

Case Study:

Corinth, Mississippi

Corinth is a small city tucked in the northeast corner of Mississippi, 5 miles from the Tennessee state line and 20 miles from Alabama (refer to Figure E-3). The almost 14,000 residents of the city have a median household income of \$23,436, almost \$8,000 less than the state average.⁶ As the largest city and county seat of Alcorn County, Corinth's 18.9% population increase has been the driving force in the county's 8.9% growth during the last decade.⁷ Corinth is an example of an Appalachian community that faces important water infrastructure financing challenges due to population growth pressure, uncertain water resources, and the desire for economic development.

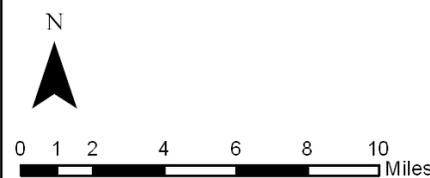
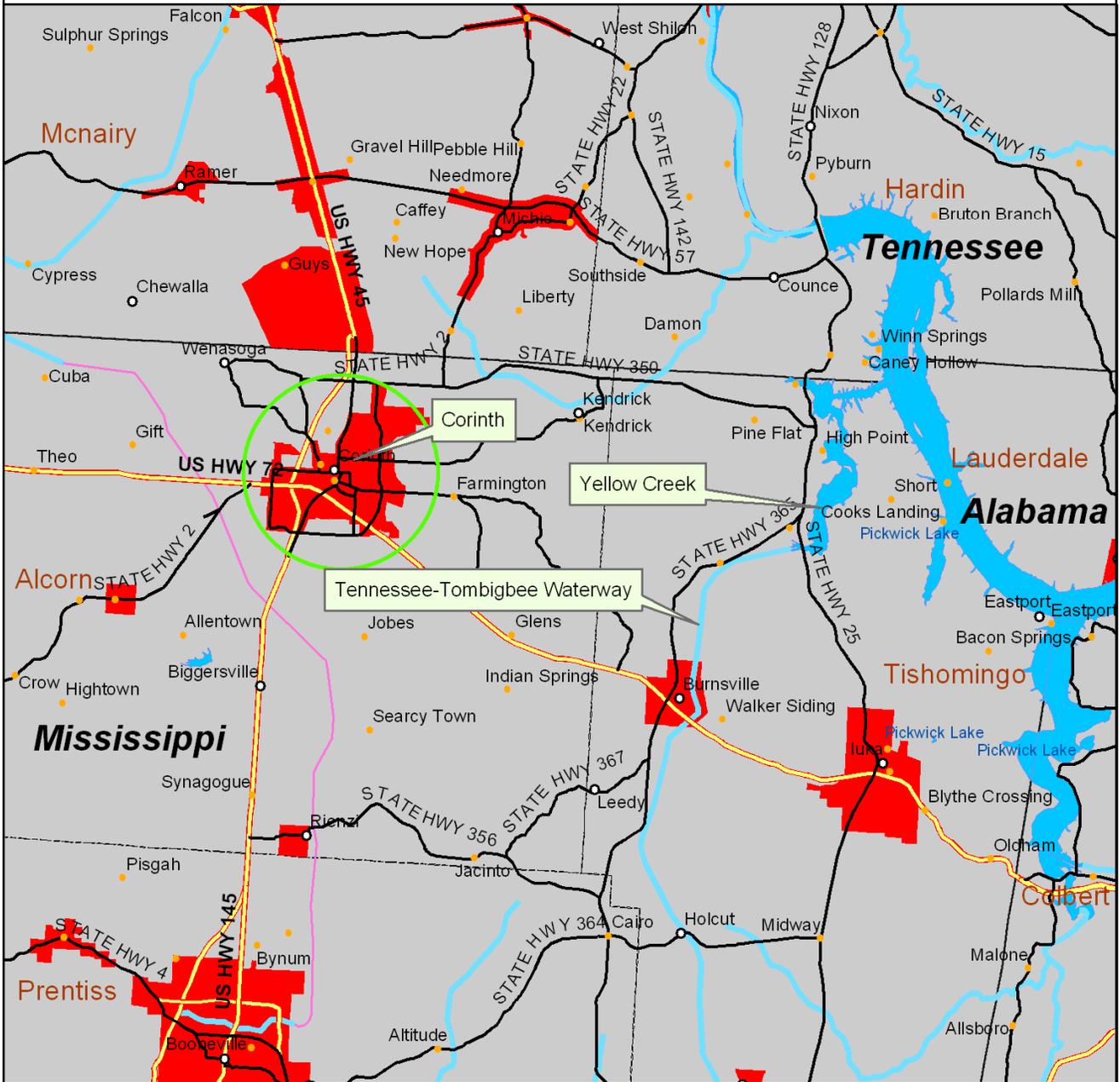
In 1954 the city created the Corinth Public Utilities Commission, a chartered nonprofit organization recognized by the state as a separate governing authority.⁸ Although the original intent was that the commission would operate all city utilities, the sewer department remains under the control of the city. Therefore the commission has authority over only the natural gas and water distribution systems, which are operated jointly as the Corinth Gas and Water Department.

⁶ Census Bureau, Census 2000, Summary File 3, Table P53

⁷ Census Bureau, Census 1990, Summary Tape File 1, Table P001; Census 2000, Summary File 1, Table P1

⁸ Corinth Water and Gas Department website, at www.corinthgasandwater.com.

Figure E-3. Location of Corinth, MS, in Alcorn County



Data Source: ESRI

Drawing groundwater from twelve wells that average 500 feet in depth, the department is the largest water system in the county.⁹ Its 7,200 water meters serve 17,500 residents and several large commercial and industrial customers that, combined, withdraw an average of 3 million gallons of water a day from a Paleozoic aquifer.¹⁰ The average Corinth household that uses 5,000 gallons of water a month pays about \$15 a month for water service.¹¹

The Need for a New Water Source

Beginning in the early 1980s, the Corinth Gas and Water Department sold water to neighboring rural communities and to industries within the city limits. However, by the end of that decade, the department noticed a decline in the water level of its wells and began to monitor withdrawal more frequently. The Mississippi Office of Land and Water Resources now reports that the water level of Corinth's wells is dropping by up to 3 feet each year.¹² Although the physical connection and the meters remain in place, the department no longer provides water to rural communities. However, as Corinth grows and other water systems have drilled additional wells into the aquifer, water continues to be drawn out faster than it can be replenished. The Corinth Public Utilities Commission estimates that with no increase in population, no expansion of service, and no increase in withdrawal rates, the aquifer could provide water for eighty more

⁹ *Ibid.*

¹⁰ Environmental Protection Agency, FY03Q4 SDWIS data frozen January 2004, downloaded from <http://www.epa.gov/OGWDW/data/pivottables.html>.

¹¹ Ron Lilly, general manager, Corinth Gas and Water Department, interview, July 2004 and May 2005

¹² Jamie Crawford, Mississippi Department of Environmental Quality, Division of Land and Water, interview, May 2005.

years.¹³ However, because of the growth of Corinth and the rural communities, the withdrawal rate has increased over the past decade and is expected to continue to increase. Even after discontinuing service to other communities, the department began to search for a more reliable and permanent water source.

Discussions about Consolidation

Once Corinth Gas and Water became aware of the diminished aquifer in the late 1980s, the department attempted to initiate a dialogue with the rural communities about a partnership. The department pushed for consolidation into a regional supply district to more adequately serve the needs of the tri-county area. However, after thirteen years of discussions, local politics and a lack of financial resources forced the department to withdraw from the discussions and independently plan its water future.

Economic Development

Corinth is home to several corporations, the largest a Kimberly-Clark plant that opened five years ago.¹⁴ Recently the plant planned to implement a new industrial process that would have required 3 million additional gallons of water a day, doubling the department's typical withdrawal. Although hesitant to guarantee that much water, the city was interested in the economic development opportunity. The Corinth Gas and Water Department approached the state about issuing a permit for a new well but was denied because of fears of water shortages. Although the state had no control over the existing municipally owned wells, it threatened to deny new drilling permits in the future if the city

¹³ Lilly, interview.

¹⁴ *Ibid.*

accepted Kimberly-Clark's plan. Eventually, Kimberly-Clark bought Scott Paper and altered its plan to draw only an extra 300,000 gallons a day.

After the department was unable to guarantee water to Kimberly-Clark, Corinth realized that its groundwater system would be insufficient to attract other industries. The composition of the Paleozoic aquifer makes it difficult to determine the amount of water remaining in the fissures of the rock. Since water recharges into the Paleozoic aquifer more slowly than it does into other groundwater systems, the department was unable to increase industrial withdrawal without compromising its residential customers' supply of potable water. Because it cannot identify water-filled fissures from the surface, the department has drilled many test wells at a considerable cost but with limited success. Although the wells are currently adequate to address the drinking water needs of the community, Corinth could not consider new economic development opportunities without a more reliable water source.

Ten years ago, Tupelo, a city in nearby Lee County, experienced many of the same economic development concerns as a result of a declining aquifer. It decided to build a surface water plant and 20 miles of pipeline to attract industries. This plant became a model for Corinth.

Corinth's Plan

The Corinth Gas and Water Department is planning to build a new surface water plant that will draw 15 million gallons per day from the Yellow Creek section of the Tennessee-Tombigbee Waterway. The department has bought 70 acres of land on which to build the plant, but the water will first have to be pumped 9 miles across land owned by the Army Corps of Engineers. This creates additional bureaucratic hurdles that have slowed the process. Although there currently are only three surface water plants in Mississippi, the department views this site as

the only realistic source of water because the National Park Service owns the nearby Shiloh Civil War battlefield, making digging for additional groundwater more difficult. According to the Corinth Public Utilities Commission, the Tennessee-Tombigbee Waterway “is the only water supply source that will satisfy an unlimited capacity with an unlimited design lifetime to meet the long-term needs of Corinth and Alcorn County.”¹⁵ The most recent estimate of the total cost of the undertaking is \$26 million, and current plans call for the facility to be operational within six to eight years. This projected cost is slightly under the \$29 million quoted by Corinth in the Environmental Protection Agency’s 2000 Drinking Water Needs Survey.¹⁶

The Corinth Gas and Water Department already has withdrawn \$250,000 from its reserve fund to cover preliminary engineering costs, purchase land, and gain approval from the Army Corps of Engineers. The remainder of the project’s cost will be financed through revenue bonds and small grants, although the department has not yet investigated its potential to procure federal or state grants. The department does have experience with the state revolving fund (SRF) system and is currently using SRF funds to initiate fire protection in a newly annexed area. The city of Corinth will not play a large role in the surface water project, and no revenue from the city or the sewer department will be used to subsidize the new plant.

Corinth Gas and Water expects to generate funds for debt retirement and operating expenses through water sales once the plant is completed. It estimates that the average customer will see rates rise to about \$22 per month for 5,000

¹⁵ Associated Press, “City to Tap Tennessee River for Water Supply,” *Jackson (Miss.) Clarion-Ledger*, 22 August 2003.

¹⁶ Data from Environmental Protection Agency, *Drinking Water Infrastructure Needs Survey: Second Report to Congress* (Washington, D.C.: EPA, 2001), compiled by UNCEFC.

gallons, an increase of \$7.¹⁷ If the full cost of the project is financed with revenue bonds at the market rate of 5.25 percent over a twenty-year timeframe, the department's debt retirement will require annual payments of \$2,130,759, almost 100 percent of the department's total operating revenue for water in fiscal year 2003–04. Even if Corinth Gas and Water received a loan from the U.S. Department of Agriculture that could be repaid over forty years, the annual payment would be \$1,567,446, more than 70 percent of last year's operating revenue.

Impact on Other Communities

The Farmington Water Association serves 7,365 residents of the neighboring rural towns and draws its water from the same aquifer as the Corinth Gas and Water Department.¹⁸ Since the department stopped providing water, Farmington has made infrastructure improvements and drilled additional wells to provide service to its customers without having to purchase water from other systems. However, the association remains interested in planning for a more reliable water future. As Corinth continues to grow and the department pumps at increasing rates, the Farmington Water Association's ability to draw water for its growing community is being compromised. Although Farmington was one of the communities involved in consolidation discussions, the news that Corinth (the aquifer's largest water consumer) was building a new surface water plant made Farmington back out of consolidation discussions. With Corinth off the aquifer, the rural communities are more likely to depend on it in the future.

¹⁷ Lilly, interview.

¹⁸ Environmental Protection Agency, FY03Q4 SDWIS data frozen January 2004, downloaded from <http://www.epa.gov/OGWDW/data/pivottables.html>.

Furthermore, with most of the rural communities already in debt, consideration of consolidation is not currently economically feasible.

The supply volumes and the design criteria of the new surface water project reflect Corinth Gas and Water's belief that, like Tupelo's surface water project, it will eventually evolve into a regional system. To that end, the board of the Corinth Public Utilities Commission passed a resolution to sell wholesale water from the surface water plant to any rural community that exhibits a need. Farmington Water Association officials are not currently concerned with the aquifer level and are waiting to measure the wells once Corinth begins drawing surface water. Corinth's surface water plant is a reprieve for the association's short-term water future, but the association's ability to provide a long-term supply is still unknown.