

Comments Due : 10/18/2013

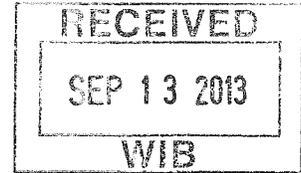
Steven L. Beshear
Governor



Leonard K. Peters
Secretary

Energy and Environment Cabinet
Department for Environmental Protection
Division of Water
300 Fair Oaks Lane
Frankfort, Kentucky 40601
Phone: (502) 564-2150
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R. Bruce Scott
Commissioner



ASSET INVENTORY ASSESSMENT REPORT
City of Olive Hill, Carter County, Kentucky
AI 740; PLN20130001

The City of Olive Hill has submitted for approval by the Energy and Environment Cabinet (EEC) an asset inventory report form titled "*Asset Inventory Report, City of Olive Hill*" dated May 2013 in lieu of a facility plan. In accordance with 401 KAR 5:006, the Department for Environmental Protection (DEP) has prepared an Asset Inventory Assessment Report that summarizes the wastewater assets owned by the city and its condition.

The Asset Inventory Assessment Report contains information related to organization structure and wastewater assets and is included in the following sections: A) Existing Infrastructure; B) Water Quality; C) Current Finances and Future Needs; and D) Recommendations.

Interested persons are encouraged to submit comments on this assessment report within 30 days of the above date. The EEC will take no action on this report until after the public comment period has ended, and will evaluate all comments before a decision is made to proceed with approval of the Asset Inventory Report. Send comments to Ms. Anshu Singh, Environmental Scientist, Water Infrastructure Branch, Division of Water, 200 Fair Oaks 4th Floor, Frankfort, Kentucky 40601, or by e-mail to anshu.singh@ky.gov.

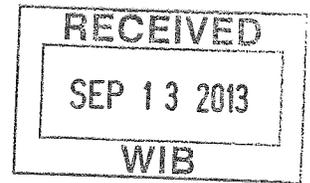
Sincerely,

A handwritten signature in black ink, appearing to read "R. Bruce Scott".

R. Bruce Scott, Commissioner
Department for Environmental Protection

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ASSET INVENTORY ASSESMENT REPORT
City of Olive Hill, Carter County, Kentucky
 AI # 740; PLN20130001



The City of Olive Hill submitted an Asset Inventory Report Form in lieu of a Facility Plan in May 2013 to demonstrate compliance with 401 KAR 5:006, wastewater planning requirements for regional planning agencies. The City of Olive Hill's governing body is composed of a City Council consisting of six elected members and the Mayor. The City Clerk (Angela Owens) reports to the Mayor and the Head Utility Clerk (Cathy Fisher) reports to the City Clerk. The City Public Works Foreman (Eddie Reynolds), who is responsible for wastewater treatment plant and collection system operation and maintenance, reports to the Mayor. The Head Operator of the wastewater treatment plant (Danny Garris, Jr.) is a certified Class II WWTP operator and reports to the City Public Works Foreman. The city has an assistant operator, Josh Shutte. Both head and assistant operators are responsible for maintenance of WWTP and collection system. Paul Amburgey of E.L. Robinson Engineering is the city's contract engineer. The City's Utility Office bills for both water and wastewater. All financial decisions have to be approved by the City Council and the Mayor.

A. Existing Wastewater Facilities

Treatment Plant:

The city owns and operates a 0.35 million gallons per day (mgd) wastewater treatment plant (WWTP) and collection system. The wastewater treatment plant discharges to Tygarts Creek at Latitude 38° 17' 56.91" Longitude 8° 10' 10.51" (River mile 79.94) pursuant to Kentucky Pollutant Discharge Elimination (KPDES) Permit No. KY0025925. The plant was last upgraded in 1994 and is an extended aeration process with chlorine disinfection and dechlorination. Solids are disposed in a landfill. Based on the flow calculations the plant is operating at 93% of the design capacity. The discharge effluent quality data from the plant indicates that the plant is meeting the permitted effluent limits.

The annual average flow for last two years was 0.325 mgd. The plant Monthly average discharge limits to be met by the existing WWTP are as follows:

Parameter	Monthly Permit Limits
CBOD ₅	10 mg/l
TSS	30 mg/l
Ammonia-Nitrogen	2 mg/l (summer)/5 mg/l (winter)
DO	7 mg/l
<i>E. Coli</i>	130/100 ml
Phosphorus	Report
Total Nitrogen	Report
Total Residual Chlorine	0.011

According to the information provided in the asset inventory report, an 8-inch gravity sewer line along Tygarts Creek at the WWTP will be replaced. In 2016, the city plans to rehabilitate 3,500 linear feet of 8-inch gravity line along Tygart's Creek and raise all associated manholes. The

plant will have to go through a major rehabilitation in 2019. The city plans to increase the plant capacity by 25% within the next 10 years.

Collection System:

The city is served by a conventional gravity sanitary sewer collection system that consists of 111,310 linear feet of 6, 8, and 10-inch diameter gravity sewers and; 5,380 linear feet of 1.25, 1.5, 2, 3, and 8-inch diameter force mains; 4 pump stations and 6 residential grinder pumps. Approximately 44% of the collection system consists of clay tile and was installed in 1950s. The rest of the system consists of PVC pipe and was installed between 1970 and 1990. An Infiltration and inflow study was conducted in 1991. Current flow data indicates moderate level of infiltration and inflow in the collection system.

The city plans to smoke test older sections of collection system that is made of clay tile. Based on testing data, sewer lines and manholes will be rehabilitated.

Critical Assets:

Critical assets are assets that are critical to operations of a wastewater system and the customers it serves. Their failure could be detrimental to the total system or facility components. Pump Station # 1 (US 60) and Pump Station # 3 (Eastwood) are critical as they provide service to four schools. The WWTP Raw Sewage Pump Station is also critical components of the WWTP facility. Pump Station # 2 and WWTP Raw Sewage Pump Station are rated as high probability of failure, but they have full redundancy and the city plans to replace them in near future.

B. Water Quality

The planning area is located within Little and Big Sandy River Basin Management Unit and five HUC 11 water sheds including, Tygarts Creek, near Olive Hill. The planning area is drained by Upper Tygart Branch, Eden Branch, Reeves Branch, Smith Run, Wilson Branch, Dry Branch, Soldier Branch, Bradley Branch, Jacobs Fork, Perry Branch, Griffy Branch, Henderson Branch, Mill Branch, Trough Camp Creek, Cory Branch, Bens Run, Garvin Branch and several unnamed tributaries that drain into Tygarts Creek.

There are only a few assessed segments within the planning area, as listed in the 2010 Integrated Report to Congress on the Water Quality in Kentucky, to discuss. Those segments assessed as meeting designated uses are detailed in Table 1.

Table 1. Assessed Segments Supporting Designated Use(s) (source: 2010 Integrated Report)	
Waterbody & Segment	Fully Supported Designated Use(s)
Tygarts Creek 83.2 to 88.6 40.1 to 41.1	Fish Tissue Consumption
Tygarts Creek 80.8 to 81.8	Drinking Water
Tygarts Creek 65.0 to 68.5	Primary Contact Recreation, Warm Water Aquatic Life

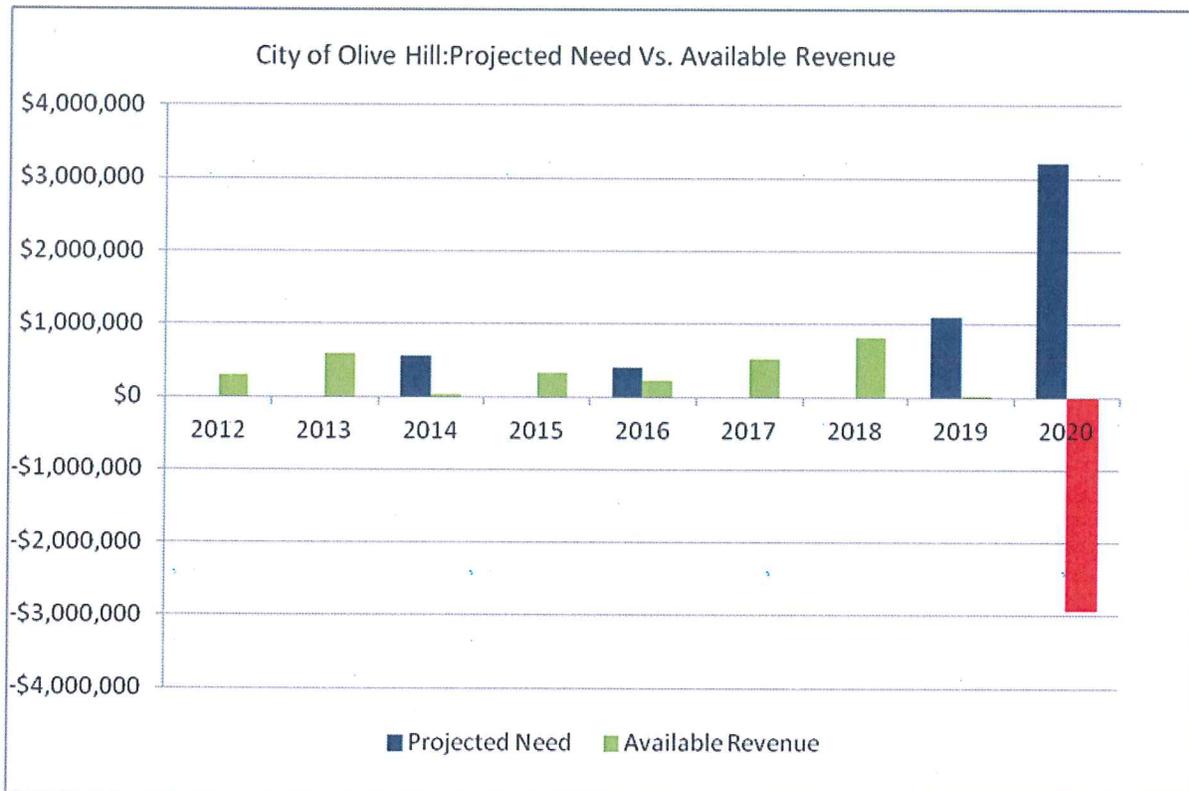
Impaired segments are listed in Table 2, along with a notation regarding their TMDL status.

Table 2. Assessed Segments not Supporting Designated Use(s), with TMDL status (source: 2010 Integrated Report)			
Waterbody & Segment	Impaired Use Assessment	Causes	Sources
Soldier Fork 0.0 to 5.5	Partial Support Warm Water Aquatic Life; TMDL required	Unknown; Sedimentation/Siltation	Agriculture; Loss of Riparian Habitat; Non-Point Source; Source Unknown
Jacobs Fork 0.0 to 2.05	Partial Support Warm Water Aquatic Life; TMDL required	Unknown; Sedimentation/Siltation	Non-irrigated Crop Production; Source Unknown; Unrestricted Cattle Access
Tygarts Creek 83.2 to 88.6	Partial Support Warm Water Aquatic Life; TMDL required	Sedimentation/Siltation; Specific Conductance	Coal Mining; Loss of Riparian Habitat; Non-Point Source
Trough Camp 1.5 to 6.1	Non Support Warm Water Aquatic Life; TMDL required	Sedimentation/Siltation	Channelization; Post-development Erosion and Sedimentation

The planning area has moderate to high sensitivity to groundwater pollution. There is one Source Water Assessment and Protection (SWAP) area in the Planning Area – Olive Hill Municipal Water Works. The City of Olive Hill owns and operates a 1.3 mgd water treatment plant with surface intake located at mile 78.9 of Tygarts creek. The Olive Hill Water Department, Rattlesnake Ridge Water District, and Rowan Water, Inc. are the water providers serving the project area.

C. Current Finances and Future Needs

The city incurred expenses and revenues of \$4,462,055 and \$4,847,000, respectively, in 2012. Current residential and commercial monthly rate is \$30 per 4,000 gallons. The rates were reviewed and raised in 2006. The city is not projecting an increase in user rate for the next two years. Assuming there is no rate increase and expenses remain level the city will have enough funds to complete all projects planned from 2014-2019 (see figure below). However, the city is planning to expand the WWTP in 2020 and is likely to have a deficit of \$2,914,160. The City plans to explore different funding sources for grant monies to minimize loan portion of the WWTP expansion project.



D. Recommendations

- The flow analysis indicates infiltration and inflow in the collection system. Tygarts Creek flows through the city and is listed as supporting its designated use of primary contact recreation. The city should conduct a sanitary sewer evaluation study and reduce infiltration and inflow to protect Tygarts Creek.
- The WWTP discharges to Tygarts Creek that is listed as supporting its designated uses. The WWTP is at 93% design capacity and the city has plans to expand the treatment plant to 0.44 mgd in 2020. Since the plant is approaching capacity the city should prepare the WWTP expansion project to ensure compliance with their permit and protection of surface water and ground water.
- Based on the financial analysis, that assumes no increase in sewer rates, the city will have a deficit of about \$2.9 million in 2020, assuming sewer rates are not increased. The city should review their rates annually and budget for future and emergency projects.
- Electricity cost consumed 43% of the city’s revenue. The Division of Water recommends exploring different options to reduce energy consumption like conducting energy audit, installing variable frequency drives and energy efficient aerators, and exploring cheaper power providers in the area.
- The Division of Water recommends expanding on the asset inventory and tracking its condition in a spreadsheet.