



ORANGE WATER AND SEWER AUTHORITY

Quality Service Since 1977

MEMORANDUM

TO: Gordon Sutherland
FROM: Ed Holland
DATE: June 22, 2007
SUBJECT: Preliminary Concept Plans and Cost Estimates for Providing Sewer Service to the Rogers Road Study Area

Background and Overview

Per our recent meetings, OWASA staff has provided three concept plans and associated cost estimates (preliminary) for a sewer collection system that could serve the Town of Chapel Hill's study area east of Rogers Road. Virtually all existing parcels in the study area have access to OWASA water lines; therefore, this exercise focused on sewer service only. If the Town or others decide to pursue these or other sewer concepts, additional engineering and professional services will be needed to provide site-level detail and an overall determination of project feasibility.

The concept plans represent three potential gravity flow configurations. None incorporate sewage pumping stations, which OWASA only approves in unusual circumstances where property cannot be served by gravity options. We have found that pumping stations are expensive to maintain and less reliable over time, due to the greater risk of mechanical failure and resulting sewage spills, than are gravity systems. As shown in **Concepts A and B**, wastewater from most of the study area would flow toward the upstream portion of a sewer line that the Town of Carrboro is extending approximately 900 feet to an area that was annexed in 2006. According to North Carolina annexation laws, that facility must be completed by the end of January 2008.

Our concept drawings do not include portions of the sewer system that will be installed for properties within the study area that are being developed by Habitat for Humanity, nor do these concept plans anticipate service to most of the Greene Tract, which are intended to remain as permanent open space.

Under **Concepts A and B**, sewer service would not be available to 11 existing parcels in the study area, as indicated by purple cross-hatching on the drawings. Additional sewer lines near the southeastern portion of the study area would be needed to serve 10 of those 11 lots, as shown in **Concept C**. None of the three concepts plans could provide sewer service to the single small lot in the extreme northwest corner of the study area.

Concepts A and B are identical, except for the manner in which gravity service is provided to the several parcels immediately west of the Neville Tract. **Concept A**, which directs gravity flow northward to the new sewer line that will serve the Orange Regional Landfill, would be approximately 10 percent more expensive than **Concept B**, but would likely offer gravity service to a greater number of future lots. **Concept B** represents a slightly less expensive configuration, but may not offer sufficient flexibility if the two properties immediately west of the Neville Tract are subdivided for further development. These preliminary conclusions still need to be confirmed by engineering analyses and field surveys.

Concept C offers sewer service to the 10 existing lots within the study area that could not be served by either **Concept A** or **B**. **Concept C** would also provide service to approximately 20 additional lots in the Billabong Lane vicinity, which is outside of the delineated Rogers Road study area.

A combination of either **Concept A or B, plus Concept C**, would therefore be needed to serve all existing properties within the study area, except for the single lot in the northwest corner of the study area, which cannot be served by gravity sewer under any of the three configurations.

Preliminary Cost Estimates

Project Costs – The table on the next page summarizes the preliminary estimated cost components of each concept plan. These were derived through the same methods used to estimate OWASA's own capital project costs. Further details are available on request. The following important caveats should be observed as these estimates inform the Roger Road Small Area planning process:

- If the Town or others decide to pursue these sewer system concepts, additional engineering and professional services will be needed to provide site-level detail and overall determinations of engineering feasibility.
- Construction cost estimates reported below are only preliminary and are not based on any assessment of field conditions. Cost estimates typically become more precise as detailed engineering design proceeds.
- Estimates are based on the best information available as of June 2007. OWASA assumes that project costs will escalate at a rate of 8 percent per year. We recommend that this inflation factor be used in any future interpretation of these estimates.
- The overall extent of these concept plans and the number of unserved parcels will change in the future if (or as) individual development projects extend new lines to currently unsewered properties.

- The table includes project costs only. Additional per lots costs for connecting individual properties to the sewer system are discussed in the section below.

| Estimated Project Costs of Three Sewer System Concept Plans for Chapel Hill's Rogers Road Study Area | | | | | |
|--|--------------------|--------------------|--------------------|--------------------|--------------------|
| | Concept A | Concept B | Concept C | Concepts A + C | Concepts B + C |
| Engineering Design | \$220,000 | \$190,000 | \$100,000 | \$320,000 | \$290,000 |
| Construction | \$2,180,000 | \$1,900,000 | \$970,000 | \$3,150,000 | \$2,870,000 |
| Construction Administration | \$110,000 | \$100,000 | \$50,000 | \$160,000 | \$140,000 |
| Construction Inspection | \$110,000 | \$100,000 | \$50,000 | \$160,000 | \$140,000 |
| Contingency | \$260,000 | \$230,000 | \$120,000 | \$380,000 | \$340,000 |
| Totals | \$2,880,000 | \$2,520,000 | \$1,290,000 | \$4,170,000 | \$3,780,000 |

Individual Connection Costs – As noted, the preceding table only includes estimates of constructing the sewer collection system itself. Additional per lot costs for connecting to the new system would include the following:

OWASA Service Availability Fee – This one-time connection fee represents the proportional cost of “buying in” to OWASA’s existing facility infrastructure (main sewer lines, treatment plant, etc.) and is assessed according to the square footage of residential properties. The sliding scale of availability fees that will be effective as of October 1, 2007 ranges from **\$2,441** for homes of less than 1,300 square feet to **\$4,514** for homes of greater than 3,800 square feet. Fees for multi-family residences will be **\$2,645** per unit. A different scale of availability fees applies to non-residential sewer connections.

Private Plumbing Costs – The pipe that extends from a building to the OWASA sewer line is called a lateral. Unlike pipes in OWASA’s system, the lateral is part of the private property served by the public sewer. Installation and maintenance of the lateral is the responsibility of the property owner, who typically contracts with a private plumber for installation. Costs depend on several factors, especially the distance from the building to the OWASA sewer line. A recent telephone survey of several local plumbers indicated prices in the range of **\$25 per foot**. That is, installation of a 50-foot lateral would cost approximately **\$1,250**, a 100-foot lateral would cost approximately **\$2,500**, and so forth.

Sewer Tap Charge – This fee is for physically connecting the private sewer lateral to the OWASA sewer line. The base tap charge, effective as of October 1, 2007, will be **\$318**.

Monthly User Fees – In addition to the one-time service availability fee, tap charge, and private plumbing costs, all OWASA customers pay monthly water and sewer bills that include a fixed service charge plus a water and sewer commodity charge based on the number of gallons used each month. The typical water plus sewer bill of a residential customer using an average of 6,000 gallons per month will generally range from \$60 and \$70 per month. Bills will vary according to the actual amount of water used.

OWASA staff has appreciated the opportunity of providing this information to support Chapel Hill's Rogers Road Small Area Planning process and will be glad to answer questions or provide further details as needed.

A handwritten signature in dark ink, appearing to read "Ed Holland", is positioned above a horizontal line.

Edward A. Holland, AICP
Planning Director

attachments
cc: Mason Crum, P.E.