).
 - b. Support a volunteer monitoring program to monitor water quality in streams across the county. [Note: this is also in the Data Request and Monitoring Suggestions List]
6. Display monitoring data as part of an interpretive center. The display could be interactive and provide real-time data on the temperature of the water, pH, and other water quality and stream flow conditions that MSD monitors. [Note: this is also in the Data Request and Monitoring Suggestions List] **[Being considered, but cost and logistics are challenging, and this is not as high of a priority as other current activities]**

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

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

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.
[Note: This is also in the Solution Ideas List.] **[Out of Scope]**
2. Transform governmental facilities to be role models and learning laboratories—demonstrate how to do the right thing.
 - a. 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.).

[Note: This is also in the Solution Ideas List.] **[Considered for Green Infrastructure Programs]**

3. Work with other building inspectors to raise awareness of wet weather issues during inspections. **[Will be part of private property ordinance, if enacted]**
4. Create a centralized water education center, such as the Gwinnett Environmental & Heritage Center in Gwinnett County, Georgia. **[Outside the scope of the IOAP]**
5. Develop and support an urban environmental education center. A possible location could be at Shawnee Park, which is a site for one of the big detention basins. **[Outside the scope of the IOAP]**

Data Requests and Monitoring Suggestions

I. Requests for Information to Support WWT Deliberations

A. Requests for Information on Current Conditions and Current Plans for the IOAP

1. Data on how fecal coliform levels change with flow volumes. **[Extensive water quality data will be displayed on Project WIN website]**
2. Data on where water quality sampling is currently done in relation to recreational areas. **[Addressed in post construction compliance monitoring presentation, May 2008]**
3. Current data MSD has on water quality in stream reaches (as aquatic health is an issue in some, but not all, stream reaches). **[Extensive water quality data will be displayed on Project WIN web page]**
4. How MSD's development fees compare to development fees in other places. **[Considered, but information about development fees is generally not comparable across municipalities since municipalities use different rate and fee structures]**
5. Specific information on the percentage of backups that are the result of MSD's activities as opposed to private property issues. **[Information not available, as MSD only tracks backups that are due to MSD asset failure]**
6. Cincinnati's rates before the community started to respond to its consent decree. **[Addressed orally at a WWT meeting; information about Cincinnati's current rates has also been distributed in WWT meeting materials]**
7. Information on the "root causes" of wet weather CSO and SSO problems (e.g., the CSO volume attributable to residential downspouts) to assist with IOAP decision making. *[Note: This is an ongoing request.]* **[Information provided during WWT meetings]**
8. Information on the differences between what is legal and required in the sanitary sewer system and the combined sewer system (e.g., whether or not it is legal to connect a sump pump to the combined sewer system). **[Addressed in WWT meetings]**
9. Additional information on the proposed Project WIN Public Information and Outreach program, including plans to develop an educational book (such as the "Kid WIN" book shown in the June 2008 WWT presentation) and details of MSD's plans to expand activities with middle schools. **[Addressed in general in IOAP, but year by year specific programs will be addressed in an ongoing partnership with JCPS]**
10. Prepare a chart showing how a typical bill would change each year, including the wastewater and drainage fees and the consent decree surcharge. Also, show how MSD's rates compare to those of other communities. **[Have distributed this information to the stakeholder group, and will include this in the presentation made for final round of public meetings.]**
11. Provide a breakdown of the anticipated consent decree capital expenditures and anticipated other capital expenditures each year of funding the consent decree. **[Will be addressed in cash flow discussion, IOAP Vol. 1, Ch. 6]**
12. Additional explanation and examples of how the consent decree has changed (or will change) the schedule of other MSD projects. **[Will be included as part of overall cash flow discussion, IOAP Vol. 1, Ch. 6.]**

B. Requests for Information of the Effectiveness and Costs of Potential Solutions

1. Information on the long-term effectiveness of strategies that rely on source prevention (e.g., rain gardens). **[Information provided during WWT meetings]**
2. Quantitative information on the benefits and/or effectiveness of eco-friendly solutions currently used by MSD. **[Green infrastructure investment worksheet presented to the stakeholder group at the July 2008 meeting]**
3. Additional information on the benefits and challenges of different control approaches (e.g., why a storage solution might be preferable to a transport solution for a particular area). *[Note: This is an ongoing request.]* **[Addressed when solutions were presented – ongoing need]**
4. Information on the costs and benefits of a regulatory approach to address private I&I as compared to other control strategies. **[Analysis underway and will be shared at September 2008 WWT meeting]**
 - a. Include information showing how the marginal costs of this approach compare to costs of other approaches and overall program costs, as there could be a lot of opposition to a new private I&I reduction program because of costs. **[Will be included in IOAP and shared with WWT for private property I&I ordinance discussion]**
 - b. One potential cost comparison could be comparing the costs of a private I&I reduction program using an ordinance to the costs of building a large underground storage facility to recover a similar amount of I&I. **[Will be included in IOAP]**
5. Additional information on the effectiveness of green infrastructure solutions (e.g., websites or other resources). **[Website addresses given at July 2008 stakeholder meeting]**
6. Information on whether other communities have experienced any issues with their green infrastructure efforts (e.g., Chicago's Green Alley Program). **[Papers from several communities have been collected and will be included in IOAP]**
7. Data on community use of rain barrels over time in communities that have rain barrel programs. **[Data not available or not easily accessible]**
8. Information on the amount of runoff that a mature tree would absorb. **[Presented during green infrastructure investment discussion]**

C. Process Suggestions

1. Conduct assessments of different watersheds to find the best opportunities for green infrastructure. **[Incorporated into green infrastructure analysis]**
2. Conduct additional analysis of the potential effects of behavior change and green infrastructure strategies at reducing flows into MSD's sewer systems. **[Incorporated into green infrastructure analysis]**
3. Examine how choices about funding sources affect the total wastewater and stormwater rates that residents pay. **[Addressed at the January 15, 2008 Wet Weather Team meeting]**
4. Provide examples illustrating the implications of different combinations of funding sources (e.g., loans, bonds, pay-as-you-go) for funding the IOAP, in order to better understand the tradeoffs. **[Addressed at the January 15, 2008 Wet Weather Team meeting]**
5. Ask someone from the Kentucky Resources Council or one of the MSD consultants to look at the current Kentucky Plumbing Code to see if it is as strong as it needs to be as it relates to CSOs and SSOs. **[Considered—Code is adequate for new construction but enforcement of existing systems is not]**

6. Involve experts in making financial decisions, given the relationships among the timing of projects, cash flows, bond rating, and other factors. **[Incorporated into Funding Plan analysis]**
7. Include information on the amount of debt remaining to be paid after the Consent Decree implementation period in future funding presentations. **[Discussed at July 2008 WWT meeting]**
8. Develop a flow diagram or decision tree showing the process for identifying and selecting projects. **[Distributed at the May 2008 WWT meeting]**
9. Use a consistent format to show the results of the benefit-cost analysis of CSO and SSO project alternatives. Using a standard format facilitates the WWT's understanding of the information as well as the credibility of the analysis. **[Will do in future presentations and materials]**
10. Create a map that shows the CSO and SSO overflow locations and/or a reference guide to help readers identify the locations of projects and overflow locations. **[Map will be kept on Project WIN website – too complex for simple presentation. Data about CSO and SSO locations were also included in July 2008 WWT meeting materials.]**
11. Develop a map showing the locations of green infrastructure demonstration project sites. **[Will be kept current on Project WIN website]**

II. Suggestions Related to the IOAP Monitoring, Evaluation, and Research Plan

A. Suggestions Related to Water Quality and Public Health Monitoring

1. Consider monitoring water quality and flow at additional locations, based upon the IOAP's objectives and the performance measures developed for the program. Potential new monitoring locations to consider include: **[Considered, see April 2008 Monitoring Plan presentation]**
 - a. Intensely used public access sites within Beargrass Creek
 - b. Stream segments MSD does not monitor currently, such as Buechel Branch and upper South Fork of Beargrass Creek
 - c. Additional locations within the Floyds Fork watershed
2. Collect environmental performance data such as biological indexes of aquatic health (fish counts, macro-invertebrate sampling, etc.), nutrient sampling, downstream pollutant load, and tree cover or other measures of habitat restoration efforts. **[Considered, see April 2008 Monitoring Plan presentation]**
3. Look for data on the public health impacts of polluted water (collected by the School of Public Health or the Health Department and included in an annual report). **[Currently use CDC data as local data is very limited; MSD will use public health data to the extent available]**
4. Involve the research community (e.g., students at the University of Louisville's School of Public Health) in water quality monitoring and data analysis. **[MSD currently supports data analysis program at University of Louisville that should be reaching out to all appropriate expertise]**
5. Consider whether to use EPA's quality control protocols for water quality monitoring efforts. **[MSD has upgraded water quality data protocols as addressed in the post construction compliance monitoring program]**
6. Support volunteer monitoring efforts. **[Outside scope of IOAP]**
 - a. Support efforts such as those practiced by the Salt River Watershed Watch program (<http://kywater.org/watch/salt/>).
 - b. Support a volunteer monitoring program to monitor water quality in streams across the county. [Note: this is also in the Education and Outreach Ideas List.]
7. Display stream monitoring data as part of an interpretive center. The display could be interactive and provide real-time data on the temperature of the water, pH, and other water quality and

stream flow conditions that MSD monitors. [Note: this is also in the Education and Outreach Ideas List.] **[Being considered, but cost and logistics are challenging, and this is not as high of a priority as other current activities]**

B. Suggestions Related to the Effectiveness of Green Infrastructure Projects

1. Build monitoring components into green infrastructure projects to help demonstrate the overall effectiveness of green infrastructure solutions. **[Included in Monitoring Plan]**
2. Pick a CSO catchment area and study the effects of rain barrels and rain gardens. **[Considered for Monitoring Plan]**
3. In order to gain information on the long-term effectiveness of strategies that rely on source prevention, conduct a demonstration project in a small area, and compare the changes in pollutant loading and stormwater flows to those of other areas. **[Included in Monitoring Plan and Green Infrastructure Projects]**
4. Keep track of how the rain barrels distributed to property owners actually work. **[Part of MSD's current practice]**

C. Suggestions Related to the Effectiveness of Behavior Change Efforts

1. Conduct separate research and data analysis to supplement any data collected through surveys about people's behavior. **[Considered for Monitoring Plan and Green Infrastructure Programs]**
2. Conduct a baseline survey and follow-up surveys of residents to determine whether education and outreach efforts are effective in raising awareness and in changing behavior and perceptions on issues related to the IOAP. [Note: This is also in the Education and Outreach Ideas List.] **[Included in Education Plan and Monitoring Plan]**
 - a. Develop a survey instrument (potentially with a coalition of cities) and use it every year.
 - b. Include questions about who watches Metro TV and how people value the community's water resources in surveys about the effectiveness of Project WIN education and outreach efforts.

D. Suggestions Related to the Presentation of Information in the IOAP

1. Model the water quality benefits of stormwater reduction efforts and present this information to EPA along with the benefits of overflow abatement efforts. **[Will do]**
2. Present the results of water quality monitoring so they show the benefits of overflow abatement (e.g., don't focus on bacteria levels only during rain events, as this obscures the fact that streams usually meet the bacteria criteria at other times). **[Will do]**

E. Other Suggestions

1. Monitor customer satisfaction data (e.g., number of hits on MSD's website, number of requests for information, customer satisfaction surveys). **[Included as part of Monitoring Plan]**