JOHN COOPER
MAYOR

METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY

DEPARTMENT OF WATER AND SEWERAGE SERVICES
Engineering Division
1600 Second Avenue North
Nashville, Tennessee 37208-2206

June 2, 2021

Ms. Carol Kemker
Director, Enforcement and Compliance Assurance Division
U.S. Environmental Protection Agency, Region 4
61 Forsyth Street
Atlanta, GA 30303-8960

Ms. Jennifer Dodd
Director, Division of Water Resources
Tennessee Department of Environment and Conservation
213 Rosa L. Parks Avenue
Nashville, TN 37243-1102

RE: *CAP/ER Update*
Consent Decree 3:07-cv-01056
DOJ Case No. 90-5-1-1-09000

Dear Colleagues:

As discussed in the letter agreement finalized on December 8, 2020, we hereby submit the enclosed *Update to the Correction Action Plan / Engineering Report (CAP/ER Update)*. The *CAP/ER Update* identifies projects to address the sanitary sewer overflows listed in the expanded Appendix A of the Consent Decree. This includes projects previously completed as well as those that are planned. As described in the *CAP/ER Update,* Nashville remains committed to completing the described projects no later than eleven years from approval of the CAP/ER, which occurred on August 10, 2017.

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 ensure 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.

If you have any questions or would like to discuss this further, do not hesitate to contact me.

Sincerely,

Ron C. Taylor, P.E.
Clean Water Nashville Program Director

cc: Mr. Dennis Sayre, EPA
Ms. Angela Jones, TDEC

Enclosure: *CAP/ER Update*

Clean Water Nashville Overflow Abatement Program

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

Update to the Corrective Action Plan / Engineering Report for Sanitary Sewer Overflows

June 2021

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

6/2/21
Date

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Table of Contents

List of Figures

List of Tables

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 of America and the State of Tennessee. The Consent Decree requires Metro to use its best efforts to achieve the following goals:

- Full compliance with National Pollutant Discharge Elimination System (NPDES) permits, the Clean Water Act, The Tennessee Water Quality Control Act, and their regulations;
- Elimination of sanitary sewer overflows; and
- Compliance with EPA's combined sewer overflow control policy.

Among other items, the Consent Decree required that Metro prepare and submit a *Corrective Action Plan/Engineering Report for Sanitary Sewer Overflows* (CAP/ER) that addresses the conditions causing sanitary sewer overflows with the goal of eliminating the 27 overflows listed in the Consent Decree.

This *Update to the Corrective Action Plan/ Engineering Report for Sanitary Sewer Overflows* provides an update on the corrective actions under the CAP/ER that have been, or will be, taken to address the sanitary sewer overflows listed in the Consent Decree, including those added by the Consent Decree parties in 2020.

1.1 Background

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 sewer capacity needs was then assessed, and potential alternatives were evaluated to select efficient and cost effective solutions. The CAP/ER also presents Metro's design criteria, specifically the dormant season, 2-year, 24-hour design storm.

As part of the CAP/ER development, Metro expanded the list of overflows that would be addressed to include all model-predicted and field-verified overflows occurring under the design storm conditions. The recommended projects to address that expanded list of overflows, which include infrastructure rehabilitation, additional conveyance capacity, and storage of wet-weather flows, were presented in the CAP/ER. In September 2011, CDM Smith and Metro submitted the CAP/ER, fulfilling the intent of Section VII, Part B.1 of the Consent Decree.

Approval of the CAP/ER was granted by the Environmental Protection Agency (EPA) on August 10, 2017, with the Tennessee Department of Environment and Conservation (TDEC) copied on the approval. Following approval, the *Addendum to the CAP/ER for Sanitary Sewer Overflows, September 2017* (Addendum #1) was developed to summarize the updates, modifications, and additions to the projects described in the CAP/ER.

Through ongoing efforts to maintain the system, Metro identified several overflow locations, outside of those identified in the CAP/ER, that warranted 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* (Addendum #2), which was submitted 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.

Following several months of Consent Decree compliance discussions with EPA and TDEC, on December 7, 2020, Metro received a letter from EPA expanding the Consent Decree's list of sanitary sewer overflows to be addressed (Appendix A of the Consent Decree). The expanded list of 73 overflows is shown as **Table 1-1**. The expanded list includes those originally presented in the Consent Decree, ones added by Metro via the CAP/ER (including Addenda 1 and 2), and additional locations included by EPA and TDEC.

The December 2020 letter, which was countersigned by Metro on December 8, 2020, requires that Metro submit an update to the CAP/ER by June 8, 2021, identifying corrective actions that have been or will be taken to address the expanded overflow list. This *Update to the Corrective Action Plan / Engineering Report for Sanitary Sewer Overflows* (CAP/ER Update) fulfills that requirement.

Table 1-1 Amended SSO Locations Identified in Appendix A of the Consent Decree

Overflow Number	Overflow Name	Location	Receiving Stream	WWTP Service Area
140	28th Avenue Pump Station / Centennial	1901 Ed Temple Boulevard	Cumberland River	Central
379	622 Davidson	622 Davidson Road	Davidson Branch	Whites Creek
Not assigned	Abbott Martin Road (Wallace Lane)	3504 Abbott Martin Road	Sugartree Creek	Whites Creek
Not assigned	Andrew Jackson Parkway (Old Lebanon Dirt Road)	4120 Andrew Jackson Parkway	Stoner Creek	Central
222	Barker Road	149 Barker Road	Cumberland River	Central
217	Basswood	516 Basswood Avenue	Sandy Creek	Whites Creek
338	Benita Drive	Behind 425 Benita Drive	Sevenmile Creek	Central
132	Berwick Trail Pump Station	720 Center Street	Cumberland River	Dry Creek
384	Bismark Drive	501 Bismark Drive	Mill Creek	Central
156	Bonnafair Pump Station	709 Linden Green Drive	Stones River	Central
128	Bordeaux Hills Pump Station	3187 LaGrange Drive	Cumberland River	Whites Creek
101	Bordeaux Hospital Pump Station	1406 County Hospital Road	Cumberland River	Whites Creek
346	Brick Church	3258 Brick Church Pike	Ewing Creek	Whites Creek
130	Browns Creek Pump Station / Visco Drive	898 Visco Drive	Browns Creek	Central
126	Cleeces Ferry Pump Station	1025 Cleeces Ferry Road	Cumberland River	Whites Creek
122	Cloverbottom Pump Station	541 Rivercrest Cove	Stones River	Central
328	Cooper Lane	2800 Cooper Lane	Cooper Creek	Central
Not assigned	Cooper Terrace	2301 Cooper Terrace	Cooper Creek	Central
226	Cowan Street Relief Bleeder / Pump Station	1311 Vashti Street	Cumberland River	Central
Not assigned	Cravath Drive (Rowan)	3818 Cravath Drive	Whites Creek	Whites Creek
114	Davidson Branch Pump Station	6924 Charlotte Pike	Davidson Branch	Whites Creek
176	Dodson Chapel Pump Station	6024 Panama Drive	Stoner Creek	Central
109	Dry Creek Pump Station	Dry Creek WWTP – Edenwold Road	Dry Creek	Dry Creek
179	Fairway Center Pump Station	665 Mainstream Drive	Cumberland River	Central
158	Farmingham Woods Pump Station	700 Colchester Drive	Dry Fork	Central
374	Foster Avenue	2803 Foster Avenue	Mill Creek	Central
193	Gail Drive Pump Station	119 Gayle Drive	Cumberland River	Dry Creek

Overflow Number	Overflow Name	Location	Receiving Stream	WWTP Service Area
Not assigned	Galbraith Drive	2000 Galbraith Drive	Sugartree Creek	Whites Creek
Not assigned	Gallatin Pike	1442 Gallatin Pike	Dry Creek	Dry Creek
194	Germantown Hill Pump Station	5568 Clarksville Highway	Earthman Fork Creek	Whites Creek
112	Gibson Creek Pump Station	864 Idlewild Drive	Gibson Creek	Dry Creek
Not assigned	Harding Place (Lynwood)	4302 Harding Place	Richland Creek	Whites Creek
Not assigned	Henry Ford Drive	6303 Henry Ford Drive	Sandy Creek	Whites Creek
150	Hidden Acres Pump Station	597 Hidden Acres Drive	Cumberland River	Dry Creek
172	Hillview Pump Station	5504 Hillview Drive	Otter Creek	Central
133	Holiday Travel Park Pump Station	2572 Music Valley Drive	Cumberland River	Central
125	Hopedale Pump Station	4807 Humber Drive	Seven Mile Creek	Central
131	Hurricane Creek Pump Station	5404 Hickory Woods Drive	Hurricane Creek	Central
145	Joelton Pump Station	7305 Whites Creek Pike	Long Creek	Whites Creek
123	Lakewood Pump Station	396 Ray Avenue	Cumberland River	Dry Creek
189	Langford Farms Pump Station	5551 West Shady Trail	Schutes Branch	Central
161	Long Hunter Chase Pump Station	7307 Ole Nottingham Drive	Percy Priest Lake	Central
Not assigned	Louise Drive (Foster Avenue)	2932 Louise Drive	Mill Creek	Central
110	Loves Branch Pump Station	4435 Brush Hill Road	Cumberland River	Dry Creek
340	Lynnwood Boulevard	718 Lynnwood Boulevard	Richland Creek	Whites Creek
127	Madison Heights Pump Station	1329 Fernbank Drive	Cumberland River	Dry Creek
103	McCrory Creek Pump Station	710 Jobee Creek Cove	McCrory Creek	Central
Not assigned	Mill Creek – East Thompson Lane	431 E Thompson Lane	Mill Creek	Central
382	Mill Creek – Hollydale Drive	408 Hollydale Drive	Mill Creek	Central
Not assigned	Mill Creek – Old Glenrose	765 Old Glenrose Avenue	Mill Creek	Central
Not assigned	Mill Creek – Wimpole	381 Wimpole Drive	Mill Creek	Central
183	Mill Creek Pump Station	2131 Lebanon Pike	Mill Creek	Central
117	Neely's Bend Pump Station	1218 Berwick Trail	Cumberland River	Dry Creek
327	Norman Drive	230 Beverly Drive / Norman Drive	Gibson Creek	Dry Creek
Not assigned	Old Lebanon Dirt Road	428 Old Lebanon Dirt Road	Stoner Creek	Central

Overflow Number	Overflow Name	Location	Receiving Stream	WWTP Service Area
187	Peppertree Forrest Pump Station	4728 Greystone Drive	Percy Priest Lake	Central
339	Richland Creek (23rd Street)	746 23rd Street	Richland Creek	Whites Creek
337	Richland Creek (TDOT)	6601 Centennial Boulevard	Richland Creek	Whites Creek
136	River Drive Pump Station	1830 River Drive	Cumberland River	Whites Creek
134	Riverside Drive Pump Station	866 Youngs Lane	Cumberland River	Central
Not assigned	Rowan Drive	701 Rowan Drive	Whites Creek	Whites Creek
151	Shelby Park Pump Station	1700 Sevier Street	Cumberland River	Central
102	Smith Springs Pump Station	2749 Smith Springs Road	Hamilton Creek	Central
188	South Oak Hill Pump Station	5200 Franklin Pike	Seven Mile Creek	Central
138	Sunliner Drive Pump Station	613 River Rouge Drive	Cumberland River	Whites Creek
330	Timber Ridge	177 Timber Ridge Drive	Percy Priest Lake	Central
106	Vandiver Pump Station	211 Rio Vista Drive	Cumberland River	Dry Creek
329	Village Court	North of Davidson Street	Cumberland River	Central
169	Villas of Lakemeade No. 2 Pump Station	3221 Lakeshore Drive	Cumberland River	Dry Creek
Not assigned	Wallace Lane	4012 Wallace Lane	Sugartree Creek	Whites Creek
107	West Park Pump Station	6109 Morrow Road	Richland Creek	Whites Creek
104	Whites Creek Pump Station	Whites Creek SPS – East Stewarts Lane	Whites Creek	Whites Creek
124	Williamson Ferry Pump Station	3600 Brush Hill Road	Cumberland River	Central

1.2 Description of Existing Facilities

Metro's collection system is subdivided into three service areas with each served by their own wastewater treatment plant (WWTP): Central, Dry Creek, and Whites Creek. The collection system, including both separate sanitary and combined sewers, has approximately 3,000 miles of gravity sewer, over 160 miles of force main, over 83,000 manholes, and over 110 pump stations. Metro also maintains inter-jurisdictional agreements with nearby satellite sewer systems to accept and treat their wastewater flows. The collection system, excluding areas from satellite systems, encompasses a sewered area of over 200 square miles.

The Central basin is the largest and oldest service area in Metro and has both separate sanitary and combined sewers. It consists of approximately 2,000 miles of gravity sewer and covers approximately 140 square miles. The City of Mt. Juliet, the City of La Vergne, and portions of the City of Brentwood also connect into the Central system. The CAP/ER addresses only the Consent Decree requirements of the separate sanitary sewer system with the *Nine Minimum Controls (NMC) Compliance Update* and the *Long Term Control Plan (LTCP)* addressing the Consent Decree requirements of the combined sewer system.

The Dry Creek basin is the smallest service area in Metro with separate sanitary sewer only. It consists of approximately 260 miles of gravity sewer and covers approximately 20 square miles. Five satellite systems also connect to the Dry Creek system including the City of Goodlettsville, Hendersonville Utility District, the City of Ridgetop, the City of Millersville, and the White House Utility District.

The Whites Creek basin, which also contains only separate sanitary sewers, consists of approximately 700 miles of gravity sewer and covers approximately 50 square miles. Two satellite systems, the City of Brentwood and the City of Belle Meade, also connect to the Whites Creek system.

An overview of Metro's collection system is presented as **Figure 1-1**.

1.3 CAP/ER Development and Subsequent Analyses

The CAP/ER provides a detailed description of the approach used to characterize Metro's sanitary sewer system and to evaluate potential alternatives for improvements to address the conditions causing overflows. The major steps of the initial CAP/ER evaluation are described below:

- Extensive rainfall and flow monitoring data was collected throughout the study area to characterize base wastewater flows, groundwater infiltration, and rainfall-derived infiltration and inflow (RDII). The primary focus of the CAP/ER analysis was based on data collected from February through April 2008. In addition, data collected from 2004 through 2010 was utilized to supplement the CAP/ER analysis.
- Hydraulic models of the sanitary sewer system were developed using EPA's Stormwater Management Model (SWMM). These models include most of the gravity sewers 10-inches or larger in diameter. Additional smaller diameter sewers were also included, when appropriate, for connectivity and to model areas of concern. The collection systems serving each WWTP's service area were modeled, resulting in three models representing the Central, Dry Creek, and Whites Creek systems, respectively.
- Using the collected rainfall and flow monitoring data, the hydraulic models were first calibrated to dry-weather flow conditions. The second step of model calibration involved comparing model-predicted RDII flows to those measured in the system as part of the flow monitoring

program. Following completion of the calibration step, the models were compared to a second set of data for verification purposes. The model calibration steps resulted in models that met the calibration goals and are acceptable for use in evaluating capacity under various scenarios to resolve capacity limitations.

- To evaluate the need for improvements to the system, design conditions were applied to the models. These conditions included dormant season dry-weather flows and a 2-year, 24-hour dormant season design storm with a peak intensity of 0.97 inches per hour and a 24-hour volume of 3.15 inches.
- For overflows listed in the Consent Decree and other model-predicted, field-verified overflows, the models were used to evaluate potential improvements to alleviate overflows under design conditions. Improvement alternatives included pump station and pipeline improvements to increase conveyance capacity, storage facilities to temporarily capture peak flows, and sewer rehabilitation to reduce the amount of RDII entering the system.
- Feasible improvements capable of alleviating overflows under design storm conditions were evaluated based on cost, constructability, operations, the need for system renewal, and other factors to select the chosen proposed improvement.
- Proposed projects were prioritized based on the frequency and severity (volume) of the overflow being addressed; proximity of the overflow to public areas and to 303(d) streams listed for *E. coli*; and project complexity such as the need to acquire property, project sequencing, or estimated construction durations.

Following submittal of the CAP/ER, Metro has continued to collect additional data to refine proposed improvements, assess the effectiveness of completed projects, and identify potential areas of concern. This includes annual temporary flow monitoring, annual updates to the hydraulic model, and on-going review and refinement of CAP/ER projects. Those activities generally follow the same methodologies as presented in the CAP/ER, as described above.

1.4 Project Types

Although the goal for each CAP/ER improvement project is to address the capacity-related conditions causing an overflow, several types of projects may be feasible. CAP/ER improvement projects may include pump station and pipeline improvements to increase conveyance capacity, equalization storage facilities to temporarily capture peak wet-weather flows, and sewer rehabilitation to reduce the amount of RDII entering the system.

The CAP/ER projects described in this report generally adhere to the following descriptions:

- Pump Station Upgrades: Pump stations located at or adjacent to overflows were evaluated to confirm they were operating as designed. If so, the feasibility of capacity upgrades to convey the additional wet-weather flows was evaluated relative to other alternatives. When pump station upgrades are provided, the proposed firm capacity would be capable of handling the wet-weather flows predicted under the CAP/ER's design criteria. When a pump station upgrade is planned, the force main is also included, when needed, to convey the increased flows resulting from the pump station upgrade.
- Pipe Conveyance Improvements: Construction of replacement sewers to convey projected dry-weather and wet-weather flows in excess of existing trunk sewer capacity is also used to address overflows. Replacement sewers (conveying dry-weather and wet-weather flows) and

parallel sewers (conveying only wet-weather flow) are evaluated during the design of the project to determine the most cost-effective option.

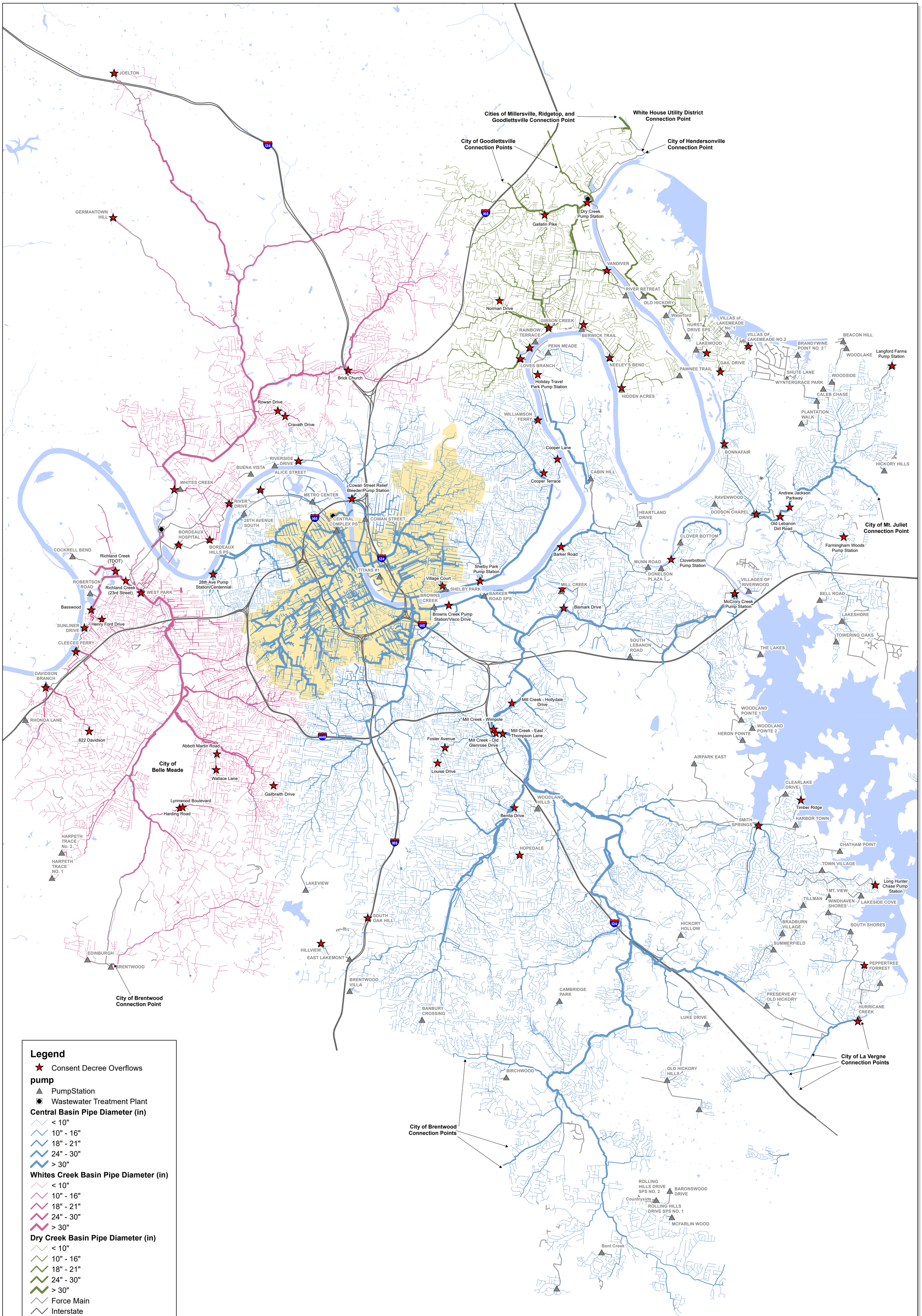
- Equalization Storage: Areas that cannot accommodate wet-weather flow in the existing sewer system were evaluated for off-line flow equalization storage as a means of reducing overflows by temporarily storing peak flows in excess of existing sewer capacity. In Metro's system, off-line equalization storage is typically in the form of above-ground or partially-buried, pre-stressed concrete storage tanks. Wet-weather flows are diverted from the existing gravity sewers through the use of diversion structures and wet-weather pumping stations.
- Rehabilitation: Sewer rehabilitation can be implemented to reduce RDII and peak wet-weather flows. Unless otherwise noted, rehabilitation projects identified in this CAP/ER Update assume a comprehensive rehabilitation approach is taken. For a given project area, comprehensive rehabilitation includes the rehabilitation of all sewers and manholes located within Metro's right-of-way or easement, including service laterals to the property line. That approach evaluates, but generally excludes, polyvinyl chloride (PVC) pipes, ductile iron pipes (DIP), and previously rehabilitated pipes unless defects are observed. When rehabilitation projects presented in the CAP/ER Update are not comprehensive, the extents of evaluation and repair are described.

For completed projects, information on sizing and extents are provided along with the final completion date. For future projects, the approximate sizing and extents are provided for planning-level purposes; the final sizing, extent, and layout of each project will be determined during design. If project scopes are modified, the project will continue to be designed to meet or exceed the design criteria established in the CAP/ER. These modifications, if identified, will be explained in the progress reports submitted as part of the Consent Decree requirements.

1.5 Organization of Report

This CAP/ER Update is organized into five sections as listed below. Overflow locations and their associated improvements are presented in **Sections 2** through **4**. Refer to **Table 1-1** for the service area associated with each overflow location. **Section 5** provides a summary of overflows that have been addressed and the remaining projects under the CAP/ER.

- Section 1 – Introduction
- Section 2 – Central WWTP Service Area
- Section 3 – Dry Creek WWTP Service Area
- Section 4 – Whites Creek WWTP Service Area
- Section 5 – CAP/ER Projects



Legend

- Consent Decree Overflows

pump

- PumpStation
- Wastewater Treatment Plant

Central Basin Pipe Diameter (in)

- < 10"
- 10" - 16"
- 18" - 21"
- 24" - 30"
- > 30"

Whites Creek Basin Pipe Diameter (in)

- < 10"
- 10" - 16"
- 18" - 21"
- 24" - 30"
- > 30"

Dry Creek Basin Pipe Diameter (in)

- < 10"
- 10" - 16"
- 18" - 21"
- 24" - 30"
- > 30"
- Force Main
- Interstate
- Combined Sewer Area

N W E S

Figure 1-1 Overview of Metro Sewer System

0 2.5 5 10 Miles

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Section 2

Central WWTP Service Area

The Central basin is the largest and oldest service area in Metro and has both separate sanitary and combined sewers. It consists of approximately 2,000 miles of gravity sewer and covers approximately 140 square miles. The City of Mt. Juliet, the City of La Vergne, and portions of the City of Brentwood also connect to the Central WWTP service area. The CAP/ER addresses only the Consent Decree requirements of the separate sanitary sewer system with the *Nine Minimum Controls (NMC) Compliance Update* and the *Long Term Control Plan (LTCP)* addressing the Consent Decree requirements of the combined sewer system.

As shown in **Table 1-1**, 37 of the 73 wet-weather overflows listed in the revised Appendix A of the Consent Decree are located within the Central WWTP service area. Each location and the corrective actions Metro has taken or plans to take to address the overflows are discussed below in **Sections 2.1** through **2.37**.

2.1 28th Avenue Pump Station / Centennial

The 28th Avenue Pump Station is located in the North Nashville portion of the Central WWTP service area, adjacent to the Cumberland River. The overflow associated with this pump station is located over one mile south of the station, as shown in **Figure 2-1**. To address wet-weather overflows associated with the 28th Avenue Pump Station, comprehensive sewer rehabilitation is targeted for a significant portion of the gravity sewer system upstream of the pump station to reduce peak RDII flows.

Since the size of the gravity system targeted for rehabilitation includes approximately 190,000 linear feet of gravity sewer, multiple phases of rehabilitation are being conducted, as follows:

- The 28th Avenue Rehabilitation – Area 1 – Clifton Avenue consisted of the evaluation and rehabilitation, as necessary, of approximately 39,600 linear feet of gravity sewer, 250 manholes, and associated service laterals within Metro's right-of-way. The project was completed in May 2017.
- The 28th Avenue Rehabilitation – Area 2 – Batavia Street consisted of the evaluation and rehabilitation, as necessary, of approximately 49,600 linear feet of gravity sewer, 270 manholes, and associated service laterals within Metro's right-of-way.
- In addition to Areas 1 and 2, Metro anticipates continuing rehabilitation efforts in the remaining 28th Avenue Rehabilitation project area, which is assumed to occur over four additional projects (Areas 3 through 6).

In addition to those rehabilitation projects, the Schrader Sewer Separation project, as identified in *Addendum #2 to the Long Term Control Plan* (July 2020), will fully separate approximately 450 acres of combined sewer system upstream of the Schrader combined sewer overflow. Because that area is also tributary to the 28th Avenue Pump Station, it is also expected to reduce peak wet-weather flows to this area of the system.

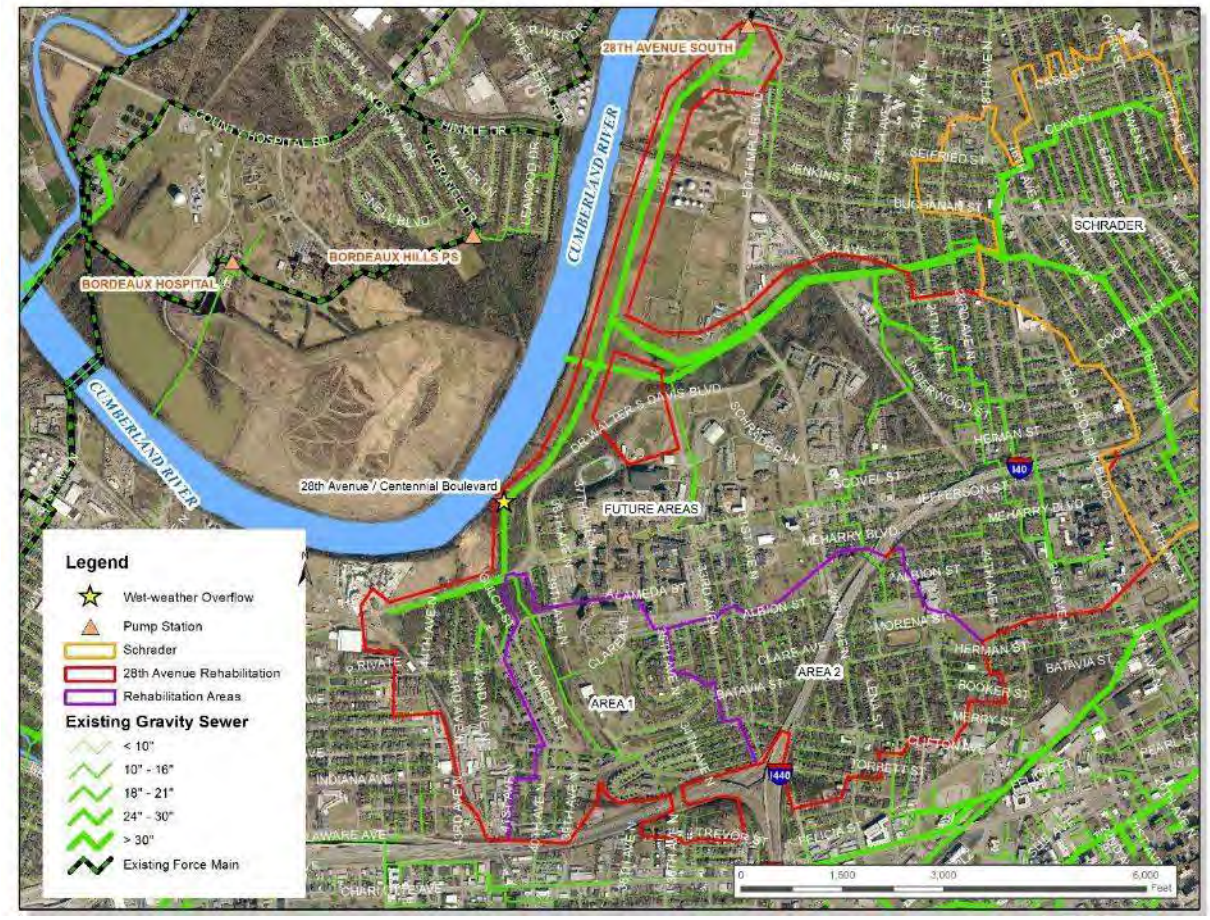

Figure 2-1 28th Avenue Pump Station

2.2 Andrew Jackson Parkway / Old Lebanon Dirt Road

The Andrew Jackson Parkway / Old Lebanon Dirt Road overflow is located upstream of the Dodson Chapel Pump Station. See **Section 2.12 Dodson Chapel Pump Station** for additional information.

2.3 Barker Road

The Barker Road overflow is located near the Cumberland River in the Central WWTP service area. In addition to the projects described in **Section 2.7 Browns Creek Pump Station/ Visco Drive**, Metro is modifying the Barker Road overflow structure to maximize conveyance capacity in the 48-inch diameter gravity sewer. This minor system modification, scheduled for completion in 2021, is anticipated to reduce the overflow frequency at Barker Road.

2.4 Benita Drive

The Benita Drive overflow is located south of the confluence of Sevenmile Creek and Mill Creek in the Central WWTP service area, as shown in **Figure 2-2**. Prior to submittal of the CAP/ER, Metro conducted work in this area to address high peak RDII flows and system surcharging that contributed to this overflow. This work included two rehabilitation projects upstream of the overflow point, Paragon Mills Sewer System Rehabilitation and Hopedale Sewer System Rehabilitation. Both projects were completed in the 1990s. Additionally in 2004, Metro completed construction of sewer

conveyance improvements along Mill Creek, which reduced surcharging within the system and near Benita Drive. Following the completion of those projects, only one overflow has been reported at Benita Drive, which occurred on April 23, 2017, when the area experienced 5.87 inches of rainfall. Since that rainfall event exceeded the CAP/ER's design criteria, no additional remedial measures are required. However, additional work to further reduce peak RDII flows is planned in this area as part of the Sevenmile Creek Rehabilitation – Area 1 project. See **Section 2.7 Browns Creek Pump Station/ Visco Drive** for additional information.

Figure 2-2 Benita Drive

2.5 Bismark Drive

The Bismark Drive overflow is located along Mill Creek in the Central WWTP service area. See **Section 2.7 Browns Creek Pump Station/ Visco Drive** for additional information.

2.6 Bonnafair Pump Station

The Bonnafair Pump Station and its associated overflow are located in the northeastern portion of the Central WWTP service area, in the Hermitage area, as shown in **Figure 2-3**. When the area experienced over 15 inches of rainfall and significant flooding from the Cumberland River in February 2019, the pump motors and electrical equipment at the station were flooded resulting in several overflows. Upgrades to the pump station, including moving the electrical equipment above the flood level, were initiated in 2019 and were completed in November 2020. Since that work was

completed, one overflow occurred at the pump station on March 27, 2021, when the area experienced over 6 inches of rainfall. Since that rainfall event exceeded the CAP/ER's design criteria, no additional remedial measures are proposed at this time. The pump station's performance will continue to be monitored as part of Metro's ongoing CMOM activities.

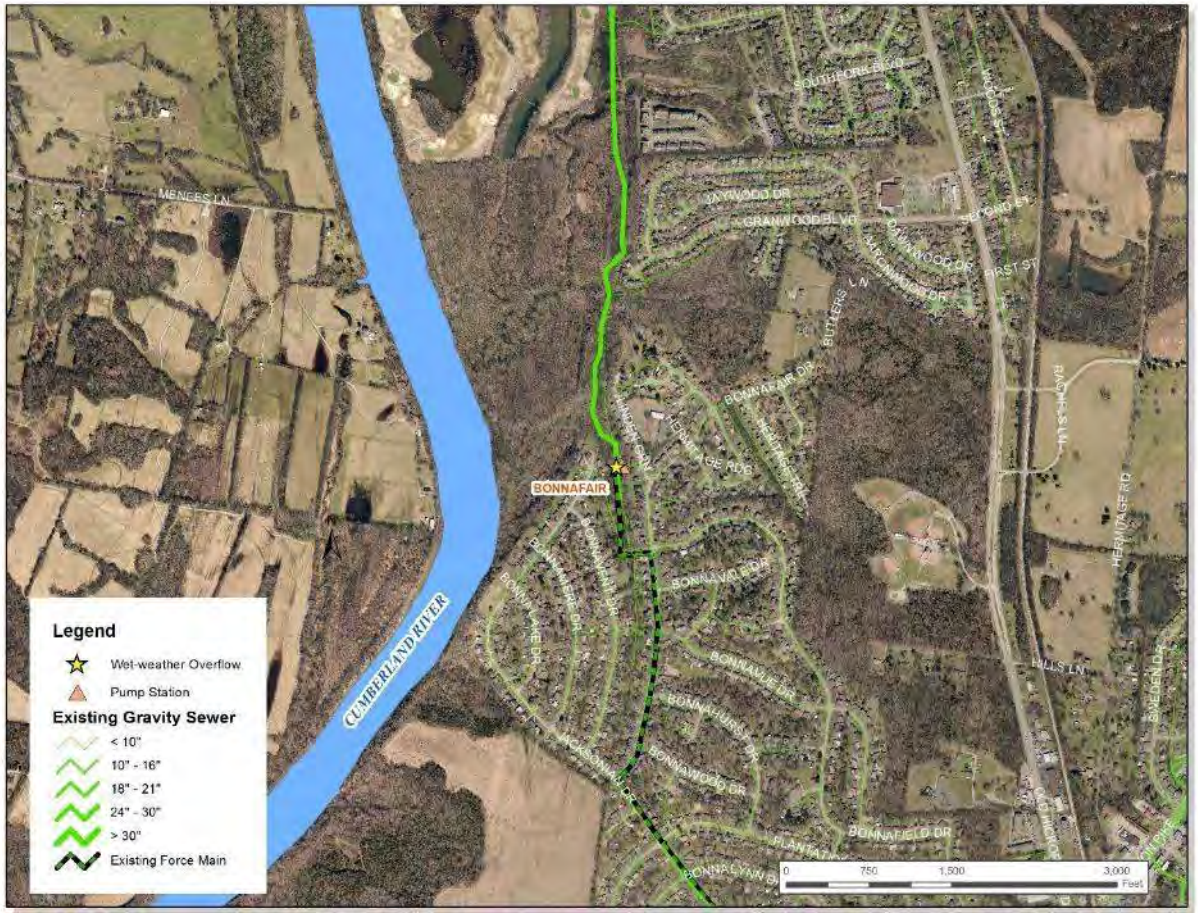

Figure 2-3 Bonnafair Pump Station

2.7 Browns Creek Pump Station / Visco Drive

The Browns Creek Pump Station and its associated overflow near Visco Drive are located just south of the Cumberland River in the Central WWTP service area, as shown in **Figure 2-4**. This wet-weather overflow location is related to the following overflows: Barker Road, Bismark Drive, Mill Creek – East Thompson Lane, Mill Creek – Hollydale Drive, Mill Creek – Old Glenrose, and Mill Creek – Wimpole. Improvements to address those overflows are described as follows:

- The Mill Creek 36-inch Trunk Sewer Rehabilitation project was completed in September 2011 concurrent with the submittal of the CAP/ER. This project area included the rehabilitation of approximately 16,800 linear feet of 36-inch diameter gravity sewer trunk line in the area south of the Nashville International Airport.
- The Barker Road / Omohundro Equalization Storage Phase I project included construction of a 15 million gallon (MG) equalization storage tank and associated 25 million gallons per day

(mgd) wet-weather pump station (referred to as the Barker Road Pump Station). Construction was completed in December 2009.

- The Mill Creek/Opryland Equalization Storage Phase II project included construction of a 19 MG equalization storage tank adjacent to the 15 MG equalization storage tank from the Barker Road / Omohundro Equalization Storage Phase I project. Construction of the Mill Creek/Opryland Equalization Storage Phase II project was completed in May 2015.
- The Mill Creek Trunk and Equalization Facility project includes the construction of an additional 60 MG of storage and a 100 mgd wet-weather pumping station across the street from the first two equalization tanks. This project also includes the construction of approximately 5.5 miles of large diameter trunk sewer, primarily via tunneling, to provide additional conveyance capacity to the new storage facility.
- The Sevenmile Creek Rehabilitation – Area 1 project consists of the evaluation and rehabilitation, as necessary, of approximately 41,200 linear feet of gravity sewer, over 170 manholes, and associated service laterals within Metro's right-of-way.
- The Foster Avenue Rehabilitation project consists of the evaluation and rehabilitation, as necessary, of sewers in the area upstream of the intersection of Nolensville Pike and Thompson Lane. See **Section 2.15 Foster Avenue** for additional information.
- Metro anticipates continuing rehabilitation efforts in the sewered areas upstream and along Mill Creek to continue to address sources of RDII that contribute to wet-weather overflows. The extent and locations of those future rehabilitation areas will be determined based upon pipe condition, flow monitoring, and additional analyses. Three additional rehabilitation areas are currently planned as part of Mill Creek Rehabilitation.

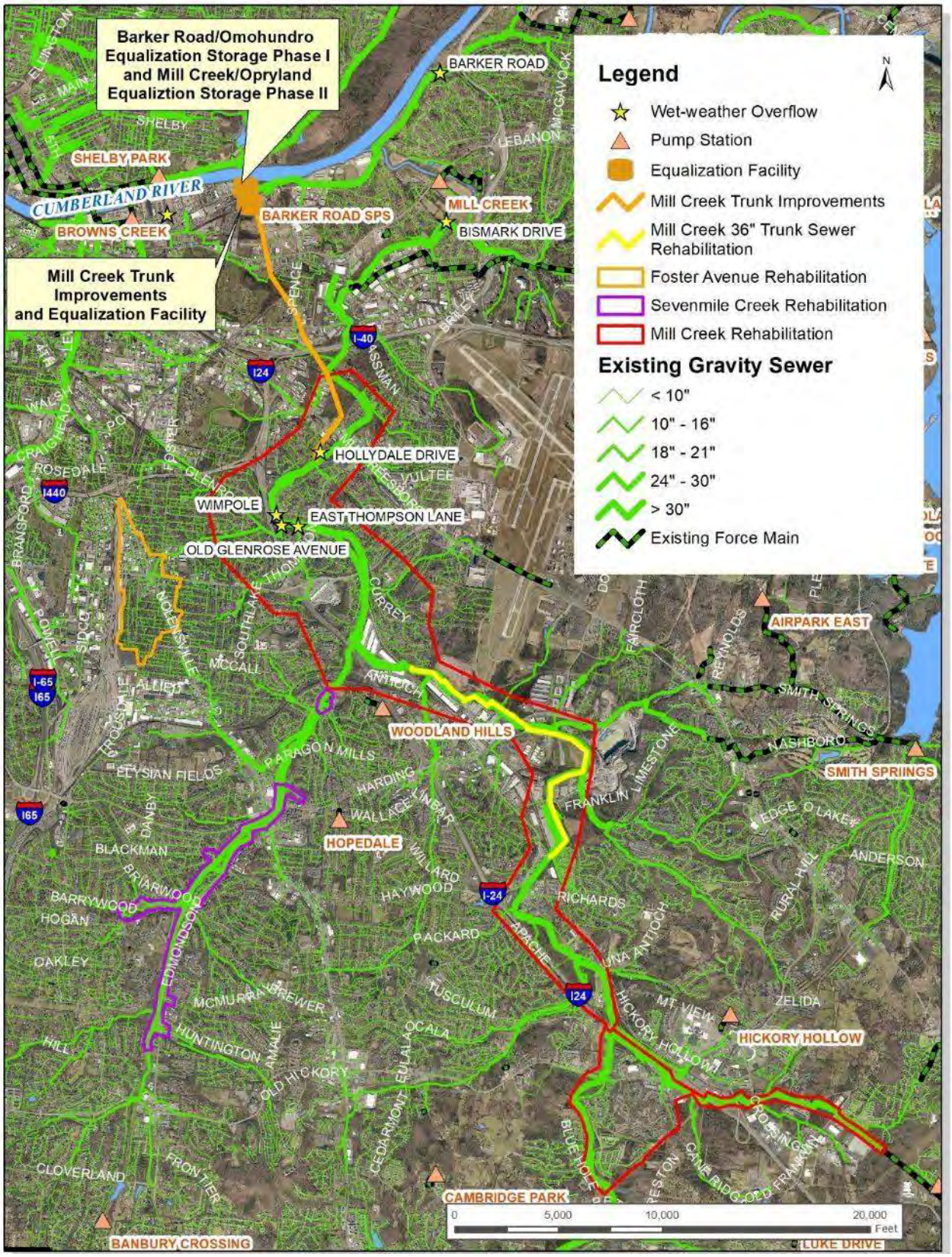

Figure 2-4 Browns Creek Pump Station / Visco Drive, Barker Road, Bismark Drive, and Mill Creek

2.8 Cloverbottom Pump Station

The Cloverbottom Pump Station and its associated overflow are located in the Central WWTP service area, near the Stones River, as shown in **Figure 2-5**. When the area experienced over 15 inches of rainfall in February 2019 and significant flooding along the Stones River in February and March 2019, several overflows occurred at this station, prompting Metro to perform field investigations in the area. The investigations identified that the overflow relief pipe associated with the pump station was allowing water to enter the gravity sewer during periods of high river stage. A check valve was installed in August 2020 to prevent that inflow. That repair has significantly improved the system's performance; however, an overflow occurred on March 27, 2021, when the area experienced over 6 inches of rainfall. Since that rainfall event exceeded the CAP/ER's design criteria, no additional remedial measures are proposed at this time. The pump station's performance will continue to be monitored as part of Metro's ongoing CMOM activities.

Figure 2-5 Cloverbottom Pump Station

2.9 Cooper Lane

The Cooper Lane and Cooper Terrace overflows are located in the Inglewood area of the Central WWTP service area, just west of the Cumberland River and north of Shelby Bottoms. To address the wet-weather overflows in this area, comprehensive sewer rehabilitation was conducted in the gravity

sewer system in this area as part of the Shelby Park Rehabilitation project, specifically Area 5. See **Section 2.32 Shelby Park Pump Station** for additional information.

2.10 Cooper Terrace

See **Section 2.9 Cooper Lane** and **Section 2.32 Shelby Park Pump Station** for additional information.

2.11 Cowan Street Relief Bleeder / Pump Station

The Cowan Street Relief Bleeder (overflow) is located approximately 3,000 feet upstream of the Cowan Street Pump Station, in the Central WWTP service area, as shown in **Figure 2-6**. The Riverside Drive Pump Station, which also has an associated overflow, discharges into the Cowan sewer system. To address wet-weather overflows at the Cowan Street Relief Bleeder and at the Riverside Drive Pump Station, the following projects have been identified:

- The Cowan/Riverside Rehabilitation – Area 1 – Jones Avenue project consisted of the evaluation and rehabilitation, as necessary, of approximately 50,200 linear feet of gravity sewer, 270 manholes, and associated service laterals within Metro's right-of-way. The project was completed in June 2015.
- The Cowan/Riverside Rehabilitation – Area 2 – Dickerson Pike project consisted of the evaluation and rehabilitation, as necessary, of approximately 51,400 linear feet of gravity sewer, 290 manholes, and associated service laterals within Metro's right-of-way. The project was completed in December 2015.
- The Cowan/Riverside Rehabilitation – Area 3 – West Trinity Lane project consisted of the evaluation and rehabilitation, as necessary, of approximately 48,100 linear feet of gravity sewer, 260 manholes, and associated service laterals within Metro's right-of-way. The project was completed in November 2016.
- The Cowan/Riverside Rehabilitation – Area 4 – Pages Branch project consisted of the evaluation and rehabilitation, as necessary, of approximately 112,000 linear feet of gravity sewer, 570 manholes, and associated service laterals within Metro's right-of-way. This project includes the gravity sewer upstream of the Riverside Drive Pump Station. The project was completed in June 2018.
- The Cowan Street Pipe Improvements project will include replacement of approximately 7,300 linear feet of existing sewer to provide conveyance for existing peak RDII flows, as well as to accommodate the significant anticipated growth in the area.
- The Riverside Drive Pump Station Upgrades project will include construction of a new duty pump station and force main. The project will be sized to meet the CAP/ER's design criteria, as well as the significant anticipated growth in the area.
- The Cowan Street Pump Station Upgrades project will include construction of a new duty pump station and force main. The project will be sized to meet the CAP/ER's design criteria, as well as the significant anticipated growth in the area.

Figure 2-6 Cowan Street Relief Bleeder / Pump Station and Riverside Drive Pump Station

2.12 Dodson Chapel Pump Station

The Dodson Chapel Pump Station and its associated overflow are located in the northeastern portion of the Central WWTP service area, south of Hermitage, along Stoners Creek. The Dodson Chapel Pump Station discharges to the McCrory Creek Pump Station, which has an associated overflow location on the Stones River. Two additional wet-weather overflows are located upstream of the pump station, Andrew Jackson Parkway and Old Lebanon Dirt Road. These locations are shown in **Figure 2-7**.

Several projects have been identified to address the wet-weather overflows that occur in this area, as follows:

- The Rockwood Conveyance Improvements project consisted of the installation of approximately 3,900 linear feet of 18-inch to 30-inch diameter sewer to address capacity restrictions. That non-contiguous sewer was installed between Tulip Grove Road to Old Hickory Boulevard (the starting point of the Dodson Chapel Pipe Improvements project). Construction of the project was completed in July 2012.
- The Dodson Chapel Equalization Storage project expanded the storage and pumping capacity at Dodson Chapel Pump Station. That project consisted of a new 15 mgd duty station, a new wet-weather pump station, and 11 MG of additional storage bringing the total storage to 14 MG. The new, expanded facility also included revised control logic for the Dodson Chapel Pump

Station. Since flows from Dodson Chapel Pump Station are discharged to the McCrory Creek Pump Station, when the McCrory Creek Pump Station approaches its maximum pumping capacity, the Dodson Chapel duty pumps are reduced to approximately 10 mgd to prevent overflowing at McCrory Creek. Flows to Dodson Chapel Pump Station in excess of the available duty pumping rate are diverted to the equalization storage facility. Construction of the project was completed in April 2014.

- The Dodson Chapel Pipe Improvements project replaced approximately 3,300 linear feet of existing 18-inch to 42-inch diameter gravity sewer with 30-inch to 48-inch diameter gravity sewer. The improvements extended from Old Hickory Boulevard to the Dodson Chapel Pump Station site. Construction of the project was completed in December 2015.

Following the completion of those projects, wet-weather overflows have continued to be reported in this area, especially during periods of high river stage and back-to-back storm events. Metro has confirmed the facilities are operating as designed. Limited fieldwork to identify the causes of wet-weather overflows has also been conducted, although additional investigation and study is required. To address wet-weather overflows in the Dodson Chapel and McCrory Creek system, Metro proposes to conduct extensive flow monitoring in the winter/spring of 2022, followed by an update to the hydraulic model, and an evaluation of alternatives to address the overflows. The assessment and proposed corrective actions will be summarized in a supplemental report submitted no later than June 2023.

The Dodson Chapel Pump Station area also receives flow from one satellite system, the City of Mt. Juliet, which has seen considerable growth in recent years. The study will evaluate current and potential future peak flow rates from the satellite system, as well.

Figure 2-7 Dodson Chapel, McCrory Creek, Andrew Jackson Parkway, and Old Lebanon Dirt Road

2.13 Fairway Center Pump Station

The Fairway Center Pump Station and its associated overflow are located in the Metro Center area of the Central WWTP service area, just south of the Cumberland River, as shown in **Figure 2-8**. To address wet-weather overflows at the pump station, Metro completed an evaluation of the pump station's performance. The pump impellers were replaced in late 2019, which improved the station's capacity. Since that time, only two overflows have occurred at the pump station. One occurred when the March 3, 2020 tornado caused a power outage; the second occurred on March 27, 2021, when the area experienced more than 5 inches of rainfall. Since that rainfall event exceeded the CAP/ER's design criteria, no additional remedial measures are proposed at this time. The pump station's performance will continue to be monitored as part of Metro's ongoing CMOM activities.

Figure 2-8 Fairway Center Pump Station

2.14 Farmingham Woods Pump Station

The Farmingham Woods Pump Station was located in the northeastern portion of the Central WWTP service area as shown in **Figure 2-9**. To address wet-weather overflows at the Farmingham Woods Pump Station, a new gravity sewer was constructed to convey flows from the area, and the station was removed from service in July 2019. Approximately 1,800 linear feet of new 15-inch diameter gravity sewer was installed for this project. This improvement addressed the wet-weather overflows previously observed at the station. The gravity system in this area will continue to be maintained as part of Metro's CMOM activities.

Figure 2-9 Farmingham Woods Pump Station

2.15 Foster Avenue

The Foster Avenue and Louise Drive wet-weather overflows are located in the Central WWTP service area near the intersection of Nolensville Pike and Thompson Lane, as shown in **Figure 2-10**. To address those wet-weather overflows, the Foster Avenue Rehabilitation project was developed as shown in the figure. The project consists of the evaluation and rehabilitation, as necessary, of approximately 53,600 linear feet of existing gravity sewer, over 320 manholes, and associated service laterals within Metro's right-of-way.

Figure 2-10 Foster Avenue and Louise Drive

2.16 Hillview Pump Station

The Hillview Pump Station is located near the southern boundary of Davidson County in the Central WWTP service area, as shown in **Figure 2-11**. Although not historically a location of wet-weather overflows, numerous wet-weather overflows were observed beginning in late 2017 at the Hillview Pump Station. In response to these overflows, smoke testing was conducted in the upstream gravity sewer in October 2018, and manhole inspections along with CCTV inspections of the gravity sewer were conducted in March 2019. Several sewer system repairs to address RDII were completed in late 2019. Concurrently with the investigations of the gravity sewer, the pump station was evaluated and determined to have a reduced pumping capacity. Work to restore the station's capacity was completed in mid-2019. No overflows have been reported at the Hillview Pump Station following the completion of the repairs. The pump station's performance will continue to be monitored for capacity issues as part of Metro's CMOM activities.

Figure 2-11 Hillview Pump Station

2.17 Holiday Travel Park Pump Station

The Holiday Travel Park Pump Station was located in the northern part of the Central WWTP service area, east of the Cumberland River, as shown in **Figure 2-12**. To address wet-weather overflows at Holiday Travel Park Pump Station, approximately 4,600 linear feet of new 8-inch and 12-inch diameter gravity sewer was installed to convey flows to the gravity sewer north of McGavock Pike which goes to the Cabin Hill Pump Station. That work was completed in July 2012, and the pump station and associated force main were removed from service. No wet-weather overflows have been reported in this area since the gravity sewer was put into service in 2013. The gravity system in this area will continue to be maintained as part of Metro's CMOM activities.

Figure 2-12 Holiday Travel Park Pump Station

2.18 Hopedale Pump Station

The Hopedale Pump Station and its associated overflow are located in the southern part of the Central WWTP service area, south of Harding Place between Nolensville Pike and Interstate 24, as shown in **Figure 2-13**. Although it experienced only one overflow in the decade prior to 2019, several overflows were reported at the Hopedale Pump Station beginning in 2019. Because of the increased frequency of overflows, the pump station's performance was evaluated, and the pump station was determined to be operating as designed. Smoke testing of the gravity sewer upstream of the pump station was completed in the fall of 2019. Following review of the available data, comprehensive sewer rehabilitation will be conducted in the gravity sewer system upstream of the pump station to reduce peak RDII flows within the system. The Hopedale Rehabilitation project will consist of the evaluation and rehabilitation, as necessary, of approximately 28,600 linear feet of existing gravity sewer, approximately 150 manholes, and associated service laterals within Metro's right-of-way.

Figure 2-13 Hopedale Pump Station

2.19 Hurricane Creek Pump Station

The Hurricane Creek Pump Station and its associated overflow are located in the southeastern part of the Central WWTP service area, adjacent to Hurricane Creek, as shown in **Figure 2-14**. To address wet-weather overflows, the following projects have been identified in the Hurricane Creek Pump Station area:

- The Hurricane Creek Pipe Improvements project includes relocating and replacing approximately 12,000 linear feet of existing 15-inch to 24-inch diameter gravity sewer with 24-inch to 30-inch diameter sewer. This project was originally identified by Metro to meet the requirements of their *Capacity Assurance Plan*; however, the project is also expected to reduce peak RDII flows in the area by replacing the existing aged pipe which is difficult to maintain due to its location.
- The Annual Rehabilitation FY2016 – South Hurricane Creek project area consisted of the evaluation and rehabilitation, as necessary, of 53,400 linear feet of existing gravity sewer, over 230 manholes, and associated service laterals with Metro's right-of-way. Construction of the project was completed in February 2018.
- The Hurricane Creek Pump Station area also receives a significant portion of its flow from one satellite system, the City of La Vergne. Metro's agreement with La Vergne stipulates that, if a defined peak flow rate is exceeded more than six times per year, they must develop a Corrective

Action Plan describing how they will address their flow exceedances, and La Vergne developed a Corrective Action Plan in 2013 which is being implemented.

Through the combination of these projects, Metro anticipates that the overflow at the Hurricane Creek Pump Station will be addressed. As that work is implemented, however, Metro will continue to monitor the station's performance to assess the need for additional improvements.

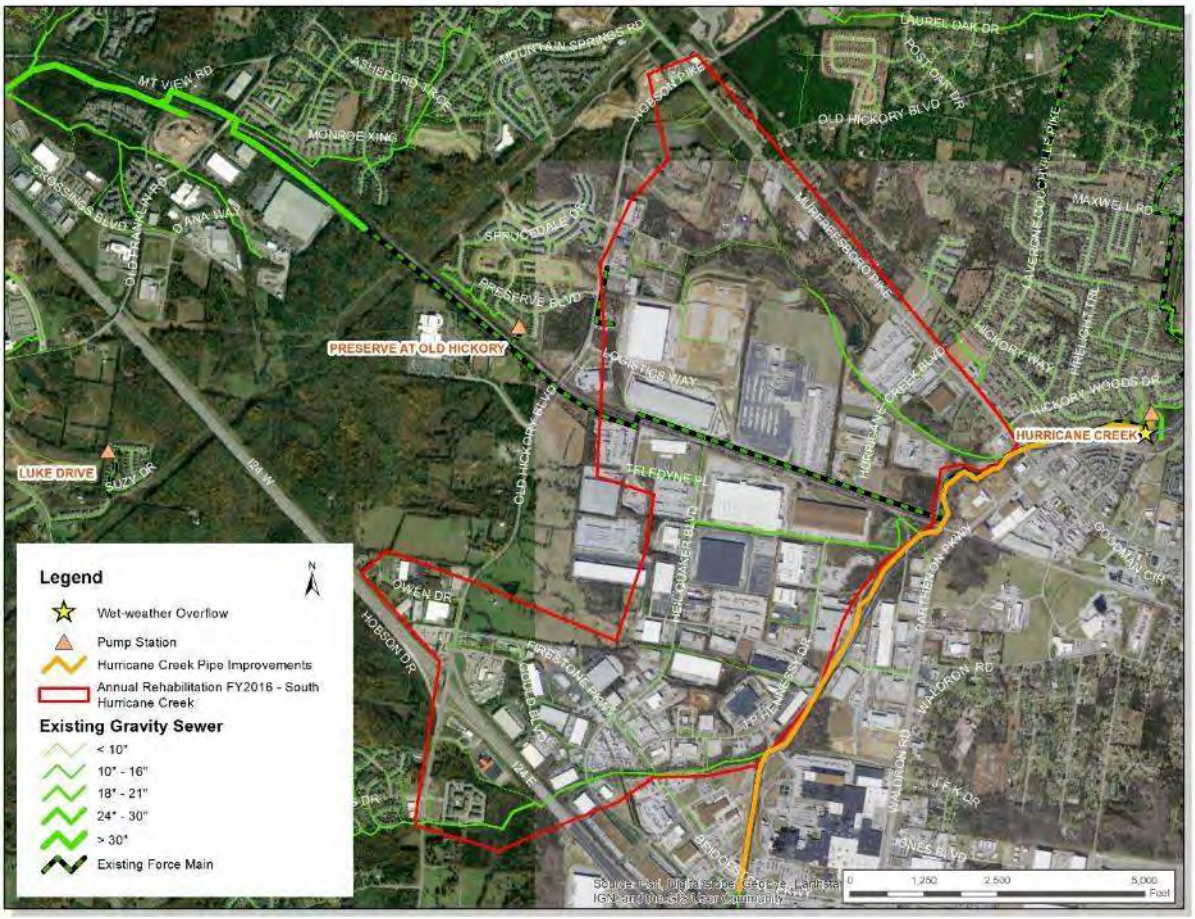

Figure 2-14 Hurricane Creek Pump Station

2.20 Langford Farms Pump Station

The Langford Farms Pump Station and its associated overflow are located in the northeastern part of the Central WWTP service area, just inside of Wilson County, as shown in **Figure 2-15**. To reduce peak RDII flows to the Langford Farms Pump Station, the gravity sewer system upstream of the station was evaluated for rehabilitation. This included approximately 13,300 linear feet of gravity sewer and approximately 70 manholes. Condition assessment data indicated several locations required repair to address structural defects and known/suspected sources of RDII. Due to the relatively small size of the project, construction activities were combined with another project to form the Langford Farms – Madison Heights Rehabilitation project. Construction of the project was completed in February 2018.

Since the Langford Farms Pump Station continued to experience wet-weather overflows following completion of the rehabilitation project, Metro conducted additional field investigations, including evaluation of the pump station's performance and smoke testing in 2020. Based on the results of those

investigations, Metro is constructing access points along the force main to complete force main cleaning activities to further evaluate the station and force main's effective capacity.

Figure 2-15 Langford Farms Pump Station

2.21 Long Hunter Chase Pump Station

The Long Hunter Chase Pump Station and its associated overflow are located near Percy Priest Lake in the eastern part of the Central WWTP service area, as shown in **Figure 2-16**. Following an increase in the frequency of wet-weather overflows at the station in 2018, Metro conducted smoke testing in the gravity sewer system upstream of the station. Smoke testing revealed that many cleanouts in the area were broken, allowing inflow to enter the system during rainfall events. Repairs to over 200 cleanouts were completed in the second quarter of 2020. Following the completion of the repairs, only one wet-weather overflow has occurred at the pump station. That was on September 13, 2020, when the area experienced more than 6 inches of rainfall. Since that rainfall event exceeded the CAP/ER's design criteria, no additional remedial measures are proposed at this time. The pump station's performance will continue to be monitored as part of Metro's ongoing CMOM activities.

Figure 2-16 Long Hunter Chase Pump Station

2.22 Louise Drive (Foster Avenue)

The Louise Drive overflow is located in the Central WWTP service area near the intersection of Nolensville Pike and Thompson Lane. See **Section 2.15 Foster Avenue** for additional information.

2.23 McCrory Creek Pump Station

The McCrory Creek Pump Station is located along the Stones River in the Central WWTP service area. Because the McCrory Creek Pump Station receives flows from the Dodson Chapel Pump Station, the McCrory Creek Pump Station will be included in the proposed study of that system. See **Section 2.12 Dodson Chapel Pump Station** for additional information.

2.24 Mill Creek – East Thompson Lane

The Mill Creek – East Thompson Lane overflow is located along Mill Creek in the Central WWTP service area. See **Section 2.7 Browns Creek Pump Station / Visco Drive** for additional information.

2.25 Mill Creek – Hollydale Drive

The Mill Creek – Hollydale Drive overflow is located along Mill Creek in the Central WWTP service area. See **Section 2.7 Browns Creek Pump Station / Visco Drive** for additional information.

2.26 Mill Creek – Old Glenrose

The Mill Creek – Old Glenrose overflow is located along Mill Creek in the Central WWTP service area. See **Section 2.7 Browns Creek Pump Station / Visco Drive** for additional information.

2.27 Mill Creek – Wimpole

The Mill Creek – Wimpole overflow is located along Mill Creek in the Central WWTP service area. See **Section 2.7 Browns Creek Pump Station / Visco Drive** for additional information.

2.28 Mill Creek Pump Station

The Mill Creek Pump Station is located approximately one mile upstream of the confluence of Mill Creek and the Cumberland River in the Central WWTP service area, as shown in **Figure 2-17**. Because of the increased frequency of wet-weather overflows in 2018 at Mill Creek Pump Station, field investigations of the gravity sewer system, including smoke testing, were completed in the fall of 2019. The investigations identified that the overflow relief pipe associated with the pump station was defective, potentially allowing water to enter the sewer during periods of high river stage. The defective pipe was removed in December 2020. That change has significantly improved the system's performance; however, an overflow occurred on March 27, 2021, when the area experienced over 6 inches of rainfall. Since that rainfall event exceeded the CAP/ER's design criteria, no additional remedial measures are proposed at this time. The pump station's performance will continue to be monitored as part of Metro's ongoing CMOM activities.

Figure 2-17 Mill Creek Pump Station

2.29 Old Lebanon Dirt Road

The Old Lebanon Dirt Road overflow is located upstream of the Dodson Chapel Pump Station. See **Section 2.12 Dodson Chapel Pump Station** for additional information.

2.30 Peppertree Forrest Pump Station

The Peppertree Forrest Pump Station is located in the southeastern part of the Central WWTP service area, south of J Percy Priest Reservoir, as shown in **Figure 2-18**. In September 2018, when investigating the cause of wet-weather overflows at this station, Metro discovered a damaged pipe on a nearby construction site that allowed a significant amount of RDII into the sewer system. Since the developer corrected that defect, the pump station's performance during wet-weather conditions has improved. However, two overflows have occurred since that time. To address anticipated growth in the project area and to fully address the overflow, Metro plans to upgrade the pump station to provide a greater capacity through the Peppertree Forrest Pump Station Upgrades project. Improvements to the existing force main will also be reviewed and incorporated, as needed, into that project.

Figure 2-18 Peppertree Forrest Pump Station

2.31 Riverside Drive Pump Station

The Riverside Drive Pump Station is located upstream of and discharges to the Cowan Street Pump Station system. See **Section 2.11 Cowan Street Relief Bleeder / Pump Station**.

2.32 Shelby Park Pump Station

The Shelby Park Pump Station and its associated overflow are located in the southern portion of Shelby Park in the Central WWTP service area, as shown in **Figure 2-19**. To address wet-weather overflows associated with the Shelby Park Pump Station, comprehensive sewer rehabilitation is targeted for the gravity sewer system upstream of the pump station to reduce peak RDII flows. Three additional wet-weather overflows are located upstream of the pump station, Cooper Lane, Cooper Terrace, and Williamson Ferry Pump Station.

Since the size of the gravity system upstream of the station is approximately 630,000 linear feet of gravity sewer, multiple phases of rehabilitation are being conducted, as follows:

- The Shelby Park Rehabilitation – Area 1 – Virginia Avenue project consisted of the evaluation and rehabilitation, as necessary, of approximately 54,400 linear feet of gravity sewer, 280 manholes, and associated service laterals within Metro's right-of-way. The project was completed in June 2015.

- The Shelby Park Rehabilitation – Area 2 – Norvel Avenue project consisted of the evaluation and rehabilitation, as necessary, of approximately 57,000 linear feet of gravity sewer, 330 manholes, and associated service laterals within Metro's right-of-way. The project was completed in February 2016.
- The Shelby Park Rehabilitation – Area 3 – Greenland Avenue project consisted of the evaluation and rehabilitation, as necessary, of approximately 49,000 linear feet of gravity sewer, 260 manholes, and associated service laterals within Metro's right-of-way. The project was completed in July 2016. This project area also includes a portion of the sewer system upstream of the Williamson Ferry Pump Station.
- The Shelby Park Rehabilitation – Area 4 – Brush Hill Road project consisted of the evaluation and rehabilitation, as necessary, of approximately 47,400 linear feet of gravity sewer, over 250 manholes, and associated service laterals within Metro's right-of-way. The project was completed in September 2016. This project area also includes a portion of the sewer system upstream of the Williamson Ferry Pump Station.
- The Shelby Park Rehabilitation – Area 5 – Cooper Lane project consisted of the evaluation and rehabilitation, as necessary, of approximately 52,200 linear feet of gravity sewer, 270 manholes, and associated service laterals within Metro's right-of-way. The project was completed in January 2019. This project area also includes the Cooper Lane and Cooper Terrace overflow locations.
- The Shelby Park Rehabilitation – Area 6 – Shelby Trunk project consists of the evaluation and rehabilitation, as necessary, of approximately 36,200 linear feet of gravity sewer, 130 manholes, and associated service laterals within Metro's right-of-way. The project is scheduled to complete construction in late 2022.
- In additions to Areas 1 through 6, Metro anticipates continuing rehabilitation efforts in the remaining Shelby Park Rehabilitation project area. The extent and location of those future phases will be determined via flow monitoring and hydraulic analyses following completion of the Area 6 – Shelby Trunk.

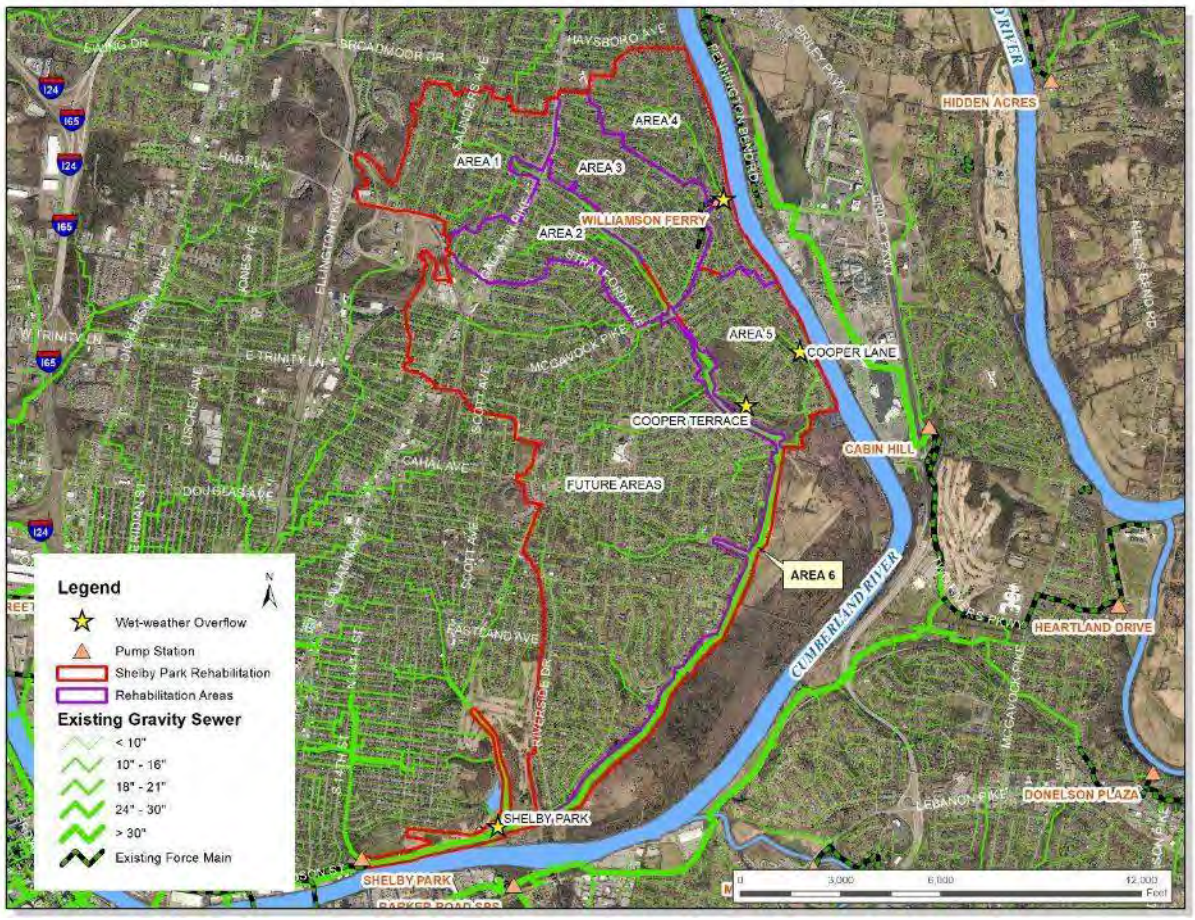

Figure 2-19 Shelby Park Pump Station, Cooper Lane, Cooper Terrace, and Williamson Ferry Pump Station

2.33 Smith Springs Pump Station

The Smith Springs Pump Station and its associated overflow are located in the southeastern part of the Central WWTP service area, south of J Percy Priest Reservoir, as shown in **Figure 2-20**. The Timber Ridge overflow is also located upstream of the Smith Springs Pump Station. The following projects have been identified to address the wet-weather overflows that occur at those locations:

- The Smith Springs Equalization Storage project was completed in 2006 prior to the submittal of the CAP/ER. The project added a 3.3 mgd wet-weather pump station and provided 2 MG of equalization storage adjacent to the Smith Springs Pump Station. While the project was successful at reducing overflows at the Smith Springs Pump Station, it did not fully address wet-weather overflows at the site.
- The Smith Springs Rehabilitation – Area 1 – Priest Lake Meadows project consisted of the evaluation and rehabilitation, as necessary, of approximately 64,000 linear feet of gravity sewer, 275 manholes, and associated service laterals within Metro's right-of-way. The project was completed in March 2017.
- The Smith Springs Rehabilitation – Area 2 – Castlegate project consisted of the evaluation and rehabilitation, as necessary, of approximately 58,800 linear feet of gravity sewer, 300 manholes, and associated service laterals within Metro's right-of-way. The project was completed in October 2018.

- The Long Hunter Chase Cleanout Repairs consisted of the repair to over 200 broken cleanouts on service laterals within the gravity sewer system upstream of the Long Hunter Chase Pump Station. Repairs of those cleanouts were completed in the April 2020. See **Section 2.21 Long Hunter Chase Pump Station** for additional information.
- The Smith Springs Rehabilitation – Area 3 – Harbour Town project consists of the evaluation and rehabilitation, as necessary, of approximately 58,200 linear feet of gravity sewer, 270 manholes, and associated service laterals within Metro's right-of-way. This project area also includes the Timber Ridge overflow location.
- In addition to Areas 1 through 3, Metro anticipates continuing rehabilitation efforts in the remaining Smith Springs Rehabilitation project area, which is assumed to occur over two additional projects (Areas 4 and 5).

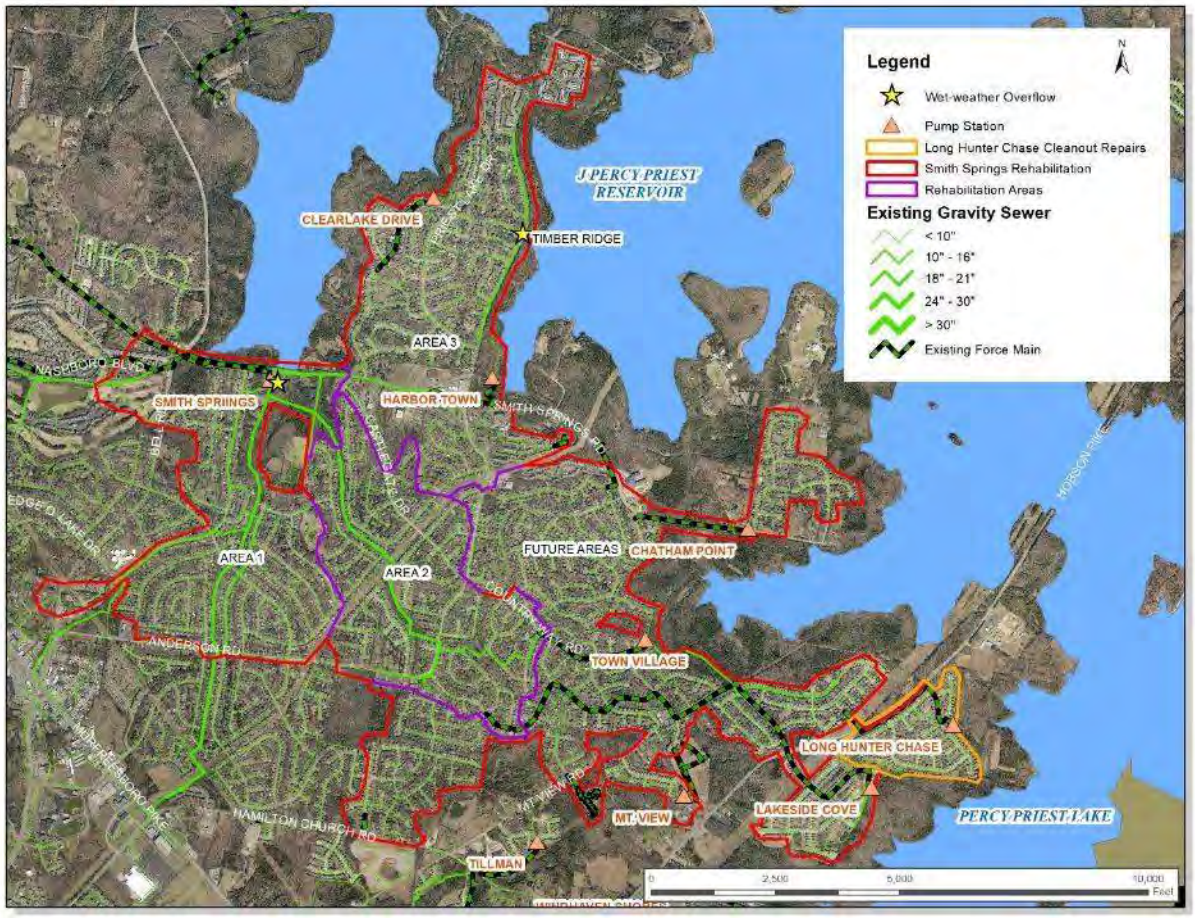

Figure 2-20 Smith Springs Pump Station and Timber Ridge

2.34 South Oak Hill Pump Station

The South Oak Hill Pump Station and its associated overflow are located near the southern boundary of Davidson County in the Central WWTP service area, as shown in **Figure 2-21**. To address wet-weather overflows at South Oak Hill Pump Station, Metro conducted smoke testing and additional field investigations of the gravity sewer system upstream of the pump station in late 2019 through mid-2020. Those investigations identified numerous locations where pipe-to-manhole connections were defective, allowing infiltration to enter the system. Repairs to approximately 30 manholes were

completed in March 2021. Since the work was completed, one overflow occurred at the pump station on March 27, 2021, when the area experienced over 6 inches of rainfall. Since that rainfall event exceeded the CAP/ER's design criteria, no additional remedial measures are proposed at this time. The pump station's performance will continue to be monitored as part of Metro's ongoing CMOM activities.

Figure 2-21 South Oak Hill Pump Station

2.35 Timber Ridge

The Timber Ridge overflow is located south of J Percy Priest Reservoir in the southeastern portion of the Central WWTP service area. Comprehensive rehabilitation in this area is included as part of the Smith Springs Rehabilitation project, specifically Area 3. See **Section 2.33 Smith Springs Pump Station** for additional information.

2.36 Village Court

Village Court overflow is located between Davidson Street and the southern end of Village Court in the Central WWTP service area, as shown in **Figure 2-22**. The Boscobel CSO – Village Court Sewer Replacement project was completed in October 2008 prior to submittal of the CAP/ER. That project included the replacement of approximately 1,200 linear feet of 12-inch diameter gravity sewer with 24-inch diameter gravity sewer. It also included the installation of approximately 2,100 linear feet of 20-inch diameter gravity sewer along Village Court, paralleling an existing 15-inch diameter sewer.

Following the completion of the project, no overflows have been observed at Village Court. The gravity system in this area will continue to be maintained as part of Metro's CMOM activities.

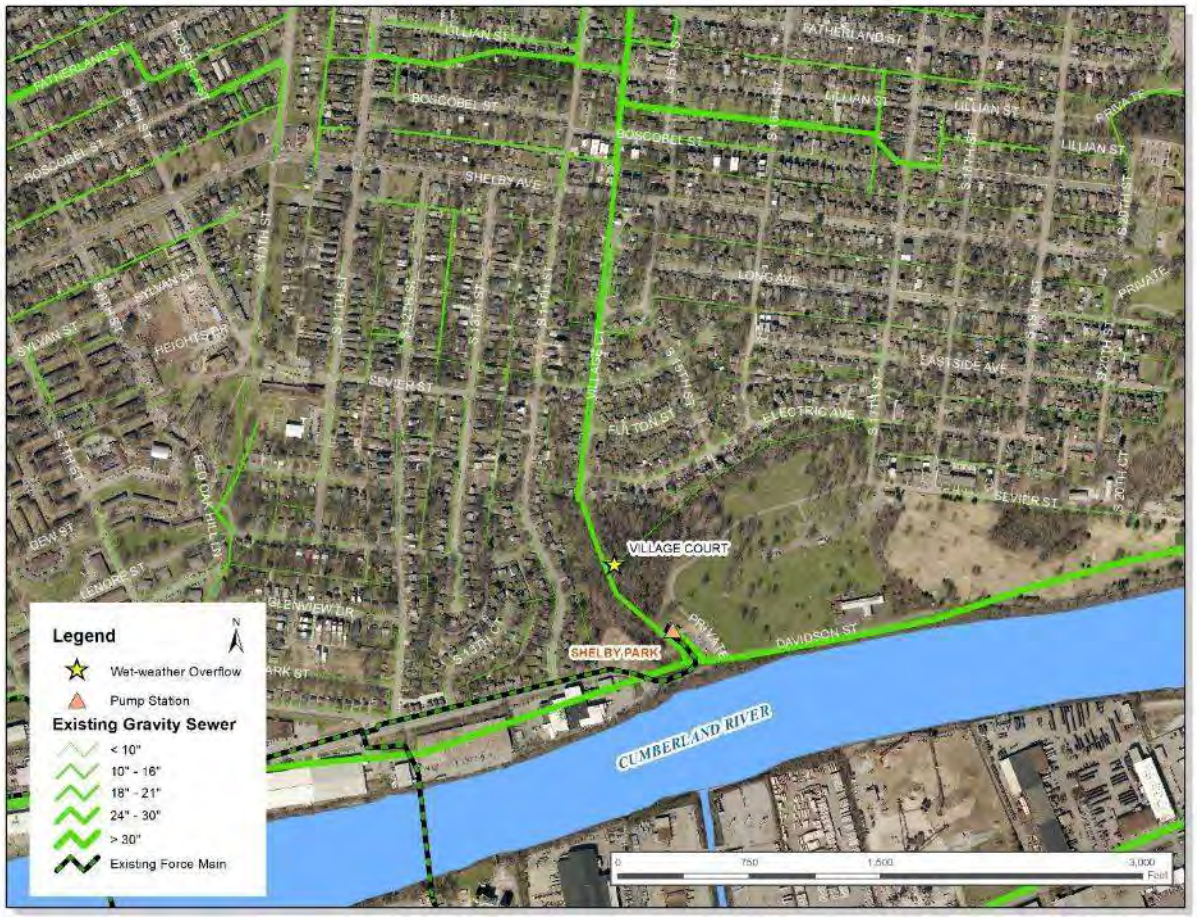

Figure 2-22 Village Court

2.37 Williamson Ferry Pump Station

The Williamson Ferry Pump Station and its associated overflow are located in the Inglewood area of the Central WWTP service area, as shown in **Figure 2.19**. To address the overflow associated with this station, comprehensive sewer rehabilitation was conducted in the gravity sewer system upstream of the pump station to reduce peak RDII flows within the system. This work is included as part of the Shelby Park Rehabilitation project, specifically Areas 3 and 4. See **Section 2.32 Shelby Park Pump Station** for additional information.

Three wet-weather overflows have been reported at the station following completion of those projects in 2016. Two of those overflows were the result of more than 5 inches of rainfall, which exceeds the CAP/ER's design criteria.

To address the continued overflows, an evaluation of the pump station's performance was completed, and the station was determined to be operating as expected. Additional field investigations, including manhole inspections and smoke testing, will be conducted in 2021. Identified and potential sources of RDII will be scheduled for repair, as the Williamson Ferry Gravity Sewer Repairs project.

Section 3

Dry Creek WWTP Service Area

The Dry Creek basin is the smallest service area in Metro with separate sanitary sewer only. It consists of approximately 260 miles of gravity sewer and covers approximately 20 square miles. Five satellite systems connect to the Dry Creek system including the City of Goodlettsville, Hendersonville Utility District, the City of Ridgetop, the City of Millersville, and the White House Utility District.

As shown in **Table 1-1**, 13 of the 73 wet-weather overflows listed in the revised Appendix A of the Consent Decree are located within the Dry Creek WWTP service area. Each location and the corrective actions Metro has taken or plans to take to address the overflows are discussed below in **Sections 3.1** through **3.13**.

3.1 Berwick Trail Pump Station

The Berwick Trail Pump Station and its associated overflow are located in the Dry Creek WWTP service area, just north of the Cumberland River, as shown in **Figure 3-1**. To address wet-weather overflows at the Berwick Trail Pump Station, Metro will improve conveyance capacity through pipe and pump station improvements, as follows:

- The Berwick Trail Pipe Improvements project consists of increasing the conveyance capacity of approximately 2,600 linear feet of existing 8-inch diameter gravity sewer with sewers ranging in size from 12 inches to 18 inches in diameter, although the extents and sizing will be evaluated as design is initiated.
- The Berwick Trail Pump Station Upgrades project consists of improvements to the station to provide a peak pumping rate of 4.2 mgd. Peak wet-weather flows from the upgraded station will be routed to the force main being installed as part of the Neely's Bend Pump Station Upgrades project. (See **Section 3.10 Neely's Bend Pump Station**.) The wet-weather flow from both stations will be stored at the Gibson Creek Equalization Facility until system flows recede. (See **Section 3.5 Gibson Creek Pump Station**.)

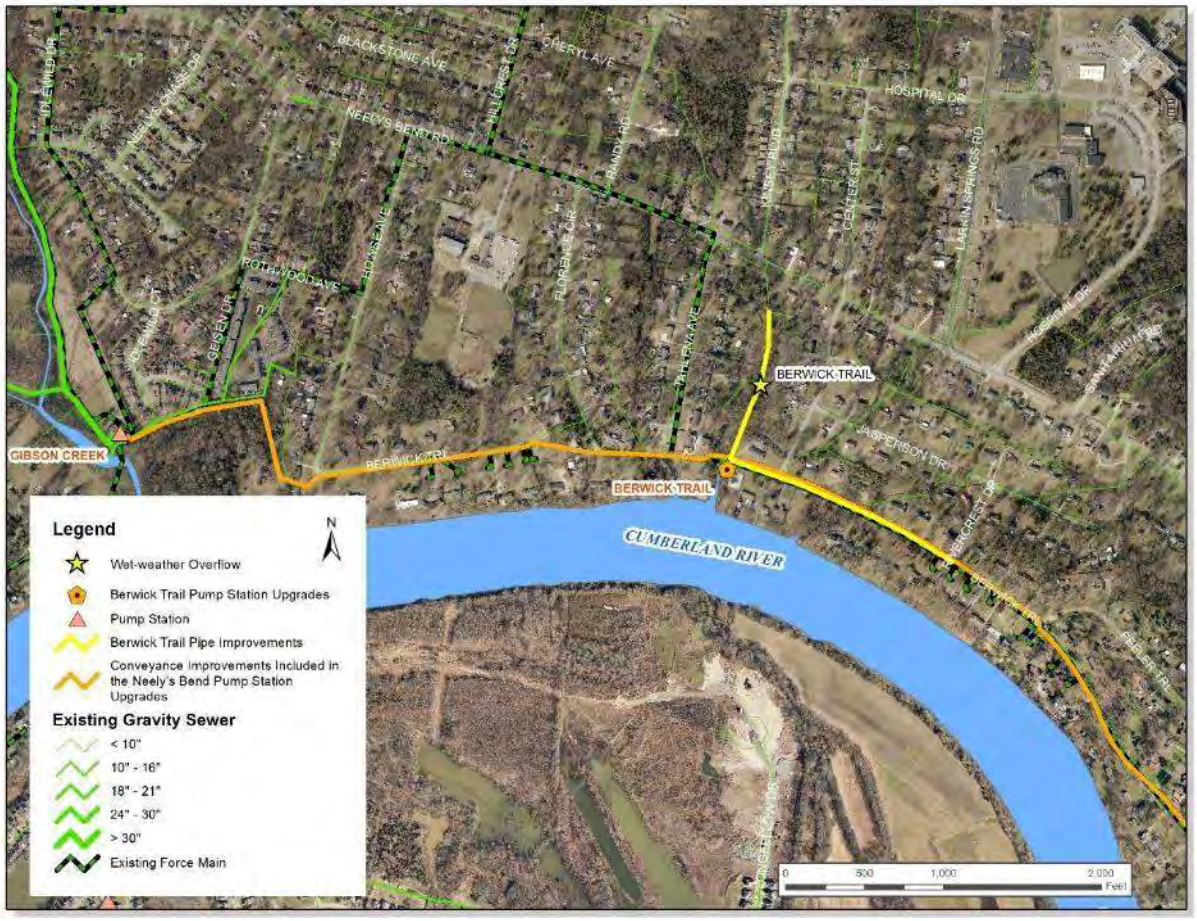

Figure 3-1 Berwick Trail Pump Station

3.2 Dry Creek Pump Station

The Dry Creek Pump Station serves as one of the influent pump stations to the Dry Creek WWTP. The location of the pump station and the associated overflow are shown in **Figure 3-2**. The following projects have been identified to address the wet-weather overflow that occurs at the Dry Creek Pump Station:

- The Dry Creek WWTP Facilities Improvements project optimized treatment processes to achieve a peak wet-weather flow of 63 mgd, improved solids handling, and provided additional odor mitigation. This project was completed in December 2008.
- The Dry Creek Pipe Improvements project includes upsizing approximately 1,400 linear feet of existing large-diameter gravity sewer to provide additional pipe conveyance capacity.
- The Annual Rehabilitation FY2017 – Dry Creek project area consists of the evaluation and rehabilitation, as necessary, of approximately 59,900 linear feet of gravity sewer, over 275 manholes, and associated service laterals within Metro's right-of-way. This project area also includes the Gallatin Pike overflow location.
- The Annual Rehabilitation FY2017 – Shepherd Hills project area consists of the evaluation and rehabilitation, as necessary, of approximately 57,900 linear feet of existing gravity sewer, over 300 manholes, and associated service laterals within Metro's right-of-way.

Additionally, Metro has completed or has planned rehabilitation projects in several portions of the Dry Creek WWTP service area to further reduce the required peak pumping capacity from smaller pump stations. These include the Gibson Creek Rehabilitation – Area 1 – Dupont Avenue, Hidden Acres Rehabilitation, Lakewood Rehabilitation – Area 2 – Pitts Avenue, Loves Branch Rehabilitation, Neely's Bend Rehabilitation, and Vandiver Rehabilitation projects.

The Dry Creek WWTP also receives a significant portion of its flow from satellite systems, including Hendersonville Utility District, the City of Goodlettsville, White House Utility District, the City of Millersville, and the City of Ridgetop. Metro's agreement with these satellite systems stipulates that, if a defined peak flow rate is exceeded more than six times per year, the satellite system must develop a Corrective Action Plan describing how they will address their flow exceedances. To date, three satellite systems in the Dry Creek WWTP have developed Corrective Action Plans: Millersville (2013), Goodlettsville (2014), and Hendersonville (2019).

Through the combination of satellite users addressing their peak flows and Metro projects that are planned, Metro anticipates that the overflow at the Dry Creek Pump Station will be addressed. As that work is implemented, however, Metro will continue to monitor the station's performance to assess the need for additional improvements.

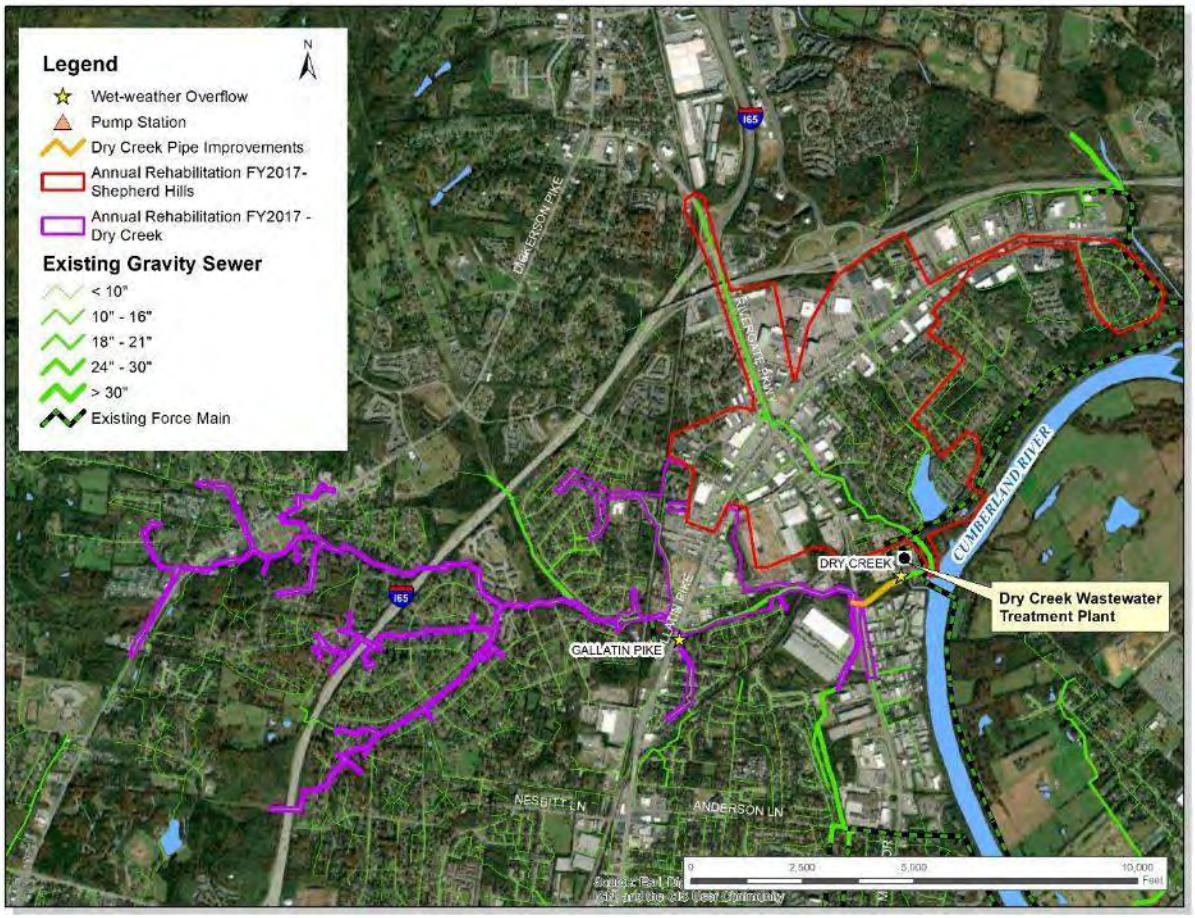

Figure 3-2 Dry Creek Pump Station and Gallatin Pike

3.3 Gallatin Pike

The Gallatin Pike overflow is located in the northwestern part of the Dry Creek WWTP service area, adjacent to Dry Creek. This overflow will be addressed as part of the Annual Rehabilitation FY2017 - Dry Creek project. See **Section 3.2 Dry Creek Pump Station** for additional information.

3.4 Gail Drive Pump Station

The Gail Drive Pump Station and associated overflow is located in the southeastern part of the Dry Creek WWTP service area, upstream of the Lakewood Pump Station. This overflow will be addressed as part of the Lakewood Rehabilitation – Area 2 – Pitts Avenue project. **See Section 3.7 Lakewood Pump Station** for additional information.

3.5 Gibson Creek Pump Station

The Gibson Creek Pump Station and its associated overflow are located in the Dry Creek WWTP service area, just north of the Cumberland River and adjacent to Gibson Creek, as shown in **Figure 3-3**. To address wet-weather overflows at the station, comprehensive sewer rehabilitation was conducted in a portion of the gravity sewer system upstream of the pump station. Additionally, Metro will temporarily store wet-weather flows in excess of the capacity of the existing Gibson Creek Pump Station. These projects are described as follows:

- The Gibson Creek Rehabilitation – Area 1 – Dupont Avenue project area consisted of the evaluation and rehabilitation, as needed, of approximately 59,000 linear feet of existing gravity sewer, 360 manholes, and associated service laterals within Metro's right-of-way. Construction of the project was completed in December 2017.
- The Gibson Creek Equalization Facility project includes the construction of a new 22 mgd wet-weather pump station and a 10 MG storage tank adjacent to the existing Gibson Creek Pump Station. In addition to receiving flows from the gravity system upstream of the Gibson Creek Pump Station, wet-weather flows from the Berwick Trail Pump Station and the Neely's Bend Pump Station will be conveyed to the new wet-weather pump station and equalization storage facility. The storage tank will be used when flows to the site exceed the capacity of the Gibson Creek Pump Station. The peak flows are stored until the flows in the system recede, and the stored volume can be conveyed through the duty pump station to treatment.

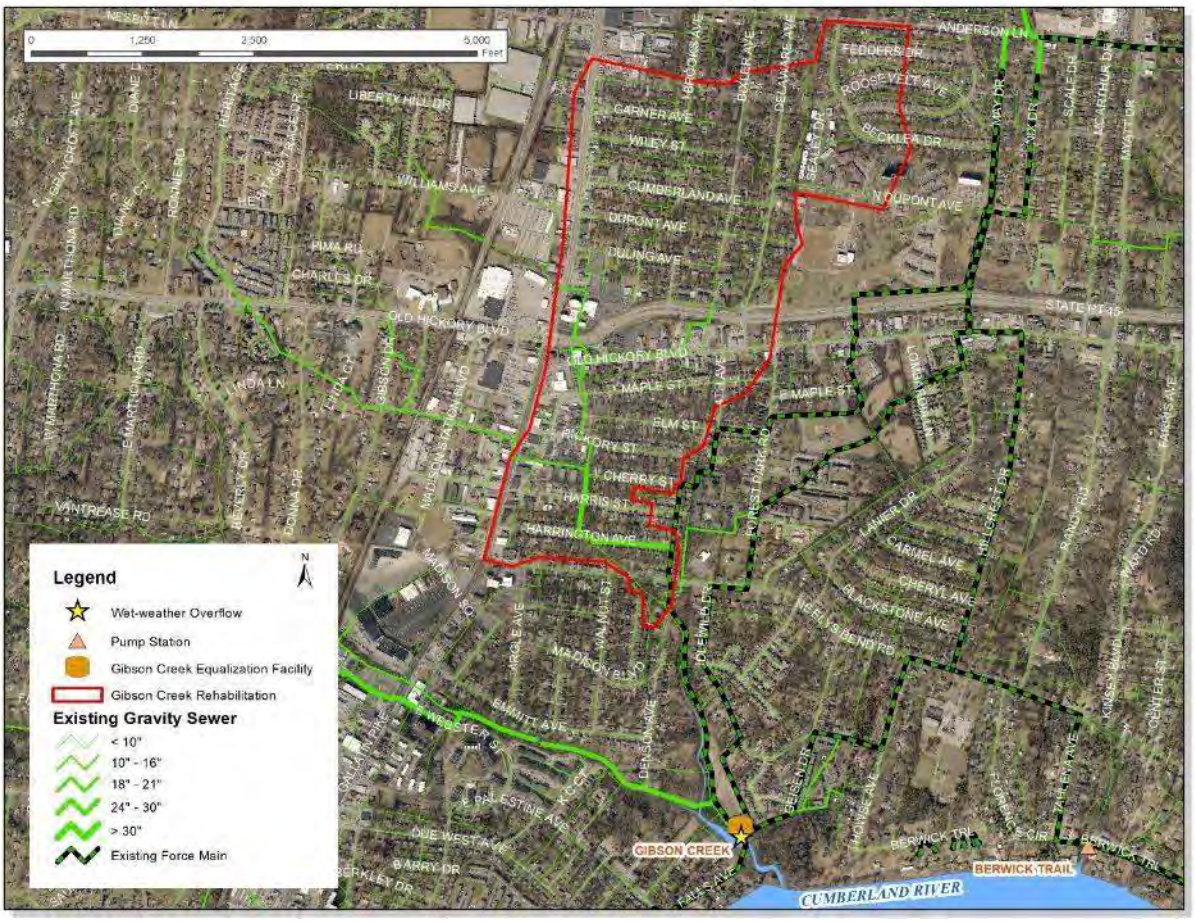

Figure 3-3 Gibson Creek Pump Station

3.6 Hidden Acres Pump Station

The Hidden Acres Pump Station and its associated overflow are located in the Dry Creek WWTP service area, north of Peeler Park, as shown in **Figure 3-4**. To address wet-weather overflows at the Hidden Acres Pump Station, Metro has elected to upgrade the pump station to provide additional conveyance capacity. Prior to designing the pump station upgrade, however, comprehensive rehabilitation was conducted for the gravity sewer system upstream of the station. The two projects are described as follows:

- The Hidden Acres Rehabilitation project consisted of the evaluation and rehabilitation, as necessary, of approximately 60,000 linear feet of existing gravity sewer, over 250 manholes, and associated service laterals within Metro's right-of-way. Construction of the project was completed in December 2018.
- The Hidden Acres Pump Station Upgrades project consists of the construction of a new pump station with greater pumping capacity and associated force main improvements. The capacity of the new pump station will be designed to convey flows under the CAP/ER's design criteria and will be determined following analysis of flow reductions associated with the Hidden Acres Rehabilitation project.

Figure 3-4 Hidden Acres Pump Station

3.7 Lakewood Pump Station

The Lakewood Pump Station and its associated overflow are located in the southeastern part of the Dry Creek WWTP, near Crooked Branch Park, as shown in **Figure 3-5**. To address wet-weather overflows, comprehensive sewer rehabilitation will be conducted in the gravity sewer system upstream of the pump station to reduce peak RDII flows within the system. The Lakewood Rehabilitation – Area 2 – Pitts Avenue project consists of the evaluation and rehabilitation, as necessary, of approximately 54,000 linear feet of existing gravity sewer, over 282 manholes, and associated service laterals within Metro's right-of-way. Since this includes the sewer upstream of smaller pump stations that discharge to the Lakewood system, it will also address the wet-weather overflow at the Gail Drive Pump Station and further reduce peak RDII to the Villas of Lakemeade #2 Pump Station.

Figure 3-5 Lakewood, Gail Drive, and Villas of Lakemeade No. 2 Pump Stations

3.8 Loves Branch Pump Station

The Loves Branch Pump Station and its associated overflow are located in the southwestern part of the Dry Creek WWTP service area, west of the Cumberland River, as shown in **Figure 3-6**. To address wet-weather overflows at the Loves Branch Pump Station, Metro has elected to upgrade the pump station to provide additional conveyance capacity. Prior to designing the pump station upgrade, however, comprehensive rehabilitation was conducted for a portion of the gravity sewer system upstream of the station. The two projects are described as follows:

- The Loves Branch Rehabilitation project consisted of the evaluation and rehabilitation, as necessary, of approximately 51,900 linear feet of existing gravity sewer, approximately 300 manholes, and associated service laterals within Metro's right-of-way. Construction of the project was completed in April 2019.
- The Loves Branch Pump Station Upgrades project consists of the construction of a new pump station with greater pumping capacity and associated force main improvements. The capacity of the new pump station will be designed to convey flows under the CAP/ER's design criteria and will be determined following analysis of flow reductions associated with the Loves Branch Rehabilitation project.

Figure 3-6 Loves Branch Pump Station

3.9 Madison Heights Pump Station

The Madison Heights Pump Station is located in the southwestern part of the Dry Creek WWTP service area, as shown in **Figure 3-7**. To reduce peak RDII flows to the Madison Heights Pump Station, the gravity sewer system upstream of the Madison Heights and Rainbow Terrace Pump Stations was evaluated for rehabilitation. This included approximately 6,000 linear feet of gravity sewer, 38 manholes, and associated service laterals within Metro's right-of-way. Due to the relatively small size of the project, construction activities were combined with another project to form the Langford Farms – Madison Heights Rehabilitation project. Construction of the project was completed in February 2018.

Since the Madison Heights Pump Station continued to experience wet-weather overflows following completion of the rehabilitation project, Metro conducted smoke testing in October 2018 to identify sources of RDII that were not addressed as part of the rehabilitation project. Since that only resulted in a few minor repairs, the pump station's performance was further evaluated in 2019, and it was determined to have a reduced pumping capacity due to debris in the force main. Cleaning activities were completed in the summer of 2019, restoring the station's capacity.

No wet-weather overflows have been reported at the Madison Heights Pump Station following the completion of the rehabilitation and force main cleaning. The pump station's performance will continue to be monitored as part of Metro's ongoing CMOM activities.

Figure 3-7 Madison Heights Pump Station

3.10 Neely's Bend Pump Station

The Neely's Bend Pump Station and its associated overflow are located in the Dry Creek WWTP service area, between the Hidden Acres and Berwick Trail Pump Stations, as shown in **Figure 3-8**. To address wet-weather overflows at the Neely's Bend Pump Station, Metro has elected to upgrade the pump station to provide additional conveyance capacity. Prior to designing the pump station upgrade, however, comprehensive rehabilitation was conducted for the gravity sewer system upstream of the station. The two projects are described as follows:

- The Neely's Bend Rehabilitation project consisted of the evaluation and rehabilitation, as necessary, of approximately 31,400 linear feet of existing gravity sewer, over 140 manholes, and associated service laterals within Metro's right-of-way. Construction of the project was completed in February 2015.
- No overflows occurred at the Neely's Bend Pump Station following completion of the rehabilitation project until early 2019, prompting Metro to perform field investigations in the area. The investigations identified that the overflow relief pipe associated with the pump station was allowing water to enter the system during periods of high Cumberland River stage. A check valve was installed in the spring of 2020 to prevent that inflow. No overflows have occurred at the station since that work was completed.

- With the reduction in peak flows through the rehabilitation work, the Neely's Bend Pump Station is believed to be adequately sized to meet the CAP/ER design criteria. However, due to anticipated improvements to an upstream pump station (See **Section 3.6 Hidden Acres Pump Station**) and planned management of wet-weather flows, improvements to the Neely's Bend Pump Station area planned. The Neely's Bend Pump Station Upgrades project consists of the construction of a new pump station with greater pumping capacity. Peak wet-weather flows from the upgraded station will be routed to the new Gibson Creek Equalization Facility via a new 12,700-foot force main where they will be stored until system flows recede. (See **Section 3.5 Gibson Creek Pump Station**.) The force main will also receive wet-weather flows from the Berwick Trail Pump Station. (See **Section 3.1 Berwick Trail Pump Station**.) The capacity of the new pump station will be determined following analysis of flow reductions associated with the Neely's Bend Rehabilitation project. Additionally, sizing of the Neely's Bend Pump Station Upgrades project will consider the sizing of the Hidden Acres Pump Station Upgrades project since the Hidden Acres Pump Station currently discharges in Neely's Bend sewer system.

Figure 3-8 Neely's Bend Pump Station

3.11 Norman Drive

The Norman Drive overflow is located in the Dry Creek WWTP service area, in the Madison area, as shown in **Figure 3-9**. To address wet-weather overflows and surcharging at Norman Drive, the

Norman Drive Pipe Improvements project was developed to provide additional pipe conveyance capacity. The project consists of the replacement of approximately 4,000 linear feet of existing 8-inch diameter gravity sewer with 12-inch to 15-inch diameter gravity sewer, although the extents and sizing will be evaluated as design is initiated.

Figure 3-9 Norman Drive

3.12 Vandiver Pump Station

The Vandiver Pump Station and its associated overflow are located in the central part of the Dry Creek WWTP service area, west of the Cumberland River and north of Old Hickory Boulevard, as shown in **Figure 3-10**. To address wet-weather overflows at the Vandiver Pump Station, Metro has elected to upgrade the pump station to provide additional conveyance capacity. Prior to designing the pump station upgrade, however, comprehensive rehabilitation was conducted for the gravity sewer system upstream of the station. The two projects are described as follows:

- The Vandiver Rehabilitation project consisted of the evaluation and rehabilitation, as necessary, of approximately 52,200 linear feet of existing gravity sewer, over 290 manholes, and associated service laterals within Metro's right-of-way. Construction of the project was completed in January 2020.
- The Vandiver Pump Station Upgrades project consists of the construction of a new pump station with greater pumping capacity and associated force main improvements. The capacity of the

new pump station will be designed to convey flows under the CAP/ER's design criteria and will be determined following analysis of flow reductions associated with the Vandiver Rehabilitation project.

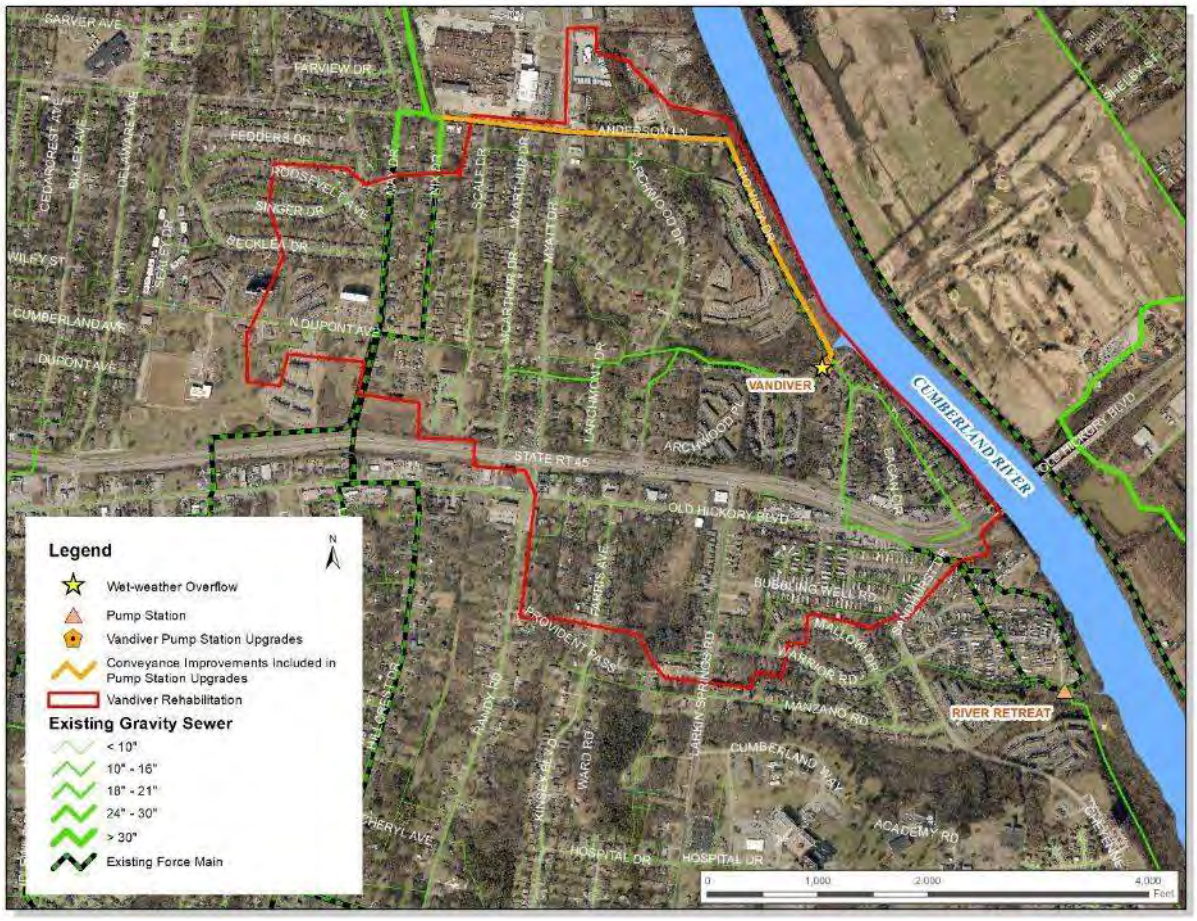

Figure 3-10 Vandiver Pump Station

3.13 Villas of Lakemeade No. 2 Pump Station

The Villas of Lakemeade No. 2 Pump Station and its associated overflow are located in the southeastern part of the Dry Creek WWTP service area. Following wet-weather overflows in late 2018 and 2019, Metro identified a private service lateral in a drainage area that was allowing a significant amount of RDII into the system during rainfall events. That defect was repaired by the property owner in late 2019, significantly improving the performance of the pump station. The remaining sewer system upstream of the pump station will undergo comprehensive rehabilitation as part of the Lakewood Pump Station Rehabilitation – Area 2 – Pitts Avenue project. See **Section 3.7 Lakewood Pump Station** for additional information.

Section 4

Whites Creek WWTP Service Area

The Whites Creek basin, which contains only separate sanitary sewers, consists of approximately 700 miles of gravity sewer and covers approximately 50 square miles. Two satellite systems, the City of Brentwood and the City of Belle Meade, connect to the Whites Creek system.

As shown in **Table 1-1**, 23 of the 73 wet-weather overflows listed in the revised Appendix A of the Consent Decree are located within the Whites Creek WWTP service area. Each location and the corrective actions Metro has taken or plans to take to address the overflows are discussed below in **Sections 4.1** through **4.23**.

4.1 622 Davidson

The 622 Davidson overflow is located in the southwestern part of the Whites Creek WWTP service area, upstream of Davidson Branch Pump Station, as shown in **Figure 4-1**. To address this wet-weather overflow, the Davidson and Brook Hollow Sewer Improvements project was developed to increase the capacity of the gravity sewer from Davidson Road to Georgetown Drive and along Brook Hollow Road.

Construction of the project was completed in August 2016 and included the installation of approximately 1,900 linear feet of new 8-inch to 15-inch diameter gravity sewer by pipe bursting and open-cut techniques, lining of approximately 400 linear feet of existing 8-inch gravity sewer, and associated manhole and service lateral work. No wet-weather overflows have been reported at 622 Davidson Road since the project was completed. The gravity system in this area will continue to be maintained as part of Metro's CMOM activities.

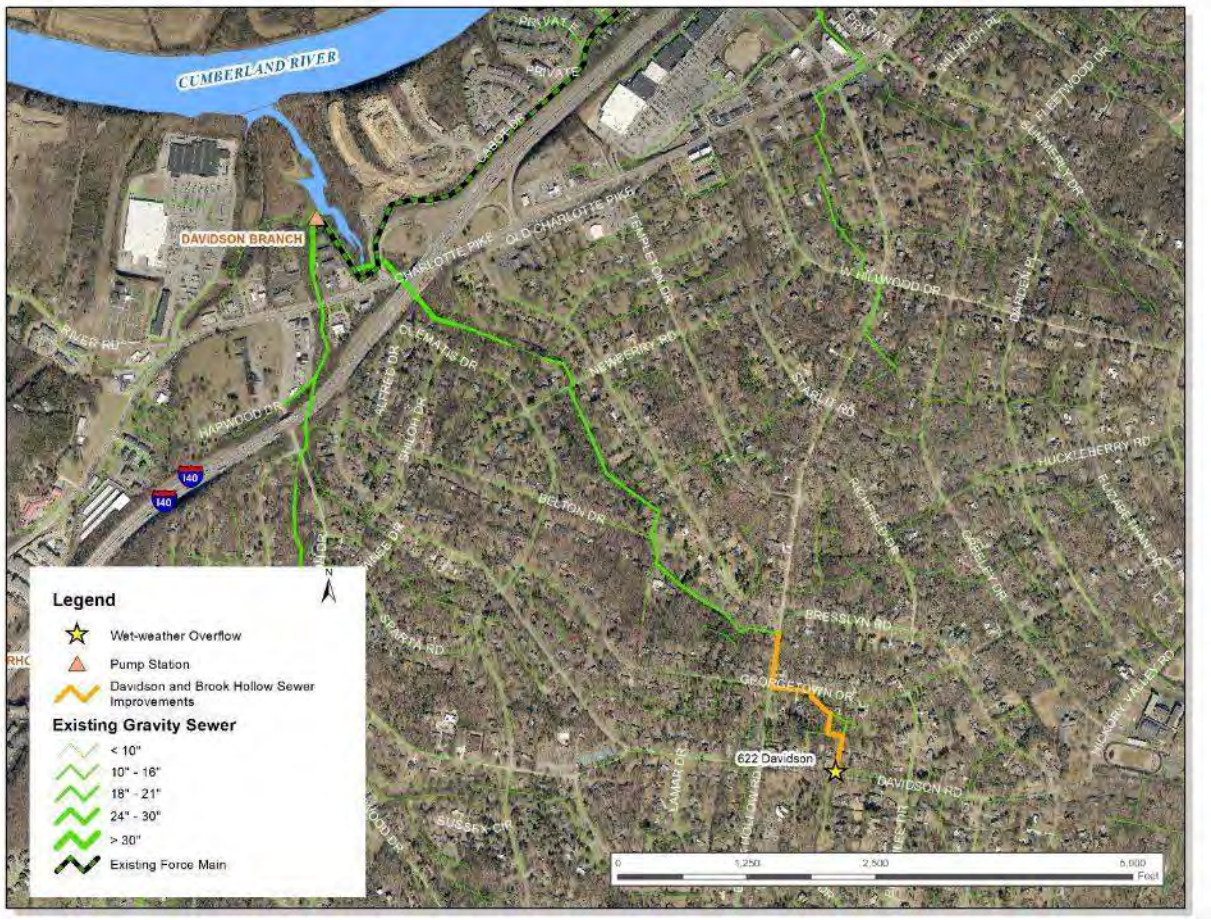

Figure 4-1 622 Davidson

4.2 Abbott Martin Road (Wallace Lane)

The Abbott Martin Road overflow is located in Green Hills area of the Whites Creek WWTP service area. See **Section 4.21 Wallace Lane** for additional information.

4.3 Basswood

The Basswood overflow is located upstream of the West Park Pump Station in the Whites Creek WWTP service area. See **Section 4.22 West Park Pump Station** for additional information.

4.4 Bordeaux Hills Pump Station

The Bordeaux Hills Pump Station and its associated overflow are located approximately one mile east of the Whites Creek WWTP, as shown in **Figure 4-2**. After experiencing an increased frequency of overflows in 2018, the operation of the pump station was evaluated, and it was determined that the grinders at the station were causing excessive surcharging during high-flow storm events leading to an overflow. In March 2019, the grinders were removed, and the station has not experienced an overflow since that time. Because the pump station has not experienced any operational or performance issues with the grinders removed, Metro does not plan to reinstall them. This activity is believed to have addressed the wet-weather overflows previously reported at this location. The pump station's performance will continue to be monitored as part of Metro's ongoing CMOM activities.

Figure 4-2 Bordeaux Hills Pump Station

4.5 Bordeaux Hospital Pump Station

The Bordeaux Hospital Pump Station and its associated overflow are located just southeast of the Whites Creek WWTP less than one mile north of the Cumberland River, as shown in **Figure 4-3**. To address the wet-weather overflow occurring at the station, the pump impellers were replaced in June 2019, restoring the capacity of the pump station. Following the impeller replacement, no additional wet-weather overflows have been reported at the pump station. The pump station's performance will continue to be monitored as part of Metro's ongoing CMOM activities.

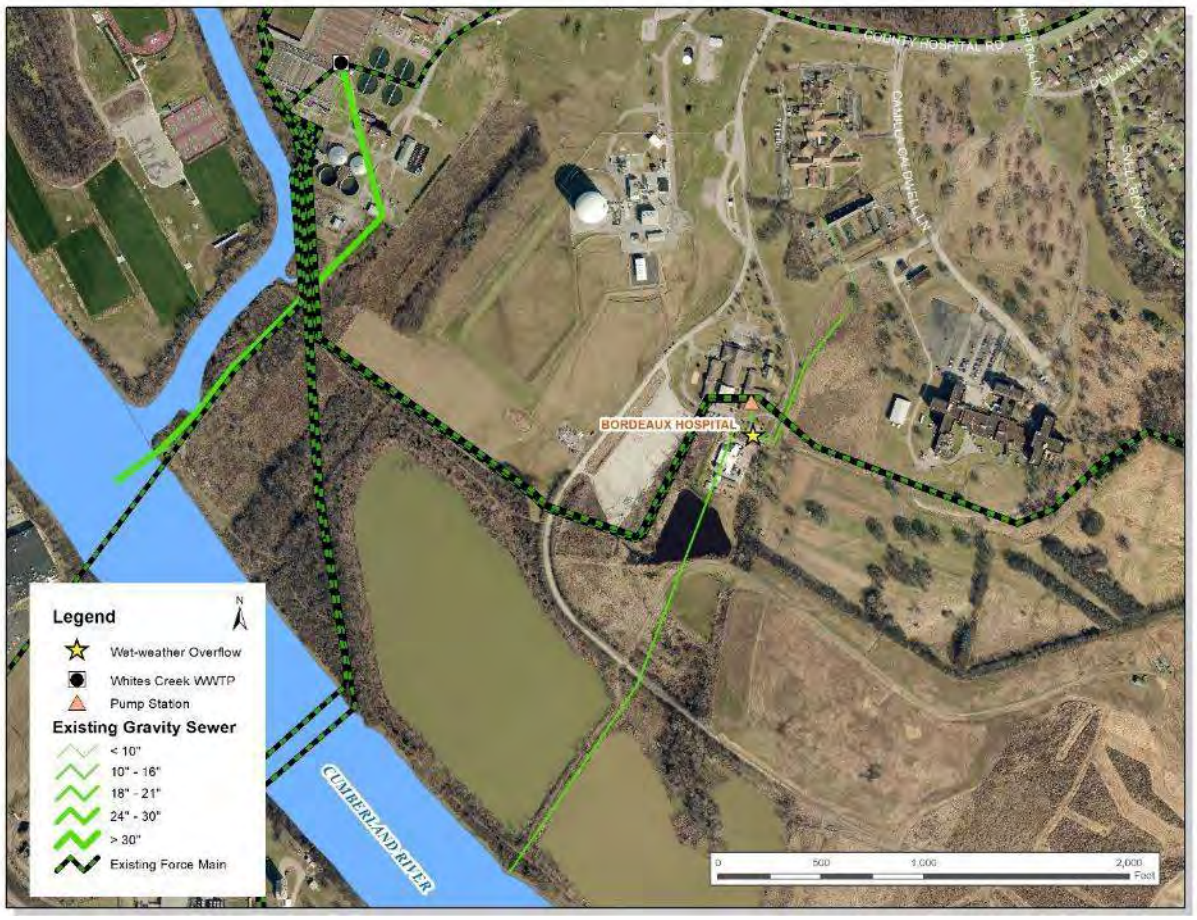

Figure 4-3 Bordeaux Hospital Pump Station

4.6 Brick Church

The Brick Church overflow is located near the intersection of Brick Church Pike and Old Hickory Boulevard in the Whites Creek WWTP service area, as shown in **Figure 4-4**. The following projects have been identified to address the wet-weather overflow that occurs at Brick Church:

- The Brick Church Pike Pipe Improvements project provided additional conveyance capacity and addressed sources of infiltration and inflow along the North Fork of Ewing Creek. The project consisted of the replacement of approximately 9,800 linear feet of existing 18-inch diameter gravity sewer with 24-inch to 30-inch diameter gravity sewer, installation of 49 new manholes, installation of small-diameter connecting sewers, rehabilitation of approximately 925 linear feet of 18-inch diameter gravity sewer, and rehabilitation of 53 existing manholes. Construction of the project was completed in March 2018.
- The Westchester Drive Rehabilitation project, which is located immediately upstream of the Brick Church Pipe Improvements project, consisted of the evaluation and rehabilitation of approximately 3,850 linear feet of existing gravity sewer, 15 manholes, and 44 service laterals. Construction of the project was completed in December 2015.
- The Ewing Creek / Brick Church Equalization Facility project is located at the downstream end of the Brick Church Pipe Improvements project. The new facility diverts flows in excess of the adjacent pipe capacity to an 18 mgd wet-weather pump station. That station transfers flow to a

10.6 MG equalization storage tank where flow is temporarily stored until downstream capacity is available. Construction of the project was completed in June 2019.

- Since wet-weather overflows continued in the area following completion of those projects, Metro conducted additional field investigations to identify potential sources of RDII. As a result of that work, numerous manholes in the North Fork of Ewing Creek area were identified to have failed pipe-to-manhole connections, allowing significant groundwater to enter the sewer system. Construction activities to repair over 250 manholes in that area were completed in March 2021.
- The Tuckahoe Nesbitt Rehabilitation project consists of the evaluation and rehabilitation, as necessary, of approximately 52,500 linear feet of gravity sewer, over 280 manholes, and associated service laterals. Since this project partially overlaps the North Fork of Ewing Creek Manhole Repairs, the project boundary may be revised prior to initiating design.

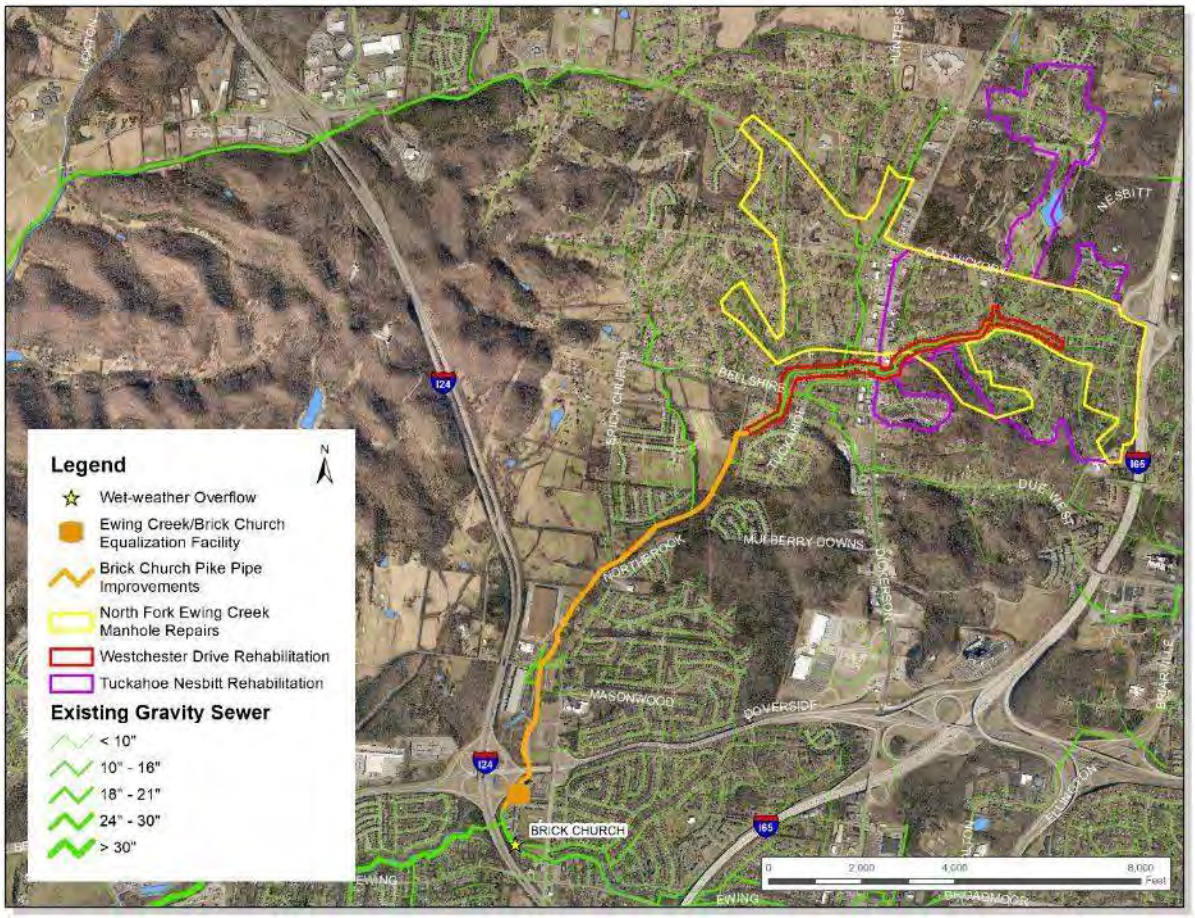

Figure 4-4 Brick Church

4.7 Cleeces Ferry Pump Station

The Cleeces Ferry Pump Station and its associated overflow are located in the southwestern part of the Whites Creek WWTP service area, east of the Cumberland River, as shown in **Figure 4-5**. To address wet-weather overflows at Cleeces Ferry Pump Station, sewer rehabilitation will be conducted in the gravity sewer system upstream of the pump station to reduce peak RDII flows. The Cleeces Ferry Rehabilitation project consists of the evaluation and rehabilitation, as necessary, of

approximately 86,500 linear feet of existing gravity sewer, over 480 manholes, and associated service laterals with Metro's right-of-way. The first phase, Cleeces Ferry Rehabilitation – Area 1 – Summerly Drive, includes approximately 53,100 linear feet of 8-inch to 30-inch diameter gravity sewer, which was prioritized based on temporary flow monitoring data. The remaining area will be rehabilitated through the Cleeces Ferry Rehabilitation – Area 2 project.

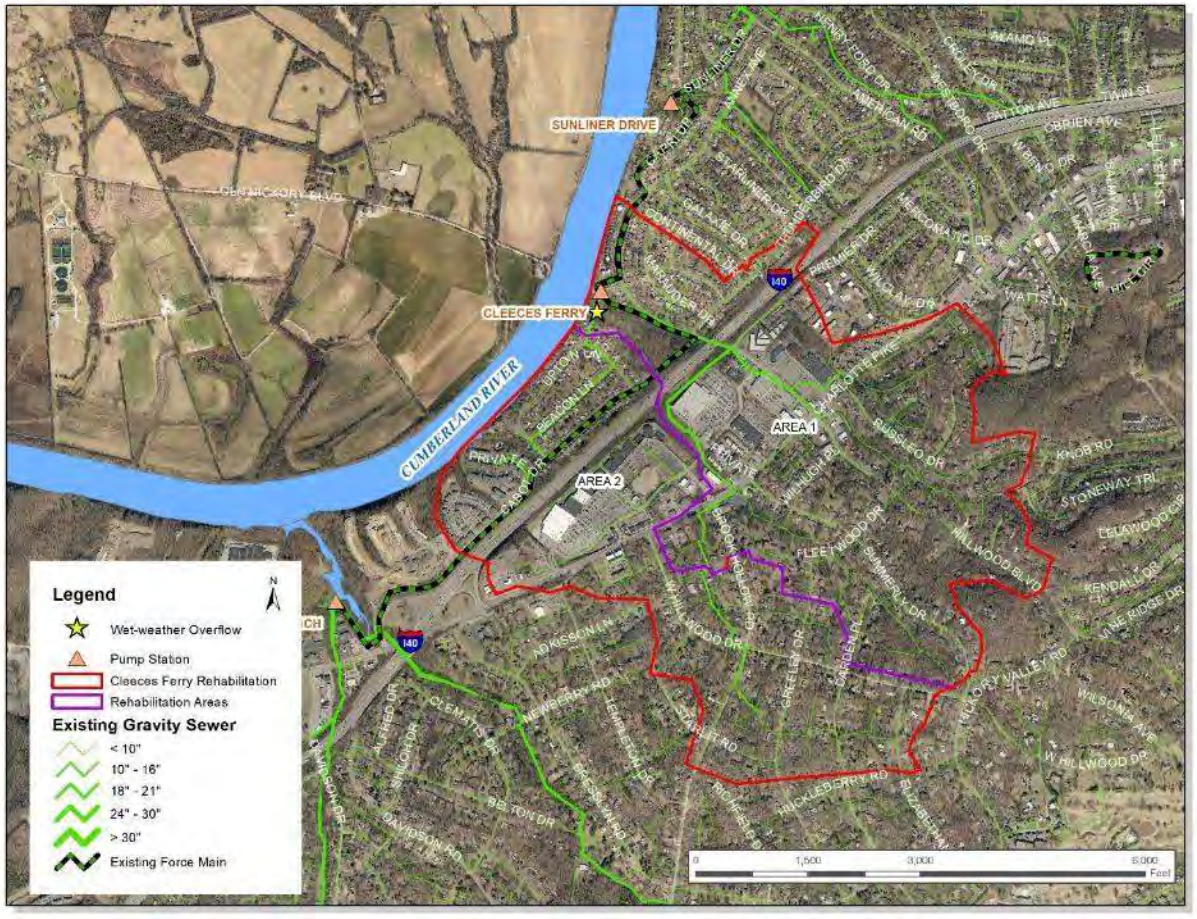

Figure 4-5 Cleeces Ferry Pump Station

4.8 Cravath Drive (Rowan)

The Cravath Drive overflow is located near Rowan Drive in the northern part of the Whites Creek WWTP service area. See **Section 4.19 Rowan Drive** for additional information.

4.9 Davidson Branch Pump Station

The Davidson Branch Pump Station and its associated overflow is located in the southwestern part of the White's Creek WWTP service area, adjacent to the Cumberland River, as shown in **Figure 4-6**. To address wet-weather overflows at the Davidson Branch Pump Station, the Davidson Branch Pump Station and Equalization Facility project was developed. This project includes the demolition of the existing pump station and the construction of a relocated 3.6 mgd duty pump station, an 11 mgd wet-weather pump station, a 6 MG equalization storage tank, and associated piping in and around the site. The new duty pump station increases the system's reliability to transfer flow downstream for

treatment, while the wet-weather pump station is utilized to transfer flows into the storage tank. The storage tank will be used when sewer flows exceed the capacity of the duty pump station.

Figure 4-6 Davidson Branch Pump Station

4.10 Galbraith Drive

The Galbraith Drive overflow is located in the southeastern part of the Whites Creek WWTP service area in the Green Hills area, as shown in **Figure 4-7**. To address wet-weather overflows at Galbraith Drive, the Bandywood – Green Hills Rehabilitation project was developed for the sewershed area. The project consists of the evaluation and rehabilitation, as necessary, of approximately 52,000 linear feet of existing gravity sewer, 350 manholes, and associated service laterals within Metro's right-of-way.

Figure 4-7 Galbraith Drive

4.11 Germantown Hill Pump Station

The Germantown Hill Pump Station and associated overflow are located in the northwestern part of the Whites Creek WWTP service area, as shown in **Figure 4-8**. In February 2017, repairs were completed on the station's force main, improving system's performance. Since completion of that work, only two wet-weather overflows have been observed at the station. On September 1, 2017, an overflow occurred when the area experienced 9.17 inches of rainfall. A second overflow occurred on February 23, 2019, during a 3.56-inch rainfall event. Because both wet-weather events exceed the CAP/ER's design criteria, no additional corrective actions are planned for this area. The pump station's performance will continue to be monitored as part of Metro's CMOM activities.

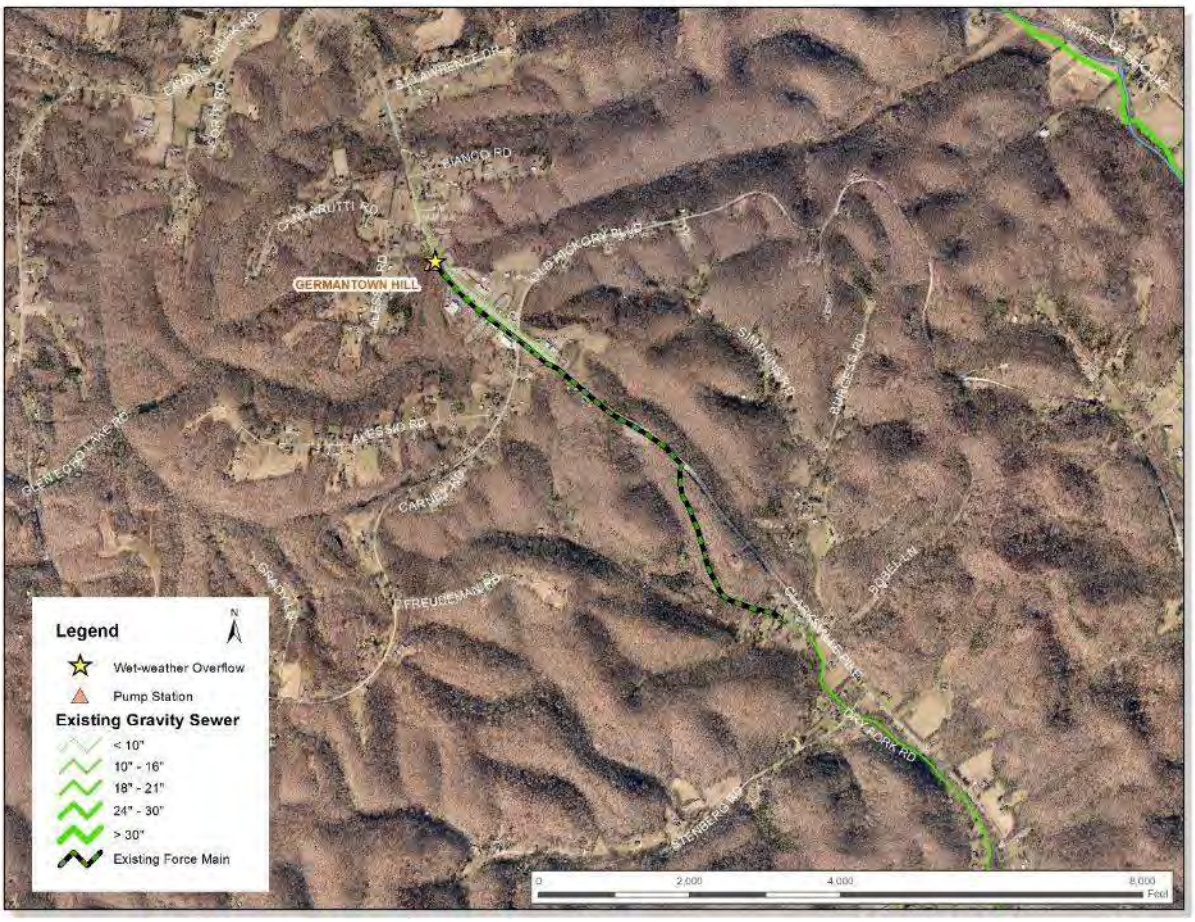

Figure 4-8 Germantown Hill Pump Station

4.12 Harding Place (Lynnwood)

The Harding Place overflow is located in the Whites Creek WWTP service area, near the City of Belle Meade (one of Metro's satellite systems). See **Section 4.15 Lynnwood Boulevard** for additional information.

4.13 Henry Ford Drive

The Henry Ford Drive overflow is located in the western part of the Whites Creek WWTP service area between Interstate 40 and the Cumberland River, as shown in **Figure 4-9**. To address wet-weather overflows at Henry Ford Drive, comprehensive sewer rehabilitation will be conducted in the gravity sewer system to reduce peak RDII flows. The Henry Ford Drive Rehabilitation project consists of the evaluation and rehabilitation, as necessary, of approximately 58,000 linear feet of existing gravity sewer, approximately 300 manholes, and associated service laterals within Metro's right-of-way.

Figure 4-9 Henry Ford Drive

4.14 Joelton Rehabilitation

The Joelton Pump Station and its associated overflow is located in the most northwestern part of the Whites Creek WWTP service area, near Interstate 24, as shown in **Figure 4-10**. To reduce peak RDII flows to the Joelton Pump Station, the gravity sewer system upstream of the station, including approximately 38,700 linear feet of sewer and approximately 200 manholes, was evaluated for rehabilitation. Condition assessment data obtained in the area indicated that manholes appeared to be the primary source of infiltration and inflow, and, therefore, the Joelton Rehabilitation project focused on the repair of manholes within the project area. Construction of the project was completed in July 2014.

Since the Joelton Pump Station continued to experience wet-weather overflows following completion of the rehabilitation project, Metro has conducted additional field investigations, including manhole inspections, CCTV inspections of the gravity sewer, and smoke testing. Defects have been repaired; however, wet-weather overflows continued.

Due to the persisting overflow and to address anticipated growth in the project area, the Joelton Pump Station Upgrades project will improve the pump station to provide a greater capacity, including upsizing the associated force main as necessary.

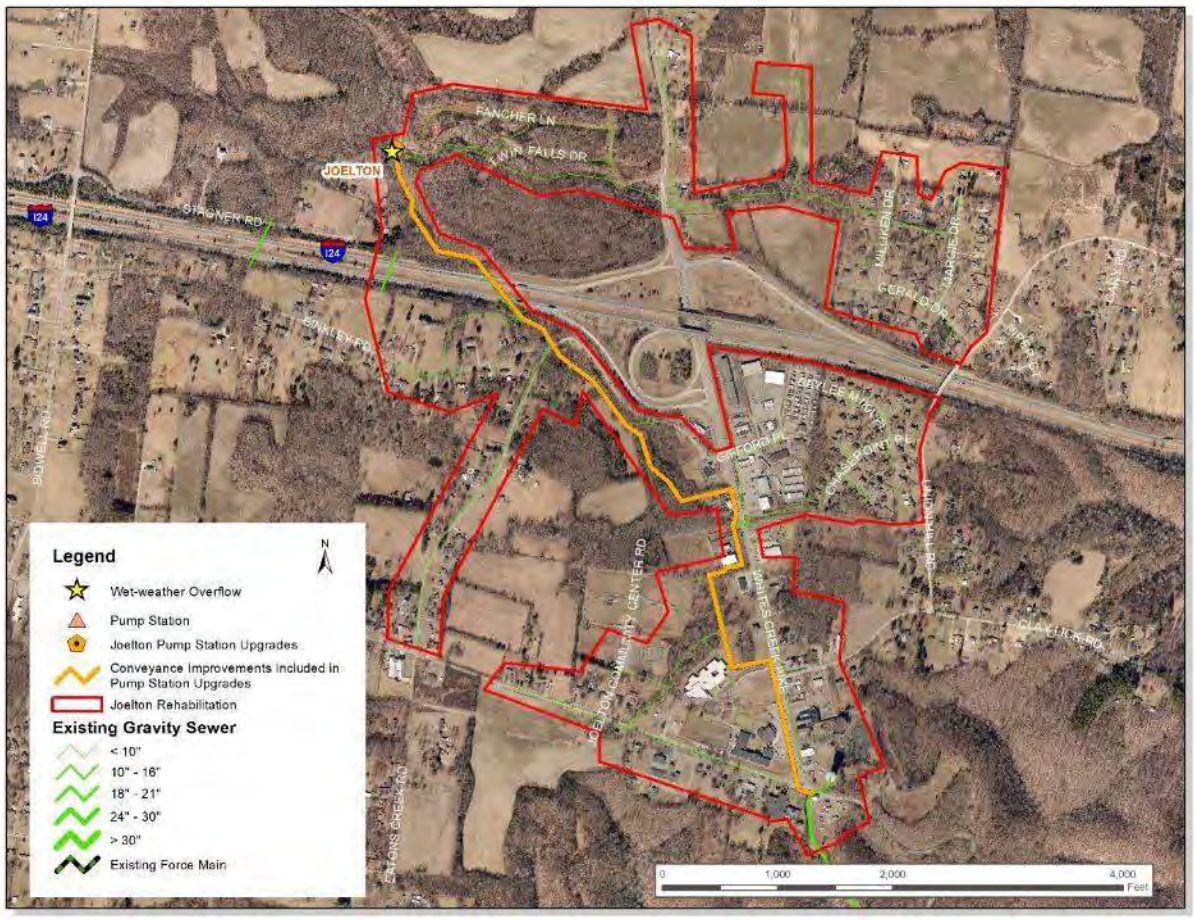

Figure 4-10 Joelton Pump Station

4.15 Lynnwood Boulevard

The Lynnwood Boulevard and Harding Place overflows are located near the Belle Meade Branch of Richland Creek, as shown in **Figure 4-11**. To address these wet-weather overflows, Metro has elected to perform a combination of rehabilitation to reduce peak RDII flows and conveyance improvements, as follows:

- The Highway 100/Tyne Boulevard – Trimble Rehabilitation project consisted of the evaluation and rehabilitation, as necessary, of approximately 63,000 linear feet of existing gravity sewer, approximately 300 manholes, and associated service laterals. Construction of the project was completed in January 2016. Reductions in peak RDII flow have improved, although not fully addressed, the overflows at Lynnwood and Harding.
- The Highway 100 / Tyne Boulevard Pipe Improvements project currently consists of upsizing two non-contiguous sections of existing sewer to provide additional conveyance capacity. The first area generally follows the Belle Meade Branch from Estes Road to Tyne Boulevard. The second area is along Harding Pike (Highway 70) and generally parallels Richland Creek. Additional analyses will be performed to confirm the extents of the project based on the flow reductions achieved through the rehabilitation project. The estimated project length is approximately 17,900 linear feet.

Figure 4-11 Lynnwood and Harding

4.16 Richland Creek (23rd Street)

The Richland Creek (23rd Street) overflow is located in western portion of the Whites Creek service area, upstream of the West Park Pump Station. See **Section 4.22 West Park Pump Station** for additional information.

4.17 Richland Creek (TDOT)

The Richland Creek (TDOT) overflow is located in western portion of the Whites Creek service area, upstream of the West Park Pump Station. See **Section 4.22 West Park Pump Station** for additional information.

4.18 River Drive Pump Station

The River Drive Pump Station and its associated overflow are located in the Whites Creek WWTP service area, adjacent to the Cumberland River, as shown in **Figure 4-12**. To address wet-weather overflows at the River Drive Pump Station, comprehensive sewer rehabilitation will be conducted in the gravity sewer system upstream of the pump station to reduce peak RDII flows. The River Drive Rehabilitation project consists of the evaluation and rehabilitation, as necessary, of approximately 28,400 linear feet of existing gravity sewer, over 170 manholes, and associated service laterals within Metro's right-of-way.

Figure 4-12 River Drive Pump Station

4.19 Rowan Drive

The Rowan Drive and Cravath Drive overflows are located in the northern part of the Whites Creek WWTP service area, as shown in **Figure 4-13**. CCTV inspection of the 10-inch diameter gravity sewer near the overflows was completed in the summer of 2019, and a review of the data confirmed that the sewer is free of major blockages and significant sources of infiltration. Metro installed level sensors and conducted temporary flow monitoring in the area in 2020 to assess the frequency and extent of surcharging. Review and analysis of this data in the hydraulic model confirmed the need to reduce peak RDII flows. The Rowan / Cravath Rehabilitation project will consist of the evaluation and rehabilitation, as necessary, of approximately 79,700 linear feet of existing gravity sewer, over 400 manholes, and service laterals with Metro's right-of-way.

Figure 4-13 Rowan Drive and Cravath Drive

4.20 Sunliner Drive Pump Station

The Sunliner Pump Station and its associated overflow are located between the Cumberland River and Interstate 40 in the Whites Creek WWTP service area, as shown in **Figure 4-14**. To address the increased frequency of wet-weather overflows, an evaluation of the pump station's performance was completed, the pump impellers were replaced, and the force main was cleaned in February 2020. Smoke testing of the gravity sewer system upstream of the pump station was completed in the fourth quarter of 2019, and additional field investigations are scheduled for 2021. Identified and potential sources of RDII will be scheduled for repair, as part of the Sunliner Gravity Sewer Repairs project.

Figure 4-14 Sunliner Drive Pump Station

4.21 Wallace Lane

The Wallace Lane and Abbott Martin Road overflows are located in Green Hills, in the Whites Creek WWTP service area, as shown in **Figure 4-15**. In early 2019, a customer notified Metro of a potential issue in this area, and Metro confirmed that overflows occur in this area during wet-weather events. Since notification of the issue, Metro verified that the sewers in the immediate area are structurally sound and free of blockages that may reduce the sewer's capacity during high flow events. Metro installed level sensors and conducted temporary flow monitoring in the area to assess the frequency and extent of surcharging. Review and analysis of this data in the hydraulic model confirmed that redirecting additional flow from the 8-inch diameter sewer (where the overflows occur) to the parallel 10-inch diameter sewer running along Wallace Lane will improve, but not fully address, the overflow. That redirection of flow was completed in the fourth quarter of 2020.

To fully address wet-weather overflows at Wallace Lane and Abbott Martin Road, comprehensive rehabilitation will be conducted in the area upstream of the overflow to reduce peak RDII flows. This project, referred to as the Wallace Lane Rehabilitation project, includes the evaluation and rehabilitation, as necessary, of approximately 55,500 linear feet of existing gravity sewer, over 300 manholes, and associated service laterals within Metro's right-of-way.

Figure 4-15 Wallace Lane and Abbott Martin Road

4.22 West Park Pump Station

The West Park Pump Station and its associated overflow are located in The Nations area of the Whites Creek WWTP service area, adjacent to Richland Creek, as shown in **Figure 4-16**. Three additional overflows are located upstream of and are affected by the operation of the West Park Pump Station; those include Basswood, Richland Creek (23rd Street), and Richland Creek (TDOT).

The following projects have been identified to address wet-weather overflows:

- The Basswood/West Park Equalization Basin Phase I project included construction of a 30 mgd wet-weather pump station which diverts flows in excess of the duty pump station's capacity to a 10 MG equalization storage tank. Construction for Phase I was completed in November 2010.
- The West Park Equalization Storage Phase II project increased the pumping capacity of the wet-weather pump station to 45 mgd and included 21 MG of additional storage. Construction for Phase II was completed in December 2018, although operational improvements to the facility continued through early 2019. Following the completion of that work, wet-weather overflows continued to be reported in this area, especially during periods of high river stage, back-to-back storm events, and storms that exceed the CAP/ER design criteria.
- To further reduce peak RDII flow and address these overflows, targeted rehabilitation is planned for a large portion of the gravity sewer system upstream of West Park. The Annual

Rehabilitation FY2020 – West Nashville project will repair all observed sources of infiltration and inflow in an area generally defined as west of Richland Creek. This project will also rehabilitate adjacent sewer segments, when appropriate, following a review of cost effectiveness, impacts to customers, and the likelihood of infiltration migration.

Additionally, Metro has completed or has planned comprehensive rehabilitation projects in several areas upstream of West Park Pump Station. These include the Bandywood-Green Hills Rehabilitation, Cleeces Ferry Rehabilitation, Highway 100/Tyne Boulevard – Trimble Rehabilitation, and Wallace Lane Rehabilitation projects.

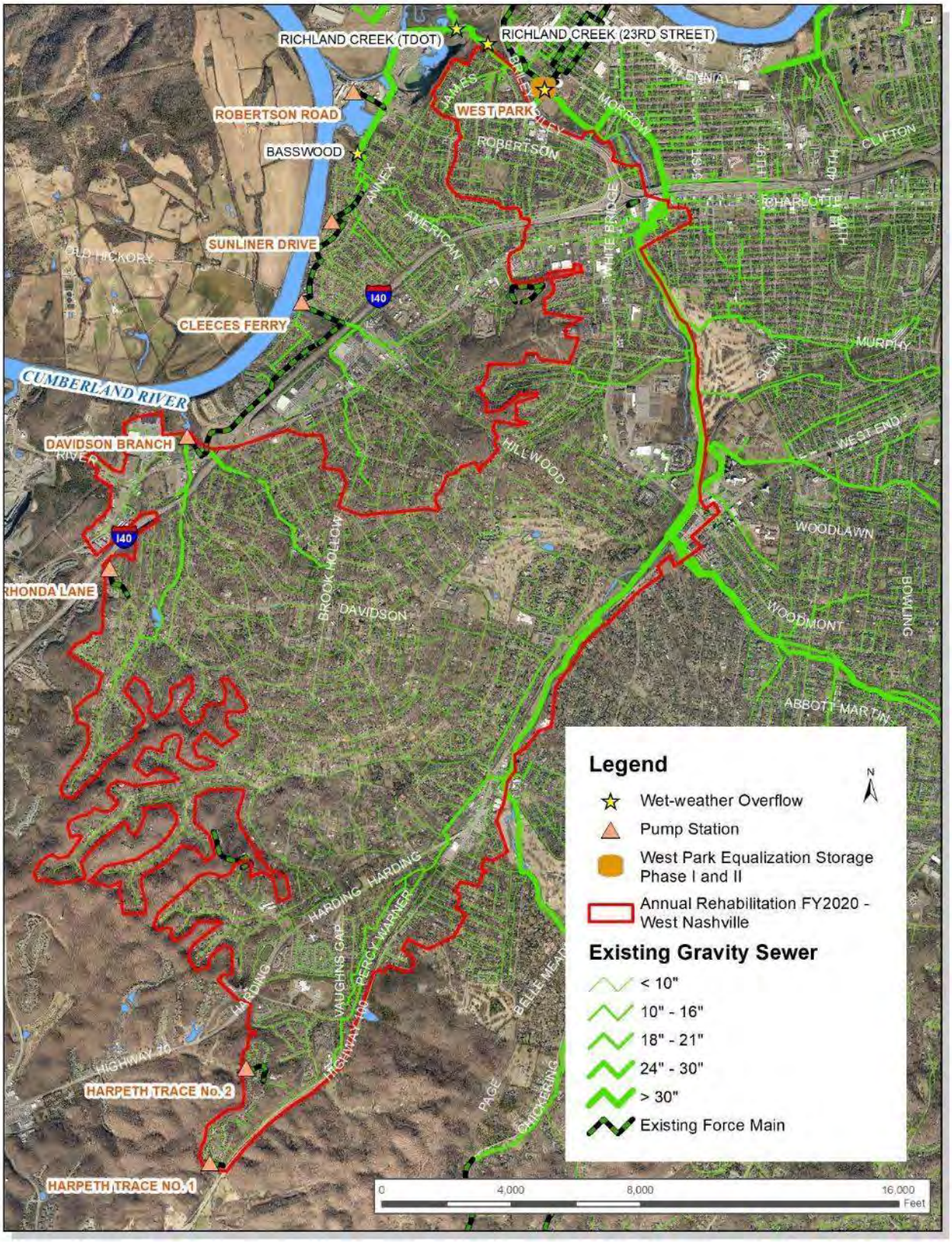

Figure 4-16 West Park Pump Station, Basswood, Richland Creek (23rd Street), and Richland Creek (TDOT)

4.23 Whites Creek Pump Station

Whites Creek Pump Station is located in the central part of the Whites Creek WWTP service area, adjacent to Whites Creek, as shown in **Figure 4-17**. To address wet-weather overflows at Whites Creek Pump Station, the capacity of the Whites Creek Pump Station was significantly expanded. The pump station expansion was possible because the Whites Creek WWTP Disinfection and Optimization project optimized treatment processes to expand the wet-weather capacity to 120 mgd. The Whites Creek Pump Station Improvements project consisted of the construction of a new 15 mgd duty pump station, a new 34 mgd wet-weather pump station, a new grinder structure, and approximately 6,400 linear feet of new parallel 36-inch diameter force main. This project was completed in November 2014. No wet-weather overflows have been reported at the Whites Creek Pump Station since completion of the improvements. The pump station's performance will continue to be monitored as part of Metro's ongoing CMOM activities.

To further reduce groundwater infiltration and RDII to the sanitary sewer system, Metro also completed the Annual Rehabilitation FY2014 – Whites Creek Trunk project. This project included the evaluation and rehabilitation, as necessary, of approximately 61,000 linear feet of existing gravity sewer, over 190 manholes, and associated service laterals within Metro's right-of-way. Construction of the project was completed in March 2019. See **Section 4.6 Brick Church** for additional improvements upstream of the Whites Creek Pump Station.

Figure 4-17 White Creek Pump Station

Section 5

CAP/ER Projects

Since entering into the Consent Decree, Metro has made significant progress addressing sanitary sewer overflows. This has been accomplished through on-going CMOM activities as well as the design and construction of capital improvement projects identified in the CAP/ER. These capital projects are currently implemented through the Clean Water Nashville Overflow Abatement Program.

Completed CAP/ER projects are listed in **Table 5-1**, along with their completion date. The completion dates shown represent the date of final completion (as opposed to the substantial completion date presented in the Consent Decree Annual Reports). The table excludes activities that are not associated with a capital project, such as the repair of the private service upstream of the Villas of Lakemeade #2 Pump Station. It also excludes projects completed prior to submittal of the CAP/ER in September 2011.

Table 5-1 Completed CAP/ER Projects

Project Name	Service Area	Project Completion Date
Holiday Travel Park Gravity Conversion	Central	August 2012
Whites Creek WWTP Disinfection & Optimization	Whites Creek	December 2012*
Dodson Chapel Equalization Facility	Central	April 2014
Joelton Rehabilitation	Whites Creek	July 2014
Whites Creek Pump Station Improvements	Whites Creek	November 2014
Neely's Bend Rehabilitation	Dry Creek	February 2015
Mill Creek / Opryland Equalization Facility – Phase II	Central	May 2015
Cowan Riverside Rehabilitation – Area 1 – Jones Avenue	Central	June 2015
Shelby Park Rehabilitation – Area 1 – Virginia Avenue	Central	June 2015
Cowan Riverside Rehabilitation – Area 2 – Dickerson Pike	Central	December 2015
Dodson Chapel Pipe Improvements	Central	December 2015
Westchester Rehabilitation	Whites Creek	December 2015
Highway 100 & Tyne Boulevard – Trimble Rehabilitation	Whites Creek	January 2016
Shelby Park Rehabilitation – Area 2 – Norvel Avenue	Central	February 2016
Shelby Park Rehabilitation – Area 3 – Greenland Avenue	Central	July 2016
Davidson and Brook Hollow Sewer Improvements	Whites Creek	August 2016
Shelby Park Rehabilitation – Area 4 – Brush Hill Road	Central	September 2016
Cowan Riverside Rehabilitation – Area 3 – West Trinity Lane	Central	November 2016
Lakewood Rehabilitation – Area 1 – Sewer	Dry Creek	December 2016
Farmingham Woods Gravity Sewer (Tulip Grove Road)	Central	March 2017
Smith Springs Rehabilitation – Area 1 – Priest Lake Meadows	Central	March 2017
28th Avenue Rehabilitation – Area 1 – Clifton Avenue	Central	May 2017
Gibson Creek Rehabilitation – Area 1 – Dupont Avenue	Dry Creek	December 2017
Langford Farms – Madison Heights Rehabilitation	Central/Dry Creek	February 2018
Annual Rehabilitation FY2014 – Whites Creek Trunk	Whites Creek	March 2018
Brick Church Pike Pipe Improvements	Whites Creek	March 2018
Cowan Riverside Rehabilitation – Area 4 – Pages Branch	Central	June 2018
Smith Springs Rehabilitation – Area 2 – Castlegate	Central	October 2018
Hidden Acres Rehabilitation	Dry Creek	December 2018
West Park Equalization Storage Phase II	Whites Creek	December 2018
Shelby Park Rehabilitation – Area 5 – Cooper Lane	Central	January 2019
Loves Branch Rehabilitation	Dry Creek	April 2019
Ewing Creek – Brick Church Equalization Facility	Whites Creek	June 2019
Vandiver Rehabilitation	Dry Creek	January 2020
Long Hunter Chase Cleanout Repairs	Central	April 2020
Bonnafair Pump Station Repairs	Central	November 2020
South Oak Hill Manhole Repairs	Central	March 2021
North Fork of Ewing Creek Manhole Repairs	Whites Creek	March 2021

*Operationally complete

As discussed in **Sections 2** through **5**, many locations of wet-weather overflows in the revised Appendix A of Consent Decree have been addressed. Those locations, summarized in **Table 5-2**, do not have additional CAP/ER projects planned. They will continue to be monitored as part of Metro's CMOM activities.

Table 5-2 Overflow Locations Addressed for the CAP/ER Design Criteria

Overflow Name	WWTP Basin
622 Davidson	Whites Creek
Benita Drive	Central
Bonnafair Pump Station	Central
Bordeaux Hills Pump Station	Whites Creek
Bordeaux Hospital Pump Station	Whites Creek
Cloverbottom Pump Station	Central
Cooper Lane	Central
Cooper Terrace	Central
Fairway Center Pump Station	Central
Farmingham Woods Pump Station	Central
Germantown Hill Pump Station	Whites Creek
Hillview Pump Station	Central
Holiday Travel Park Pump Station	Central
Long Hunter Chase Pump Station	Central
Madison Heights Pump Station	Dry Creek
Mill Creek Pump Station	Central
South Oak Hill Pump Station	Central
Village Court	Central
Villas of Lakemeade No. 2 Pump Station	Dry Creek
Whites Creek Pump Station	Whites Creek

For the remaining wet-weather overflows included in the revised Appendix A of Consent Decree, additional CAP/ER projects are required to fully address wet-weather overflows under the design criteria established in the CAP/ER. In many cases, work associated with these projects is underway. As such, Metro has not developed a new prioritization for the listed projects. Projects are generally prioritized based on the frequency and severity (volume) of overflow being addressed; proximity of the overflow to public areas and to 303(d) streams listed for *E. coli*; and project complexity such as the need to acquire property, project sequencing, or estimated construction durations.

Table 5-3 summarizes the CAP/ER improvement projects required to address the remaining wet-weather overflows included in the revised Appendix A of Consent Decree. The table also provides a schedule for completing these improvements. As shown, Metro remains committed to completing CAP/ER projects within 11 years from approval of the CAP/ER which occurred on August 10, 2017.

If project scopes require modification as they progress through planning, design and construction, the project will continue to be designed to meet or exceed the design criteria established in the CAP/ER. These modifications, if identified, will be explained in the progress reports submitted as part of the Consent Decree requirements. Following completion of the listed projects, post-construction flow monitoring and modeling will be conducted to verify expected reductions in overflows.

Table 5-3 CAP/ER Implementation Plan and Schedule

Project Name	WWTP Service Area	Project Completion*	Affected Overflows
28th Avenue Rehabilitation - Area 2 - Batavia Street	Central	Q2 2024	28th Avenue Pump Station / Centennial
28th Avenue Rehabilitation - Future Areas	Central	Q2 2027	28th Avenue Pump Station / Centennial
Annual Rehabilitation FY2017 - Dry Creek	Dry Creek	Q3 2023	Dry Creek Pump Station, Gallatin Pike
Annual Rehabilitation FY2017 - Shepherd Hills	Dry Creek	Q4 2023	Dry Creek Pump Station
Annual Rehabilitation FY2020 - West Nashville	Whites Creek	Q3 2024	Basswood, Richland Creek (23rd Street) Richland Creek (TDOT), West Park Pump Station
Bandywood - Green Hills Rehabilitation	Whites Creek	Q4 2024	Galbraith Drive
Berwick Trail Pipe Improvements	Dry Creek	Q1 2026	Berwick Trail Pump Station
Berwick Trail Pump Station Upgrades	Dry Creek	Q3 2025	Berwick Trail Pump Station
Cleeces Ferry Rehabilitation - Area 1 - Summerly Drive	Whites Creek	Q3 2024	Cleeces Ferry Pump Station
Cleeces Ferry Rehabilitation - Area 2	Whites Creek	Q1 2027	Cleeces Ferry Pump Station
Cowan Street Pipe Improvements	Central	Q2 2026	Cowan Street Relief Bleeder / Pump Station, Riverside Drive Pump Station
Cowan Street Pump Station Upgrades	Central	Q3 2025	Cowan Street Relief Bleeder / Pump Station, Riverside Drive Pump Station
Davidson Branch Pump Station and Equalization Facility	Whites Creek	Q4 2023	Davidson Branch Pump Station
Dodson Chapel - McCrory Creek Study	Central	Q2 2023	Andrew Jackson Parkway, Dodson Chapel Pump Station, McCrory Creek Pump Station, Old Lebanon Dirt Road
Dodson Chapel - McCrory Creek Study - Future Projects	Central	Q3 2028	Andrew Jackson Parkway, Dodson Chapel Pump Station, McCrory Creek Pump Station, Old Lebanon Dirt Road
Dry Creek Pipe Improvements	Dry Creek	Q1 2027	Dry Creek Pump Station
Foster Avenue Rehabilitation	Central	Q4 2025	Foster Avenue, Louise Drive, Barker Road, Bismark Drive, Browns Creek Pump Station / Visco Drive, Mill Creek – East Thompson Lane, Mill Creek – Hollydale Drive, Mill Creek – Old Glenrose, Mill Creek – Wimpole
Gibson Creek Equalization Facility	Whites Creek	Q1 2024	Berwick Trail Pump Station, Gibson Creek Pump Station, Neely's Bend Pump Station
Henry Ford Drive Pipe Improvements	Whites Creek	Q1 2026	Henry Ford Drive
Hidden Acres Pump Station Upgrades	Dry Creek	Q4 2025	Hidden Acres Pump Station
Highway 100 & Tyne Boulevard Pipe Improvements	Whites Creek	Q3 2028	Harding Place, Lynnwood Boulevard
Hopedale Rehabilitation	Central	Q3 2028	Hopedale Pump Station
Hurricane Creek Pipe Improvements	Central	Q4 2024	Hurricane Creek Pump Station

Project Name	WWTP Service Area	Project Completion*	Affected Overflows
Joelton Pump Station Upgrades	Whites Creek	Q3 2028	Joelton Pump Station
Lakewood Rehabilitation - Area 2 - Pitts Avenue	Dry Creek	Q4 2024	Lakewood Pump Station
Langford Farms Force Main Assessment	Central	Q4 2022	Langford Farms Pump Station
Loves Branch Pump Station Upgrades	Dry Creek	Q1 2027	Loves Branch Pump Station
Mill Creek Rehabilitation - Future Areas	Central	Q1 2026	Barker Road, Bismark Drive, Browns Creek Pump Station / Visco Drive, Mill Creek – East Thompson Lane, Mill Creek – Hollydale Drive, Mill Creek – Old Glenrose, Mill Creek – Wimpole
Mill Creek Trunk Improvements and Equalization Facility	Central	Q3 2028	Barker Road, Bismark Drive, Browns Creek Pump Station / Visco Drive, Mill Creek – East Thompson Lane, Mill Creek – Hollydale Drive, Mill Creek – Old Glenrose, Mill Creek – Wimpole
Neely's Bend Pump Station Upgrades	Dry Creek	Q3 2025	Berwick Trail Pump Station, Neely's Bend Pump Station
Norman Drive Pipe Improvements	Dry Creek	Q4 2027	Norman Drive
Peppertree Forrest Pump Station Upgrades	Central	Q3 2028	Peppertree Forrest Pump Station
River Drive Rehabilitation	Whites Creek	Q2 2027	River Drive Pump Station
Riverside Drive Pump Station Upgrades	Central	Q1 2028	Riverside Drive Pump Station
Rowan Cravath Rehabilitation	Whites Creek	Q1 2025	Cravath Drive, Rowan Drive
Sevenmile Creek Rehabilitation - Area 1	Central	Q2 2024	Barker Road, Bismark Drive, Browns Creek Pump Station / Visco Drive, Mill Creek – East Thompson Lane, Mill Creek – Hollydale Drive, Mill Creek – Old Glenrose, Mill Creek – Wimpole
Shelby Park Rehabilitation - Area 6 - Shelby Trunk	Central	Q4 2023	Shelby Park Pump Station
Shelby Park Rehabilitation - Future Areas	Central	Q4 2027	Shelby Park Pump Station
Smith Springs Rehabilitation - Area 3 - Harbour Town	Central	Q1 2024	Smith Springs Pump Station, Timber Ridge
Smith Springs Rehabilitation - Future Areas	Central	Q3 2026	Smith Springs Pump Station
Sunliner Gravity Sewer Repairs	Central	Q3 2028	Sunliner Drive Pump Station
Tuckahoe & Nesbitt Rehabilitation	Whites Creek	Q1 2026	Brick Church
Vandiver Pump Station Upgrades	Dry Creek	Q1 2027	Vandiver Pump Station
Wallace Lane Rehabilitation	Whites Creek	Q3 2025	Abbott Martin Road, Wallace Lane
Williamson Ferry Gravity Sewer Repairs	Central	Q4 2022	Williamson Ferry Pump Station

* Project Completion dates of Q3 2028 will be completed by August 10, 2028, as required by the Consent Decree.

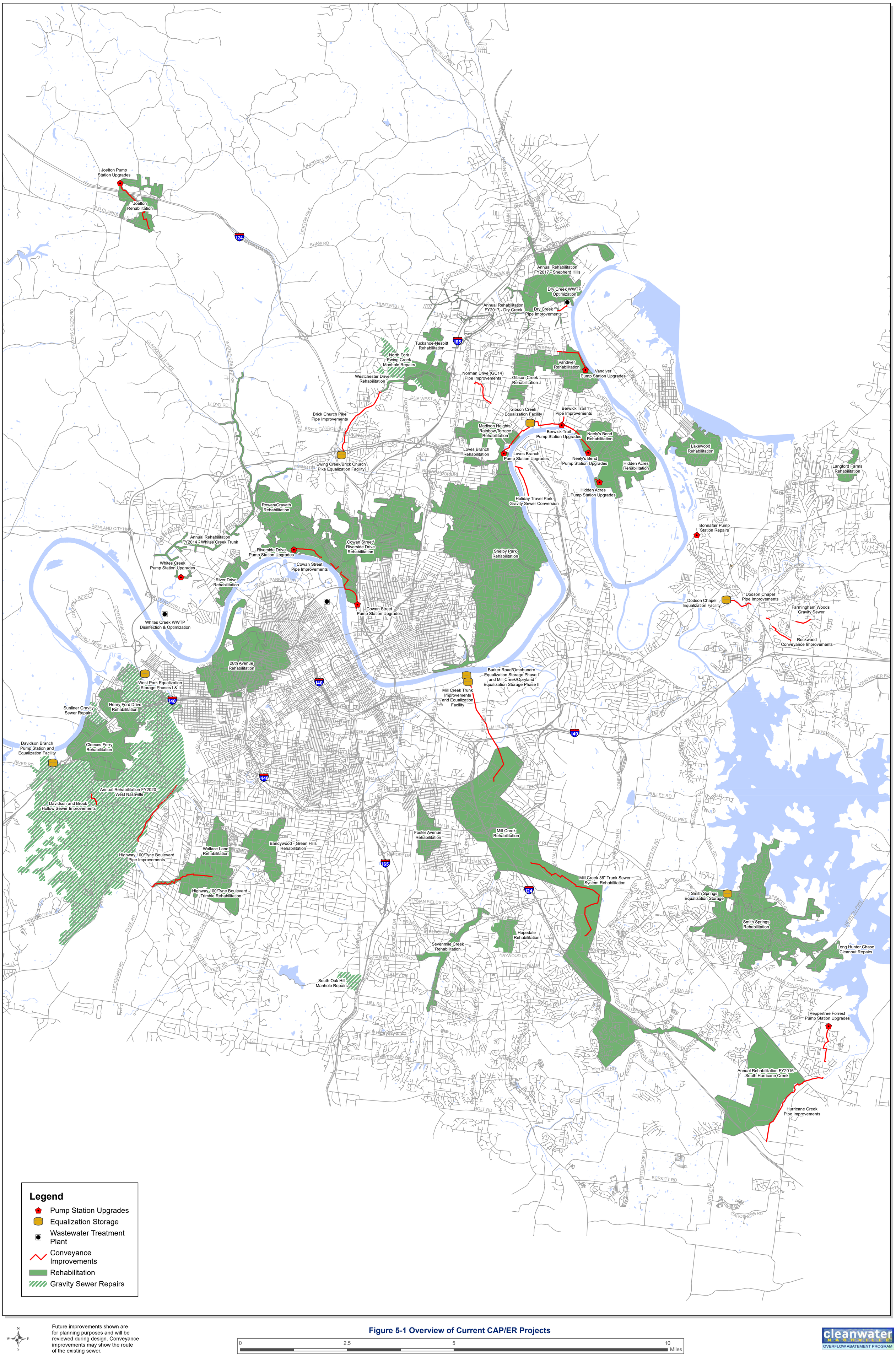

Figure 5-1 Overview of Current CAP/ER Projects

cleanwater NASHVILLE
OVERFLOW ABATEMENT PROGRAM