September 24, 2012

FINDING OF NO SIGNIFICANT IMPACT
TO ALL INTERESTED CITIZENS, ORGANIZATIONS,
AND GOVERNMENT AGENCIES

City of Toledo
Lucas County
Tunnel Optimization Phase 2
Loan No. CS390915-0105

The purpose of this notice is to seek public input and comments on the Ohio EPA’s preliminary decision that a Supplemental Environmental Study is not required to implement the recommendations discussed in the attached Environmental Assessment of the combined sewer overflow storage tunnel improvement project submitted by the municipality mentioned above.

How were environmental issues considered?

The Water Pollution Control Loan Fund program requires the inclusion of environmental factors in the decision-making process. Ohio EPA has done this by incorporating a detailed analysis of the environmental effects of the proposed alternatives in its review and approval process. Environmental information was developed as part of the facility plan and associated documents, as well as through the facility plan review process and during site inspections. The Agency’s preliminary Environmental Assessment found that the project does not require the preparation of a Supplemental Environmental Study.

Why is a Supplemental Environmental Study not required?

Our environmental review concluded that significant environmental impacts will not result from the action. Any adverse impacts have either been eliminated by changes in the facilities plan or have been reduced by the implementation of the mitigative measures discussed in the attached Assessment.
How do I get more information? A map depicting the location of the project is included as part of the Environmental Assessment. The Environmental Assessment presents additional information on the project, alternatives that were considered, impacts of the action and the basis for our decision. Further information can be obtained by calling or writing the contact person listed in the back of the Environmental Assessment.

How do I submit comments? Any comments supporting or disagreeing with this preliminary decision should be submitted to me at the letterhead address. We will not take any action on this facilities plan for 30 calendar days from the date of this notice in order to receive and consider any comments.

What happens next? In the absence of substantive comments during this period, our preliminary decision will become final. The municipality will then be eligible to receive loan assistance from this agency.

Please bring any information that you feel should be considered to our attention. We appreciate your interest in the environmental review process.

Sincerely,

[Signature]

Gregory H. Smith, Chief
Division of Environmental & Financial Assistance

GHS/JB/jb

Attachment
ENVIRONMENTAL ASSESSMENT
For
City of Toledo
Lucas County
Tunnel Optimization Phase 2
WPCLF Loan Number: CS390915-0105

Applicant: The Honorable Michael P. Bell, Mayor
City of Toledo
Ohio Building
420 Madison Street
Toledo, OH 43604
Project Summary

The City of Toledo, population 287,000, is located as shown in Figure 1. It owns and operates a partially-combined wastewater collection system and a regional wastewater treatment plant (the Bay View Water Reclamation Facility, or Bay View). The combined sewer system is designed to convey both storm water and sewage to Bay View. The combined sewer system was originally equipped with combined sewer overflow points (CSOs) that release flows in excess of combined sewer capacity to local waterways via regulators.

To reduce CSO discharges, Toledo installed three large underground tunnels in the late 1980s to capture the first ¼ inch of rainfall (first flush) and discharge flows in excess of first flush to local waterways. The Downtown Tunnel was installed to serve the downtown area. The Swan Creek North and Swan Creek South tunnels were installed to serve drainage areas adjacent to Swan Creek. The tunnels store CSO flows until storms subside and release them into the CSS when there is sufficient downstream capacity. The connecting regulators and the tunnels themselves are equipped with overflows that activate when the tunnels’ capacities are exceeded. Swan Creek North and South tunnel overflows are released to Swan Creek. The Downtown Tunnel overflows discharge to the Maumee River.

While the tunnels met the CSO control objectives that were in effect at the time of their construction, the 1994 Ohio CSO Control Policy and Toledo’s Long-Term CSO Control Plan (LTCP) and the Consent Decree in 2002 further restricted the allowable frequency of CSO discharges and the discharge of floatables (large non-degradable solids). The

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1 Each tunnel is connected to the combined sewer system by regulators and tunnel drop shafts. Regulators are the structures on combined sewers that direct normal flows to treatment, wet weather flows to the tunnels and high flows to the rivers. Drop shafts, referenced in later pages, are structures that direct water from the combined sewer pipe down into the tunnels.
tunnels as designed have insufficient capacity to meet the lower limits. To bring the discharge frequency and floatables into compliance, the LTCP recommended 1) optimizing the tunnels’ performance by correcting structural or operational conditions that unnecessarily reduce the availability of tunnel capacity for water storage and 2) adding CSO controls such as basins and sewer separation to augment each tunnel’s capacity. Optimization will be completed first, since it will help refine the sizing and design of the additional CSO controls. It is the subject of this Environmental Assessment. The additional CSO controls will be constructed in later years. They will be evaluated in future environmental documents as design is completed.

Optimization includes clearing sediment from the tunnels’ interiors, installing screening mechanisms, modifying the regulators and tunnel drop shafts, upgrading CSO outfalls, and improving monitoring, control telemetry and associated work. Optimization is proceeding in two phases. Phase 1, which is underway with WPCLF funding, is the cleanout of the Downtown Tunnel. Phase 2 is all other optimization activities. Phase 2 has been reviewed through the State Environmental Review Procedure and found to have major water quality and health benefits and no significant long-term adverse environmental or social impacts. The as-bid construction cost for Phase 2 is $15,409,964. Debt for Phase 2 will be recovered from current sewer rates, which generate an average annual residential sewer bill of $584. Phase 2 is scheduled to start in November, 2012 and be completed in two years. The following sections of this document and the Preliminary Design Reports and associated documents provide more detailed project information.

**Existing Conditions**

Each tunnel consists of a 13.5 foot diameter storage pipeline, drop connections from the combined sewer system, a dewatering pump station, a control gate chamber, a meter chamber and an interceptor return discharge chamber. Table 1 and Figure 2 show the designations and locations of each regulator and tunnel outfall. Each regulator receives flow from a trunk sewer that drains a specific area. In dry weather and moderate rainfall, the water from each trunk sewer backs up against a regulator weir and enters a return line to the West Side Interceptor and Bay View. Flow to each return line is hydraulically governed by the (difference in elevation over a weir) and the size of return line. When regulator flows exceed this amount, they are allowed to back up in the trunk sewer until they overtop a riser and enter the tunnel via the drop shafts. When the tunnel is full, water overtops the regulator weirs and goes to the waterways. The tunnels themselves are equipped with overflows at their downstream ends. When there is sufficient post-storm capacity in the West Side Interceptor and Bay View to receive water from the tunnels, the dewatering pumps empty the tunnels into the West Side Interceptor via the interceptor return line.

The CSO reaches of both Swan Creek and the Maumee River fail to attain their aquatic life use designations of warm water habitat. This impairment has a variety of sources upstream of the CSO reaches of both streams, with agriculture and development large
pollution contributors. However, CSOs are known to be significant pollution contributors in the CSO reach in addition to the upstream heritage. They specifically result in violations of the in-stream standards for dissolved oxygen (DO) and bacterial loadings.

To help correct the low DO and high bacterial loadings that are attributable to the tunnel CSOs, the LTCP requires 1) a maximum untreated overflow discharge frequency of 3.0 overflows per year from the Downtown Tunnel and Swan Creek South, and 4.0 overflows per year from Swan Creek North; 2) Floatables control on outfalls that discharge more than once per year with optimization and the additional CSO controls in place. As seen in Table 2, most of the tunnel regulators and the outfalls do not meet the frequency requirement.

<table>
<thead>
<tr>
<th>Regulator</th>
<th>Tunnel</th>
<th>River discharge</th>
<th>Tributary drainage area</th>
<th>overflow frequency*</th>
<th>Annual overflow volume (million gallons or MG)*</th>
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* Overflow Frequencies and Annual Overflow Volumes are from the LTCP for the Downtown Tunnel and from the associated Preliminary Design Reports for the Swan Creek Tunnels.
** Regulator 43 serves as both a CSO regulator and Swan Creek North outfall.
*** Regulator 50 has been closed.

Alternatives Analysis

To meet these objectives, the LTCP recommended: 1) installing inflatable storage structures within the tributary combined sewers, 2) modifying the regulators to increase flows into the tunnels, 3) removing sediment buildup in the tunnels to recover water storage capacity, 4) improving flow monitoring capabilities at the regulators and drop shafts and 5) adding floatables control to all outfalls that are projected to have more than one overflow per year with optimization and additional CSO controls in place.
Also recommended was converting the Madison Street CSO to a storm water only discharge by separating combined sewers that contribute excessive inflow from the area around Riverfront Apartments, Levis Square and the Fiberglas Tower, and constructing other sewer improvements. The Madison Street CSO does not discharge to the downtown tunnel, but directly to the Maumee River.

Toledo further assessed the cost-effectiveness of the LTCP recommendations in light of new information gathered in recent field studies and computer modeling. The findings, summarized below, were reported in Preliminary Design Reports that were completed in 2011.

**Regulator Modifications:** Raising regulator weir heights increases the storage of additional flows in the combined sewers and, along with the additional CSO controls, will limit discharges to one per year from all but one of the tunnel regulators. This eliminates the need for in-system storage devices in the combined sewers (i.e., LTCP recommendation No. 1), and the need for floatables screening at each regulator outfall. The use of static orifices to control regulator return flows to the West Side Interceptor were found to be cost-effective compared to the existing float and gate mechanisms or vortex valves. No changes were found necessary to the drop shafts other than removing the screens, which will be replaced by a large single screening mechanism at each tunnel outfall. Recent modeling of the Downtown Tunnel area with the new 2011 flow monitoring results indicates that 4 new drop shafts will be needed to ensure that tunnel regulator discharges to the river are held to less than one per year. These results will be finalized and included in the W-4C Downtown Tunnel System Storage Basin project, which is scheduled to start construction in late 2017.

**Tunnel Cleaning:** There is no feasible alternative to manual cleaning of the debris that has accumulated to date. However, the tunnels will need to be maintained free from continuous buildup during the post-optimization operations. Manual cleaning is costly to use on a regular basis. Instead, the city considered the use of flush gates, but these require the costly construction of gates, guides and concrete benches to generate scouring velocity. The preferred alternative is to install explosion-proof pumps that are powerful enough to maintain a scouring velocity during dewatering and develop a method of flushing the tunnel with storm water and the dewatering pumps. If this is not effective, then periodic manual cleaning will be implemented.

**Floatables Control:** Floatables will still need to be collected at the tunnel outfalls. Two options were considered: the LTCP recommendation of a system of baffles to direct water up through a static, horizontal, manually-cleaned screen; and alternatively, a Bosker-style screen that operates in a vertical position, does not use baffles, and employs an automated cleaning rake. Given the small space available at each tunnel dewatering pump station and the lack of manual cleaning involved, the preferred alternative is the automatic Bosker screen. Keeping the screens clean with automatic cleaning mechanism will improve the tunnels’ operation and reduce the buildup of sediment in the tunnels.
Monitoring: The current instrumentation and control systems are outdated and monitor only essential elements, and thus need upgrading and replacement.

Madison Street Sewer Separation: There were no meaningful alternatives to eliminating the Madison Street overflow altogether through sewer separation, since it involves only the installation of 300 feet of new sewer and the disconnection of storm water pipes. In return, the separation will yield large benefits in terms of reducing water pollution.

Project Description

The proposed Phase 2 capital project includes:

- The manual jet-cleaning of the Swan Creek North and South tunnels and associated structures,
- The addition of Bosker-style screens, screening buildings and the replacement of submersible pumps at the Downtown Tunnel overflow pump station (Outfall 68), the Swan Creek North Tunnel overflow pump station (Regulator 43) and the Swan Creek South Tunnel overflow pump station (Outfall 69),
- The reconstruction of the outfalls and the installation of tide gates to prevent floodwater backflows at Regulators 45- Ewing, 46 - Hawley and 43 - Hamilton,
- Raising the regulator weir height, installing static orifices and removing the drop shaft bar screens in 15 tunnel influent points,
- Raising the elevations of the tops of the manholes at Regulator 47- Junction to accommodate higher weir elevations,
- Sewer repairs upstream from Regulator 47 – Junction,
- The replacement of approximately 200 feet of deteriorated outfall pipe and the raising of the outfall pipe and headwall elevation to avoid creek backflow into the sewers at Regulator 45- Ewing,
- The separation of the combined area tributary to the Madison Street regulator by the installation of 300 feet of sewer by open-cut and trenchless methods in Madison Street between Saint Claire Street and Water Street, and
- The installation of new level monitoring devices at CSO regulator structures.

The tunnel cleaning and regulator modifications will be done within the sewer infrastructure. The major above-grade work will be the installation of the vertical screens and connecting pipes at each tunnel’s dewatering pump station. The Swan Creek North and Downtown tunnel dewatering pump stations are in isolated, transportation and industrial areas that support no natural resources. The Swan Creek
South Tunnel dewatering pump station is in a residential area adjacent to Swan Creek’s riparian corridor. The headwall reconstruction sites are within the Swan Creek channel. Smaller above-grade work sites are on small parcels of vacant land along Swan Creek, and in downtown streets.

Implementation

The total project cost including as-bid construction costs and construction management costs is approximately $18,830,000, which Toledo plans to borrow from the WPCLF. The WPCLF is a low-interest loan program operated by Ohio EPA to fund water pollution control projects. Toledo qualifies for the WPCLF standard long-term construction interest rate. Currently at 2.54 percent over 20 years, it may change in October, 2012, the anticipated month of loan award, based on bond rates. Borrowing $18,830,000 at 2.54 percent will save Toledo approximately $2,800,000 over the life of the loan compared to market-rate financing.

Toledo will recover debt associated with this Phase 2 optimization from current sewer charges. The current annual average residential sewer bill of $584 is 1.8 percent of the 2000 census annual median household income (MHI) of $32,546.

Environmental Impacts and Mitigation

Unaffected Environmental Features: The project will have no secondary development impacts, since it is not intended to serve growth in undeveloped and/or actively farmed areas. It will have no direct (construction-related) effect on scenic rivers or on state-or federally-designated wildlife areas, because none are present. The CSO reach of Swan Creek and the Maumee River are not state-designated scenic rivers. Toledo obtains its drinking water from Lake Erie, so there are no local water supplies in the project area to be affected. The project will not affect the water elevations in the Swan Creek floodplain, since none of the components will encroach into the floodways. The sites are not in the Lake Erie coastal zone.

The following attributes will not be adversely affected, for the stated reasons.

Surface Water and Aquatic Habitat: Other than the headwall constructions at the Hawley - 46, Ewing – 45 and Hamilton - 43 outfalls, the work areas will not be in waterways. Toledo has developed a Storm Water Pollution Prevention Plan that requires the use of silt fence, or stronger protection measures, at the headwall work sites. Any excess material recovered from the screening facilities excavations that cannot be reused on-site will not be disposed of in wetlands, 100-year floodplains or streambeds. If contractors will be the primary ones to decide how to dispose of excess excavated material or felled trees and brush, then either the city or the contractor will submit a site plan including erosion control measures to Ohio EPA for prior approval.

Individual tunnels will be taken out of service during construction of their screening facilities. During this period, overflows from tributary regulators will increase. Over the two-year construction period, the time that the tunnels will be out of service will be
limited to the dry time of year (May 1 through December 31) to help minimize untreated discharges to surface water.

Based on the foregoing, the project as designed will have no short-term or long-term adverse impact to surface water.

**Wetlands:** The city identified a depressional area less than 0.1 acres in extent on a floodplain terrace downslope from the Swan Creek South screening facilities work area. This area was delineated and characterized using the Ohio Rapid Assessment Method. It proved to have hydric soils and a natural wetland hydrology. However, wetland plants were few, those present being stunted and stressed. The determination that this area is a wetland was therefore made on the basis of hydrology and hydric soils. The city plans to avoid fill in this area. Based on this, the project as designed will have no significant long-term or short-term impacts to wetlands.

**Cultural Properties:** The above-grade work areas have been too extensively disturbed to contain intact archaeological properties. The city reported that a house was demolished on 801 Hamilton Street, the site of the Ewing outfall pipe replacement. A field investigation was conducted to determine whether house foundations still exist underground that could yield historical information. The investigation turned up parts of an asphalt drive but no evidence of an intact foundation wall. Most artifacts recovered were less than fifty years old.

The superstructures for the new screening facilities will permanently alter the above-ground landscape at each tunnel dewatering pump station. Given the isolation of the Swan Creek North and Downtown tunnel dewatering pump stations, this alteration will have no adverse effect on historic properties located near them. The location of the Swan Creek South dewatering pump station near a residential area has more potential for effect. The residences near the proposed superstructure are considerably less than fifty years old, so no further investigation was conducted to determine historic properties impact.

The Swan Creek North outfall headwall will be installed near a Norfolk Southern Railroad bridge over Swan Creek that is eligible for listing on the National Register of Historic Places. The Norfolk Southern Railroad plans to demolish the bridge, has completed the Section 106 process for the demolition and has entered into a Memorandum of Agreement to conduct specific mitigation prior to the demolition. Therefore, no action is required from the City of Toledo with regard to impacts to this property.

Based on the foregoing, Phase 2 as designed will not adversely affect properties that are listed on, or eligible for listing on, the National Register of Historic Places.

**Endangered Species:** The US Fish and Wildlife Service (US FWS) notes the presence of the following endangered species in Lucas County: the Indiana bat, the Karner blue
butterfly, the Kirtland’s warbler, the piping plover, the rayed bean mussel, the eastern prairie fringed orchid, the eastern massasauga and the bald eagle.

As noted previously, in-water and near-water work is proposed for the addition of headwalls at the Ewing, Hamilton and Hawley outfalls. These projects are located significant distances from the known locations of the rayed bean. Sedimentation will be the greatest threat to any mussels that might be present downstream from the headwall work sites. The city will utilize best management practices to reduce or avoid sediment transport to Swan Creek.

The city proposes the limited removal of riparian trees for the construction of headwalls at the Hawley and Ewing outfalls. The city consulted the US FWS regarding potential impacts to Indiana bat habitat. The city will avoid the removal of trees that it has identified as potential roost trees for the Indiana bat. The other trees that are proposed for removal are too young to be suitable for maternal bat roosting. Based on the avoidance of suitable roost trees, the limited quantity and quality of forest habitat impacted and the small area of impact the US FWS has no objection to the seasonal removal of the trees at these locations (after September 30 and before April 1).

The remaining species on the list will not be adversely affected because of the absence of: high quality wetlands (the Karner blue and the eastern massasauga), open vegetated areas (the eastern prairie fringed orchid), and shoreline (the Kirtland’s warbler and piping plover). The work sites are also more than six hundred feet from the nearest known bald eagle nest.

Based on this, the project as designed will have no short-term or long-term adverse impacts to endangered species.

Air Quality: Lucas County is in attainment of the national ambient air quality standards for regulated pollutants. However, during construction, mechanized equipment will emit volatile organic compounds and oxides of nitrogen, which are ozone precursors. Emission controls on construction equipment will lessen this impact. The project will not last long enough to place the county out of attainment of the air quality standards. Based on this, the project will have no significant long-lasting adverse impacts to air quality.

Dust, Noise and Odors: The removal and processing of debris from the tunnels have significant potential for objectionable odors. The isolation of the Hamilton – 43 is an advantage in reducing odor impacts. The Swan Creek South cleanout could be more problematic due to its proximity to residences. To keep odors from becoming a problem at either site, the debris will be dewatered in a series of closed containers. Air releases from the containers will be prevented with a vacuum system to create negative pressure within the containers and use of a granulated activated-carbon system to scrub the air before it is released. Active odor controls such as scrubbers will not be used initially at the tunnel screening facilities during operation. Combined sewage is dilute and generates fewer odors than
the more concentrated separate sanitary sewage, making it difficult to justify the added cost of odor controls unless during operation they prove necessary. The buildings' ventilation systems have been designed to support odor controls.

During operation, the automated cleaning rake will bring solids up from the bottom of the fifty-foot deep screen shaft and place them in roll-off containers for hauling to a landfill. The sequence of screening system operation can be adjusted to allow time for the screened materials to dry in the rake prior to placement in the containers. The containers will be covered during transport to further reduce odors.

Based on this, the project as designed will cost-effectively minimize odors during and after operation. This will be especially beneficial at the Swan Creek South screening facility where homes are nearby.

Traffic:

Local Economy: The current average annual residential sewer bill of $584 is 1.8 percent of Toledo’s 2000 median household income of 32,546. This is considered affordable.

Public and Governmental Oversight

The US Fish and Wildlife Service, and Ohio EPA’s Division of Surface Water and Division of Environmental and Financial Assistance have provided technical comments on the impacts of this project.

On August 22, 2012, Toledo held a public meeting to discuss the tunnel optimization project with residents. The meeting was well advertised through multiple media. The agenda included the need for the project, its benefits, its potential adverse impacts, and how those would be addressed during construction. One resident attended and no controversy arose. This public participation effort meets WPCLF requirements.

Conclusion

Based on the planning information provided in the Long-Term Control Plan, the Preliminary Design Report, associated studies and comments by interested agencies and the public, we find that the construction and operation of the Phase 2 Tunnel Optimization project as described herein will have no significant adverse short-term or long-term impact on surface waters, wetlands, floodplains, ground water, aquatic habitat, terrestrial habitat, endangered species, cultural properties, air quality, traffic or the local economy. It will have no adverse secondary (development-related) effects such as prime farmland loss, nor will it have long-term adverse effects with respect to noise, dust or odors.
The project will, along with the other LTCP and Consent Decree projects, have a long-term positive effect on the Maumee River and Swan Creek by decreasing the organic load, bacterial load, and floatable debris from CSOs.

For further information, please contact:

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Ohio EPA
Division of Environmental and Financial Assistance
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Columbus, OH 43215

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