

STAFF REPORT

Amendment to the City of Corpus Christi, Texas, London Area Wastewater Master Plan

Location

The London Area Wastewater Master Plan (Master Plan) covers an area of about 1,000 acres. The service area is located outside of the city limits bounded on the north by the city limit line and J.C. Elliott Landfill, on the east by State Highway (SH) 286, and on the south by County Road (CR) 43. The western limit of the lift station service area is approximately 3,400 feet west of CR 33.

Current Wastewater Master Plan

The area to be served by the Master Plan is approximately 1,000 acres. The current Master Plan was developed by calculating projected flows based on land uses in east and west sub-basins, though the sub-basins were not identified on the map. The east sub-basin contains 530 acres. The west sub-basin contains 470 acres. The Master Plan shows two proposed 15-inch diameter gravity lines tying into a proposed lift station located in the northern portion of the lift station service area on J.C. Elliott Transfer Station property (approximately one-quarter mile north of the city limit line). A proposed 16-inch diameter force main exits the lift station and ties this lift station service area into the Greenwood Wastewater Treatment Plant.

From the proposed lift station location, the gravity lines run east approximately 7,400 feet toward the intersection of SH 286 and CR 43 and due west 1,800 feet. The 15-inch gravity lines were designed with minimal slopes to be able to have appropriate depth at the extreme limits of each sub-basin. The J.C. Elliott Transfer Station property south of the Oso Creek was also used in the lift station service area calculations but was not shown to be included within the service area boundary.

Land Use Information

The area contains several parcels of land most of which are currently designated as farm land. The parcels range in size from 4.9 acres to 220 acres. The 1,000-acre lift station service area includes the London Independent School District (ISD) property in the southwest corner, with plans for a new elementary school and other expansion projects recently approved by voters, and the proposed Regional Youth Sports Complex in the northeast corner. Braselton Custom Homes is currently working with Development Services on a residential subdivision master plan of approximately 600 homes (comparable to "RS-6" Single-Family Residential development) located north of London ISD and west of CR 33.

The City's adopted Future Land Use Map and Master Plan call for most of the 1,000 acres to be developed with single-family residential uses and with commercial uses and higher density residential uses at major intersections. Based on the above-listed

proposed developments and trends toward developing smaller in single-family lots, staff anticipates that the property within these 1,000 acres will have more commercial development and higher density residential development than identified in Future Land Use Map and Master Plan.

Consideration for Master Plan Amendment

The following amendments are proposed:

1. Correct service area to include J.C. Elliott Transfer Station property south of the Oso Creek.
2. Delineate east and west sub-basin boundaries within the lift station service area.
3. Relocate the lift station approximately one-quarter mile south.
4. Increase west gravity line from 15-inch diameter to 18-inch diameter.
5. Increase east gravity line from 15-inch to 21-inch diameter and reduce its length to approximately 100 feet.
6. Increase the north-south gravity line that ties into lift station from 15-inch diameter to 24-inch diameter.

The following provides more detail on each amendment:

Item 1. The area of the J.C. Elliott Transfer Station south of the Oso Creek is immediately adjacent to the proposed gravity lines. This area was assumed as park use for the purposes of calculating wastewater demand for the current Master Plan. The lift station service area needs to be corrected to reflect this property being included in the calculations.

Item 2. To more specifically represent wastewater needs, sub-basins were delineated to better represent the properties/land uses that will be served by each gravity line.

Item 3. Relocating the lift station approximately one-quarter mile south closer to the junction of the 30-foot deep gravity lines will reduce construction costs.

Items 4-6. The current Master Plan assumes low density residential development to occur with limited consideration for medium and high density residential uses or commercial development. Given the current housing trends toward higher density development (i.e. smaller lots) and proximity to SH 286 and CR 43 with additional planned arterial roads shown on the City's Urban Transportation Plan, staff believes there will be demand for higher density single-family development and an increase in multifamily and commercial development, requiring greater capacity in the wastewater system than what the current Master Plan is designed to handle.

A 15-inch gravity line will handle a maximum flow of 1,160 gallons per minute (GPM) at minimum slopes. Based on the higher densities, the estimated flows for the 530-acre east sub-basin are 2,460 GPM, well exceeding the capacity of a 15-inch line. A 21-inch line with similar slopes has a design capacity of 2,800 GPM, and staff proposes to

increase the east sub-basin gravity line from 15 inches to 21 inches in diameter. Based on the higher densities, the estimated flows for the 470-acre west sub-basin are 1,600 GPM, exceeding the capacity of a 15-inch line. An 18-inch line with similar slopes has a design capacity of 1,633 GPM, and staff proposes to increase the west sub-basin gravity line from 15 inches to 18 inches in diameter. Based on the higher densities and need for larger diameter lines, staff proposes to increase the diameter of the north-south gravity line that will connect to the lift station from 15 inches to 24 inches.

Conclusion

The current Master Plan used lower densities than staff anticipates will actually be developed and is, therefore, inadequate in handling projected wastewater demands. The proposed amendments to increase gravity line diameters and adjust the location of the lift station will support anticipated wastewater demand and reduce construction cost. The proposed amendments will also allow a margin of safety, giving maximum flexibility for future land uses in this area.