



## CAPITAL IMPROVEMENT PROGRAM

This section includes a description of the major capital achievements of fiscal year 2016 and the programs that make up the 2017 – 2022 Capital Improvement Program. Included are program descriptions and a listing of the budgeted appropriations by project category.





### Capital Improvement Programs

Capital Improvement programs for the Department of Community Services are comprised of projects that help provide a comprehensive and coordinated system of facilities for the provision of high-quality recreational, educational, health and human services, and other services to Gwinnett County residents. Projects in these programs include the construction and/or renovation of senior centers, community centers, and parks and recreational facilities. Parks and recreation projects involve providing quality parks and recreational facilities such as passive and active park land, sports fields, tennis complexes, aquatic centers, multi-use trails, playgrounds, picnic pavilions, and other park amenities.

#### 2016 Capital Achievements

The 2009 and 2014 Special Purpose Local Option Sales Tax capital programs included the following parks and recreation projects in 2016:

- Gwinnett County prepared a master plan for Simpsonwood Park as an open space park. This plan was presented to and approved by the Gwinnett County Recreation Authority in June 2016.
- E. E. Robinson Park was acquired from the City of Sugar Hill as a community park. The Lilburn Library that was replaced in 2016 was acquired for conversion into an activity building.
- The Peachtree Ridge Park Football Field conversion project was completed. This project included the installation of synthetic turf which accommodates football, soccer, and lacrosse.
- J. B. Williams Park was completed and opened in September 2016.
- Renovations were completed at Ronald Reagan Park and at the Best Friend Park gymnasium.
- A new de-humidification system was installed at Collins Hill Aquatic Center, and new ductwork was installed at the Mountain Park Aquatic Center.

A number of renovation and improvement projects to existing parks and recreational facilities were also completed in 2016. Examples include parking lot repaving projects at Bogan and Pinckneyville Parks, trail resurfacing at Tribble Mill Park, various concrete repair work, new park security systems, and others.

#### 2017 – 2022 Capital Improvement Plan

The 2017 capital budget and 2018 – 2022 Capital Improvement Plan (CIP) totals approximately \$114.0 million.

The 2013 Parks and Recreation CIP update serves as the guide for parks and recreation capital projects. This plan was the basis for the projects recommended by the Recreation Authority in the 2014 Special Purpose Local Option Sales Tax (SPLOST) program. The funding amount for the three-year SPLOST for parks and recreation is approximately \$24 million, with all funds targeted for improving or renovating existing parks and recreational facilities. In addition, for the first time, funding was also allocated for Senior Services capital projects, totaling approximately \$5 million.

Community Services will continue to implement the 2009 and 2014 SPLOST programs and begin the implementation of the 2017 SPLOST programs as approved. Major capital projects under design or construction for 2017 include:

- South Gwinnett Park (park renovation)
- Rock Springs Park Phase II (park improvement)
- George Pierce Park gymnasium (park improvement)
- Jones Bridge Park restroom and shelter replacement (park improvement)
- Club Drive Park Phase II (park improvement)
- Graves Park Phase II (park improvement)
- Lilburn Activity Building
- McDaniel Farm Park Phase II (park improvement)
- New Centerville Senior Center

## Community Services Capital Improvement Program

Project Category	2017	2018	2019	2020	2021	2022	Total 2017 – 2022
Community Services Administration	11,222,318	4,787,232	17,109,566	18,555,777	18,834,113	19,116,626	89,625,632
Community Services Miscellaneous/Contingencies	29,500	173,085	80,000	27,053	156,177	51,934	517,749
Fleet Equipment	153,000	1,068,422	994,721	917,861	701,800	723,035	4,558,839
Parks and Recreation	6,447,400	2,788,744	2,783,038	2,775,486	2,766,754	1,754,791	19,316,213
<b>Total Community Services</b>	<b>17,852,218</b>	<b>8,817,483</b>	<b>20,967,325</b>	<b>22,276,177</b>	<b>22,458,844</b>	<b>21,646,386</b>	<b>114,018,433</b>





### Capital Improvement Programs

The General Government Capital Improvement Program is a diverse group of projects that will enhance and/or improve general government services such as information technology, courts, and the construction and maintenance of general government facilities. Also included within the general government program are public safety and community services capital projects that are managed by the Department of Support Services.

Computer and Computer Systems projects involve upgrading and enhancing the technology infrastructure to support the County's information needs. Projects in this category include acquisition of new and replacement personal computers, peripheral equipment, and software applications, as well as upgrades to the systems, storage, networking, and communications infrastructure. Also included are various business applications and systems.

Other project categories are:

- General Government Facilities, which consist of projects related to the construction of new and/or improvements to existing County facilities
- Miscellaneous Projects, including studies and budgeted capital contingencies

### 2016 Capital Achievements – Support Services

#### Major Construction Projects

The following are highlights of major capital projects completed or under construction in 2016:

- Centerville Senior Center: This new 8,000 square-foot senior center is being constructed on Bethany Church Road adjacent to the Centerville Branch Library and Community Center. The project is funded from the 2014 SPLOST, and it has been designed to achieve LEED certification through the U.S. Green Building Council. This 2014 SPLOST-funded project is scheduled to be completed in 2017.
- Fire Station 10: Fire Station 10 was relocated from the corner of Russell Road and Buford Drive to Rock Springs Road in Lawrenceville, a more centralized location. The project was funded by the 2001 SPLOST, the 2005 SPLOST, and the 2009 SPLOST. It was completed in the fourth quarter of 2016.
- Fire Station 31: The new Fire Station 31 is located at 1061 Collins Hill Road in Lawrenceville across from Georgia Gwinnett College. The location provides access to the Highway 316 corridor as well as the college and surrounding homes and businesses. The project was funded by the 2001 SPLOST, the 2005 SPLOST, and the 2009 SPLOST. It was completed in the fourth quarter of 2016.
- Fire Training Academy: The final two elements of the Fire Training Academy expansion, an outdoor training pavilion and a new three-bay apparatus storage building were completed in October 2016. These facilities, together with the new 35,000 square-foot classroom building that opened in 2015, are used to provide quality training for new recruits in addition to expanded and ongoing training for all firefighters to comply with the National Standards for Fire Services. The project was funded by the 2005 SPLOST and the 2009 SPLOST.
- Lawrenceville Senior Center Renovation: This project included enhancements for individuals with low vision, hearing impairments, and mobility challenges. Improvements include ADA-accessible restrooms, an enlarged dining area, an upgraded billiards room, a new card room, a new hearing loop system for the hearing impaired, and a new multiuse room. The project was funded by the Housing and Urban Development's Community Development Block Grant Program and supplemented by grants from the Atlanta Regional Commission and the 2014 SPLOST. The project was completed in April 2016.
- Lilburn Branch of the Gwinnett County Public Library and Lilburn City Hall: This combined project included the relocation of the Lilburn Branch of the Gwinnett County Public Library and the Lilburn City Hall to a new shared facility with a strong civic presence and modern efficiencies. The project was developed in accordance with an intergovernmental agreement between the city of Lilburn and Gwinnett County, and it was funded by the city of Lilburn and the County's 2005 SPLOST and 2009 SPLOST. The facility was completed and opened to the public in October 2016.

## General Government

### Capital Improvement Programs

- **Medical Examiner's Office and Morgue:** The construction of a new combined facility for the County Medical Examiner's Office and Morgue began in 2016 and is scheduled to be completed in 2017. The 15,000 square-foot facility is located on Hurricane Shoals Road in Lawrenceville. It will have office space for the Medical Examiner, medical staff, investigators, and administrative staff along with a family conference room and respite area. The building is being constructed to achieve LEED certification through the U.S. Green Building Council. This project is one of the major building projects funded by the 2014 SPLOST.
- **Simpsonwood Demolition:** This project included the demolition and clearing of five buildings, a swimming pool, a pool house, and two tennis courts from the Simpsonwood property. The site was graded back to natural contours and seeded with native grasses. The project was funded by the 2009 SPLOST.

### Capital Maintenance Projects

In 2016, the Capital Maintenance budget included over \$12 million in funding associated with more than 70 specific projects. Projects completed in 2016 included the following:

- **Comprehensive Correctional Complex**
  - Installation of new dining room serving equipment
  - Engineering of fire alarm system replacement
- **Fire and Emergency Services**
  - Replacement of HVAC units at Fire Stations 22 and 23
  - Upgrade of HVAC system with dehumidification equipment at Fire Station 12
  - Roof replacement at Fire Station 21
  - Design of Fire Station 3 restroom upgrade
- **Gwinnett County Government Annex**
  - Replacement of main HVAC supply units on roof (final phase of HVAC system replacement)
  - Cleaning and sealing of precast cladding
- **Gwinnett County Historic Courthouse**
  - Replacement of two HVAC system air handling units
  - Partial roof replacement
  - Repainting of ornamental metal on-site
- **Gwinnett County Public Library System**
  - Carpet replacement at Peachtree Corners Branch
  - Landscaping upgrade at Hamilton Mill Branch





- Gwinnett Justice and Administration Center
  - Roof replacement (initiated in 2015)
  - Design of Langley Drive realignment and walkway resurfacing
  - Replacement of video surveillance system with Video over Internet Protocol (VoIP) technology and digital equipment
  - Installation of surge protection equipment on electrical system
  - Replacement of two major uninterruptable power system units
  - Implementation of Phase 4 of multiyear plan to replace all air distribution boxes on HVAC system and design of Phase 5
  - Repainting of interior in public areas of building
  - Replacement of equipment on serving line in cafeteria
  - Replacement of gun lockers
  - Patching, sealing, and restriping of Nash Street parking lot
- Norcross Health and Human Services Center
  - Rehabilitation of playground
  - Improvements to pedestrian/vehicular traffic flow for Head Start entrance
  - Replacement of exhaust fans
- Multiple County Facilities
  - Implementation of comprehensive battery replacement program
- One Justice Square
  - Cleaning and sealing of precast cladding
- Park Facilities
  - Replacement of several HVAC units at older concession and restroom buildings
  - Replacement of HVAC units at Best Friend Park Tennis Center
  - Replacement of HVAC units at Rhodes Jordan Park Recreation Center

## 2016 Capital Achievements – Information Technology

- Continued installation, upgrades, and replacements of video surveillance equipment at multiple sites throughout Gwinnett County including the Gwinnett Justice and Administrative Center. The video system at various locations allows the agencies to retain their video for evidence, lawsuits, medical claims, billing disputes, vandalism deterrence, etc.
- Continued upgrades to the DWR information system. Upgrades include enhancements that strengthen cellular signals, reduce communications faults, and increase cellular connectivity.
- Addition of Wi-Fi and mobile equipment at plant facilities. This will assist with alarm notification and augment communications for the Ostara nutrient recovery process at F. Wayne Hill. It will also allow the staff to be more mobile and respond to alerts in a timely manner.
- Purchased SCADA Wonderware software including the purchase of laptops. This purchase is to accommodate the addition of 19 employees.
- Implemented network and security enhancements for reliability, business continuity and better protection against malware, ransomware, and malicious websites.

## General Government

### Capital Improvement Programs

- Established a secondary 911 evacuation location within Police Headquarters.
- Replaced the Department of Transportation's hardware and software. The existing equipment is more than six years old and the new equipment will provide them more flexibility in the completion of their duties. The new equipment will allow traffic signal engineers and technicians in the field to troubleshoot and repair traffic signal equipment. These engineers are often working on the side of the road in vehicles that use these hardware and software systems. The department is estimating a need for additional CPU speed and memory with the new client software. Currently there are no estimates as to when the updates will occur.
- Replaced ProQA system. The old product version is unsupported and in the event the County had any issues with it, no assistance from the vendor was provided. In order to get certified, an employee of the Fire and Emergency Services Department had to go to Utah and complete three days of training at the vendor's location.
- Due diligence has begun regarding the purchase of body cameras with storage capacity sufficient to sustain the video recorded for the Police and Sheriff's Departments. Due to the sensitive nature of this material, the recorded video and other associated data will need to be retained for a period of time yet to be determined. This data will be stored using hardware and software systems based on the requirements identified.
- Purchased software, monitoring tools, peripheral devices, and other hardware for the Clerk of Courts office. This project provided for the updating of hardware and software in the Clerk of Courts office and allowed them to operate more effectively and efficiently.

### 2017 – 2022 Capital Improvement Plan

The 2017 capital budget and 2018 – 2022 plan for the General Government Capital Improvement Program totals approximately \$403.2 million.

### Support Services

#### Major Construction Projects

The following projects are scheduled for design and construction in 2017:

- Bay Creek Police Precinct and Alternate 911 Center: This project includes the design and construction of a new 12,100 square-foot precinct and a 4,500 square-foot alternate 911 center. The facilities will be located on a shared site on Ozora Road at the entrance to Bay Creek Park. The precinct will enable the Police Department to improve coverage and response times in this area of the county. The center will provide critical backup to the principal 911 center in Lawrenceville in any situation that makes the primary facility unusable. Design of the facilities is underway, and construction is scheduled to begin by the end of 2017. This project is funded by the 2005 SPLOST and the 2009 SPLOST.
- Buford Senior Center Renovation: The Buford Senior Center project is a comprehensive renovation and upgrade of the 20 year-old facility at the Buford Health and Human Services Center. The construction contract was awarded in December 2016, and work is scheduled to be completed in 2017. This project is funded in the 2014 SPLOST.
- Centerville Senior Center: This new 8,000 square-foot senior center is being constructed on Bethany Church Road adjacent to the Centerville Branch Library and Community Center. The project is funded from the 2014 SPLOST, and it has been designed to achieve LEED certification through the U.S. Green Building Council. The project is scheduled to be completed in the second quarter of 2017.
- Department of Transportation District One Maintenance Barn: This project replaces the existing District One Maintenance Barn with a newly constructed 5,000 square-foot storage building. The construction contract was awarded in November 2016, and the facility should be completed in the summer of 2017. This project is funded by the General Government Capital Fund.
- Duluth Branch of the Gwinnett County Public Library: This project is the relocation of the Duluth Branch to a new facility of approximately 22,000 square feet. An intergovernmental agreement with the city of Duluth was approved by Gwinnett County in January 2016. This project is funded by the 2009 SPLOST and the 2014 SPLOST.
- Fire Station 15: This project is the relocation of Fire Station 15 in Lawrenceville to a larger facility at a site on Georgia State Route 124. Design began in fall 2016, and construction is scheduled to start in 2017. The project, which will feature a new design for the County's fire stations, is funded by the 2009 SPLOST.

## General Government

### Capital Improvement Programs

- **Gwinnett Justice and Administration Center Courthouse Addition:** The expansion of the Gwinnett Justice and Administration Center will provide additional space for the County's judicial functions. The project includes a new building of approximately 180,000 square feet and a new parking garage for 1,500 vehicles. The building will house a jury assembly space, six court units, a prisoner holding area, and shell space for future growth. Design is underway, and the first elements of demolition and construction will start in 2017. This project is funded by the General Government Capital Fund and the 2009 and 2014 SPLOST programs.
- **Gwinnett Justice and Administration Center Front Entrance and Roadway Improvements:** This project includes the replacement of existing pavers from the front parking area to the front of GJAC, realignment and reopening of Langley Drive, and the reconfiguration of the GJAC Entry Plaza. Construction is scheduled for 2017. The project is funded by the General Government Capital Fund.
- **Norcross Branch of the Gwinnett County Public Library:** This project is the relocation of the Norcross Branch to a new facility of approximately 22,000 square feet. Preliminary planning and conceptual design have been completed, and schematic design is underway. An intergovernmental agreement between the city and County is being developed to establish the basis for development of the facility. Preparation of construction documents is expected to begin in early 2017. This project is funded by the 2005 SPLOST, the 2009 SPLOST, and the 2014 SPLOST programs.
- **Norcross Senior Center:** This project is an extensive renovation and expansion of the existing facility located in the Norcross Health and Human Services Center. Design will begin in the first quarter of 2017. This project is funded by the 2014 and 2017 SPLOST programs.
- **Stone Mountain Tennis Center:** This project includes the demolition and removal of the 7,200-seat stadium, 15 hard surfaced tennis courts, clubhouse, 200-space parking lot, and various plazas, drives, and walkways. The property will be cleared and graded for future development.

### Capital Maintenance Projects

A focus on general capital maintenance projects continues in 2017. Some projects began in 2016, while others are newly programmed for 2017. Following are projects to be completed or newly implemented in 2017.

- **Buford Health and Human Services Center**
  - Complete roof replacement
  - Complete site drainage improvements
  - Complete replacement of all elements of HVAC system, ceilings, and lighting
- **Comprehensive Correctional Complex**
  - Replace fire alarm system
  - Replace restroom/shower exhaust fans
  - Refurbish detention grade electronic locks
  - Replace and upgrade the door control and security monitoring stations for the main housing units, isolation/segregation unit, and diversion center
  - Replace approximately 1,000 fire sprinkler heads for Fire Code compliance
- **Court Annex**
  - Replace building security controls touchscreen
  - Implement selective repainting of building interior
  - Replace audio systems equipment in courtrooms
  - Replace security screening equipment at entrance to facility







- Fire and Emergency Services
  - Complete renovation of bathroom facilities at Fire Station 3
  - Complete replacement of roof at Fire Station 20
- Fleet Management Facility
  - Replace the fire alarm system
- Gwinnett County Government Annex
  - Replace roof
  - Patch, seal, and restripe parking lot
- Gwinnett County Historic Courthouse
  - Complete replacement of two remaining older HVAC air handling units and upgrade of HVAC system controls
  - Refurbish interior of elevator
  - Replace fire pump controller
- Gwinnett County Public Library System
  - Patch, seal, and restripe parking lots at several branches
- Gwinnett Justice and Administration Center
  - Complete replacement of audio systems in courtrooms
  - Replace lighting and lighting controls in auditorium
  - Replace seating and carpet in auditorium
  - Replace and upgrade audio visual system in auditorium
  - Replace lower level security station
  - Design an engineered solution to low temperature issues in central atrium during winter months
  - Implement various plumbing system and restroom repairs and upgrades
  - Continue comprehensive replacement of can light fixtures in public areas
  - Implement Phase 5 of multiyear plan to replace all air distribution boxes in the HVAC system
- Multiple County Facilities
  - Replace access control systems including card readers, servers, panels, software and programming, and digital inputs and outputs at GJAC campus facilities
  - Complete implementation of electrical panel load analyses at multiple buildings
  - Replace kitchen equipment as needed
  - Patch, reseal, and restripe selected parking lots
  - Initiate program to recertify and validate the effectiveness of stormwater facilities
  - Implement selective repainting of building interiors

## General Government

### Capital Improvement Programs

- Park Facilities
  - Replace HVAC units on three concession buildings
  - Replace major HVAC equipment units at Rhodes Jordan Park Community Recreation Center
  - Replace major HVAC equipment at Pinckneyville Park Community Recreation Center
  - Replace fire alarm system at Bethesda Park Senior Recreation Center
  - Replace fire alarm system at Shorty Howell Park Activity Building
- Police Facilities
  - Complete upgrade of HVAC system controls at Police Training Shooting Range
  - Complete installation of HVAC system controls at East Precinct
  - Replace HVAC units and install HVAC system controls at Central Precinct
  - Install electric heat coils to protect data center cooling equipment at the 911 Center
  - Upgrade ventilation in the lab at the Crime Scene Investigation Unit
  - Replace uninterruptable power supply batteries in the Police Annex/911 Center

### Information Technology

- Upgrade the FileNet P8 system to improve system stability and maintenance support, which provides agenda and invoice processing as well as general document management for the County.
- Continue upgrades to the Department of Water Resources' information system. Upgrades include enhancements that strengthen cellular signals, reduce communications faults, and increase cellular connectivity, as well as adding Wi-Fi and mobile equipment at plant facilities. Additional projects include enhancements to cyber security, asset management, SCADA Instrumentation Programming, warehouse operations, meter reading upgrade, and others.
- Continue upgrades and improvements to enhance public safety operations. These projects include a staffing management upgrade for Fire/EMS Services, E-911 digital phone system upgrade, Redundant Logging Recorders, EOC AV Equipment Upgrades, and the continued implementation of the Body Worn Cameras project.
- Replace scan guns used by public safety employees. This ensured compatibility to the SAP system, and the change allowed network security to enable WPA2 wireless encryption standards.
- Replace the Department of Transportation's network hardware and software in a phased approach. This project is necessary for the implementation of up-to-date network communication hardware.
- Continue installation, upgrades, and replacements of video surveillance equipment at multiple sites throughout Gwinnett County. The video system at various locations allows the agencies to retain their video for evidence, lawsuits, medical claims, billing disputes, vandalism deterrence, etc.
- Continue enhancements and improvements to Gwinnett County's public website including replacing the hardware to provide better accessibility, and more useful functionality for Gwinnett County employees and residents.
- Continue focus on network and security enhancements for reliability, business continuity and better protection against malware, ransomware, and malicious websites.
- Continue expansion of the network and communications infrastructure, including wireless access (WLAN), virtual private networks (VPN), cellular network connectivity, firewalls, and various security platforms.
- Procurement of updated network equipment, server hardware, software, and diagnostic tools necessary to better incorporate new technologies and support Gwinnett County's continued growth and expansion.
- Purchase software, monitoring tools, peripheral devices, and other hardware for various departments throughout Gwinnett County. This project will provide for the updating of hardware and software and allow them to operate more effectively and efficiently.

## General Government Capital Improvement Program

Project Category	2017	2018	2019	2020	2021	2022	Total 2017 – 2022
2040 Comprehensive Plan	300,000	700,000	200,000	-	-	-	1,200,000
Alternate E-911 Center	-	4,942,970	-	-	-	-	4,942,970
Cities Share of 2014 SPLOST	8,293,476	-	-	-	-	-	8,293,476
Cities Share of 2017 SPLOST	24,748,089	32,701,042	33,191,558	33,689,430	34,194,774	34,707,694	193,232,587
Computers and Computer Systems	19,067,603	19,454,143	9,495,575	3,489,380	3,206,050	3,095,795	57,808,546
Contingencies and Miscellaneous Projects	832,800	128,890	128,890	128,890	84,386	70,000	1,373,856
Fleet Equipment	409,718	1,452,646	1,277,518	390,054	621,829	1,231,170	5,382,935
General Government Facilities	21,874,193	51,714,072	8,494,224	5,054,422	4,162,011	3,012,497	94,311,419
Health and Human Services Facilities	418,663	-	-	-	-	-	418,663
Judicial Facilities	-	-	-	-	684,400	1,249,000	1,933,400
Libraries	7,568,555	3,273,751	3,322,857	3,372,700	3,423,290	3,474,640	24,435,793
Senior Service Facilities	1,238,841	1,636,948	1,661,502	1,686,425	1,711,721	1,737,397	9,672,834
Support Services Administration	170,470	-	-	-	-	-	170,470
<b>Total General Government</b>	<b>84,922,408</b>	<b>116,004,462</b>	<b>57,772,124</b>	<b>47,811,301</b>	<b>48,088,461</b>	<b>48,578,193</b>	<b>403,176,949</b>



### Capital Improvement Programs

Gwinnett County's Public Safety program consists of projects that preserve and protect the lives and property of Gwinnett County residents.

#### 2016 Capital Achievements

Achievements in 2016 pertaining to the Gwinnett County Police Department include the following:

- Police Headquarters renovation: During 2016, Police Services completed maintenance on the HVAC units at Police Headquarters.
- Animal welfare: During 2016, Police Services completed the office build-out of the Animal Welfare and Enforcement Center.
- Major repairs and renovations: During 2016, Police Services began or completed the following projects:
  - Completed the re-seal and re-striping of the parking lots at Police Headquarters.
  - Completed the fencing installation at East precinct, which included a security fence with gate motor.
  - Completed the installation of the security fence at Westside precinct. .
  - Started the design and construction for the fitness room renovation at Police Headquarters. This project will not be completed until the beginning of 2017.
  - Completed the electrical and data upgrade for the Police Hangar at Aviation.
  - Completed the flight simulator room build out at Police Aviation, which included a partition wall dividing the break room and the flight simulation training room.
  - Completed the insulation replacement in the Police Hangar.
  - Completed the Westside precinct parking lot improvement, which included demolition and removal of failed parking lot asphalt, the re-alignment of curbing, and the replacement of a sinkhole area with sod.
- Police parking expansion project: During the fourth quarter of 2016, the parking expansion project began. A small amount of funds has been encumbered for the project located at 638 Hi-Hope Road to include inspection for asbestos. Additional future work will include the removal of the DOT building, mobile trailer, K9 office, and incinerator. This project will also include grading disturbed areas, placing gravel for temporary parking, installing six security cameras, and connecting to the county fiber optic network.
- Helicopter replacements: During 2016, the installation of the Forward Looking Infra-Red (FLIR) Star 380 camera monitor was completed on helicopter N5189K. Installation of the PA system was also completed.
- Firearms replacement: During 2016, Police Services purchased 29 Glock 43s, 228 Glock 19s, and 257 Night Sites. The portion of the project for 2016 is complete. In 2017, Police Services will continue the firearms replacement project.
- E-911 Logging recorder: During 2016, Police Services completed the purchase and installation of the new E-911 logging recorder for the E-911 center.
- Bay Creek Police Precinct and alternate 911 center: During 2016, money was encumbered for the design and construction administration for the new Bay Creek precinct and alternate 911 center. Construction documents have been completed.
- Emergency notification system project: As of December 31, 2016 , the emergency notification system is live and connected to the Gwinnett County 911 Center at 95 percent of elementary schools, 80 percent of middle schools, and 8 percent of high schools. Implementation of emergency notification systems at the four Buford schools has not begun. The project continues to be ahead of schedule for cabling and equipment installations. The project schedule continues to track well for meeting or exceeding the Go Live goals.



### Capital Improvement Programs

Other statistics for work completed as of December 31, 2016:

1. Completed designs – 127
2. Schools cabled – 127
3. Emergency notification and visitor management systems programmed – 126
4. Equipment installations completed – 125
5. System configurations completed – 126
6. Public address connections completed – 122
7. Schools trained – 117

Achievements in 2016 pertaining to the Department of Fire and Emergency Services include the following:

- Completion of the Fire Training Academy Renovation Program
- Completion of new Fire Station 31 and new Fire Station 10 (relocation)
- Purchased eight new pumpers to replace older units
- Received two new remounted/refurbished 95-foot aerial ladder trucks
- Purchased eight new remounted medic units (ambulances) to replace older units
- Purchased two new medic units (ambulances) to replace older units
- Purchased one additional new medic unit (ambulance) for a current station (Station 29) without a medic unit
- Replaced three operational command vehicles
- Replaced nine various light-duty vehicles
- Completed the re-roofing project at Fire Station 21
- Upgraded kitchen cabinets and countertops at Stations 4, 5, 6, 16, 23, and 25
- Renovated Station 17 bunkroom (installed individual cubicles)
- Upgraded security camera system at Fire Headquarters building
- Maintenance and upgrades at the fire burn building
- Replaced the old oxygen sheds at the Fire Academy Annex and Stations 11, 12, and 14
- Replaced complete HVAC systems at Stations 14, 22, and 23
- Installed the new dehumidification system at Station 12

### 2017 – 2022 Capital Improvement Plan

The 2017 capital program and 2018 – 2022 plan for the Public Safety Capital Improvement Program totals approximately \$93.3 million. Some of the highlights of planned improvements are listed below.

#### Police Services

Police Services' capital improvement plans for 2017 – 2022 include existing capital projects: improvements to the training complex; major repairs and renovations to include security fencing/gate replacements for Central, South, and North precincts; renovations to the Police Headquarters' fitness room; and renovations of crime scene forensic lab. Police Services will continue the public safety notification response system and the five-year replacement program for police firearms.

#### Fire and Emergency Services

The 2017 – 2022 Capital Improvement Plan for the Department of Fire and Emergency Services includes the continued replacement of older fire apparatus and medic units (ambulances) within the department along with the various support vehicles used. Future plans call for the relocation of Fire Stations 15, 13, and 14; the building of new Fire Station 32 and the Community Risk Reduction educational training facility; the renovation of the current Fire Resource Management Warehouse; the replacement of all department portable and mobile radios; and the replacement of older HVAC systems within various fire facilities depending on system evaluations and age. Additionally, the department will continue to add a medic unit (ambulance) to those fire stations that currently do not house one.

## Public Safety Capital Improvement Program

Project Category	2017	2018	2019	2020	2021	2022	Total 2017 – 2022
Ambulances	789,200	-	-	-	-	-	789,200
Detention Center Renovations	-	-	-	-	-	569,981	569,981
Fire Apparatus and Equipment	1,488,641	-	-	-	-	-	1,488,641
Fire Facilities	212,000	200,000	58,385	541,000	250,000	300,000	1,561,385
Firearms Replacement	112,995	106,020	-	-	-	-	219,015
Police Facilities	3,859,720	4,411,802	-	587,123	-	-	8,858,645
Public Safety Administration	5,128,391	6,339,257	6,434,345	6,530,861	6,628,824	6,728,255	37,789,933
Public Safety Vehicles and Fleet Equipment	2,734,021	18,266,554	6,206,509	3,929,408	2,335,130	7,729,218	41,200,840
Technology Needs	221,500	184,992	189,000	193,500	-	-	788,992
<b>Total Public Safety</b>	<b>14,546,468</b>	<b>29,508,625</b>	<b>12,888,239</b>	<b>11,781,892</b>	<b>9,213,954</b>	<b>15,327,454</b>	<b>93,266,632</b>





### Capital Improvement Programs

The Transportation Capital Improvement Program consists of projects to improve the County's transportation infrastructure. Projects in this program fall into three categories: Road Improvements (of which there are several sub-categories), Airport Improvement, and Transit.

The County's Road Improvement Program consists of the following:

- Major Roadway Improvements include new road construction, new alignments, and increasing the capacity of existing roads.
- Intersections/Traffic Operation Improvements include the addition of turn lanes, improvements of alignments of cross streets, improving sight distances, and signalizations, as well as Advanced Traffic Management System (ATMS) improvements.
- Bridges/Roadway Drainage Improvements consist of new construction or reconstruction of existing bridges and culverts up to sufficiency standards.
- Road Safety and Alignment projects correct safety deficiencies such as sight distances, horizontal and vertical alignments, and at-grade railroad crossings.
- School Safety projects improve traffic safety near schools with the installation of turn lanes at school entrances, installation of sidewalks, and signalization improvements.
- Sidewalks and Multi-Use Trails include projects to link existing sidewalk segments or link residential areas to nearby activity centers.
- The Unpaved Road category funds the paving of gravel and dirt roads throughout the county.
- The Rehabilitation and Resurfacing category renovates, rehabilitates, and resurfaces existing County roads to prolong the life of the road.

The County Airport Improvement category consists of various improvements to Gwinnett County's Briscoe Field, the fourth busiest airport in the state. Projects in the Transit category consist of the acquisition/replacement of buses and equipment and the construction of various transit facilities.

### 2016 Capital Achievements

- Began construction on twenty-nine (29) projects, including intersections, major roads, road safety and alignment, school safety, and sidewalks and pedestrian safety improvements
- Completed the construction of twenty-nine (29) projects, including bridges, intersections, major roadways, road safety and alignment, and sidewalks and pedestrian safety improvements
- Completed the engineering design and began construction on the SR 324 widening project from Jim Moore Road to Dacula Road
- Completed the engineering design and began construction on the Peachtree Industrial Boulevard widening project from south of McGinnis Ferry Road to north of Moore Road
- Began engineering on SR 316 at Harbins Road interchange
- Completed initial public outreach phase and the short range plan for the Comprehensive Transportation Plan (CTP)
- Completed the upgrade of the school zone flasher system from a pager based system to one that provides two-way communications for real-time monitoring capabilities from the Traffic Control Center
- Resurfaced 130 miles of county maintained roadways
- Placed into service 28 new Gillig Low Floor Local Transit buses to replace the original Orion fleet
- Implemented service enhancements to include new express service to Emory/CDC, additional AM express departures and local service schedule improvements

### Capital Improvement Programs

#### 2017 – 2022 Capital Improvement Plan

The 2017 capital budget and 2018 – 2022 plan for the Transportation Capital Improvement Program totals approximately \$540.5 million. Some of the major projects are as follows:

- Coordinate Transportation's role in the 2017 SPLOST Program to include forming the Citizens Project Selection Committee and developing the list of transportation projects/category levels
- Begin coordination and delivery of the 2017 SPLOST Program
- Complete the update to the Comprehensive Transportation Plan
- Complete construction on SR 20 North widening from Peachtree Industrial Boulevard to Forsyth County line including widening the bridge over the Chattahoochee River
- Begin construction improvements on Five Forks Trickum Road from Ronald Reagan Parkway to Killian Hill Road
- Continue to increase the percentage of traffic signals connected to the Traffic Control Center with the installation of cellular modems or short runs of fiber cable for locations off main corridors and arterial roadways
- Continue to upgrade and enhance the GCsSmartCommute website for increased use by providing additional traveler information
- Complete an update to the ATMS/ITS Master Plan
- Implement various service enhancements to include Flex Service
- Complete and develop a Comprehensive Transit Development Plan to include short, medium and long range programs
- Begin replacement of the Paratransit fleet for Transit
- Complete the design of Taxiway "Y" (a parallel taxiway on the north side of the airport to increase safety by decreasing runway crossings and thereby decreasing the possibility of having a runway incursion at the airport) and begin construction on the project
- Continue the expansion of the ATMS/ITS Traffic Network for real time monitoring of major corridors and arterials using connectivity to the Traffic Control Center utilizing available SPLOST and Congestion Mitigation and Air Quality Funds
- Complete SR 316 grade separated interchanges from SR 20 to Harbins Road
- Design and construct access taxilanes to Central Basing Area
- Complete design and begin construction on SR 324 at I-85 interchange
- Continue engineering on Sugarloaf Parkway Extension from SR 316 to I-85
- Begin engineering on McGinnis Ferry Road at I-85 interchange



## Transportation Capital Improvement Program

Project Category	2017	2018	2019	2020	2021	2022	Total 2017 – 2022
Airport Capital Improvements and Equipment	267,525	58,125	86,875	374,950	-	-	787,475
Bridge and Roadway Drainage Improvements	8,400,000	5,675,000	-	-	-	-	14,075,000
Cities Allocation-Roads	7,300,013	8,186,325	4,990,510	5,065,367	5,141,348	5,218,468	35,902,031
Intersection/Traffic Operations Improvements	9,945,000	6,322,500	2,230,000	230,000	230,000	230,000	19,187,500
Major Road Improvements	7,000,000	9,791,000	10,000,000	-	-	-	26,791,000
Neighborhood Speed Control	286,250	350,000	-	-	-	-	636,250
Pedestrian Safety/Sidewalks	7,800,000	1,257,500	-	-	-	-	9,057,500
Resurfacing/Rehabilitation	9,725,000	-	-	-	-	-	9,725,000
Road Program Management	3,750,000	3,004,750	2,750,000	-	-	-	9,504,750
Road Program Miscellaneous/Contingencies	280,000	-	-	-	-	-	280,000
Road Safety and Alignments	4,075,000	1,147,500	60,000	75,000	75,000	75,000	5,507,500
School Safety Program	3,669,560	1,087,500	-	-	-	-	4,757,060
Transportation Administration	49,477,191	34,688,873	71,960,790	76,608,896	77,758,030	78,924,400	389,418,180
Transit Program Miscellaneous/Contingencies	387,300	27,377	-	-	-	-	414,677
Transit Vehicles and Equipment	921,471	271,865	278,556	-	-	-	1,471,892
Transportation Planning	1,348,245	2,384,061	2,308,753	3,221,079	1,888,716	1,758,394	12,909,248
Unpaved Roads	80,750	-	-	-	-	-	80,750
<b>Total Transportation</b>	<b>114,713,305</b>	<b>74,252,376</b>	<b>94,665,484</b>	<b>85,575,292</b>	<b>85,093,094</b>	<b>86,206,262</b>	<b>540,505,813</b>



### Capital Improvement Programs

The mission of the Gwinnett County Department of Water Resources (DWR) is to provide superior water services at an excellent value.

DWR's Capital Improvement program consists of projects that provide clean, potable water for Gwinnett residents and businesses; collect and reclaim wastewater to protect the environment and promote and protect the health, safety, and welfare of the public; and projects that help manage stormwater. These projects include construction of new facilities, improvements to existing water facilities, and projects that improve the efficiency of operations. The need for improvements or new facilities may be driven by increased demand, changes in regulatory requirements, required service level improvements, asset failure due to age, or a combination of these and other factors. The focus of DWR's current Capital Improvements Program is the rehabilitation and replacement of aging infrastructure.

DWR operates and maintains two water production facilities with 248 million gallons per day (MGD) of production capacity and three water reclamation facilities (WRF) with 98 MGD of treatment capacity. DWR also operates and maintains 220 raw sewage pump stations, 10 water booster pump stations and 10 water storage tanks, 276 miles of pressurized sewer pipe, 2,750 miles of gravity sewer pipe, 1,454 miles of Stormwater drainage pipe and 3,744 miles of water main, serving approximately 167,907 sewer customers and 236,950 retail water customers. This infrastructure has a replacement value of more than \$9 billion dollars. Projects in the Capital Improvement Program are funded either by water and sewer revenue, Stormwater fees or SPLOST funds.

### 2016 Capital Achievements

The Water and Sewer Capital Improvement Program is divided into six subprograms:

- Water Reclamation Facilities
- Collection System
- Distribution System
- Water Production Facilities
- System Development
- Miscellaneous

**The Water Reclamation Facilities program** includes projects for expansions of and improvements to the County's three water reclamation facilities as well as projects to support watershed protection required by the water reclamation facilities' NPDES permits. In 2016, completed projects include:

- F. Wayne Hill Effluent Header Upgrade

The effluent header at the F. Wayne Hill Water Resources Center receives flow from 12 effluent pumps and allows the effluent to be sent to Lake Lanier, the Chattahoochee River, and the F. Wayne Hill Water Reclamation Center (WRC) as reuse water. The header is 180 feet long and is made up of two 48-inch pipes and one 24-inch pipe. Over the past 15 years since the header was installed, significant structural settling has occurred. This has caused misalignment of the pump connections with the header. This project will stabilize the structure and prevent future movement. Due to the close proximity of the pumps, header, electrical and control systems, and the critical nature of these facilities, the contractor is required to take extra precaution in doing work to ensure damage does not occur.

- F. Wayne Hill Nutrient Recovery System

The Nutrient Recovery Project has effectively addressed the two aforementioned needs. Two processes were pilot tested at the F. Wayne Hill WRC to determine the efficacy of the nutrient recovery processes. Both processes successfully reduced the nutrients coming off the plant's dewatering centrifuges. Following pilot testing, DWR conducted a Business Case Evaluation comparing the long-term costs of nutrient recovery versus chemical addition to the digesters for nutrient removal. Nutrient recovery was determined to have the shortest payback versus chemical addition.

### Capital Improvement Programs

Once it was determined that nutrient recovery was the best long-term option for nutrient control, a Request for Technical Proposals (RFTP) was then issued to find service providers and technologies capable of achieving the desired nutrient removals. The intent of the RFTP was to select a manufacturer based on their qualifications and technical expertise. Two companies responded, and they were the same ones that piloted out at the FWH WRC. The Ostara USA, LLC process was rated as the most qualified service provider. Its process is a patented and licensed process to remove the nutrients from the wastewater and it has begun converting them into fertilizer pellets, which it markets and sells.

A condition of the Ostara USA, LLC installation is that Ostara will own the rights to procure from the utility the byproduct (fertilizer) produced at an agreed upon rate. The execution of this document will allow the approximately 5 tons of byproduct anticipated to be produced daily at the FWH WRC to be purchased by Ostara and sold. All marketing, delivery, usage, and indemnification costs are borne by Ostara.

**The Collection System program** includes projects for expansion, replacement, and assessment of gravity sewer pipe, force mains, and wastewater pump stations. It also includes projects that improve cost effectiveness by installing gravity sewers to decommission pump stations. Projects completed in 2016 include:

- Wolf Creek Force Main

The Wolf Creek Force Main Replacement Project consisted of approximately 8,200 linear feet of 16-inch ductile iron pipe (DIP) that conveys sanitary sewage from the Wolf Creek Pump Station to a gravity interceptor that discharges into the Crooked Creek Water Reclamation Facility for treatment. The new force main replaced the existing 14-inch DIP force main, which was more than 30 years old and was experiencing some corrosion at the high points. The new force main replacement was installed in the right-of-way (ROW) and follows the existing force main route until it reaches Ranger Court. It then continues down the ROW of Ranger Court and Gunnin Road until it reaches a gravity interceptor at East Jones Bridge Road. A small section of the gravity interceptor has also been replaced as part of this project.

- South Berkeley Lake Road Gravity Sewer

The work performed under this contract included the construction of an 8-inch sanitary sewer along South Berkeley Lake Road between Old Peachtree Road and Peachtree Industrial Boulevard, through the West Gwinnett Park and Aquatic Center, and connecting to an existing manhole located at 4565 Peachtree Industrial Boulevard in the city of Berkeley Lake in Gwinnett County, Georgia. The work included the installation of approximately 2,400 linear feet of 8-inch DIP; 10 manholes, 170 linear feet of 16-inch steel casing via jack and bore; 6-inch DIP sewer laterals; the removal and replacement of a GDOT Type-V-I Hooded Curb Inlet; asphalt paving resurfacing; site restoration; and all related appurtenances as shown on the drawings or specified in the contract documents.

**The Distribution System program** consists of projects associated with water meters and water distribution pipe extensions and replacement. The water distribution projects completed in 2016 include:

- Dacula Area Water Main

DWR and Planning and Development identified a need to provide water service to the eastern side of the county in support of the Technology Corridor identified in the 2030 Unified Plan. The Technology Corridor includes the area along Highway 316 between Harbins Road and the county border. This project involved replacing and upsizing approximately 10,700 linear feet of existing miscellaneous sizes and lengths of 12-inch, 10-inch, 8-inch, and 6-inch of asbestos cement and polyvinyl chloride water mains along Sanjo Street, Tanners Road, and West Drowning Creek Road with new ductile iron pipes in the city of Dacula. Only the existing 12-inch pipes have been upsized to 16-inch. A tee and valve has been placed at the intersection of Tanner Road and West Drowning Creek Road to allow the 16-inch water main line to eventually be extended to the county border, thereby providing water to the Technology Corridor.

- Johnson Road Water Main

As part of DWR's proactive initiative to ensure that adequate fire protection is provided for the residents, we have upsized the current 8-inch pressurized DIP water main with a new 16-inch DIP along Johnson Road in Suwanee. Most of the original lines were installed during the late 1980s. Approximately 5,700 linear feet of 16-inch DIP has been installed. This upsize now provides adequate fire protection to Riverside Elementary School and the Highlands at Bridgegate, Grandview the Enclave, Ashleigh Walk, and Edinburgh Subdivisions.

### Capital Improvement Programs

- Gates Mill Water Main

This project involved the replacement of approximately 11,000 linear feet of existing 8-inch Class 900 Polyvinyl Chloride (PVC) water main with new 8-inch DIP due to high break history. The new mains have been installed along Gates Mill Walk, Mill Glen Court, Sutters Drive, Gates Mill Drive east of Millennial Lane, Gates Mill Walk Path, Mill Path Loop, and Millennial Lane south of Gates Mill Drive within the Gates Mill Subdivision in Grayson. By proactively replacing the mains identified within the project area, Gwinnett County DWR has eliminated the risk of failure and the increased costs of emergency repairs, reduced the potential of customer service disruptions, and reduced the potential for water loss.

- 48-inch Pre-stressed Concrete Cylinder Pipe (I-985)

DWR maintains 178 miles of water transmission mains ranging in size from 20-inch to 78-inch in diameter. Originally 53 miles of the transmission mains were pre-stressed concrete cylinder pipe (PCCP) installed in the 1970s. Due to high failure rates of PCCP water transmission mains, 38.6 miles have been replaced over the last 25 years, leaving 14.1 miles of PCCP remaining. DWR continues to systematically replace the PCCP with DIP, addressing sections with the highest risk and consequence of failure first. At the completion of this project, 13.95 miles of PCCP will remain. This project involved the replacement of approximately 800 linear feet of existing 48-inch diameter PCCP with new 48-inch diameter restrained joint DIP in a new steel tunnel liner plate underneath I-985 at Thompson Mill Road in Buford, Georgia.

**The Water Production Facilities program** includes projects for expansion and improvements to the two water production facilities and the booster stations and tanks. The following water facility rehabilitation projects were completed in 2016:

- Lanier Filter Plant Filter Building #1 Electrical Upgrades

This project addressed the improvements to the existing electrical and HVAC equipment located within the Electrical Room of Filter Building No.1 at the Lanier Filter Plant. The equipment was installed more than 25 years ago and was in need of being replaced.

The project includes demolition of the primary load interrupter switches, indoor transformer, low-voltage switchgear, and the outdated motor control centers (MCC) inside the Filter Building #1 Electrical Room. This contract allowed for the installation of a new low-voltage switchgear, a power meter, duplex sump pump system within the Recycle Pump Station, provide a manhole for the connection of the future Onsite Sodium Hypochlorite Generation System, new HVAC system for the filter gallery and the electrical room, new LED lighting, smoke detectors, replacing the existing ceiling tiles, replacement of the existing air handling unit, and associated ductwork with a new ventilation and heating system, and SCADA system integration work. Additional benefits of completing this project include improved system reliability and safety.

**The System Development program** is a new program and includes water and sewer planning studies and projects that promote economic development.

- Bank Street and Pleasant Hill Sewer Extension

This project included the installation of an 8" diameter sanitary sewer line from the existing manhole at Bank Street, extending for a distance of approximately 600 linear feet to a point across Pleasant Hill Road in order to extend sanitary sewer service to property located east of Pleasant Hill Road.

**The Miscellaneous program** has a wide variety of projects that include IT projects, new and replacement vehicles, administration building improvements, relocations of utilities necessary during road projects, and other projects that support the mission of the department. The Miscellaneous program also includes funds for reserves and contingencies.

- DWR Central Facility Vacuum Truck Storage Building

DWR desires to add a new pre-engineered metal building with slab on grade northeast of the main headquarters building near the common property line shared with the Police Training Facility. The purpose of the building is to house approximately 12 vacuum trucks of various sizes and shelter them from the elements. The building will be roughly 48 feet wide by 200 feet long and include 12 overhead doors to permit ingress/egress of the trucks into and out of the building. The building will not otherwise be inhabited so no offices, rooms, or restrooms will be included. The building will be heated and will include power and sewer (floor drain) utilities.



## Water Resources

### Capital Improvement Programs

The **Stormwater Capital Improvement program** contained projects related to stormwater pipe replacement, pipe lining, flood studies, drainage improvements, and dam rehabilitation.

In 2016, the following stormwater pipe replacements, drainage improvements, and rehabilitation projects were completed.

- 231 pipe lining projects
- 42 drainage improvement projects
- 147 stormwater pipe replacements and rehabilitation projects

Some key 2016 stormwater projects included:

- Allenhurst Phase II Stream Restoration Project

The Allenhurst Phase II Stream Restoration Project was located in Peachtree Corners, Georgia, in the Peachtree Station and River Valley Estates Subdivisions and included approximately 2,100 linear feet of stream restoration on unnamed tributaries to the Chattahoochee River. The project site was approximately 3.8 acres including construction access and staging areas in a residential neighborhood. Permanent easements were obtained from the property owners. The project improved the water quality and aquatic habitat pursuant to the goals of the Gwinnett County Watershed Protection Plan.

- Bush Creek Stream Restoration

The Bush Creek Restoration Project was located in Peachtree Corners, downstream of Bush Road between River Hollow Run and Riveredge Drive, and included approximately 3,500 linear feet of stream restoration on tributaries to the Chattahoochee River. The project site was approximately 5 acres including three construction access points and staging areas in a residential neighborhood. Permanent easements were obtained from the property owners and the project improved the water quality and aquatic habitat pursuant to the goals of the Gwinnett County Watershed Protection Plan.

### 2017 – 2022 Capital Improvement Plan

The 2017 capital budget and 2018 – 2022 plan for the Water Resources Capital Improvement program totals approximately \$968.3 million. Some of the major projects are described in the following paragraphs.

- Arc Flash Mitigation

The project includes working on the existing Lanier Filter Plant, Shoal Creek Filter Plant, and the Shoal Creek Raw Water Pump Station. Updated arc flash studies and grounding inspections were completed for these plants in 2016 and indicated a number of individual equipment which needs to be improved to reduce the arc flash hazard ratings at the Lanier and Shoal Creek Filter Plants. The project includes the addition of switchgear maintenance switches, protective relays, manual transfer switches, new unit substations/switchgears/motor control centers (MCCs), transformers, panel boards, and modifications to existing low-voltage and medium switchgears and MCCs, with some lighting improvements.

- F. Wayne Hill Operations Building Upgrade

Gwinnett County owns and operates three water reclamation facilities, F. Wayne Hill WRC, Crooked Creek WRF, and Yellow River WRF, which are operated by DWR. Combined, these facilities process nearly all of the wastewater produced within the county. The F. Wayne Hill WRC is the largest of the three treatment facilities with a maximum month average day flow rated capacity of 60 MGD and has a current annual average day flow of approximately 35 MGD.

The proposed Adjacent Operations Building Expansion is an approximately 25,000 square-foot, two-story addition to the north of the existing operations building to accommodate current and future needs. The facility will remain operational by relocating the facility staff and support spaces to mobile trailers during construction eliminating the need for the project to be phased. The existing operations building will receive new engineered mechanical systems and related electrical upgrades to support HVAC improvements. The interior furnishings will be designed under a separate package later in the construction phases for replacement of existing and new building furniture. An instrumentation training room will be included in the design of the existing building renovation. The design will be developed in Autodesk Revit modeling, with 2D hard documents used for permitting, bidding, and construction.

### Capital Improvement Programs

- Beaver Ruin Pump Station

The Beaver Ruin Pump Station is a major pump station in the DWR wastewater conveyance system. The station plays a critical role in transferring flows from the center of the county and sludge from the Yellow River WRF to the F. Wayne Hill WRC.

The Beaver Ruin Pump Station has ongoing operational problems that have caused DWR continual challenges of maintaining flows and avoiding spills. The problems have primarily been mechanical and hydraulic and include: pump and motor misalignments, excessive pump vibrations, impeller and volute damage, excessive bearing fatigue, and numerous shaft failures. DWR has invested considerable amounts of capital in the station. These efforts have only partially resolved the problems. Improving the reliability of this critical pump station is still a key goal for DWR.

The Beaver Ruin Pump Station Upgrade – Phase 3 will alleviate the major mechanical problems that are currently present by building a Second Stage Pump Station and separating the problematic two stage pumps. The phase 3 upgrade will include new pumps, motors, and several other components at the site to make the station more reliable for DWR.

- Crooked Creek Water Reclamation Facility Improvement Project #4

The CP-4 project will include four new biological nutrient removal activated sludge Bioreactor Basins and two new secondary clarifiers (SCs) to replace the existing three oxidation ditches and four of the smaller 72-foot diameter SCs, new disinfection system and post aeration, and new thickening and dewatering. The two existing 120-foot diameter, 20-foot deep SCs are being rehabilitated and will be used within the upgraded process. The existing influent pump station, headworks, and filters will remain as existing.

- Lanier Raw Water Intake Maintenance

DWR has operated the Lanier Raw Water Intake and Pump Station since the facility was commissioned in 1971. DWR has performed routine preventative maintenance services for the facility's components and has also contracted for special services to inspect components not routinely accessed by DWR operation and maintenance personnel. Based on recent inspections, DWR has become concerned that portions of the existing intake facility are nearing the end of their useful lives and are no longer repairable.

In 2014, DWR commissioned a study and business case evaluation to develop alternatives to provide the most cost effective option that maintained the original design capacity, provided a high degree of reliability, improved environmental protection, and integrated with the drought contingency plans. The selected option was replacement of the existing three 72-inch diameter raw water pipes with a single 120-inch diameter raw water pipe.

Jacobs was the company selected to perform detailed design, prepare construction documents, and provide construction phase services for the planned maintenance. An initial pre-proposal workshop was conducted with DWR staff on December 19, 2014, to further develop project concepts. The result of the initial workshop further defined the scope of work for the project and is documented in the meeting notes. The preferred approach for the pipe installation is the "wet" method of construction, which avoids the expense and risk of construction of a cofferdam in the lake.

## Water Resources Capital Improvement Program

Project Category	2017	2018	2019	2020	2021	2022	Total 2017 – 2022
Rehabilitation and Replacements	21,340,000	20,550,000	19,850,000	19,950,000	22,950,000	23,000,000	127,640,000
Interceptors and Sewers	-	50,000	50,000	50,000	50,000	50,000	250,000
Information Technology Systems and Applications	7,139,000	5,700,000	2,800,000	2,300,000	1,150,000	1,150,000	20,239,000
Miscellaneous Projects and Contingencies	27,217,304	36,362,500	35,982,500	34,552,000	34,466,000	33,280,000	201,860,304
Stormwater Management	160,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	5,160,000
Utility Relocations	1,000,000	640,000	640,000	640,000	640,000	640,000	4,200,000
Water and Sewer Plans and Studies	14,167,124	23,260,209	19,850,000	15,450,000	15,400,000	15,950,000	104,077,333
Water Production Facilities	21,500,433	14,047,345	6,175,000	8,175,000	8,175,000	8,950,000	67,022,778
Water Reclamation Facilities	36,699,656	49,050,000	62,291,435	64,461,604	68,900,000	45,000,000	326,402,695
Water Transmission/Distribution	22,445,657	16,170,000	15,530,000	20,200,000	16,500,000	20,600,000	111,445,657
<b>Total Water Resources</b>	<b>151,669,174</b>	<b>166,830,054</b>	<b>164,168,935</b>	<b>166,778,604</b>	<b>169,231,000</b>	<b>149,620,000</b>	<b>968,297,767</b>

# DID YOU KNOW...

In 2016, **Gwinnett Transit**  
carried nearly **1.5 million riders on 81 vehicles.**

