

## INTEGRATED OVERFLOW ABATEMENT PLAN

### PROJECT SUMMARY – DRAFT OF 9/20/08

#### OVERALL BENEFITS OF THE IOAP

- MSD’s Integrated Overflow Abatement Plan (IOAP) includes both a Long-Term Control Plan (LTCP) for CSOs and a Sanitary Sewer Discharge Plan (SSDP) for SSOs. Project selection for each plan was determined through a benefit-cost evaluation, with benefits based on protecting community values.
- The suite of projects selected for the LTCP result in approximately 95% capture of wet weather combined sewage during an average year.
  - Remaining CSO loads will no longer “cause or contribute” to water quality standard violations in the Ohio River.
    - Peak fecal coliform counts are reduced 54%, from 100,000 cfu/100mL to 46,000 cfu/100 mL (downstream from Morris Forman Wastewater Treatment Plant).
    - With background loads eliminated, monthly average and monthly maximum standards would be met 100% of the time.
  - Remaining CSO loads probably no longer “cause or contribute” to water quality standard violations in Beargrass Creek (BGC).
    - Peak fecal coliform counts are reduced 18%, from 44,300 cfu/100mL to 37,400 cfu/100 mL (at BGC mouth).
    - With background loads eliminated, monthly average standards would be met 100% of the time, and monthly maximum standards would be met 94% of the time.
- The suite of projects selected for the SSDP results in the elimination of capacity-related SSOs up to the site-specific level of protection.
  - Elimination of an average of 145 SSO events per year (average of 2005–2007)
  - Elimination of an average of 290 MG of overflow volume per year (average of 2005–2007)

#### LONG-TERM CONTROL PLAN PROJECT SUMMARY

- LTCP includes 19 new gray infrastructure projects for CSO control:
  - 4 sewer separation
  - 13 storage basin projects (in-line and off-line, most in-line storage projects have a Real-Time Control component)
  - Replacement and expansion of the Nightingale Sanitary Pump Station
  - 1 high-rate wet weather treatment (screening, settling, and disinfection)
- The wet weather capture of approximately 95% is accomplished based on site-specific levels of control based on benefit cost optimization.
  - 6 projects result in no overflows in a typical year – these locations would only overflow as a result of very large storms.
  - 1 project would result in 4 overflows per year in a typical year.
  - 11 projects result in 8 overflows per year in a typical year.
- Green infrastructure reduces initial LTCP gray infrastructure program costs by \$40 million—potential future savings could double or triple.

- Annual green infrastructure program front-end loaded to maximize benefits on downsizing future gray infrastructure. Programmatic components include:
  - Downspout disconnect program
  - Green roof construction subsidies or incentives
  - Green roads and alleys partnership incentives
  - Pervious pavement sidewalks and parking lot incentives
  - Urban reforestation cost sharing
- MSD-funded demonstration projects provide performance benchmarks for the annual program. Proposed demonstration projects include:
  - 6 bioswale/biofiltration projects
  - 1 rain garden
  - 3 pervious concrete alleys
  - 5 infiltration dry wells

### **SANITARY SEWER DISCHARGE PLAN PROJECT SUMMARY**

- SSDP includes 41 gray infrastructure projects:
  - 12 conveyance capacity upgrades
  - 19 storage projects (in-line and off-line, many with pipe upgrades also)
  - 10 pump station upgrades, eliminations, or replacements that include the elimination of 5 small wastewater treatment plants in the Prospect area, and potentially includes the elimination of the Jeffersontown Wastewater Treatment Plant
- Site-specific level of protection also determined by the value-based benefit cost evaluation, resulting in the following levels of protection:
  - 29 projects eliminate overflows up to the 2-year storm.
  - 7 projects eliminate overflows up to the 5-year storm.
  - 5 projects eliminate overflows up to the 10-year storm.
- Inflow and infiltration (I/I) reduction assumptions reduce initial program costs by \$17 million, potential future savings could double that. Program considerations include:
  - Pipe rehabilitation and manhole repairs targeted to areas of high wet weather peak flows
  - Sealing manholes or relocating pipe installed in areas that may become inundated by flooding
  - Repair of property service connections and elimination of illicit private property connections
  - Annual program front-end loaded to maximize benefits of downsizing gray infrastructure
  - I/I reduction targets are not achievable without private-side I/I control
- 5 major projects in Interim Sanitary Sewer Discharge Plan:
  - 4 sewer replacements or major interceptor relief sewers that include the elimination of one small wastewater treatment plant
  - Expansion of the Derek R Guthrie Water Quality Treatment Center (formerly known as the West County Wastewater Treatment Plant) to add 100 MGD of treatment capacity to accommodate increased capture of wet weather flows