

LIMITED ENVIRONMENTAL REVIEW

for

**Charlesgate Sanitary Sewer Lining
City of Huber Heights
Montgomery County
Loan Number CS 390461-0002**



**Applicant: Eileen Bensen, City Manager
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Summary of Need

Huber Heights, population 38,212, is applying to the Ohio Water Pollution Control Loan Fund (WPCLF) for financial assistance with sewer lining and manhole repair in the northeast corner of the city, the Charlesgate area.¹

Huber Heights owns and operates a wastewater collection system that includes separate gravity sanitary sewers ranging from 8 inches to 24 inches in diameter, more than 3,400 manholes, five lift stations and one pump station. Wastewater collected from Huber Heights is treated at the North Regional Wastewater Treatment Plant (NRWWTP), along with wastewater from Vandalia, Tipp City and several rural areas.

Huber Heights' collection system as a whole is in good condition because of regular sewer repair and maintenance. The city routinely identifies and corrects conditions that lead to the activation of sanitary sewer overflows (SSOs), and takes measures to reinforce the sewer infrastructure. SSOs, which are prohibited under the Clean Water Act, occur when flows exceed collection system capacity, commonly due to excessive clear water infiltration and inflow (I/I), which enters sanitary sewers through pipe defects and/or through direct connections between sanitary sewers and sources such as downspouts.

The Charlesgate area has been a recent focus of SSO control efforts. Charlesgate is a single family residential area that is bounded to the east by Brandt Pike and to the south by Interstate 70. The collection system serving this area was built in the 1970s. It consists of 58,415 linear feet of sewer and 272 manholes. Wastewater is collected in the Charlesgate Lift Station and pumped to the NRWWTP.

From the last half of 2004 through 2008, approximately 265,000 gallons of raw sewage was discharged from the Charlesgate Lift Station in fifteen separate wet weather-related SSO activations. The discharges ultimately drain to Drylick Run. The downstream network for Drylick Run is Mud Creek, Mad River, Great Miami River and the Ohio River.

Flow monitoring in the Charlesgate area revealed flows in excess of sanitary sewer system capacity. The city conducted extensive video surveys, mapping and analysis of sewer defects in order to find points of infiltration. Within the Charlesgate Lift Station tributary area, those sewers with the most points of infiltration were included in the city's final list to be lined. Approximately 15,000 feet of sanitary sewer and 180 manholes in the Charlesgate area fall into this category and are slated for lining.

In September, 2009, the city upgraded the pumps at the Charlesgate Lift Station by installing new impellers to increase the lift station capacity from 2.6 MGD to 3.9 MGD, to help prevent further overflows at that location. The proposed sewer line and manhole rehabilitation should also help to reduce future overflows by improving the flow capacity

¹ The WPCLF is the state revolving fund authorized under the Clean Water Act to provide low-interest loans for qualifying water pollution control projects.

and increasing the strength of the pipes. Extra pumping and treatment will not be needed any more for the clear water flows that now will be excluded from the system; thus, it will reduce the power and maintenance costs at the NRWTP. In addition to these improvements, the city requires the disconnection of private inflow sources when it becomes aware of them. Currently, no cross-connections between storm sewers and the sanitary system are known.

Alternatives

The two broad alternatives for correcting large defects in sewer pipe are replacement of the damaged pipe or rehabilitation of it in situ (that is, without removing the pipe). Replacement is generally more expensive than rehabilitation, and the excavation required can be disruptive to neighborhoods. Thus, it is often used for pipe so badly damaged that it has little structural integrity. Huber Heights was quoted approximately \$50.00 per linear foot for pipe replacement.

Rehabilitation options include spot repairs and several methods of lining the interiors of sewers to waterproof them and reinforce them structurally. The advantages to lining, where the pipe is deteriorated but in good enough condition to continue in service, are less disruption to neighborhoods and lower cost than replacement. Lining involves inserting a high density polyethylene liner or resin-impregnated felt liner into the host pipe and forming it against the interior. Huber Heights has been quoted approximately \$25 per linear foot for lining. Based on cost, severity of pipe and manhole damage, and the comparative ease to install lining, Huber Heights chose a commonly-used lining method known as cured-in-place pipe (CIPP) as opposed to replacement.

Proposed Project

Huber Heights proposes to rehabilitate the sewers and manholes in the Charlesgate streets shown in the attached location map. The sewers will be lined by CIPP from manhole to manhole. The city identified no need for spot repairs. The top cone section of the manholes, which is the manhole structure that admits most of the infiltration, will be sealed. Project work will be done in roadways.

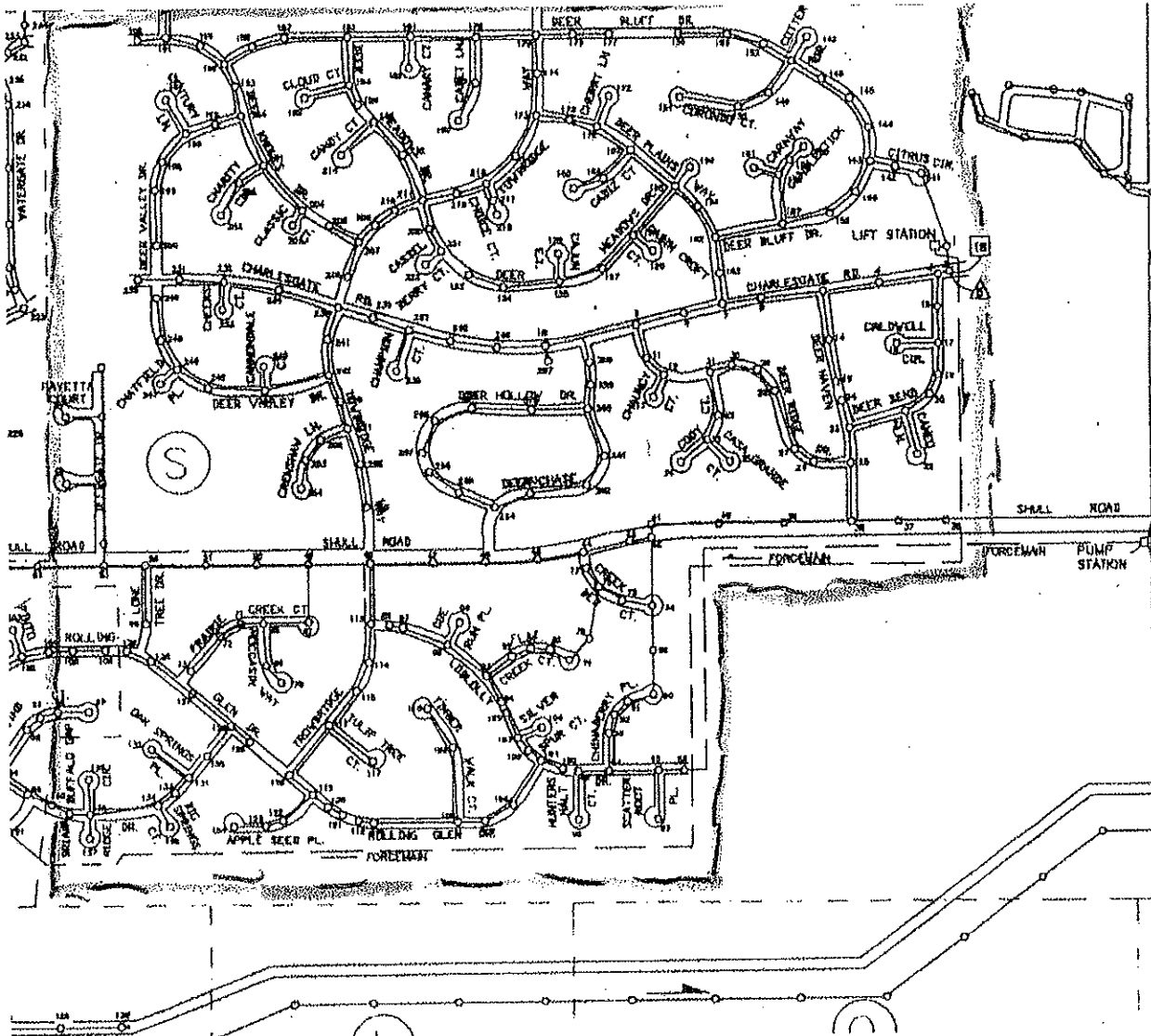
Implementation

The as-bid project cost is \$573,990. Of this amount, \$286,995 is expected to come from funds made available through the American Recovery and Reinvestment Act of 2009. The remainder is expected to come from a WPCLF loan. Huber Heights qualifies for a standard WPCLF interest rate of 3.25 percent. By using ARRA/WPCLF money for this project, the city will save approximately \$478,000 compared to market-rate financing.

Construction will begin in winter, 2010, and take six months to complete, depending upon weather conditions.

Public and Governmental Oversight

The project has been discussed at publicly-attended city council meetings. Information regarding the project will also appear in the City Newsletter. In addition, the affected residents will be notified, prior to construction, as to when their water usage will be restricted to allow the installation and re-attachment of sewer laterals, as well as what effects to expect such as odors and temporary traffic restrictions. This Limited Environmental Review (LER) will also be posted at the City Administrative Offices.



Charlesgate Sewer Lining Area

The following government agencies have reviewed and approved the project: Ohio EPA, the Ohio Historic Preservation Office, the Ohio Department of Natural Resources and the US EPA.

Conclusion

The proposed improvements constitute a project type (i.e., it is an action in a sewer community that is restricted to work within the existing sewer pipe and manholes), that qualifies for a Limited Environmental Review. Specifically, the project meets the following additional LER criteria:

The project will have no significant adverse environmental effects, will not adversely affect high value environmental resources and will not require extensive general or specific impact mitigation. In addition, the Ohio Historic Preservation Office finds that the project will not affect properties that are listed on or eligible for listing on the National Register of Historic Places.

The project will not involve tree removal, work in waterways or the filling of wetlands, so it will not adversely affect habitat that is critical for endangered species in Ohio. The Ohio Department of Natural Resources (ODNR) notes that Huber Heights is in the range of the Indiana bat (state- and federally-endangered); the bald eagle (state-threatened); the eastern massasauga (state-endangered and federal-candidate snake species); the clubshell mussel (state- and federally-endangered species); the rayed bean mussel (state-endangered and federal-candidate species); the snuffbox mussel (state-endangered species); the seepage dancer (state-endangered damselfly); and the black bear, the bobcat, the loggerhead shrike (bird), the northern harrier (bird) and eastern hellbender (amphibian), all of which are state-endangered species. ODNR further notes that the project will not affect these species because of lack of any planned in-stream work, species mobility, and the project location and type of work. The nearest eagle nest is six miles southeast of the project, too far to disturb nesting birds. The Indiana bat will not be affected because tree removal is not proposed as part of the project.

The project will not result in standing structures within any 100-year floodplains, so it will not adversely affect flood elevations. It is situated over the Great Miami/Little Miami River Buried Valley Aquifer System, which is the sole-source aquifer providing much of the region's drinking water. However, the US EPA has found that the project as designed will not adversely affect the aquifer because of its low inherent pollution potential and because contractors will take extra care with inadvertent spills.

Aside from spill containment and cleanup, no special construction impact mitigation is required because the project will involve no excavation.

It is clearly cost-effective. Leaving the pipe defects in place would allow unacceptably large infiltration sources to remain in the system and would leave the sewer system open to further deterioration, while pipe replacement would be prohibitively expensive.

It is not controversial. The project has no long-term adverse environmental impacts, its effects in the neighborhood will be short-lived, and its benefits in terms of protection of human health and water quality are clear. It is consistent with the 208 areawide water quality management plan.

It does not involve a new or relocated discharge to surface or ground water, involve any increase in the volume of discharge or the loading of pollutants from an existing source or new facilities, or provide capacity to serve a design population substantially (thirty percent) greater than the current design population. The project merely involves the rehabilitation of existing facilities and will not add system capacity, extend service, or create new discharge points. The fact that it will not facilitate growth means that it will not be involved in actions that consume farmland or result in adverse development-related environmental impacts.

Environmental Justice

Executive Order 12989, "Federal Action to Address Environmental Justice in Minority Populations", requires proposed federal actions to identify, address and avoid disproportionately high and adverse human health or environmental effects on minority and low-income populations. The impacts of construction will occur in the same area that will realize the benefits of the project. Since no particular segment of the city will face additional adverse impacts, or be deprived of environmental benefits, compared to any other segment, this project should have no significant adverse impacts with respect to minority or low-income populations.

The planning activities for the proposed project have identified no potentially-significant adverse impacts. Specifically, the action is expected to have no significant short or long-term adverse impacts on the quality of the human environment or on sensitive resources such as floodplains, wetlands, riparian areas, prime or unique agricultural lands, aquifer recharge zones, archaeologically or historically significant sites, or threatened or endangered species. The proposed project will protect water quality, reduce risks to human health, reduce wear and tear on wastewater treatment equipment and strengthen infrastructure.

For further information, please contact:

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