

CFAC Lick Run Technical Discussion

Thursday, August 4, 2011 2pm – 4pm

Attendees:

Cecilia Kloecker, Sierra Club	Charles Young, South Fairmount Community Council
Laith Alfaqih, MSD	LaToya Moore, Greater Cincinnati Foundation
Andrew Reynolds, MSD	Chad Edwards, Emersion Design/USGBC
Roxanne Qualls, Vice Mayor of City of Cincinnati	Robin Corathers, MCRP
Dennis Smith, South Fairmount Business Association	Dustin Lester, MSD/City Planning
Cheri Rekow, City of Cincinnati	Karen Ball, Hamilton County/MSD
Mari Piekutowski, Ohio EPA	Tom Lyon, MSD
Bonnie Buthker, Ohio EPA	Bryan Williams, CDOTE
Mark Shubak, Strand Associates, Inc.	MaryBeth McGrew, University of Cincinnati
Marilyn Wall, Sierra Club	Sam Stephens, City DCD
Dan Murray, EPA	Todd Kinskey, HCP&D
Jeff Proctor, Hamilton County Monitor	Brian Bohl, HCSWCD
Margo Warminski, Cincinnati Preservation Association	Chris Manning, Human Nature
Mary Huller, QCCDC	Gary Wolnitzek, Human Nature
Brian Wamsley, HCP&D	Biju George, MSD
Dean Niemeyer, HCP&D	Joe Thoman, South Fairmount Business Association
Matt Begany, USEPA	John Lyons, Strand Associates, Inc.
Bruce Koehler, OKI	MaryLynn Lodor, MSD

Lick Run Wet Weather Strategy Overview (MaryLynn Lodor, MSD)

MSD is in the process of developing alternatives aimed at achieving a 2-billion gallon annual reduction of combined sewer overflow from CSO's in the Lower Mill Creek Watershed. The project options are to be identified by June 2012.

Compliance with the Consent Decree provides an opportunity for strategic reinvestment in the urban core neighborhoods where CSOs exist such as the Lick Run watershed, if the community supports that approach. Data shows that people are leaving our urban neighborhoods and that community investment has shifted to other areas of the region. South Fairmount has seen its share of this, and nothing at this point indicates that trend will change anytime soon. MSD has heard from many who would like to see people move back closer to the urban core, providing more opportunities for jobs to support and grow the local economy. There are currently approximately 5,500 customers in the Lick Run watershed. .

The estimated cost is \$244 million (2006 dollars) for a capital solution to collect the combined sewage. The estimated electricity usage for treating 2 billion gallons of combined stormwater and sewage over ten years is 547,800 megawatts. Based on these energy usage estimates, the annual O&M cost of treating 2 billion gallons is \$1,100 per million gallons. There are negative environmental considerations as well. The estimated carbon cost of treating 2 billion gallons of combined stormwater and sewage for

a time of ten years is 377,739 metric tons. This presents the question - is this solution the most cost effective, environmentally sustainable and economically viable? This watershed has large amounts of green space; it is not a typical urban watershed. This means there are many advantages to help support a source control solution (removing stormwater at its source and conveying it to the Mill Creek).

In this context, MSD wants to make an investment that helps the long-term sustainability of the community. We feel the opportunity is now to begin this process, and we need continued partnership with us to develop solutions that meet the regulatory mandates while also fulfilling the community's vision.

We need to ask ourselves two questions - first, how can we develop a solution that could help address the core CSO problem within this watershed, and second are there other community challenges that we can also address as part of this solution?

The potential wet weather solution could incorporate solutions to other needs throughout the community – including transportation, parks and other utilities. The wet weather strategy incorporates source control, conveyance and storage, and product control into the overall approach.

The timeline mandates that the Lower Mill Creek Plan must be submitted to the Regulators by December 2012, and this could be the tunnel default option or a hybrid approach as offered by the Lick Run Alternative. MSD's design objective for alternatives is that it be a cost effective CSO reduction solution that delivers measureable benefits to ratepayers and others, while also providing water quality improvements. The strategic approach combines natural conveyance systems with some water detention in the upper reaches of the watershed. MSD's next steps are to gather more input from the community through next week's design workshop.

Lick Run Hybrid Approach for Water Quality and Quantity (John Lyons, Strand)

Technical evaluations have been performed for a range of conveyance options for the stormwater runoff once it has been removed from the combined system. The basic design of the conceptual urban waterway under consideration is a hybrid system that includes both an open channel system and an underground conduit for conveying stormwater. This was a system-wide analysis of the entire Lick Run Watershed, starting with identifying the 64 catchment areas and 220 or more entry points for stormwater to enter the system.

The design objectives include developing a cost effective combined sewer overflow reduction using targeted source control and conveying stormwater across an urban landscape. Additional design objectives include providing water quality improvements and developing an economically and environmentally sustainable approach for MSD and the Communities of the Lick Run Watershed.

The design constraints that must be managed include existing utilities, topography/grade, stormwater volume, stormwater peak flows, roadways, traffic, architectural/historical issues, environmental factors and public safety. Flows from smaller, more frequent storms would generally be conveyed through the box conduit, while only flows from larger storms would be conveyed in the open system. Determining

the extent and frequency of fluctuations in flow conveyed by the open channel system is a design detail that could be refined as the concept is advanced to design. It was noted that there is considerable flexibility in the hydraulic functionality of this system.

The quality of the stormwater runoff conveyed through the new stormwater conveyance system is another important design consideration. The current concept plan incorporates a treatment train approach in which runoff is directed through a series of water quality Best Management Practices (BMP's) before being discharged to the Mill Creek.

Public safety is a key factor in evaluating and comparing different conveyance system configurations. Various technical resource publications were reviewed and summarized. Information contained in the NSW Floodplain Risk Management Guidelines indicates that when the product of flow depth and flow velocity exceed 10, conditions are considered unsafe for people to be wading in the stream. A visual of the critical factors was reviewed and discussed for clarity.

Computer models were used to determine depths and velocities (at three locations) for two different channel conveyance alternatives. Additional modeling was completed that simulated 2-year, 10-year, 25-year, 50-year and 100-year storm events.

Maintenance considerations are very important for the BMP's or they will fail to operate as designed. It was estimated that BMP's designed to remove floatable materials and coarse sediments should be cleaned 2 - 3 times per year. It was discussed that the box conduit system would generally be a self-cleaning system that would require periodic inspections, but would likely not require routine cleaning. The designers noted that while a specific concept has been advanced in an effort to evaluate overall feasibility, the concept provides considerable flexibility to adjust flow regimes between the open channel and the box conduit as well as in the establishment and maintenance of base flows during dry weather. The project includes various large scale retention systems as functional water quality enhancement features and as an amenity gateway to the entire area. The number, size and location of these systems is still in the development phases.

Community Engagement Currently Underway (MaryLynn Lodor, MSD)

The community engagement process has been wide-ranging including open houses, website updates, direct one-on-one meetings, presentations to various groups, and watershed bus tours. The Lick Run Open House occurred in January, 2011, and watershed tours are currently underway with more planned for the fall and winter. Tours have been well attended and are providing an opportunity for multiple parties to physically observe conditions in the watershed.

The engagement process is continuing with three design workshops, the first of which is scheduled for August 11, 2011. Post cards were mailed to households in the Lick Run watershed encouraging attendance and seeking input into the overall process. Subsequent events are also planned for October and February.

Q&A

1. The open channel system will have bottoms and sides - what will they be constructed of? Will they be made of concrete?
This has not yet been determined. Final design will identify these features. These items would be part of the conversation at the upcoming design workshop.
2. What type of control systems will be used at the points of entry for stormwater? Are you including pumps and other mechanical devices? What happens if there is a power outage?
At this point, all of these systems would be manual in nature and not require electricity for operation. Flow regulation gates that would be turned manually to control base flows are examples of the design elements that are being considered at this time.
3. Are you planning to use any existing wetlands in your proposed approach? Or possibly expanding these wetland systems in order to use a more natural environment for storage and conveyance of stormwater?
The Lick Run Watershed has very steep topography and does not lend itself to having extensive wetland systems. We are looking at these features and would include them in the final design where feasible.
4. I think the projects at St Francis are very beautiful and they look very nice. But does anyone really use them? They look nice from the road – but who can see them? This is especially true if people do not know they are actually there.
There was a mix of comments regarding actual use of the facility – some say it is widely used and people genuinely like to use it. Others think it is underutilized.
5. Given this situation, who will use these proposed systems that you are describing today? Shouldn't you wait to build those things once the private sector is ready to invest in the area and promote some redevelopment?
The private sector will get involved if they feel it makes sense for them to invest or if they feel it will benefit the community. These issues will likely get discussed in the workshop.
6. How much of the design so far is incorporating the existing open streams that are currently conveying runoff water?
Examples were offered – Glenway Woods is an example of good candidate for open stream system. However, the current flow is diverted into the combined system.
7. I am having trouble understanding all of these designs, concepts and cost estimates. How much money is being set aside to fund any of the above ground amenities?
There are no specific budget items that are aimed at these items. This would be another area that, with more rigorous community feedback, we can determine how best to develop a solution

that will meet mutual goals/outcomes. This will be a topic for consideration through the Lick Run Master Plan, which will be an outcome of the design workshops.

8. Do you have any ideas to incorporate a geothermal plan into the scope of these projects?

Not at this point, but these are items to consider as we develop the overall Master Plan.

9. It would be helpful for me to see some of these designs fashioned into a 3-D model. Can you create models for me and others to see so we can get a better understanding of what you are proposing here?

We do not have any 3-D models at this point in time. We could consider collaborating with the University of Cincinnati on this potentially.

10. This project has many challenges facing it. Since water quality is the driving factor here, what is being done to promote fish and other aquatic life to be part of the final product?

The preliminary concepts include pools and other natural channel designs into the hybrid approach that will promote aquatic life.

11. What design constraints exist because of the Corps of Engineers?

MSD has had discussions with the Corps as they must be involved. So far their feedback to us has not shown any major concerns or barriers to our proceeding.

12. There is so much information to digest in these discussions at CFAC meetings. I get confused with the size of these systems, the type of storm and what is above/below grade. Can this data be placed on the MSD web site so we can study it more?

MSD will post this information on the CFAC website.

13. What was the base flow rate that was used for flow in this urban waterway?

Based on the concept currently being evaluated, it was estimated that a base flow of 1500 gpm would be required to maintain a reasonable aesthetic quality to the open channel system. This is a design feature that will need to be further evaluated and refined as the mater plan is advanced.

14. This plan is huge, but who can stop it from going forward? Can MSD just proceed with the option that they select? Who must approve it in the end?

Ultimately we must gain approval from the County Commissioners. If they concur with proceeding, we must submit it to the Regulators (USEPA, Ohio EPA and ORSANCO) as a Lower Mill Creek alternative.

15. If the project is not completed, what will be done with all of the property that has been already acquired?

MSD is committed to source control so property will be used in the near term as part of an alternative, or longer term as part of separation that will be on a later timeframe. Although Project Groundwork is still in the high level phase of analyzing options, the Lower Mill Creek watershed area must be part of the solution because it contributes the largest amount of combined sewer overflows in Hamilton County. Purchasing properties now within the watershed is cost-effective for MSD ratepayers given the foreclosures, vacancies and property abandonment in these struggling communities. Investing in properties now also offers the communities within the watershed greater opportunities to design a vision for the revitalization of their neighborhoods that has the greatest likelihood of becoming a reality.