

# Union County Public Works FY 2016 Annual Report

# Union County Department of Public Works

## Vision Statement:

We are recognized for providing exemplary service through the engagement of our employees in the efficient and effective management of our assets and resources.

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## A Note From Our Executive Director

### Dear Union County,

Public Works is about community. Every day the County's Public Works Department touches thousands of residents and businesses, through water and wastewater management, solid waste collections, recycling programs, and our facilities, just to name a few.

You don't have to look far to see that our community is growing quickly. It is Public Works' responsibility to plan and accommodate for growth with proper infrastructure and services.

This year has been especially busy in building for the future. In this fiscal year, we began construction on over \$32 million in capital improvement projects, including the construction of the new Human Services building, improvements to our Crooked Creek Water Reclamation Facility, and a new water tower for our Weddington residents.

Of course, one of the most important needs that we must plan for is our water supply. As we grow, it is vital that we provide a long-term, sustainable water supply that will meet the needs of our County. We've addressed this issue with our Yadkin Regional Water Supply Project. Union County is partnering with the Town of Norwood to transfer water from Lake Tillery. In turn, the Town of Norwood will gain new infrastructure and ongoing revenue to support other critical projects.

We're pleased to report that we submitted an Environmental Impact Statement (EIS) to the North Carolina Department of Environmental Quality earlier this year, which was accepted by the Department. The acceptance of the EIS allowed Union County to submit a petition to the Environmental Management Commission (EMC) for an interbasin transfer (IBT) from the Yadkin River. We're expecting to receive the certificate in early 2017. There's still a ways to go, but we're excited with the progress and look forward to securing a clean, safe, sustainable water supply for the County.

On behalf of our dedicated team at the Department of Public Works, it is my pleasure to present the 2016 Annual Report. I hope this report provides insight into the services we provide, as well as a better understanding of our daily operations.

Sincerely,

**Ed**



Ed Goscicki  
Executive Director  
**Union County Department of Public Works**

# Union County Public Works Leadership Team



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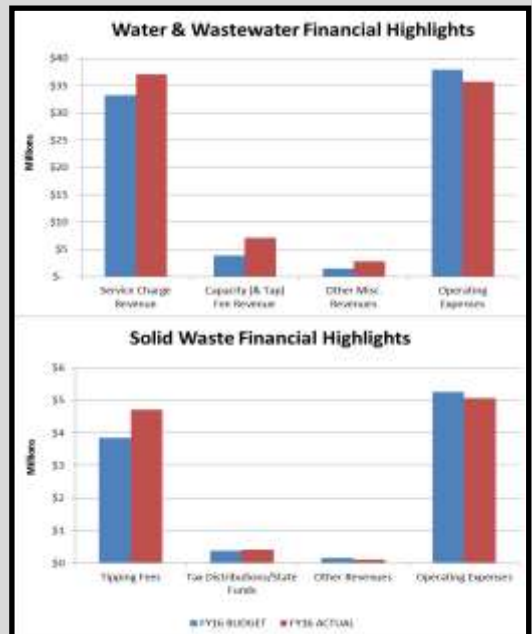
Union County Public Works has 120 people that work to provide water supply, wastewater treatment, solid waste management, and facilities management services to the unincorporated and many of the incorporated areas of Union County.

## Fiscal Performance

Union County Public Works has three separate funds for each of its major service areas. The Water and Wastewater Fund and the Solid Waste Fund are both enterprise funds. In other words, these two service areas operate as independent “businesses”, each generating its own revenue from customers receiving services. Ad-valorem tax revenues are not used to fund enterprise funds. The Facilities Fund is an internal service fund which simply means this department provides services and generates revenue internally (through other County departments) and is a break-even operation.

In FY16, the Water and Wastewater Fund generated nearly 15% more revenue from service charges than the prior year. The Water and Wastewater department generated \$46.9 million in total revenues last year while keeping annual operating expenditures under budget expending only \$35.7 million. Excess revenues are primarily used to pay debt and fund major capital projects.

The Solid Waste Fund generated approximately \$184,000 in net revenue for FY16. As a whole, Solid Waste program revenues increased 14% over FY15 led by a strong year in Construction and Demolition revenue which increased 85% over the prior year. Annual operating expenditures increased 14% over the prior year; most of which can be attributable to capital purchases necessary to implement a composting program.

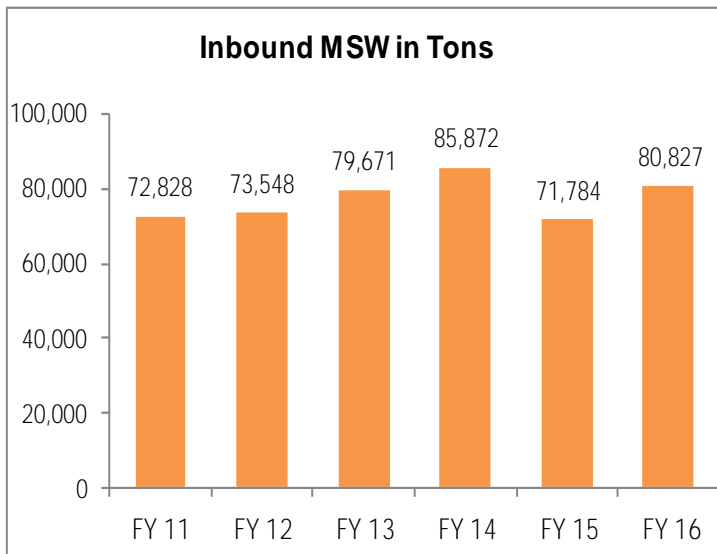




# Solid Waste Highlights

Union County Public Works (UCPW) operates facilities for the disposal of municipal solid waste, more commonly known as garbage, construction and demolition (C&D) debris, yard waste and other recyclables. These facilities are located at the County's Solid Waste Management Center on Austin Chaney Road and are designed to serve the needs of commercial haulers that pick up garbage and recyclables from residents and businesses within our community, as well as accommodate individuals to dispose of these materials.

UCPW also operates six residential waste drop-off sites located throughout unincorporated Union County to provide a convenient location for residents that do not utilize curbside collection programs, to dispose of their garbage and recyclables.



## Municipal Solid Waste

Municipal Solid Waste (MSW) volume rebounded strongly from a decline in 2015.

Focused customer outreach and improved economic conditions helped to increase MSW volume to 80,827 tons in 2016, an improvement of 9,043 tons over the prior fiscal year and above the annual budget projection of 75,380 tons.

Our FY16 MSW tonnage was our second-best MSW volume in our Solid Waste record and was on the heels of our highest annual tonnage of 85,872 in FY14. The most recent tonnages in the first five months of FY17 average just over 6,980 tons which exceeds our projected goal of 6,700 tons through December of this fiscal year.

## Union County Teams with U.S. Army to Teach Solid Waste Management



Union County Public Works (UCPW) teamed up with the U.S. Army to help developing nations improve their solid waste management practices.

UCPW was contacted by Echo and Fox Companies, 98th Civil Affairs Battalion (Airborne), to help prepare eight Civil Affairs Teams (CATs) for an upcoming deployment during which the teams will work with foreign governments, security forces, and populations to assess and help address critical needs, including essential infrastructure. The efforts of the CATs are designed to improve stability by better connecting foreign populations with their legitimate governments. Having a multifaceted Solid Waste Management Facility (SWMF), UCPW was asked to share the logistics, environmental impact and challenges of solid waste management with the CATs prior to their deployment.

Over the course of four days, Chris Medlin, Landfill Operations Superintendent and Ron Gilkerson, Director of Solid Waste for Union County Public Works, hosted eight groups at the 174-acre UCPW SWMF located on Austin Chaney Road. Each group received a tour of the facility, with presentations on disposal of municipal solid waste (garbage), construction and demolition debris, yard waste and other recyclables.



## Solid Waste Highlights continued

### New Convenience Center Layout



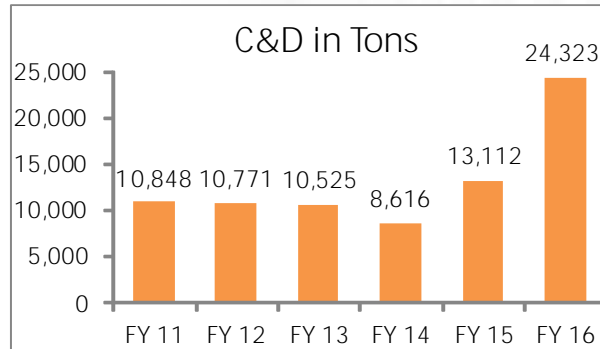
Union County reconfigured its Solid Waste Management Facility layout to give our residential and commercial customers a more user-friendly experience.

The new layout includes separate residential and commercial entrances to improve traffic flow and efficiency.

Additionally, the stations for residents to drop off waste and recycling items have been separated from the transfer station, which has streamlined customer circulation through the facility.



### Construction & Demolition



Increased construction in Union County, a new construction and demolition (C&D) flat-rate structure and stronger customer outreach regarding our Solid Waste Management Facility's services have led to significantly higher C&D landfill volumes in FY16. The escalation includes a record-high 24,323 tons, nearly doubling FY15's volume of 13,112 tons.

With our C&D volume rising, it's more important than ever that we are effectively utilizing the space available within the landfill. We have addressed operational issues related to equipment, compaction and site progression, resulting in more waste in every cubic yard of the landfill. Our NC Department of Environmental Quality (NCDEQ) Annual Capacity Survey reflected an increase in compaction from 949 lbs/CY (.47 tons/CY) in 2014/2015 to 1,191 lbs/CY (0.60 tons/CY), which simply means we have extended the life of the landfill by filling it more efficiently.

### Solid Waste Partners with Habitat for Humanity ReStore

The Solid Waste Division is using paint to help Union County Habitat for Humanity further its mission of providing decent, affordable housing to individuals and families in need.

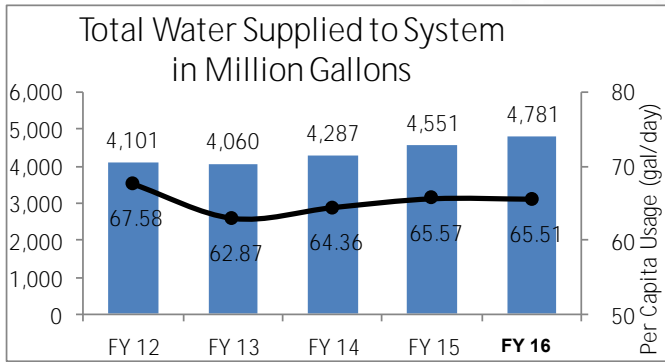
Instead of recycling the latex paint that is brought to the County's Solid Waste Management Facility, it is being donated to the local Habitat for Humanity ReStore (s). All latex paint that is good condition, less than three years old, with ½ gallon or more will provide much-needed paint for Habitat projects across Union County. Habitat is also providing a covered trailer for paint storage and transportation to and from their store.



In addition to helping a good cause, this new program has saved the Solid Waste Division over \$6,000 per month in paint recycling fees.



# Water Highlights



The existing County water main network contains pipes ranging in size from two inches to 42 inches in diameter. There are over 1,000 miles of pipe in the system with more than 6,000 fire hydrants which serve almost 47,000 customers. The system is divided into seven different pressure zones to assure that the pressure of the water delivered to our customers stays within acceptable ranges. System performance relies on six booster pumping stations, which pump water to seven elevated storage tanks that maintain the system pressures within these zones.

## Ice Pigging

It takes a few good men, and occasionally a pig, to keep our water system healthy. On March 1-8, Union County Public Works performed a procedure known as “ice pigging” to improve the quality of the water distribution system in the Olde Sycamore area of Union County.

If pipes aren’t cleaned, sediment and minerals accumulate that affect the taste, clarity and quality of tap water. Ice Pigging is a highly effective and low risk pipe line cleaning technology which cleans the inside of pipes using an ice slurry. The process scours the inside of the water pipes by injecting an ice slurry, created by combining potable water and sodium chloride (table salt), which removes significant particles and sediment from the pipes.

This marks the fourth year that Union County used ice pigging to clean part of its 1,000 miles of water mains.



## Catawba River Water Treatment Plant Recognized for Top Water Quality



Union County’s drinking water is certifiably excellent. The Catawba River Water Treatment Plant (CRWTP), which provides the majority of the County’s water supply, has been honored for surpassing federal and state drinking water standards.

The CRWTP was recognized by the South Carolina Department of Health and Environmental Control for achieving the 2015 Area-Wide Optimization Program (AWOP) water quality goals. While all systems have to meet strict state and federal drinking water standards, AWOP establishes performance goals that are significantly more stringent.

The primary source of water for Union County is the Catawba River. Union County jointly owns and operates the CRWTP with the Lancaster County (South Carolina) Water and Sewer District. Currently 80% of Union County’s water needs are met through this facility.

Through its participation in AWOP, the CRWTP increased filtration and treatment systems to help protect and serve the health of the public, achieving water quality that is about three times better than the EPA’s standards for filtration of water. The plant began participating in AWOP in 2003 and has been recognized for achieving the AWOP goals 12 of the last 13 years.



# Water Highlights continued

## Weddington Water Tower Completed



Our residents and their families in Marvin and Weddington will now have a more consistent, sustainable water pressure, thanks to a new water tower on Hemby Road in Weddington that was completed in August.

The project features a new 1.5 million gallon, 170-foot tall, elevated water tank located on Hemby Road and a new booster pump station located on Providence Road.

The new water tower is a terrific addition to our 7,200 residents in Weddington and Marvin who have experienced variations in their water pressure. It will alleviate

the fluctuations that they've been experiencing with a more constant, steady water pressure. The combined construction cost to complete the two projects is \$6.9 million.

## Public Works Extends Water Service With Short Water Line Program

Union County Public Works provides funding assistance for its residents to connect to the County water system through its Short Water Line Extension Program. The program, which started July 1, 2012 and recurs each July 1, offers property owners funding support for residential and non-residential short water line extensions on a first-come, first served basis.

Funding assistance is limited (approximately \$500,000 per year) and applies to the first 1,000 linear feet of pipeline needed to connect to Union County's water system. If more than 1,000 linear feet of pipeline is required for a connection, the additional length will be paid 100% by the property owner, except in situations where a

documented health hazard exists. All property owners who participate in this program are responsible for paying tap, capacity, and meter installation fees at the current rate. For any portion of a line extension that exceeds 1,000 linear feet, the applicant will be responsible for the design and construction cost, based on a cost of \$50 per linear foot.

To qualify for an extension, a line must be located within a publicly maintained road right-of-way. If a citizen applies based on a health hazard, the applicant must furnish evidence from Union County Environmental Health officials that a health hazard exists.



## 2016 Progress

Union County's water distribution system continued its expansion in 2016. During the year, we added:

**New water customers:**  
1,197

**New miles of water main:**  
17

**New miles of sewer main:**  
16

**New fire hydrants:**  
50

It's the County's responsibility to ensure Union County's water supply, as well as to protect stream flows and watersheds.





# Water Highlights continued

## Yadkin Regional Water Supply Project

The Yadkin Regional Water Supply (YRWSP) project is a collaborative effort between Union County and the Town of Norwood, located in Stanly County, to provide a new water supply source to Union County's Yadkin River Basin residents and new infrastructure to the Town of Norwood. The project addresses how to meet our growing population's demand for water for 2020 and beyond.

This project will include a new water intake and pump station at Lake Tillery in Norwood and a 21-mile pipeline to bring that water to Union County residents in the Yadkin River Basin.

Since last year, our efforts have made significant progress and we are excited to share the latest news with you.

We are pleased to report that we have crossed a significant milestone. A record of decision was issued by the NC Department of Environmental Quality to accept the Environmental Impact Statement (EIS), which was submitted by Union County in January 2015. The EIS evaluates the effects that our plan, along with other potential options, will have on the environment, and it is used by government agencies to ensure that our proposed solution is the best one for everyone involved.

Following the acceptance of the EIS, Union County submitted a petition for an interbasin transfer (IBT) from the Yadkin River to the Environmental Management Commission (EMC). An interbasin transfer is the movement of surface water from one river basin into another. Transfers that exceed 2 million gallons per day (MGD) average daily, or 3 MGD maximum daily, require an IBT certificate.

As part of this process, the State held three public hearings in August and September that allowed everyone in Union County and the communities surrounding Lake Tillery to share any comments, questions, or concerns they had about the project. All of the opinions voiced in these meetings will be evaluated and considered before the State makes its final decision.

Once the IBT certificate is issued, Union County and the Town of Norwood will continue additional permitting and design efforts. Construction is anticipated to begin in early 2019. The water treatment facility is expected to be operational by early 2022 and will serve Union County residents for years to come.

**PROJECT BENEFITS:**

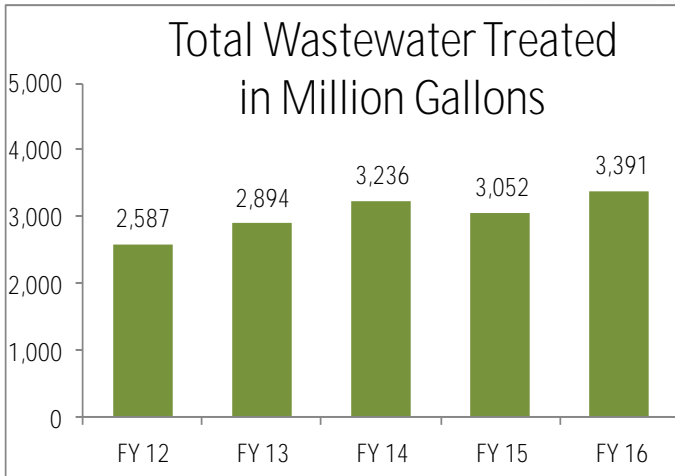
-  A LONG-TERM WATER SUPPLY FOR RESIDENTS.
-  REDUCED DEPENDENCY ON THE CATAWBA RIVER.
-  INFRASTRUCTURE FUNDING FOR NORWOOD.
-  SUPPORT FOR CONTINUED ECONOMIC GROWTH IN UNION COUNTY AND NORWOOD.







# Wastewater Highlights



Wastewater generated by our 34,000 customers is conveyed through a collection system comprised of over 585 miles of gravity lines with pipe diameters ranging from four inches to 48 inches. There are also more than 68 pump stations in the system, with over 75 miles of force mains that pump wastewater to our treatment facilities in areas that will not flow by gravity.

The County currently owns and operates five wastewater treatment plants within the County, termed Water Reclamation Facilities (WRF). The Facilities each treat wastewater from specific drainage areas within the County. Union County currently has a total of 8.2 million gallons per day (MGD) of wastewater treatment capacity with these facilities and contracts with the Cities of Monroe and Charlotte for an additional 5.65 MGD of treatment capacity to serve eastern Union County and the Six-mile Creek basin respectively.

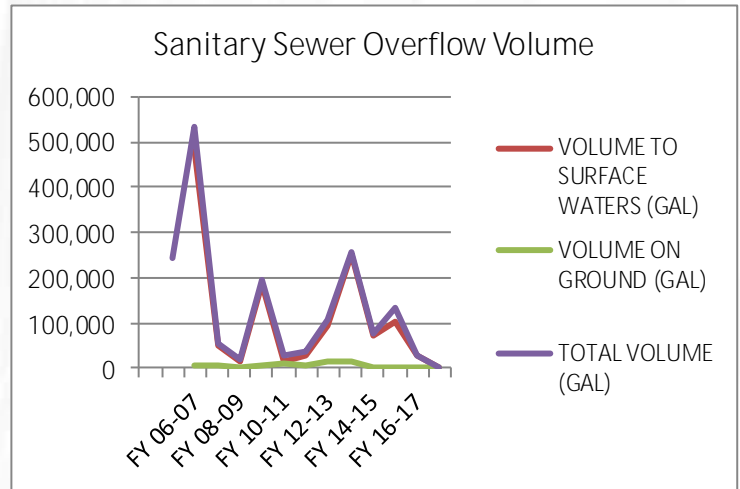
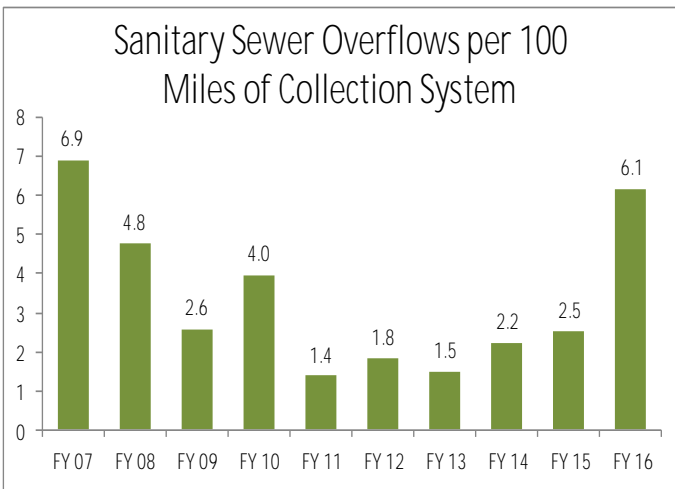
## Sanitary Sewer Overflows

Sanitary Sewer Overflows (SSO) are discharges of untreated sewage from municipal sanitary sewer systems as a result of broken pipes, equipment failure, or system overload. For FY16, the County experienced a total of 39 SSOs (6.1 SSOs per 100 miles) totaling 131,980 gallons.

The increase in SSOs from FY15 to FY16 can be directly attributed to the unusually-large amount of precipitation for the County, which rose from 32.69 inches in FY 15 to 45.75 inches in FY16. A total of 23 incidents (105,810 gallons), or 59% of the SSOs, were reported to and recognized by NC Department of Environmental Quality as severe natural conditions.

The remaining overflows were caused by grease (18%), debris in the lines (13%), equipment failures (5%), contractor damage (3%) and force main breaks (2%). These causes together totaled 25,800 gallons, or 41% of all SSOs.

Despite the increase in the number of SSOs in FY16, the volume of overflow sewage was significantly reduced, which indicates a prompt response by Union County Public Works crews along with improved maintenance.





## Wastewater Highlights continued

### Crooked Creek Water Reclamation Facility Improvements

Construction began in May 2016 for the replacement and improvement of the headworks system at the Crooked Creek Water Reclamation Facility. The County awarded the contract to M.B. Kahn, which submitted the lowest bid of \$7,764,640. The project is targeted for completion in May 2017.

The improvements will provide greater environmental benefits by equalizing water flow into the facility and preventing wastewater spills during heavy periods of rain. The project consists of:

- Replacement of the existing aged headworks facility, which removes trash and debris from the flow to the plant and improves the downstream biological treatment process.
- Relocation and replacement of the existing influent pump station from Sardis Church Road into the plant property. This will increase ability to pump flow to the Crooked Creek Water Reclamation Facility and reduce the potential for spills.
- Construction of a 3 million gallon aerated equalization basin. The purpose of the equalization basin is to hold wastewater when it is arriving too rapidly due to rainfall events and then allow us to send that stored wastewater back to the treatment plant when flows have subsided. This offsets the need to expand the entire treatment facility to handle peak flows that may occur on an irregular basis or only occur for a small amount of time during any given day.

The Crooked Creek Water Reclamation System was originally constructed in 1988. It was upgraded in 1995 and has a current rated capacity of 1.9 million gallons per day.





# Facilities Highlights



## Properties Managed by UCPW

- Adult Probation Center
- Ag Center
- Animal Shelter
- Farmers Market
- Government Center
- Group Home
- Judicial Center
- Main Library
- Union West Library
- Waxhaw Library
- Marshville Library
- Historical Court-house
- Historical Post Office
- Patton Avenue Central Warehouse and Fleet Management
- UCPS Building
- Union Village

The Environmental Management & Facilities Division of Union County Public Works provides day-to-day maintenance, repair, modernization, and improvement services to all of our county-wide facilities. This includes building management, renovations, construction, space planning and allocation, grounds management, janitorial services, building operations, security, and environmental compliance. There are 16 buildings that the Union County Public Works oversees.

## Union County Breaks Ground for New Human Services Building

Union County began a new chapter in its history this year. Local officials joined together to celebrate the groundbreaking of the County's new Human Services building on April 25, 2016.

The new 144,000 square-foot Human Services building is targeted for completion in fall 2017. It will house the Division of Social Services, Division of Public Health and Human Services Administration. It is replacing the existing 90,000 square-foot facility known as Union Village, currently being leased to house those departments. The building will be located at the intersection of US 601 (Skyway Drive) and Concord Avenue in Monroe, N.C. on approximately 30.5 acres of land.

The facility was designed by Perkins and Will, Inc. and is being constructed by Monteith Construction Company at a cost of \$24,376,000. Perkins and Will, Inc. recommended award of the construction contract to Monteith based on their reputation for quality, cost-effective projects. Monteith's bid was the lowest of the five bids received and was nearly \$5 million below the budget for this construction.

