


## Clean Water Nashville Overflow Abatement Program

**Metropolitan Government of Nashville and Davidson County  
Department of Water and Sewerage Services**

# CONSENT DECREE QUARTERLY PROGRESS REPORT

**October 1 through December 31, 2022**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

  
Ron C. Taylor P.E., Program Director

1/26/23

Date

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# Section 1

## Introduction

On March 12, 2009, the Metropolitan Government of Nashville and Davidson County, Tennessee (Metro), entered into a Consent Decree with the United States and the State of Tennessee. To fulfill the reporting requirements defined in Section XIX.A. of the Consent Decree, Metro has prepared this *Quarterly Progress Report* that includes the following information:

1. Information on sanitary sewer overflows (SSOs) and dry-weather combined sewer system overflows (CSOs) occurring during the reporting period
2. A description of the work conducted during the reporting period to comply with the requirements of the Consent Decree
3. The anticipated work for the upcoming quarter to comply with the requirements of the Consent Decree
4. Any additional information necessary to demonstrate that Metro is adequately implementing the work

Work, as defined in the Consent Decree, includes all activities that Metro is required to perform under the Consent Decree. For the purposes of this *Quarterly Progress Report*, however, the focus will remain on current and upcoming work related to the *Corrective Action Plan/Engineering Report (CAP/ER)*, the *Long Term Control Plan (LTCP)*, and additional activities to address SSOs and CSOs.

### 1.1 Additional Programs

Several additional programs, listed below, were also required to be developed or implemented as part of the Consent Decree. Any modifications or updates to these programs are described below.

- *Spill and Overflow Response Plan (Section VII.C.2)* – Metro continues to follow the Spill and Overflow Response Plan (SORP). The SORP was reviewed, and a revised version was submitted to the U.S. Environmental Protection Agency (EPA) for review and approval in May 2022.
- *Inter-jurisdictional Agreement Program (Section VII.C.3)* – All required inter-jurisdictional agreements are in place, and Metro will continue to operate under these agreements, including monitoring peak flows received.
- *Capacity Assurance Plan (Section VII.C.4)* – The Capacity Assurance Plan will continue to be applied as a tracking/approval tool for new development/flow in the sanitary sewer system.
- *Pump Station Operation Plan for Power Outages (Section VII.C.5)* – All projects identified in the *Pump Station Operation Plan for Power Outages* were completed prior to the start of the reporting period.

- *Nine Minimum Controls Compliance Plan* (Section VII.D.1) – All elements of the *Nine Minimum Controls Compliance Plan* (NMC) were completed in 2012.
- Supplemental Environmental Projects (Section VIII) – The Supplemental Environmental Projects (SEPs) required in the Consent Decree were completed in 2010.

## 1.2 Report Organization

This *Quarterly Progress Report* is organized as follows:

Section 1 – Introduction

Section 2 – *Corrective Action Plan/Engineering Report*

Section 3 – *Long Term Control Plan*

Section 4 – Additional Measures to Maintain Consent Decree Compliance

Section 5 – Quarterly SSO and Dry-Weather CSO Report

## Section 2

### *Corrective Action Plan/Engineering Report*

To address conditions causing overflows in their sanitary sewer system, Metro developed a CAP/ER that was submitted to EPA and the Tennessee Department of Environment and Conservation (TDEC) on September 11, 2011.

The CAP/ER development began with a characterization of Metro's sanitary sewer system through extensive monitoring and modeling to understand the existing system's limitations. The need for improvements to address both current and future sewer capacity needs was then assessed, and potential alternatives were evaluated to select efficient and cost effective solutions. These recommended projects, which include infrastructure rehabilitation, additional conveyance capacity, and storage of wet-weather flows, are presented in the CAP/ER.

Approval of the CAP/ER was granted by EPA on August 10, 2017, with TDEC copied on the approval. Since submittal of the CAP/ER in 2011, information from additional flow monitoring data collection, constructability reviews, and hydraulic analyses resulted in adjustments to several CAP/ER projects, as well as the identification of additional projects to remediate SSOs. A summary of those changes was presented to EPA and TDEC in the *Addendum to the CAP/ER*, dated September 27, 2017.

Through ongoing efforts to maintain the system, Metro identified several overflow locations outside of those identified in the CAP/ER that warrant additional field investigations and/or improvements. As requested by TDEC in a letter dated July 15, 2019, Metro prepared *Addendum #2 to the CAP/ER* and submitted it on August 30, 2019. That Addendum describes those overflow locations, summarizes actions taken, and presents Metro's plan for identifying and addressing conditions causing those overflows.

On February 18, 2020, Metro met with representatives from EPA, TDEC, the U.S. Department of Justice, and the Tennessee Attorney General's office to discuss compliance with the Consent Decree. A follow-up conference call with all parties was held on April 4, 2020, with informal clarifications between parties continuing over the following months. On December 7, 2020, Metro received a letter from EPA formalizing those discussions. The letter, which was countersigned by Metro on December 8, 2020, expands the Consent Decree's list of sanitary sewer overflows to be addressed (Appendix A of the Consent Decree). Additionally, the letter required that Metro submit an update to the CAP/ER, identifying corrective actions that have been or will be taken to address those overflows.

On June 2, 2021, Metro submitted the *Update to the Corrective Action Plan / Engineering Report (CAP/ER Update)*. On August 26, 2021, that document was approved by EPA in consultation with TDEC.

In a letter dated March 31, 2022, Metro informed EPA and TDEC that design work on the Mill Creek Trunk Improvements and Equalization Facility project had been paused due to new information that called into question whether the project as envisioned will meet the CAP/ER's performance requirements. As assessment of potential alternatives in that area continued, it became clear that Nashville's unprecedented growth, as well as the current economic climate, may impact numerous CAP/ER projects. In a letter dated November 30, 2022, Metro requested adjustments to the schedule

for several projects to allow additional time to understand those impacts. Metro anticipates continuing discussions with EPA and TDEC on potential modifications to Consent Decree requirements within the coming months.

Ongoing CAP/ER projects are described in the following subsections, and a schedule illustrating current and upcoming work on CAP/ER projects is presented as Appendix A.

## 2.1 Completed CAP/ER Projects

The following projects, discussed in the CAP/ER, achieved substantial completion prior to the start of the reporting period:

- 28th Avenue Rehabilitation – Area 1 – Clifton Avenue
- Barker Road / Omohundro Equalization Storage Phase I
- Brick Church Pike Pipe Improvements
- Bonnafair Pump Station Repairs
- Cowan / Riverside Rehabilitation – Area 1 – Jones Avenue
- Cowan / Riverside Rehabilitation – Area 2 – Dickerson Pike
- Cowan / Riverside Rehabilitation – Area 3 – West Trinity Lane
- Cowan / Riverside Rehabilitation – Area 4 – Pages Branch
- Davidson and Brook Hollow Sewer Improvements
- Dodson Chapel Equalization Tank and Wastewater Pumping Station Expansion
- Dodson Chapel Pipe Improvements
- Dry Creek Wastewater Treatment Plant Optimization
- Ewing Creek / Brick Church Equalization Facility
- Farmingham Woods Gravity Sewer (Tulip Grove Road)
- Gibson Creek Rehabilitation – Area 1 – Dupont Avenue
- Hidden Acres Rehabilitation
- Highway 100 / Tyne Boulevard – Trimble Rehabilitation
- Holiday Travel Park Gravity Conversion
- Joelton Rehabilitation
- Lakewood Water and Sewer Replacement – Area 1
- Langford Farms – Madison Heights Rehabilitation

- Loves Branch Rehabilitation
- Mill Creek 36-inch Trunk Sewer System Rehabilitation
- Mill Creek / Opryland Equalization Facility – Phase II
- Neely’s Bend Rehabilitation
- North Fork of Ewing Creek Manhole Repairs
- Rockwood Conveyance Improvements
- Shelby Park Rehabilitation – Area 1 – Virginia Avenue
- Shelby Park Rehabilitation – Area 2 – Norvel Avenue
- Shelby Park Rehabilitation – Area 3 – Greenland Avenue
- Shelby Park Rehabilitation – Area 4 – Brush Hill Road
- Shelby Park Rehabilitation – Area 5 – Cooper Lane
- Smith Springs Equalization Storage
- Smith Springs Rehabilitation – Area 1 – Priest Lake Meadows
- Smith Springs Rehabilitation – Area 2 – Castlegate
- South Oak Hill Manhole Repairs
- Vandiver Rehabilitation
- West Park Equalization Storage Phase I
- West Park Equalization Facility Phase II
- Westchester Drive Rehabilitation
- Whites Creek Wastewater Pumping Station Improvements
- Whites Creek Wastewater Treatment Plant (WWTP) Optimization and Disinfection

Note that the completed project list excludes activities that are not associated with a capital project.

## 2.2 CAP/ER Projects under Construction

The following project began or continued construction during the reporting period:

- 28<sup>th</sup> Avenue Rehabilitation – Area 2 – Batavia Street

The 28th Avenue Rehabilitation – Area 2 – Batavia Street project is the second in a series of rehabilitation projects to be constructed in the 28th Avenue Rehabilitation project area. The area evaluated for rehabilitation includes approximately 49,500 linear feet of gravity sewer and 272 manholes. Design began on May 19, 2020. The resulting project consists of the

rehabilitation of approximately 42,600 linear feet of gravity sewer, associated manholes, and service laterals within Metro's rights-of-way and easements. Advertisement for construction began on March 29, 2022, and construction quotations were received on April 28, 2022. The construction Notice-to-Proceed was issued on July 25, 2022, and construction activities are underway and will continue through the upcoming quarter.

- Bandywood - Green Hills Rehabilitation

The Bandywood - Green Hills Rehabilitation project is a sewer rehabilitation project for the portion of the Green Hills area near Sugartree Creek in the Richland Creek basin. The area evaluated for rehabilitation included approximately 59,000 linear feet of gravity sewer and 358 manholes. Design began on June 28, 2021, and was completed in January 2022. The resulting project consists of the rehabilitation of approximately 48,000 linear feet of gravity sewer, associated manholes, and service laterals within Metro's rights-of-way and easements. Advertisement for construction began on February 15, 2022, and quotations were received on March 18, 2022. The construction Notice-to-Proceed was issued on May 30, 2022, and construction activities are underway and will continue through the upcoming quarter.

- Cleeces Ferry Rehabilitation – Area 1 – Summerly Drive

The Cleeces Ferry Rehabilitation – Area 1 – Summerly Drive project is the first of two rehabilitation projects to be constructed upstream of the Cleeces Ferry Pump Station. The area evaluated for rehabilitation includes approximately 53,100 linear feet of gravity sewer and 299 manholes. Design began on August 6, 2020. The resulting project consists of the rehabilitation of approximately 49,000 linear feet of gravity sewer, associated manholes, and service laterals within Metro's rights-of-way and easements. Advertisement for construction began on May 9, 2022, and quotations were received on June 9, 2022. The construction Notice-to-Proceed was issued on August 22, 2022, and construction activities are underway and will continue through the upcoming quarter.

- Davidson Branch Pump Station and Equalization Facility

The Davidson Branch Pump Station and Equalization Facility project, referred to as the Davidson Branch Equalization Storage project in the CAP/ER, includes the relocation of an existing duty station and construction of a wastewater storage tank and wet-weather pumping station on a property adjacent to the existing Davidson Branch Pump Station. Design began on May 1, 2015. Advertisement for construction activities began on April 25, 2020, and bid proposals were received on June 11, 2020. The construction Notice-to-Proceed was issued on October 21, 2020, and construction activities will continue through the upcoming quarter.

- Gibson Creek Equalization Facility

The Gibson Creek Equalization Facility project, as presented in the CAP/ER, consists of the design and construction of a 10-million-gallon wastewater storage tank and associated wet-weather pumping station. Design began on September 12, 2016. Advertisement for construction began on March 23, 2021, and bid proposals were received on April 22, 2021. The construction Notice-to-Proceed was issued on August 9, 2021, and construction activities will continue through the upcoming quarter.



- Hurricane Creek Pipe Improvements

The Hurricane Creek Pipe Improvements project, as presented in the CAP/ER, consisted of increasing the conveyance capacity of approximately 7,800 linear feet of gravity sewer to meet Metro's capacity assurance requirements. Following the analysis of additional flow monitoring conducted in the spring of 2015, the project's scope was revised to include the design of parallel and/or replacement gravity sewers for approximately 12,100 linear feet of existing gravity trunk sewer. Design began on July 12, 2016, and permitting and easement acquisition activities were completed in late 2021. Advertisement for construction began on January 25, 2022, and bids were received on March 11, 2022. The construction Notice-to-Proceed was issued on June 3, 2022, and construction activities will continue through the upcoming quarter.

- Joelton Pump Station Upgrades

Following completion of the Joelton Rehabilitation project, the Joelton Pump Station continued to experience wet-weather overflows. Due to the persisting overflow and to address anticipated growth in the area, the Joelton Pump Station Upgrades project was developed. This project consists of two components – improvements to the station and upsizing of the force main. Construction activities for the pump station began in November 2021 and were substantially complete on September 22, 2022. Design activities for the force main upgrade are complete, and easement acquisition is underway. That work is anticipated to continue through the upcoming quarter with construction activities anticipated to begin in late 2023.

- Lakewood Rehabilitation – Area 2 – Pitts Avenue

The Lakewood Rehabilitation – Area 2 – Pitts Avenue project is a sewer rehabilitation project for the area upstream of the Lakewood Pump Station. This project also includes rehabilitating the sewer upstream of the Gail Drive, Villas of Lakemeade #1, and Villas of Lakemeade #2 Pump Stations. The total area evaluated for rehabilitation includes approximately 54,000 linear feet of gravity sewer and 282 manholes. Design began on March 15, 2021, and was completed in November 2021. The resulting project consists of the rehabilitation of approximately 1,200 linear feet of gravity sewer, 25 manholes, and 85 service laterals within Metro's rights-of-way and easements, along with post-construction smoke testing of the entire project area. Advertisement for construction began on November 18, 2021, and construction quotations were received on December 16, 2021. The construction Notice-to-Proceed was issued on February 14, 2022. Construction activities associated with the initial scope are complete, although repairs to address defects identified through post-construction smoke testing will continue through the upcoming quarter.

- Sevenmile Creek Rehabilitation – Area 1

The Sevenmile Creek Rehabilitation – Area 1 project is the first in a series of rehabilitation projects developed for the Mill Creek watershed and its tributaries. The area evaluated for rehabilitation includes approximately 41,200 linear feet of gravity sewer. Design began on July 31, 2018. The resulting project consists of the rehabilitation of approximately 28,900 linear feet of gravity sewer, associated manholes, and service laterals within Metro's rights-of-way and easements. Advertisement for construction began on December 29, 2021, and quotations were received on February 3, 2022. The construction Notice-to-Proceed was

issued on April 4, 2022, and construction activities will continue through the upcoming quarter.

- Shelby Park Rehabilitation – Area 6 – Shelby Trunk

This rehabilitation project is the sixth in a series of rehabilitation projects to be constructed upstream of the Shelby Park Pump Station. The area evaluated for rehabilitation includes approximately 36,200 linear feet of gravity trunk sewer and 130 manholes. Design began on February 6, 2017. Permitting activities were completed in December 2017. The resulting construction project consists of the rehabilitation of approximately 20,500 linear feet of gravity sewer, associated manholes, and service laterals within Metro’s rights-of-way and easements. Advertisement for construction began on September 28, 2020, and bid proposals were received on November 12, 2020. Award activities, including coordination for approvals required by the State Revolving Fund (SRF) loan, continued through early 2021. The construction Notice-to-Proceed was issued on July 6, 2021, and the project was substantially complete on November 18, 2022.

- Smith Springs Rehabilitation – Area 3 – Harbour Town

The Smith Springs Rehabilitation – Area 3 – Harbour Town project is the third of multiple rehabilitation projects that will be constructed upstream of the Smith Springs Pump Station. The area evaluated for rehabilitation includes over 58,000 linear feet of gravity sewer. Design began on June 5, 2017, and is complete. The resulting project consists of the rehabilitation of approximately 28,000 linear feet of gravity sewer, associated manholes, and service laterals within Metro’s rights-of-way and easements. Advertisement for construction began on September 29, 2021, and construction quotations were received on October 28, 2021. The construction Notice-to-Proceed was issued on January 3, 2022, and construction activities will continue through the upcoming quarter.

- Williamson Ferry Gravity Sewer Repairs

The Williamson Ferry Gravity Sewer Repairs project was identified as part of the *CAP/ER Update* to address elevated wet-weather flows to the Williamson Ferry Pump Station. The gravity sewer system upstream of the pump station was rehabilitated as part of the Shelby Park Rehabilitation – Area 3 - Greenland Avenue and Shelby Park Rehabilitation – Area 4 – Brush Hill Road projects, completed in 2016. However, overflows during large storm events in 2017 and 2019 prompted additional investigations, which identified several manholes requiring repair. Those repairs were included as part of the Annual Rehabilitation – Manhole Repairs project (OAP.A.21.01) which began construction in October 2022. Repairs in the Williamson Ferry area were prioritized and were complete during the reporting period. See Section 4.5 for additional information.

## 2.3 CAP/ER Projects under Design

The following projects, discussed in the CAP/ER, were under design or bidding during the reporting period:

- Cowan Street Pump Station Upgrades

During the initial development of the CAP/ER, the Cowan Street Pump Station Upgrades project was intended to expand the pumping capacity of the Cowan Street Pump Station to approximately 15 mgd, with the final sizing dependent on the success of upstream sewer rehabilitation. However, recent analyses indicate that a much larger station (~30 mgd) is required to accommodate the area's significant projected growth, including the adjacent Oracle campus and River North developments. The developer for the Oracle campus, with input from Metro, is designing and constructing the required pump station improvements. Those design efforts are currently underway and are anticipated to continue through 2023.

- Foster Avenue Rehabilitation

The Foster Avenue Rehabilitation project is a sewer rehabilitation project located near Nolensville Pike and Thompson Lane in the Mill Creek basin. The project consists of the evaluation and rehabilitation, as necessary, of approximately 57,100 linear feet of existing gravity sewer, over 350 manholes, and service laterals within Metro's rights-of-way and easements. Design began on May 31, 2022, and was completed during the reporting period. The resulting construction project consists of the rehabilitation of approximately 50,400 linear feet of gravity sewer, associated manholes, and service laterals within Metro's rights-of-way and easements. Advertisement for construction quotations is anticipated to occur in the upcoming quarter.

- Mill Creek – Collins Creek Rehabilitation

The Mill Creek – Collins Creek Rehabilitation project is a sewer rehabilitation project planned for a portion of the Antioch area near Interstate 24 and Bell Road. The area evaluated for rehabilitation included approximately 69,000 linear feet of gravity sewer, including sewers up to 42 inches in diameter. Design began on November 2, 2021, and as design progressed, Metro determined that the project should be split into two projects for construction. Design of Mill Creek – Collins Creek Rehabilitation – Area 1 was completed in May 2022, and design of Mill Creek – Collins Creek Rehabilitation – Area 2 was completed in June 2022. Advertisement for construction is anticipated to occur in late 2023 for both projects.

- Mill Creek Trunk Improvements and Equalization Facility

The Mill Creek Trunk Improvements and Equalization Facility project combined two projects presented in the CAP/ER, the Mill Creek Trunk Improvements project and the Mill Creek / Opryland Equalization Facility – Phase III project. Additional analysis of flow monitoring and condition assessment data of the upstream gravity system indicated that rehabilitation to reduce wet-weather flows may provide a viable option to reduce the extents of the trunk sewer improvements. The resulting project consisted of conveyance capacity upgrades of over 2.5 miles of large diameter sewer, the addition of 60 million gallons of storage, construction of a supplemental drain line, and the addition of a wet-weather pump station with a 100 million gallons per day pumping capacity. Preliminary design began on February 1, 2021.

Additionally, Metro procured a Construction Manager at Risk to provide pre-construction services during the design phase and function as the general contractor during the construction phase of this project. The Notice-to-Proceed for pre-construction services was issued on May 26, 2021.

As Metro stated in a letter to EPA and TDEC on March 31, 2022, new information called into question whether the project as envisioned will meet the CAP/ER's performance requirements, and in March 2022, Metro paused design work on the Mill Creek Trunk Improvements and Equalization Facility project. As a result of those project performance concerns, Metro immediately initiated an assessment of modifications to the existing project and identified additional project alternatives to analyze if they can meet the performance requirements for the CAP/ER. Based on the conclusions of the assessment and the consensus of key stakeholders, Metro will not be moving forward with the Mill Creek Trunk Improvements and Equalization Facility project as defined in the CAP/ER. Alternative solutions to address overflows within the Mill Creek basin will continue to be evaluated in conjunction with system-wide studies accounting for projected growth within the system. Once available, Metro will communicate the recommended work to EPA and TDEC and identify the anticipated length for delays in compliance.

- Rowan Cravath Gravity Sewer Upsizing

The Rowan Drive / Cravath Drive area, located in the northern portion of the Whites Creek WWTP service area, has experienced numerous rainfall-related overflows. The Rowan Cravath Gravity Sewer Upsizing project includes approximately 2,600 linear feet of sewer upsizing to increase wet-weather capacity. Design began on April 4, 2022, and is anticipated to continue in the upcoming quarter.

- Rowan Cravath Rehabilitation

The Rowan Cravath Rehabilitation project, located in the northern portion of the Whites Creek WWTP service area, consists of the evaluation and rehabilitation, as necessary, of approximately 79,700 linear feet of existing gravity sewer, over 400 manholes, and service laterals within Metro's rights-of-way and easements. Design began on April 4, 2022, and was completed in December 2022. Advertisement for construction quotes is anticipated to occur in the 2<sup>nd</sup> quarter of 2023.

- Wallace Lane Rehabilitation

The Wallace Lane Rehabilitation project, located in Green Hills neighborhood, consists of the evaluation and rehabilitation, as necessary, of approximately 55,000 linear feet of existing gravity sewer, approximately 320 manholes, and service laterals within Metro's rights-of-way and easements. Design began on August 23, 2022, and is anticipated to continue in the upcoming quarter.

## 2.4 Upcoming CAP/ER Projects

The following projects, discussed in the CAP/ER, are anticipated to begin or continue procurement for design services during the upcoming quarter:

- Dry Creek Area Improvements

The Dry Creek Area Improvements project is a group of pump stations, force mains, and gravity sewer pipe projects located upstream of the Dry Creek WWTP. It includes the following CAP/ER projects:

1. Berwick Trail Pump Station Upgrades
2. Dry Creek Pipe Improvements
3. Hidden Acres Pump Station Upgrades
4. Loves Branch Pump Station Upgrades
5. Neely's Bend Pump Station Upgrades
6. Vandiver Pump Station Upgrades

Procurement of design services continued through the reporting period, and design activities are anticipated to begin in the upcoming quarter.

- Henry Ford Drive Rehabilitation

The Henry Ford Drive Rehabilitation project is located in the Charlotte Park area of western Nashville, upstream of the West Park Pump Station. The project consists of the evaluation and rehabilitation, as necessary, of approximately 58,500 linear feet of existing gravity sewer, approximately 300 manholes, and service laterals within Metro's rights-of-way and easements. Procurement of design services was initiated during the reporting period, and design is anticipated to begin in the upcoming quarter.

- Town Village Pump Station Upgrades

Although not included in the CAP/ER, investigations to address wet-weather overflows and surcharging upstream and downstream of the Town Village Pump Station have prompted MWS to plan for the expansion of the station's capacity and the re-routing of its force main. Design of this work will be completed by the Designer of the Dry Creek Area Improvements project, although the work is anticipated to follow a different schedule due to the need to acquire land in the area. Additional schedule details will be provided as the project progresses.

In addition to the projects listed above, Metro continues to conduct planning activities for multiple Clean Water Nashville projects.

## 2.5 Additional CAP/ER Project Notes

During the reporting period, Metro elected to delay the initiation of Designer procurement activities for the Berwick Trail Pipe Improvements project. The Berwick Trail Pipe Improvements project will address surcharging by increasing the capacity of approximately 1,300 linear feet of gravity pipe with

proposed diameters ranging from 12 inches to 15 inches. However, addressing surcharging in this area is also dependent upon the capacity upgrades to the Berwick Trail Pump Station. Due to the extended timeframe for that work and the need to further review projected future flows in this area, Metro has elected to delay this project. As such, the Berwick Trail Pipe Improvements project is not anticipated to meet the completion date presented in the *CAP/ER Update*. The revised anticipated completion date is late 2028, although the scope for this project will be re-evaluated in conjunction with upcoming modeling and master planning activities.

## Section 3

### *Long Term Control Plan*

To reduce the occurrence and impact of combined sewer overflows into the Cumberland River, Metro developed an update to the *Long Term Control Plan* (LTCP), that was submitted to EPA and TDEC on September 11, 2011.

The LTCP followed EPA's *Combined Sewer Overflow Control Policy* in implementing a rigorous process for identifying and evaluating alternatives to reduce combined sewer overflows. Consideration included financial and engineering analyses to develop recommended improvements in conjunction with four key objectives that were established early in the planning process:

- Improve the water quality of the Cumberland River by reducing impacts from combined sewer overflows
- Provide a level of CSO control that results in improvements in water quality that are consistent with the community's use of the Cumberland River
- Align investment in CSO controls to be commensurate with the contribution of CSOs to water quality relative to other sources
- Consider the impact of the overall program cost on the ratepayers in the current economic climate

These goals and objectives were developed based on feedback provided by representatives from Metro, local government, and the community through a public engagement campaign developed to solicit input from affected stakeholders.

On June 18, 2018, Metro presented to EPA and TDEC an *Addendum to the LTCP* which summarizes the updates and modifications to projects described in the LTCP since its submittal in 2011.

In a February 11, 2019, letter, EPA provided review comments to Metro on the LTCP and *Addendum to the LTCP*. Metro submitted a response letter dated March 6, 2019, with a proposed path forward.

On February 18, 2020, Metro met with representatives from EPA, TDEC, the U.S. Department of Justice, and the Tennessee Attorney General's office to discuss the path forward for the LTCP approval, among other topics. A follow-up conference call with all parties was held on April 4, 2020, with informal clarifications between parties continuing over the following months. On July 24, 2020, Metro submitted *Addendum #2 to the LTCP*, clarifying and updating the proposed CSO abatement projects.

On December 7, 2020, Metro received a letter from EPA providing partial conditional approval to the LTCP and addenda. The letter approves the proposed control measures at the Benedict & Crutcher, Boscobel, Driftwood, and Schrader CSOs and approves the Central Wastewater Treatment Plant Capacity and CSO Reduction project. The letter requires that Metro, within four years, submit a revised LTCP that describes the control measures designed to bring the Kerrigan and Washington CSOs into compliance with Tennessee's water quality standards at the time of submittal. (TDEC has reviewed and proposed revisions to the existing water quality standards as part of their triennial

review which is currently underway.) The letter was agreed to and countersigned by Metro on December 8, 2020.

Active LTCP projects are described in the following subsections, and a schedule illustrating current and upcoming work on LTCP projects is presented as Appendix A.

### 3.1 Completed LTCP Projects

The following projects, discussed in the LTCP, were completed prior to the start of the reporting period:

- Apex Sewer Corrections
- Broadway Improvements
- Driftwood Equalization Basin Expansion
- Sludge Transfer Facility (as part of Central WWTP Capacity Improvements and CSO Reduction)
- Van Buren Improvements
- Washington CSO Facility Improvements

### 3.2 LTCP Projects under Construction

The following LTCP project is anticipated to continue construction during the upcoming quarter:

- Central WWTP Capacity Improvements and CSO Reduction

The Central WWTP Capacity Improvements and CSO Reduction project will reduce the overflow frequency and volume from the Kerrigan CSO by increasing both the wet-weather treatment capacity of the Central WWTP and the overall capacity of the Central Pumping Station. This project is the result of the *Central Wastewater Treatment Plant Optimization Study* which was completed in 2014. The study identified limiting factors in each of the Central WWTP's unit processes and confirmed that peak wet-weather secondary treatment capacity could be significantly increased through upgrades to the existing headworks, primary treatment, secondary aeration, final clarification systems, and other facilities without building new tankage.

Advertisement for design services for the Central WWTP Capacity Improvements and CSO Reduction project began in January 2015, and two design contracts were awarded in April 2015. Following contract negotiations and other Designer procurement activities, design activities for both contracts began on September 21, 2015. The *Central WWTP Optimization Basis of Design Report* was finalized in December 2016.

In mid-2017, Metro officially decided to design and construct a single headworks facility that will serve both combined and sanitary influents. This design was completed by Hazen and Sawyer. The majority of other work at the plant was designed by Brown and Caldwell. Each firm's Notice-to-Proceed for detailed design was issued on June 23, 2017. Design for the headworks reached 100 percent in June 2019; design activities for the balance of the plant improvements were completed in April 2020.



On March 23, 2017, Metro completed the procurement and contracting of a Construction Manager at Risk to provide pre-construction services during the design phase and to function as the general contractor during the construction phase of this project. Brasfield & Gorrie was selected as the Construction Manager at Risk.

The Notice-to-Proceed was issued for construction of the headworks package on July 27, 2020, and the Notice-to-Proceed for construction of the balance of plant package was issued on September 28, 2020. Construction activities for the headworks, balance of plant, and other minor construction packages are underway and will continue through the end of 2023.

On-going work includes construction of the headworks facility, modifications to the chlorine contact/UV facility, conveyance piping installation, aeration tank modifications, rehabilitation of secondary clarifiers, and intermediate pump station piping construction.

### 3.3 LTCP Projects under Design

The following projects, discussed in the LTCP, were under design during the reporting period:

- Benedict & Crutcher Sewer Separation

The Benedict & Crutcher Sewer Separation project was developed to eliminate the Benedict & Crutcher combined sewer overflow (CSO) by providing separate pipe systems for sanitary sewer flows and stormwater flows instead of the combined sewer system which conveys both flows in a single pipe network. Approximately 250 acres is targeted for sewer separation. Additional infrastructure improvements, such as water distribution system improvements, will also be constructed as part of this project. Metro selected a single Designer to support this project along with the Boscobel and Schrader Sewer Separation projects. Preliminary engineering design activities for the combined projects began on November 15, 2022, and are expected to continue through the upcoming quarter.

Additionally, Metro is currently procuring a Construction Manager at Risk to provide pre-construction services during the design phase and function as the general contractor during the construction phase of this project.

Construction for the Benedict & Crutcher Sewer Separation project is currently projected to be complete in the 4<sup>th</sup> quarter of 2028, which is later than the schedule presented in *Addendum #2 to the LTCP* (3<sup>rd</sup> quarter of 2028). Metro will continue to work with the Designer and Construction Manager at Risk to identify opportunities to expedite the schedule.

- Boscobel Sewer Separation

The Boscobel Sewer Separation project was developed to eliminate the Boscobel CSO by providing separate pipe systems for sanitary sewer flows and stormwater flows instead of the combined sewer system which conveys both flows in a single pipe network. Approximately 250 acres is targeted for sewer separation. Additional infrastructure improvements, such as water distribution system improvements, will also be constructed as part of this project. Metro selected a single Designer to support this project along with the Benedict & Crutcher and Schrader Sewer Separation projects. Design activities for the combined projects began on November 15, 2022, and are expected to continue through the upcoming quarter.

Additionally, Metro is currently procuring a Construction Manager at Risk to provide pre-construction services during the design phase and function as the general contractor during the construction phase of this project.

- Schrader Sewer Separation

The Schrader Sewer Separation project was developed to eliminate the Schrader CSO by providing separate pipe systems for sanitary sewer flows and stormwater flows instead of the combined sewer system which conveys both flows in a single pipe network. Approximately 450 acres is targeted for sewer separation. Additional infrastructure improvements, such as water distribution system improvements, will also be constructed as part of this project. Metro selected a single Designer to support this project along with the Benedict & Crutcher and Boscobel Sewer Separation projects. Design activities for the combined projects began on November 15, 2022, and are expected to continue through the upcoming quarter.

Additionally, Metro is currently procuring a Construction Manager at Risk to provide pre-construction services during the design phase and function as the general contractor during the construction phase of this project.

Construction for the Schrader Sewer Separation project is currently projected to be complete in the 3<sup>rd</sup> quarter of 2028, which is later than the schedule presented in *Addendum #2 to the LTCP* (1<sup>st</sup> quarter of 2028). Metro will continue to work with the Designer and Construction Manager at Risk to identify opportunities to expedite the schedule.

### 3.4 Upcoming LTCP Projects

There are currently no LTCP projects scheduled to begin or continue procurement for design services in the upcoming quarter.

## Section 4

# Additional Measures to Maintain Consent Decree Compliance

In addition to the CAP/ER and LTCP projects described in the previous sections, the measures described in the following subsections are related to Metro’s ongoing Consent Decree compliance.

### 4.1 2017 Annual Rehabilitation – Dry Creek

The 2017 Annual Rehabilitation – Dry Creek project, which is located in the Dry Creek WWTP’s service area, consisted of the evaluation of approximately 57,900 linear feet of gravity sewer, ranging in diameter from 8 to 30 inches. The resulting construction project consists of the rehabilitation of approximately 27,100 linear feet of gravity sewer, associated manholes, and service laterals within Metro’s rights-of-way and easements. These sewers are located outside of CAP/ER rehabilitation areas and include many sewers classified as high priority for evaluation due to observations of infiltration. Design began on March 27, 2017, and was completed in September 2017. Advertisement for construction began on June 18, 2021, and quotations were received on July 15, 2021. The construction Notice-to-Proceed was issued on September 3, 2021, and construction activities will continue through the upcoming quarter.

### 4.2 2017 Annual Rehabilitation – Shepherd Hills

The 2017 Annual Rehabilitation – Shepherd Hills project, which is located in the Dry Creek WWTP’s service area, consisted of the evaluation of approximately 59,900 linear feet of gravity sewer, ranging in diameter from 8 to 30 inches. The resulting construction project consists of the rehabilitation of approximately 29,000 linear feet of gravity sewer, associated manholes, and service laterals within Metro’s rights-of-way and easements. This project targets sewers located outside of CAP/ER rehabilitation areas and includes many sewers classified as high priority for evaluation due to observations of infiltration. Design began on May 30, 2017, and was completed in October 2017. Advertisement for construction began on August 5, 2021, and quotations were received on September 2, 2021. The construction Notice-to-Proceed was issued on October 18, 2021, and construction activities were substantially complete on November 23, 2022.

### 4.3 2020 Annual Rehabilitation – West Nashville

For the 2020 Annual Rehabilitation – West Nashville project, Metro is focusing on addressing observed sources of infiltration / inflow within the sewer system in the southwest quadrant of the Whites Creek WWTP service area (upstream of the West Park Pump Station). This project did not take a comprehensive rehabilitation approach where a project area is defined, all sewers within the boundary are evaluated for rehabilitation, and lining is the default for small diameters sewers. Instead, the project focused on making repairs necessary to address observed sources of infiltration / inflow and major structural defects. It also considered nearby sewers for inclusion in the project based on their condition, the likelihood of water migration to adjacent sewers, and the impact to customers. The resulting construction project consists of the rehabilitation of approximately 30,800 linear feet of gravity sewer, associated manholes, and service laterals within Metro’s rights-of-way and easements.

Design of the rehabilitation project began on January 14, 2021, and was completed in August 2021. Advertisement for construction began on September 13, 2022, and quotations were received on October 25, 2022. Construction activities are anticipated to begin during the upcoming quarter.

#### 4.4 Howse Avenue Force Main Replacement

Following several force main breaks in 2019 and 2020 and replacement of a portion along/near Neely's Bend Road, Metro has elected to proactively replace approximately 3,200 feet of existing 16-inch diameter force main from the Gibson Creek Pump Station to Howse Avenue south of Neely's Bend Road. The project will also include the installation of a portion (500 linear feet) of new force main to connect to a future force main as part of the Neely's Bend Pump Station Upgrades project. Design began on July 12, 2021, and concluded in December 2021. Advertisement for construction began on May 10, 2022, and quotations were received on June 2, 2022. Construction activities are expected to begin in the upcoming quarter to align with delivery of the project's pipe.

#### 4.5 Annual Rehabilitation – Manhole Repairs

Continuing sewer rehabilitation work outside of CAP/ER project areas, the Annual Rehabilitation - Manhole Repairs project will focus on correcting observed sources of infiltration / inflow and structural defects identified in over 500 manholes as part of Clean Water Nashville's trunk walking and manhole inspection activities. The project includes manholes throughout the system with more significant numbers of repairs along and upstream of the West and Middle Forks of Browns Creek, upstream of Cloverbottom Pump Station, and in the McCrory Creek and Dodson Chapel areas. Design began in April 2022 and was completed in July 2022. Advertisement for construction began on August 9, 2022, and quotations were received on September 8, 2022. The construction Notice-to-Proceed was issued on October 22, 2022, and construction activities will continue through the upcoming quarter.

This work includes the rehabilitation of several manholes upstream of the Williamson Ferry Pump Station that were identified as high-priority repairs following fieldwork conducted in 2021-2022. Those repairs to address infiltration and inflow upstream of that station were completed during the reporting period and represent the Williamson Ferry Gravity Sewer Repairs identified in the *CAP/ER Update*.

#### 4.6 Long Boulevard Sewer Corrections

The Long Boulevard Sewer Corrections project includes upsizing of approximately 550 linear feet of existing 8-inch to 12-inch diameter combined sewer pipe with 18-inch diameter pipe, manhole replacements, and service renewals. The project, which is located in the alley between Long Boulevard and Belwood Street west of 31<sup>st</sup> Avenue North, increases conveyance capacity and replaces aged sewers in poor condition. Advertisement for construction began on August 11, 2022, and the Intent to Award was issued on September 8, 2022. The Notice-to-Proceed for construction was issued on October 31, 2022, and construction activities are anticipated to continue through the upcoming quarter.

#### 4.7 Annual Rehabilitation – Pump Station Basins

For the 2022 Annual Rehabilitation – Pump Station Basins project, Metro is addressing observed sources of infiltration / inflow and major structural defects within the sewer system upstream of several smaller pump stations. The pump stations include: Bonnafair, Bordeaux Hills, Bordeaux

Hospital, Cloverbottom, Fairway Center, Germantown Hill, Hillview, Long Hunter Chase, Metro Center, Mill Creek, and South Oak Hill. Additional areas may be added. Available data for those areas, including CCTV inspections, smoke testing data, and field inspections, are being reviewed to identify and correct suspected sources of infiltration / inflow and major structural defects. Although the rehabilitation is not comprehensive, it will also consider nearby sewers for inclusion in the project based on their condition, the likelihood of water migration to adjacent sewers, and the impact to customers. Design began in August 2022 and will continue through the upcoming quarter.

## 4.8 Kerrigan Trash Trap

The Kerrigan Trash Trap project replaces the existing, aged netting facility that captures floatable material from the Kerrigan combined sewer overflow. The previous, marine-based facility was installed in the late 1990s and has been refurbished several times, but it was determined to be at the end of its useful life. A new, similarly-designed, marine-based netting facility was procured by Metro and installed at the existing site. Replacement of the Kerrigan Trash Trap was substantially complete on November 28, 2022.

## Section 5

# Quarterly SSO and Dry-Weather CSO Report

During the reporting period, Metro experienced 55 SSOs, as listed in **Table 5-1**.

No dry-weather CSOs occurred during the reporting period.

Table 5-1 Quarterly SSO Report

Quarterly SSO Report October 1 through December 31, 2022									
Event Start Date	Event End Date	Rainfall (inches)	Overflow Duration (hours)	Overflow Volume (MG)	Overflow Cause	Location Manhole ID	Location	Unpermitted Discharge	Building Backup
01-Oct-22	01-Oct-22	0.00	0.58	0.001	Controller	04312004	Vandiver SPS	Yes	No
04-Oct-22	04-Oct-22	0.00	3.00	0.001	Blockage	09114091	234 Orlando Ave	Yes	No
10-Oct-22	10-Oct-22	0.00	1.00	0.00001	Blockage	16206019	117 Valley Green Dr	No	No
10-Oct-22	10-Oct-22	0.00	3.00	0.00001	Blockage	10406125	100 Murphy Ct	Yes	No
15-Oct-22	15-Oct-22	0.00	2.00	0.0001	Blockage	13306061	3601 Sabre Dr	No	No
24-Oct-22	24-Oct-22	0.00	1.00	0.0001	Blockage	08603023	908 Moleah Ct	Yes	No
24-Oct-22	24-Oct-22	0.00	2.00	0.00001	Blockage	09301015	710 James Robertson Pkwy	No	Yes
29-Oct-22	29-Oct-22	0.00	4.00	0.00001	Blockage	16108057	5213 Raywood Ln	No	No
31-Oct-22	31-Oct-22	0.02	6.00	0.00001	Line Break	16206019	117 Valley Green Dr cleanout	Yes	No
01-Nov-22	01-Nov-22	0.00	1.00	0.0001	Blockage	14911019	5160 Rice Rd	No	No
04-Nov-22	04-Nov-22	0.01	1.00	0.00001	Blockage	07601053	829 Oak Leaf Dr	No	No
08-Nov-22	08-Nov-22	0.00	1.00	0.0001	Blockage	09203091	1813 Hermosa St	No	Yes
11-Nov-22	11-Nov-22	1.83	1.00	0.0001	Blockage	08603023	0 Old Lebanon Dirt Rd	No	No
11-Nov-22	11-Nov-22	2.75	1.00	0.0001	Blockage	09206029	904 26th Ave N	Yes	No
11-Nov-22	11-Nov-22	2.75	1.00	0.0001	Blockage	09206042	904 26th Ave N	No	No
11-Nov-22	11-Nov-22	1.75	8.42	0.162	Rainfall	13609002	Smith Springs SPS	Yes	No
11-Nov-22	11-Nov-22	3.72	1.67	0.005	Rainfall	08101015	River Dr. SPS	Yes	No
11-Nov-22	11-Nov-22	3.72	5.20	0.1	Rainfall	07008061	Riverside Dr. SPS	Yes	No
11-Nov-22	11-Nov-22	3.72	2.00	0.00001	Rainfall	05911028	709 Rowan Dr	No	Yes
18-Nov-22	18-Nov-22	0.00	1.00	0.00001	Blockage	10709099	900 Glastonbury Rd	No	No
19-Nov-22	19-Nov-22	0.00	2.00	0.00001	Blockage	09611008	338 Hickory Pl	No	No
21-Nov-22	21-Nov-22	0.00	4.00	0.001	Blockage	14913024	4701 Bowfield Dr	Yes	Yes
25-Nov-22	25-Nov-22	0.02	5.00	0.00001	Line Break	13112057	4603 Lealand Ln	No	Yes
28-Nov-22	28-Nov-22	0.00	3.00	0.0001	Blockage	05809006	4416 Eatons Creek Rd	Yes	Yes
29-Nov-22	30-Nov-22	2.55	8.50	0.1	Rainfall	16514001	Peppertree SPS	Yes	No
30-Nov-22	30-Nov-22	1.26	4.42	0.05	Rainfall	11907144	0 Old Glenrose Ave	Yes	No
30-Nov-22	30-Nov-22	1.43	0.92	0.002	Rainfall	09011002	516 Basswood Dr	Yes	No
30-Nov-22	30-Nov-22	1.27	11.17	0.3	Rainfall	09510050	501 Bismark Ave	Yes	No
30-Nov-22	30-Nov-22	1.92	7.75	0.268	Mechanical	13609002	Smith Springs SPS	Yes	No

## Quarterly SSO Report October 1 through December 31, 2022

Event Start Date	Event End Date	Rainfall (inches)	Overflow Duration (hours)	Overflow Volume (MG)	Overflow Cause	Location Manhole ID	Location	Unpermitted Discharge	Building Backup
30-Nov-22	30-Nov-22	1.43	7.08	0.418	Rainfall	10210012	Davidson Branch SPS	Yes	No
06-Dec-22	09-Dec-22	3.57	65.33	8.666	Rainfall	05205001	Gibson Creek SPS	Yes	No
06-Dec-22	08-Dec-22	2.60	48.00	0.001	Blockage	07912002	7131 Centennial Pl	Yes	No
07-Dec-22	07-Dec-23	1.82	16.00	0.00001	Rainfall	05911027	701 Rowan Dr	No	No
07-Dec-22	07-Dec-22	2.26	4.25	0.4	Rainfall	06208003	Hidden Acres SPS	Yes	No
07-Dec-22	07-Dec-22	1.68	6.75	0.15	Rainfall	07008061	Riverside Dr. SPS	Yes	No
07-Dec-22	07-Dec-22	1.28	10.25	0.208	Rainfall	10210012	Davidson Branch SPS	Yes	No
08-Dec-22	09-Dec-23	1.38	13.00	0.5	Rainfall	09510050	501 Bismark Dr	Yes	No
08-Dec-22	09-Dec-23	1.20	21.00	0.00001	Rainfall	05911027	701 Rowan Dr	No	No
08-Dec-22	08-Dec-22	2.00	12.45	0.2	Rainfall	07008061	Riverside Dr. SPS	Yes	No
08-Dec-22	08-Dec-22	2.34	9.37	1	Rainfall	06208003	Hidden Acres SPS	Yes	No
08-Dec-22	08-Dec-23	1.33	14.00	0.00001	Rainfall	06001013	3258 Brick Church Pk	No	No
08-Dec-22	08-Dec-22	1.07	1.00	0.0001	Blockage	11905051	204 Lutie St	No	No
08-Dec-22	09-Dec-22	1.32	20.50	1.529	Rainfall	10210012	Davidson Branch SPS	Yes	No
08-Dec-22	08-Dec-22	1.18	5.67	1.655	Rainfall	03411009	Dry Creek SPS	Yes	No
09-Dec-22	09-Dec-22	1.32	8.00	0.0001	Rainfall	06906005	4286 Ashland City Hwy	No	No
12-Dec-22	12-Dec-22	0.00	2.00	0.00001	Blockage	09107034	4901 Louisiana Ave	No	No
14-Dec-22	15-Dec-22	0.87	10.34	0.255	Rainfall	10210012	Davidson Branch SPS	Yes	No
14-Dec-22	14-Dec-22	1.21	1.00	0.001	Blockage	13213031	939 Oak Valley Ln	Yes	Yes
16-Dec-22	16-Dec-22	0.00	2.00	0.000025	Line Break	13306101	3619 Nolensville Rd	No	Yes
19-Dec-22	19-Dec-22	0.00	1.00	0.00001	Blockage	14813036	354 Melpar	No	Yes
21-Dec-22	21-Dec-22	0.00	4.00	0.0001	Blockage	04405004	123 Scenic View Rd	No	Yes
23-Dec-22	23-Dec-22	0.00	5.00	0.005	Electrical	16514001	Peppertree SPS	Yes	No
25-Dec-22	27-Dec-22	0.02	58.00	0.001	Blockage	16403013	304 Grovedale Trc	Yes	No
28-Dec-22	28-Dec-22	0.00	4.00	0.001	Blockage	14812100	836 Irma Dr	No	No
31-Dec-22	01-Jan-23	0.00	11.00	0.00001	Blockage	11812031	640 Thompson Ln	Yes	No

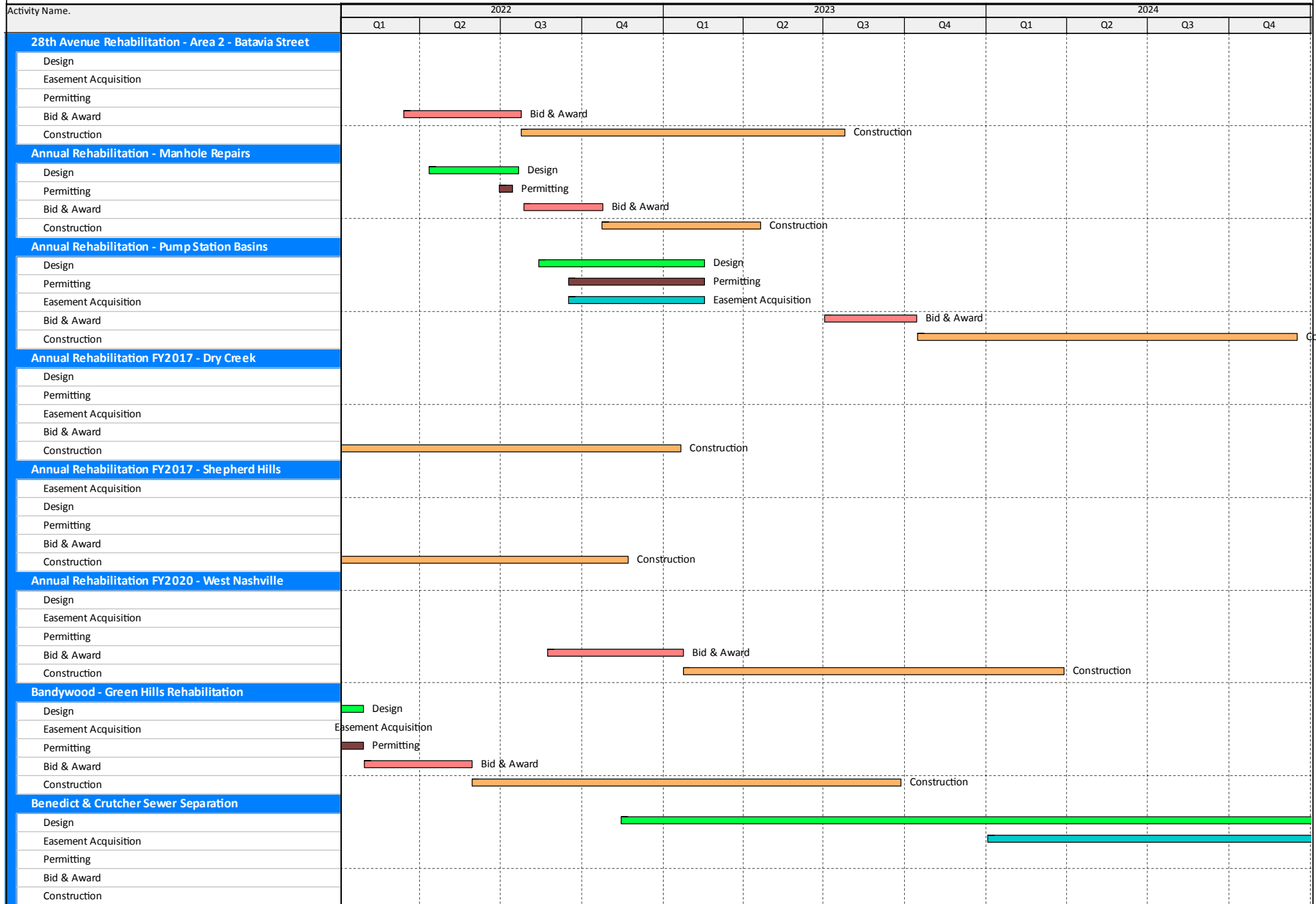


# Appendix A

## Schedule for Current and Upcoming Projects

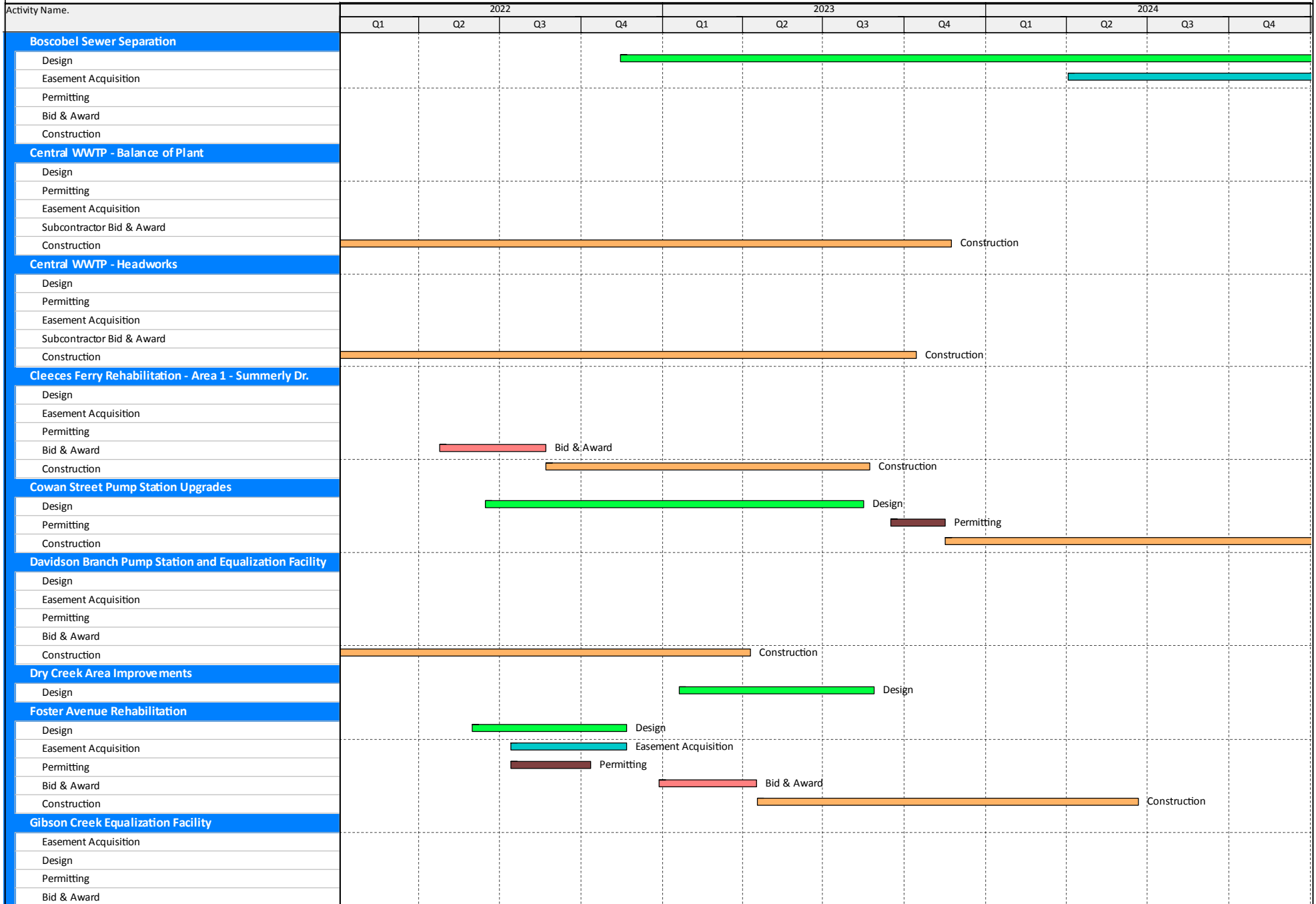
Note: The construction activity is through substantial completion.

## Nashville Overflow Abatement Program 2022 Quarterly Progress Report - 4th Quarter



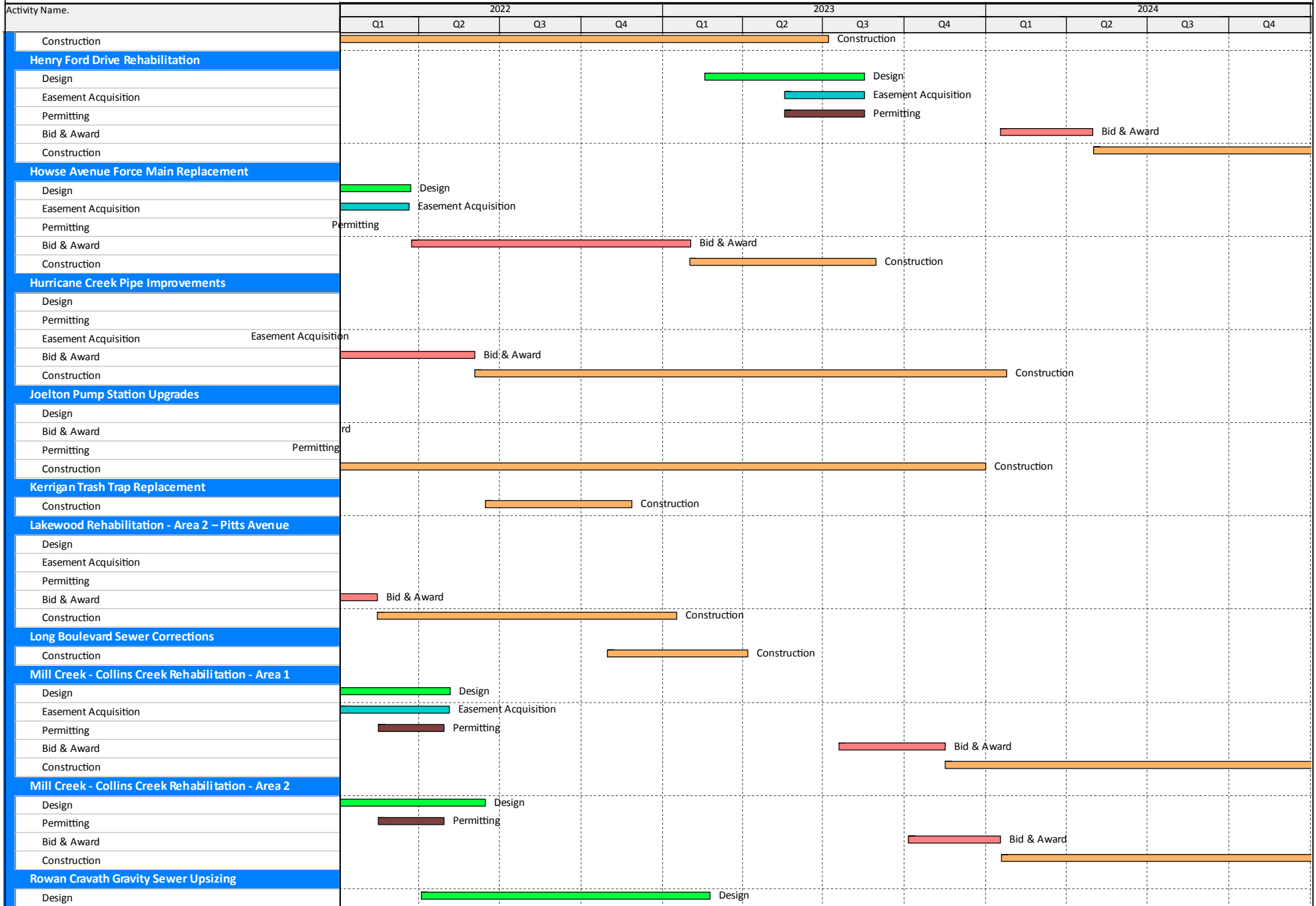
Note: The construction activity is through substantial completion.

## Nashville Overflow Abatement Program 2022 Quarterly Progress Report - 4th Quarter



Note: The construction activity is through substantial completion.

## Nashville Overflow Abatement Program 2022 Quarterly Progress Report - 4th Quarter



Note: The construction activity is through substantial completion.

## Nashville Overflow Abatement Program 2022 Quarterly Progress Report - 4th Quarter

