



Capital Improvement Projects Report

August 2019

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CIP Summary of Projects



Introduction

The Washington County Service Authority (WCSA) is pleased to provide this report on major Capital Improvement Projects which are under construction, planned, or were completed within the last year.

WCSA is the largest water and wastewater utility in southwest Virginia, serving approximately 21,030 water and 2,173 wastewater connections. WCSA has an annual operating budget for water and wastewater of \$14 million and a long range capital improvements plan that consists of 41 projects with a total cost of approximately \$133 million. The water system consists of approximately 900 miles of waterline, a 2.5 million gallons per day (MGD) membrane filtration plant, a 12 MGD conventional treatment plant, 2 springs, 1 well, 26 pump stations and 24 water storage tanks. The wastewater system consists of approximately 90 miles of wastewater collection lines, multiple pump stations, and two wastewater treatment plants.

In an effort to ensure an adequate supply of drinking water to Washington County and to expand our wastewater collection and treatment systems over the next 40 years, WCSA has undertaken several capital improvement projects. The projects include upgrading our existing infrastructure as well as system expansion. These capital improvement projects are paramount to maintaining the reliability and integrity of our water and sewer systems. WCSA has also completed its first ever Strategic Plan.

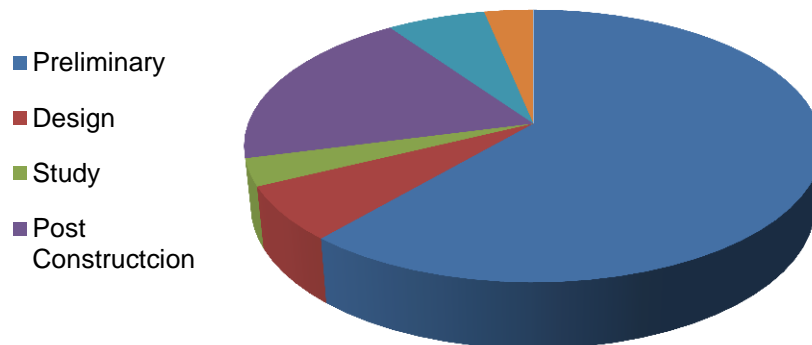
WCSA is constantly taking steps to provide public water service to areas of Washington County relying on private wells, cisterns and springs, especially those that are bacteriologically contaminated or do not provide an adequate quantity of water. Each year we are able to expand our water system to provide safe and reliable public water to communities that have never before had access to this valuable resource. It is an ongoing accomplishment, and privilege, to provide these important services to our County.

WCSA's **VISION** is ***"To be the trusted public utility and community leader in Southwest Virginia"***.

WCSA's **GOAL** is ***"To maintain reliable infrastructure to meet or exceed the needs of our customers"***.

We hope this report will demonstrate WCSA's commitment to meeting the water and sewer needs of Washington County, and that you will find it an informative update on the status of our capital projects.

Project Overview



As of August 2019, WCSA has 31 active or recently finished construction projects. The pie chart above depicts the phases of those projects.

Each of our construction projects fall into a specific category as described below.

During the **Study** phase, a project is evaluated from an engineering standpoint, all alternatives are considered, and a recommendation is made on how to best implement the project.

The **Preliminary** phase consists of initial project planning, such as scoping, funding allocation, and schedule and cost estimation.

The Preliminary Phase is followed by the **Design** phase, which may include environmental review, permitting, engineering design and land/easement acquisition.

The **Bid** phase begins when WCSA advertises/prepares to advertise the project for construction bids. The phase ends when a contract is approved and executed.

The **Construction** phase begins when a construction contract has been executed and the Notice to Proceed has been issued to the contractor.

Following the construction phase, a project enters the **Post-Construction** phase. This phase includes the warranty, completion of final as-built plans and project closeout.

Water Projects

Chip Ridge Road Water Line Extension Project

This project involved new water line construction of approximately 2,900 linear feet of 4-inch water line along Chip Ridge Road which provided service for 4 new customers. As the line would be fed by a 4-inch line, fire flow was not included.

Bacteriological testing in the area revealed total coliform bacteria in one of the samples taken, which represents a health risk to the users of these private water supplies. Additionally, residents reported that their water is insufficient in quantity. A waterline extension to the area eliminated their dependence on private wells that are susceptible to contamination and do not provide a sufficient amount of water to meet their needs.

This project directly impacted 7 homes. Of the 7 homes that could potentially be served, 4 homes have received water service.

Construction on this project was completed in August 2018, with a project cost of \$125,000.



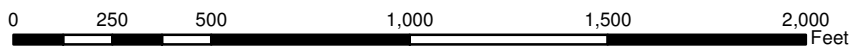
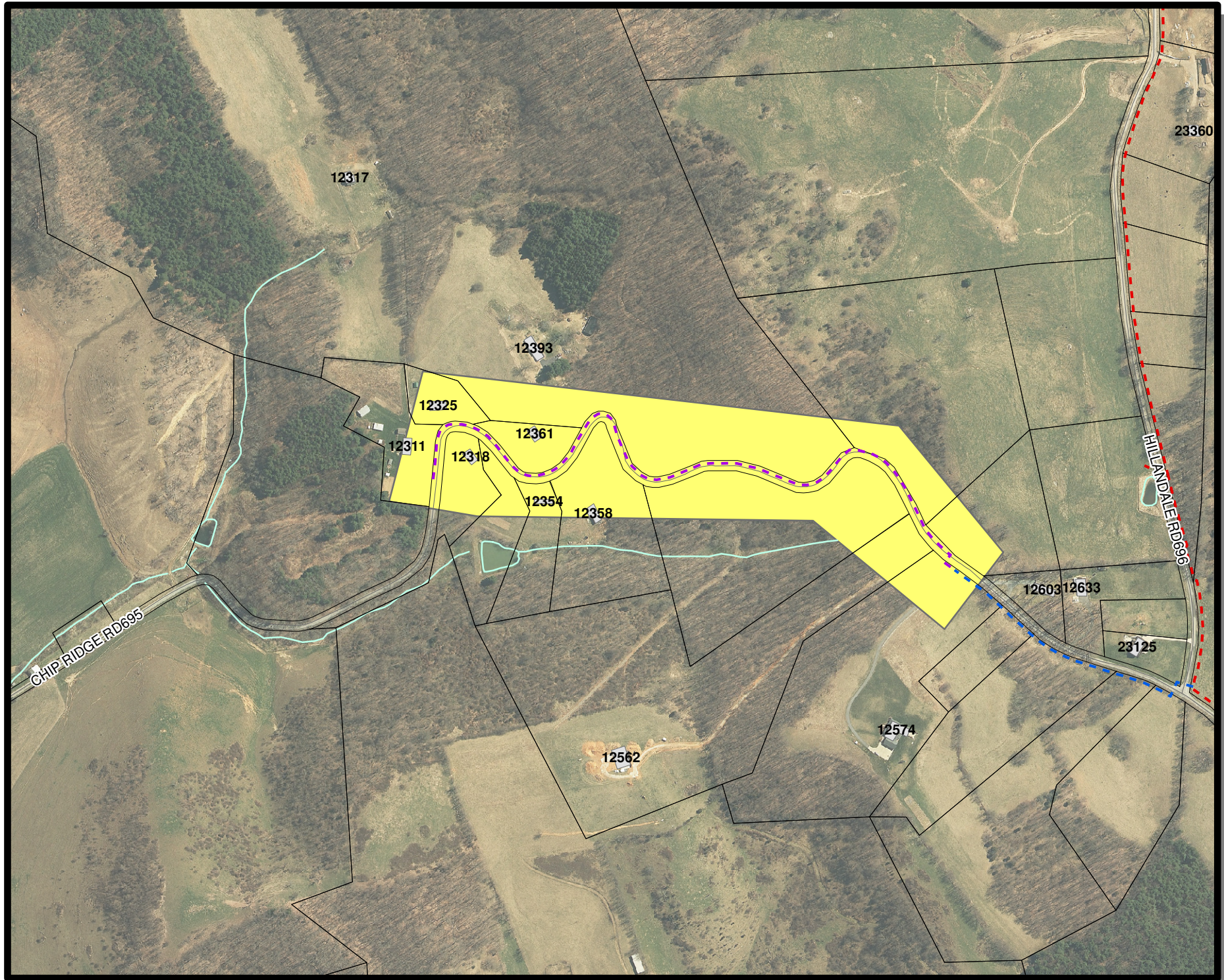
CHIP RIDGE ROAD WATERLINE EXTENSION PROJECT

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Galvanized Water Line Replacement Phase III / Abingdon Water Storage Tank

WCSA's distribution system consists of over 900 miles of water line, 200 miles (22%) of which is small galvanized steel pipe. About 40% (8,000) of our existing customers are directly connected to this type of pipe. As it ages, galvanized steel pipe has a tendency to corrode from the outside, leading to frequent leaks and water quality complaints. This type of pipe makes up approximately 86% of all repaired water leaks in WCSA's system and accounts for approximately 15% of WCSA's non-revenue water related to "real" water losses.

Because most of the galvanized pipe in WCSA's system is 2 inches or smaller in diameter, it can't provide adequate flow or pressure, nor is fire flow possible. This three-phase project will replace all galvanized pipe in our system over the next several years. Fire hydrants will be added where possible and practicable.

This project will directly impact approximately 8,000 existing connections (40% of WCSA's customer base) and indirectly impact hundreds/thousands more. Phase I improved service for about 2,666 connections. Phase 2 improved service for about 1,850 connections and Phase 3 will improved service for about 1,450 connections.

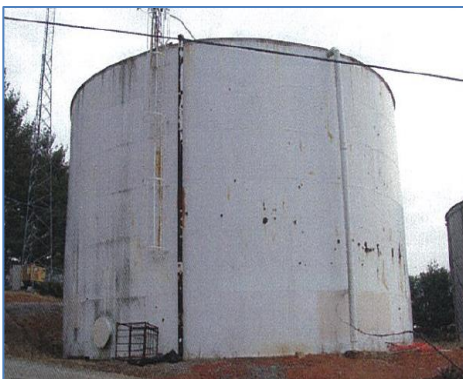
Construction of Phase I was completed in February 2013.

Construction of Phase II was completed in April 2017

Phase III is anticipated to be advertised in Fall of 2019.

Phase III of this project also includes the replacement of the Abingdon Water Storage Tanks with a new 1.5 MG water storage tank on the same location as the existing tanks. This project will directly impact approximately 6,600 existing connections and indirectly impact hundreds/thousands more.

These projects are expected to be advertised in Fall 2019, with construction to begin in early 2020. Construction costs are estimated at \$16,450,000, with the project being funded by Rural Development.



**GLR PHASE III ABINGDON
WATER STORAGE TANK**

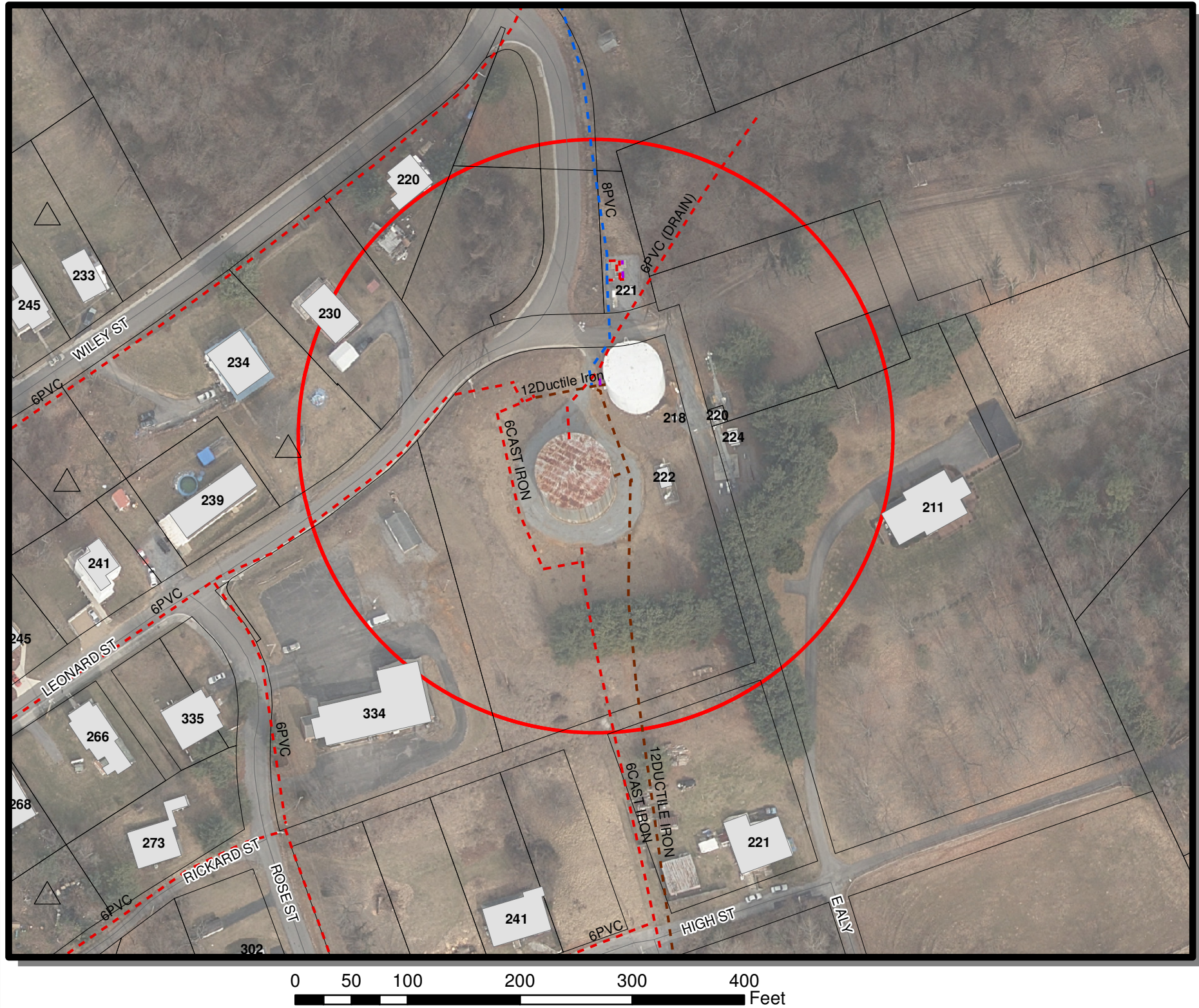
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AbingdonTanks



Hidden Valley Rd Water System Extension, Phase 2

Phase 1 of the Hidden Valley Road Projects provided a connection through a master meter to the Russell County Water System. The connection was established at the Russell County line and a 6" waterline was installed along Porterfield Highway and northward along Hidden Valley road. Phase 2 of the project will involve installation of over 9,000 L.F. of 4 and 2 inch waterlines and 2 pump stations. This project will allow public water to be available to 29 existing residences with 25 of these residents committed to purchasing a connection upon completion of the project. Current residents are experiencing poor quality and quantity of water.

Construction on Phase I of this project was completed in May 2016 with a project cost of \$620,000.

Funding for Phase II has been accepted and WCSA expects to advertise the project or construction Fall of 2019. Project is being funded by the Virginia Department of Health, Department of Housing and Community Development and Mount Roger Planning District Commission. Construction costs are estimated at \$730,000.



HIDDEN VALLEY ROAD WATER SYSTEM EXT. PHASE II

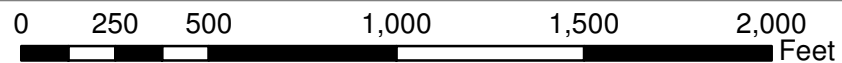
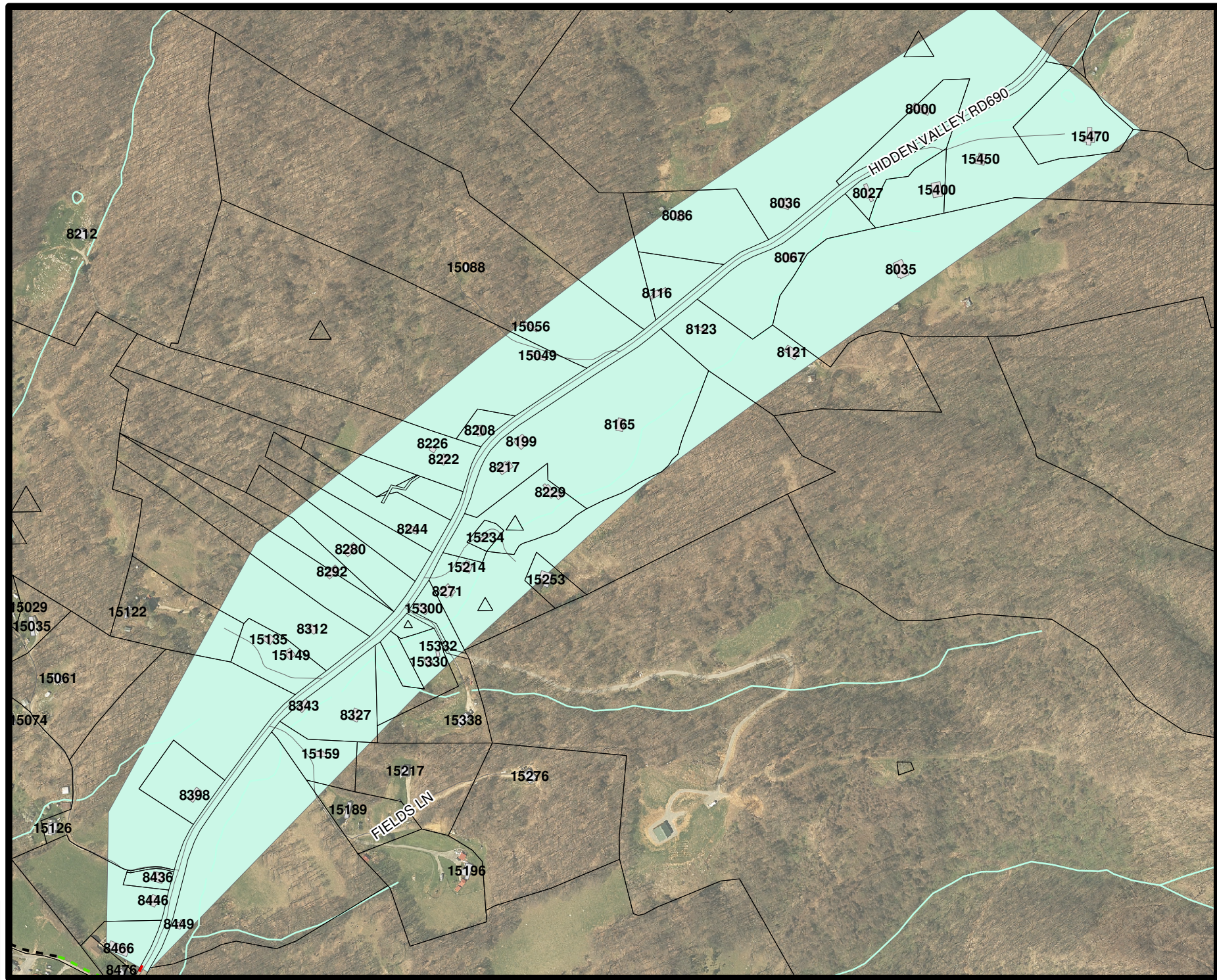
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Water Lines

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HiddenValleyII



Mendota Road Water Line Extension

The purposed project will consist of the installation of approximately 58,950 LF of new 8" water line and related appurtenances. Fire Hydrants will be installed as part of the project. The project will allow public water to be available to 82 potential existing residences that do not have access to public water. Currently residents rely on wells, cisterns, and springs. Bacteriological testing in the area revealed total coliform bacteria in twenty-nine of the samples taken, which represents a health risk to the users of these private water supplies. Additionally, residents report that their water is insufficient in quantity. A waterline extension to the area would eliminate their dependence on private wells that are susceptible to contamination and do not provide a sufficient amount of water to meet their needs. 47 of the 82 potential residences have committed to purchasing a connection upon completion of the project.

This project is on hold due to funding limitations. Project has been estimated to cost \$3.8 Million.



MENDOTA ROAD WATERLINE EXTENSION

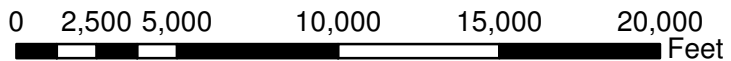
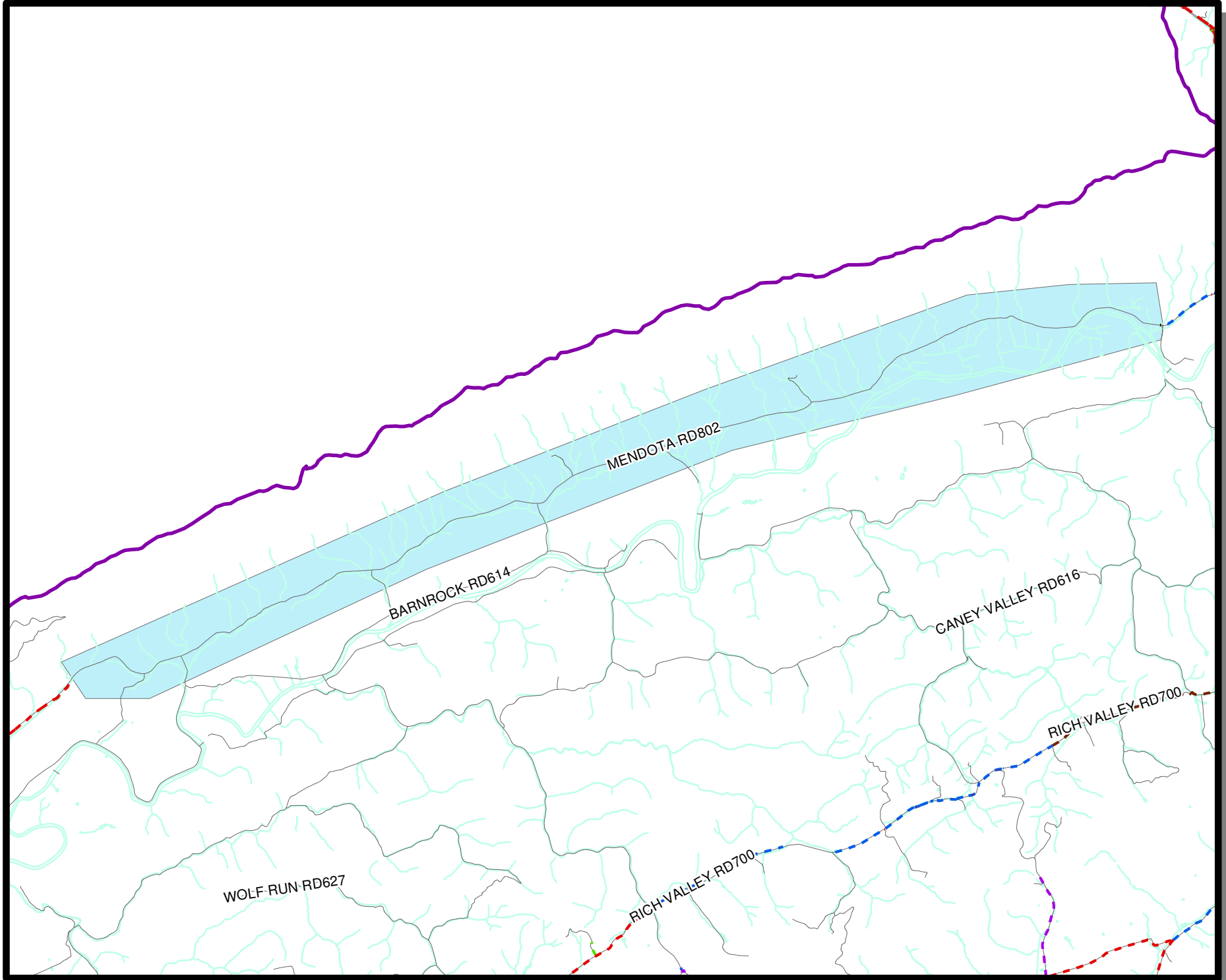
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Water Lines

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Mendota_Road



Mary's Chapel / Archery Range Road Water Line Extension

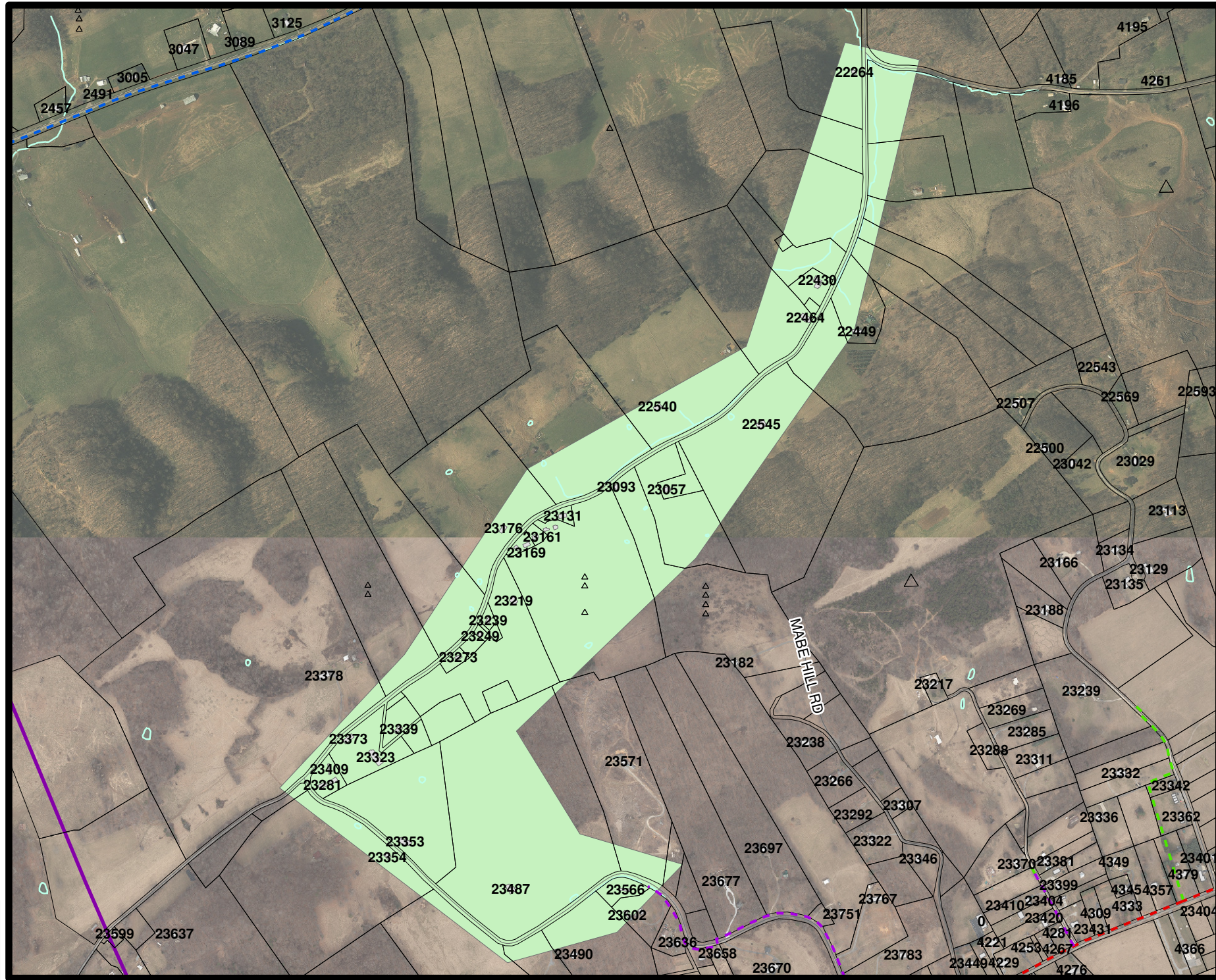
The purposed project will consist of the installation of approximately 18,750 LF of new 6" and 4" waterline and related appurtenances. Fire hydrants will be installed on a portion of the project. A pump station and hydropneumatic tanks and vault are proposed as part of the project. Incorporated in the above footage is an upgrade to existing pipe on Reedy Creek to facilitate the line extension project to keep the critical node pressure above 20 psi.

The proposed project will allow public drinking water to be available to 25 potential existing residences that do not have access to a public water supply. Fourteen of these residences have committed to purchasing a connection to the WCSA water system upon completion of the project. Currently the residents rely on wells or springs. Bacteriological testing was performed on the wells or springs where 22 of the 25 residents were sampled and results indicated 12 out of the 25 sources tested positive for bacteria. A water line extension project to this area will provide an ample supply of safe drinking water to the residents, eliminating their dependence on water sources that have indicated contamination.

This project is on hold due to funding limitations. Project has been estimated to cost \$1.0 Million.



**MARY'S CHAPEL / ARCHERY
RANGE ROAD WATERLINE EXT.**



Legend

Water Lines

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- MarysChapel



0 375 750 1,500 2,250 3,000 Feet

Mid-Mountain (Zone 108) Water System Improvements Project

Over the past ten years, the Mid-Mountain Zone of WCSA's water distribution system has seen substantial growth, including notable customers such as Southwest Virginia Regional Jail, Johnston Memorial Hospital and Harmony Hills Adult Skilled Nursing Facility, each of which are priority sensitive customers due to the nature of the service they provide. In the event of a water outage, these three customers would be required to evacuate which would be detrimental to all of those involved. This same area is expected to see a great deal of additional growth over the next 40 years. Presently, WCSA's water storage for this Zone is near its desired capacity. Water main breaks result in undesirable pressure loss within the Zone and result in water storage levels lower than desired. For these reasons, WCSA wishes to resolve the undesirable water storage situation and the pressure issues it sometimes experiences.

WCSA proposes to install a new 1.0 Million Gallon water storage tank in the Mid Mountain Zone with associated line improvements. Currently this project is in the planning stages and does not have an anticipated advertisement date. Construction costs for this project are estimated at \$2,000,000.



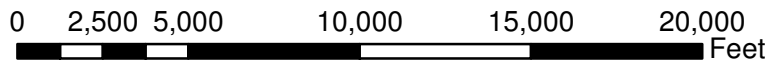
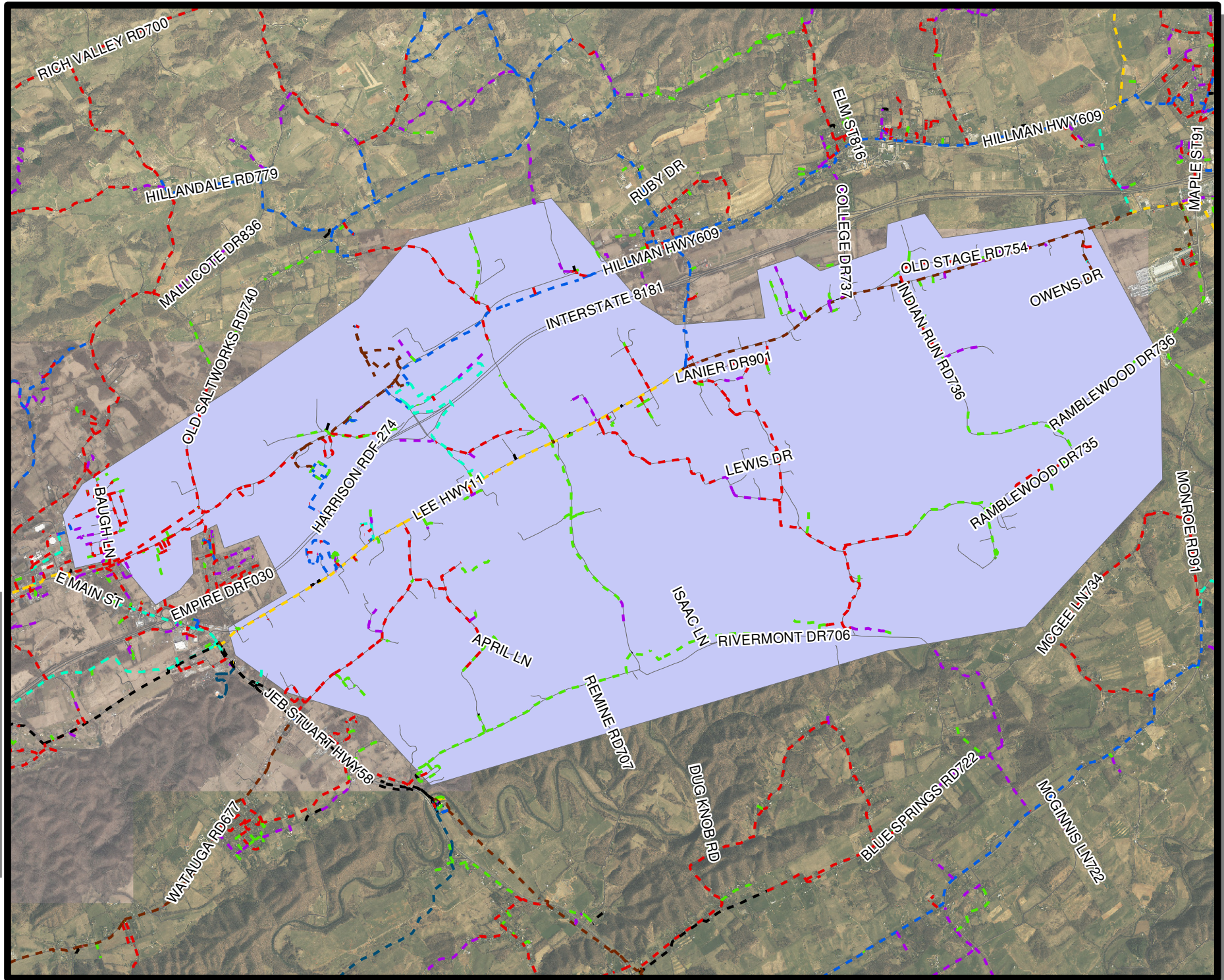
MID MTN. (ZONE 108) WATER SYSTEM IMPROVEMENTS

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Mill Creek Water Treatment Plant Upgrade

This project consisted of the replacement of the existing membrane filtration plant with a new membrane filtration plant, associated upgrades to existing equipment, upgrade of the existing laboratory, addition of a restroom, and a new septic system. To accomplish the construction of the replacement membrane filters and keep the existing water treatment plant in operation to meet the needs to WCSA and TOC, a building addition was needed. The building addition is approximately 44 feet x 36 feet and connects onto the existing facility. The building addition houses one of the two replacement membrane filtration stages as well as the upgraded laboratory and new restroom facility. The new plant has the capacity to treat 3.1 MGD.

This project has directly impacted approximately 5,000 existing connections within the WCSA distribution system which include two industrial parks, one college and five County schools.

Construction for this project began in March 2017 and was completed in the Spring of 2019 with a construction price of \$3.7 Million.





MILL CREEK WATER TREATMENT PLANT UPGRADE

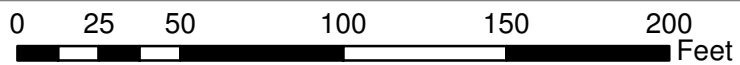
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Water Lines

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MillCreek



Rattle Creek Water Line Extension

This project installed approximately 6,000 LF of 8" waterline and related appurtenances. Fire hydrants were installed as part of the project. Residents previously relied on private wells, springs and cisterns, some of which are bacteriologically contaminated or do not provide an adequate quantity of water. A waterline extension to this area eliminated their dependence on private water sources that are susceptible to contamination and do not provide a sufficient amount of water to meet their needs. This project provided 15 water connections.

Funding for the project was provided by the Virginia Department of Health and the Department of Housing and Community Development. The project was advertised for bids in January 2019 and construction began in April 2019. Construction of the project was completed in August 2019 with a construction price of \$300,000.





**RATTLE CREEK ROAD
WATER LINE EXT.**

Legend

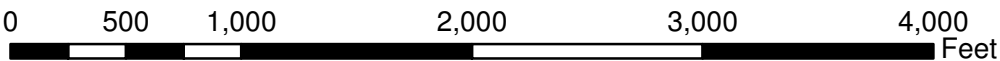
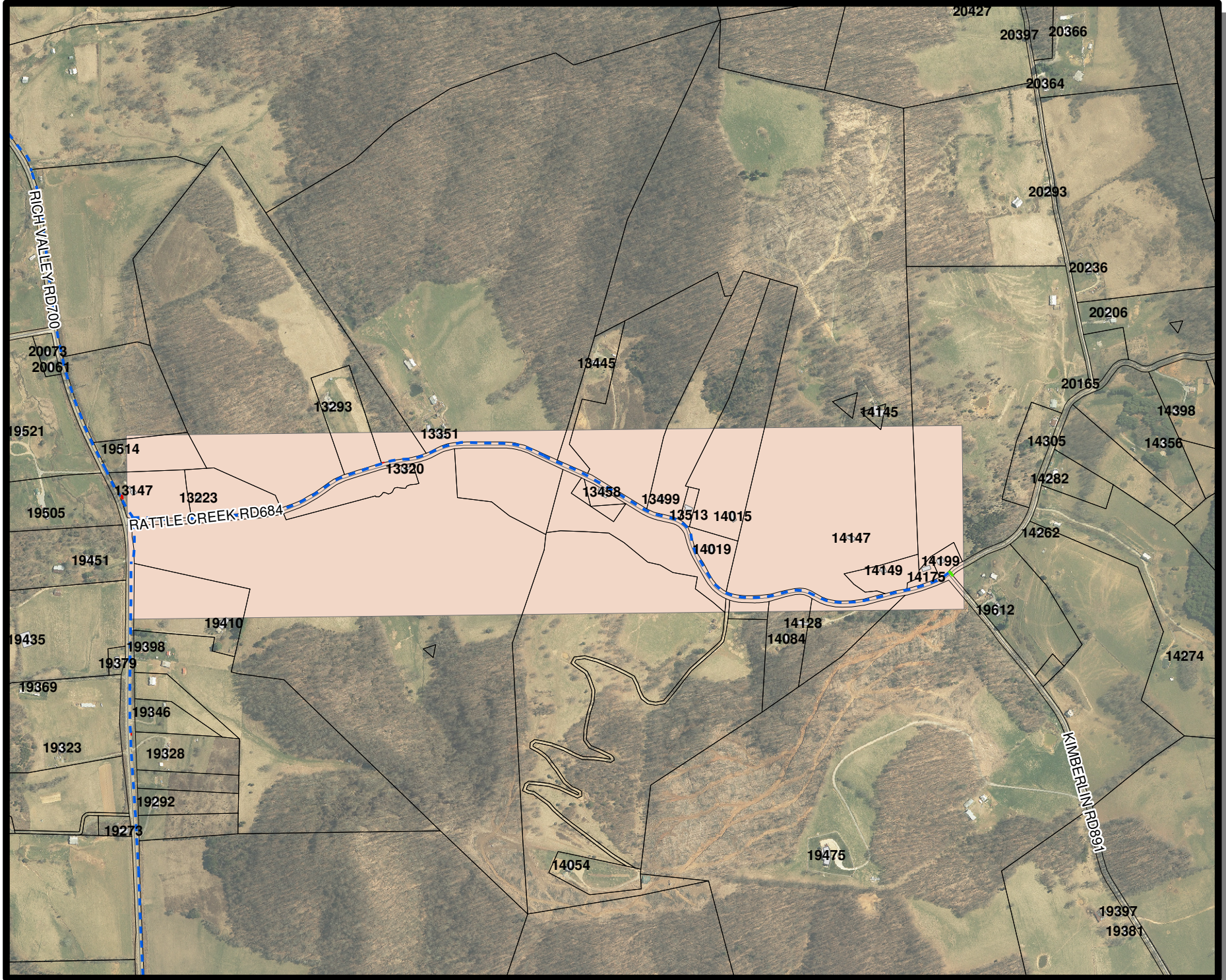
Water Lines

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RattleCreek

HiddenValleyII



Rich Valley Road Water Line Extension

This project will construct approximately 56,000 feet of 12-inch, 8-inch, 6-inch, 4-inch, and 2-inch water line and associated appurtenances along Rich Valley Road from the intersection of Providence Road /Rich Valley Rd to the intersection of Nordyke Rd/Rich Valley Rd. Residents presently rely on private wells, springs and cisterns, some of which are bacteriologically contaminated or do not provide an adequate quantity of water.

This project will directly impact approximately 72 homes. Of the 72 homes that could potentially be served, 45 have committed to purchasing a connection.

WCSA received funding from VDH and advertised for construction bids in late Fall of 2018. Construction began in March 2019 and is expected to be completed by December 2019 with a construction price of \$3.4 Million.





RICH VALLEY ROAD WATERLINE EXTENSION

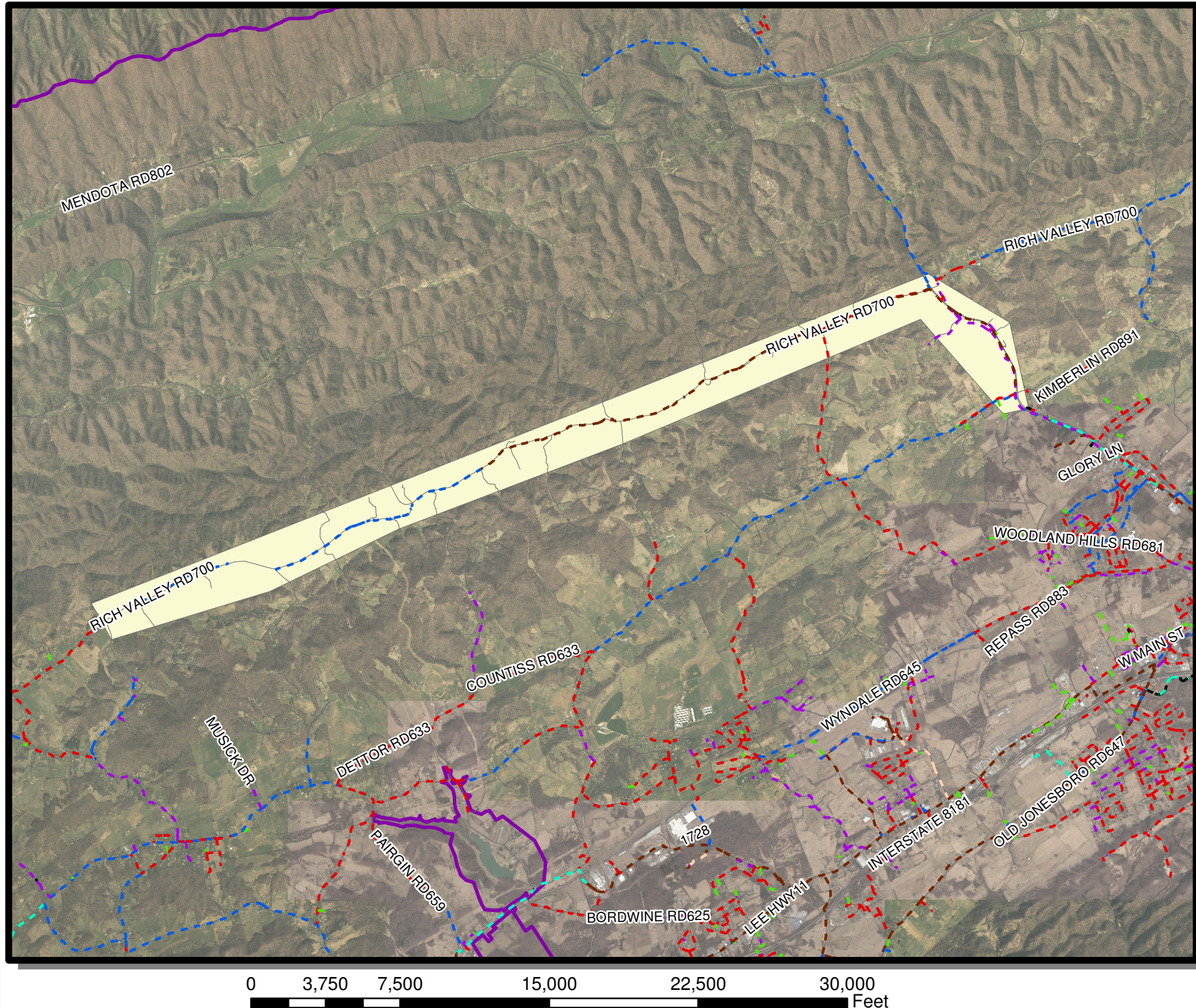
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Rich Valley



Route 58 Corridor Water Distribution System Improvements

A Preliminary Engineering Report identified deficiencies in this project area, including a lack of water storage capacity, unreliable pressure management, fire flow unreliability and questionable duration especially during source interruptions. Our water source that feeds Damascus is subject to interruption of service due to seismic and weather events that cloud the water, which has the potential to interfere with disinfection. The Virginia Department of Health requires the use of this water supply to be suspended until normal water quality is reestablished. The duration of these interruptions is not possible to predict, especially when caused by an earthquake.

Removing the spring from service demands that the staff start back-feeding water to Damascus from the Route 58 pressure zone near Abingdon. The long distance between the Route 58 water storage facilities and Damascus presents pressure management (both “high” and “low”) problems for the system. These pressure surges enhance the probability of large and destructive leaks/breaks and the interruption of service for many of our customers, especially in the Damascus area. The newly constructed tank has storage of 1.0 MG and included 5,600 L.F of 12-inch waterline. Project also upgraded 4,000 L.F of 4-inch water line to 6-inch waterline along Drake Road, while also installing a pressure reducing valve on Denton Valley Road with the installation of 3,200 L.F of 6-inch waterline.

With construction complete, this project has enhanced reliability of service for our own customers and that of other entities we will serve in the future, notably the Sutherland community, Alvarado and areas east of South Holston Lake.

This project will directly impact approximately 2,000 existing connections. Construction of the project began in the Fall of 2017 with funding from Rural Development and was completed the Summer of 2018 at a construction cost of \$1.64 Million.





ROUTE 58 CORRIDOR WATER SYSTEM IMPROVEMENTS

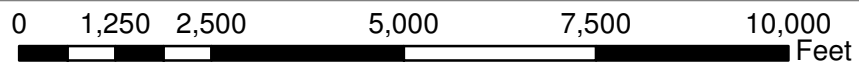
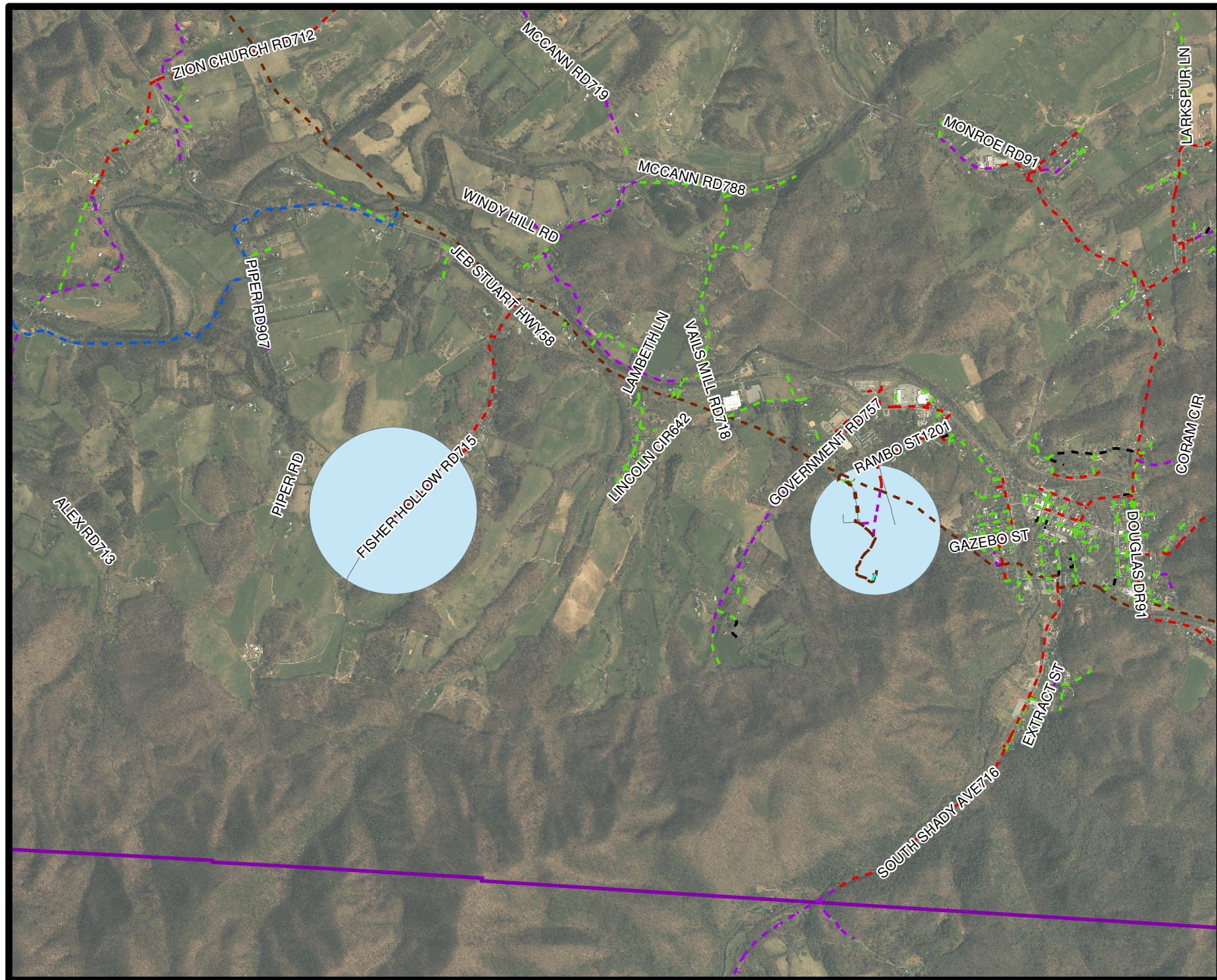
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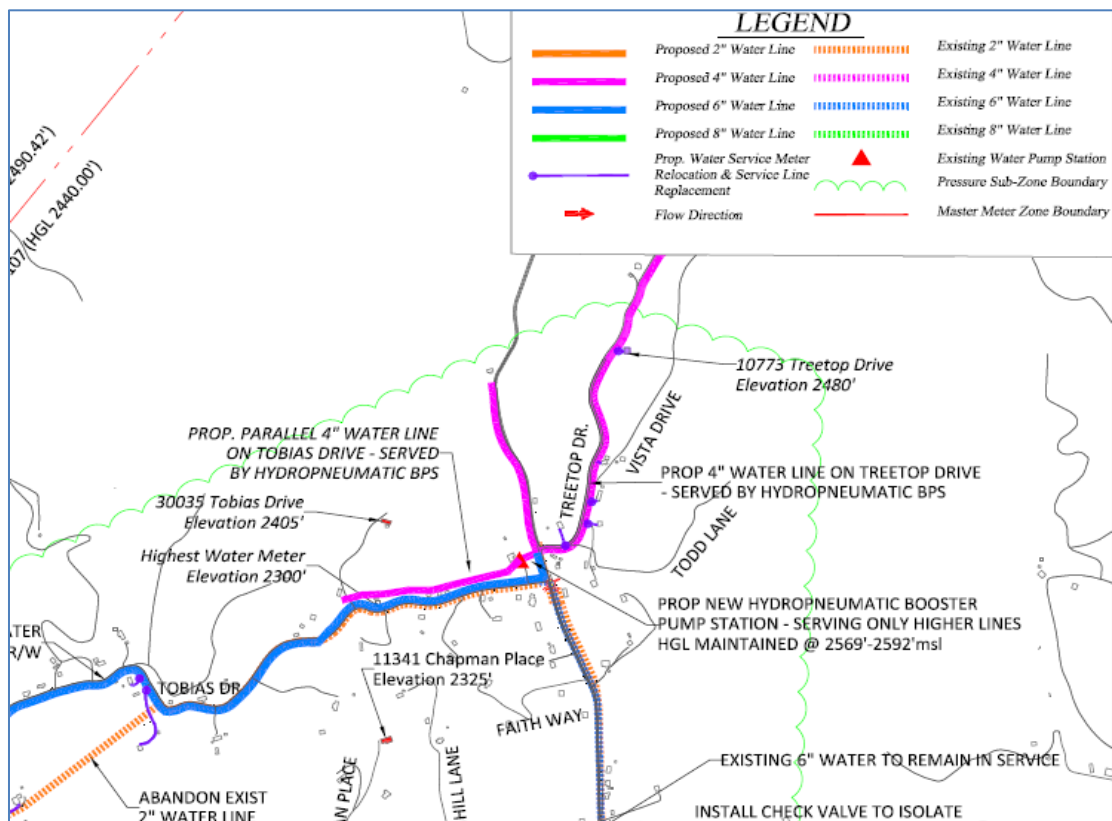
Rte58Corridor



Smyth Chapel Road Water System Improvements

A portion of an area served by this project will be converted to the Route 740 pressure zone. The project will replace the existing substandard booster pump station with a new booster pump station that will serve areas the 740 pressure zone cannot adequately serve. This project will include the installation of approximately 2,200 LF of 4-inch waterline.

This project will provide improved service for approximately 15 connections. Construction costs for this project are estimated at \$200,000.





SMYTH CHAPEL ROAD WATER SYSTEM IMPROVEMENTS

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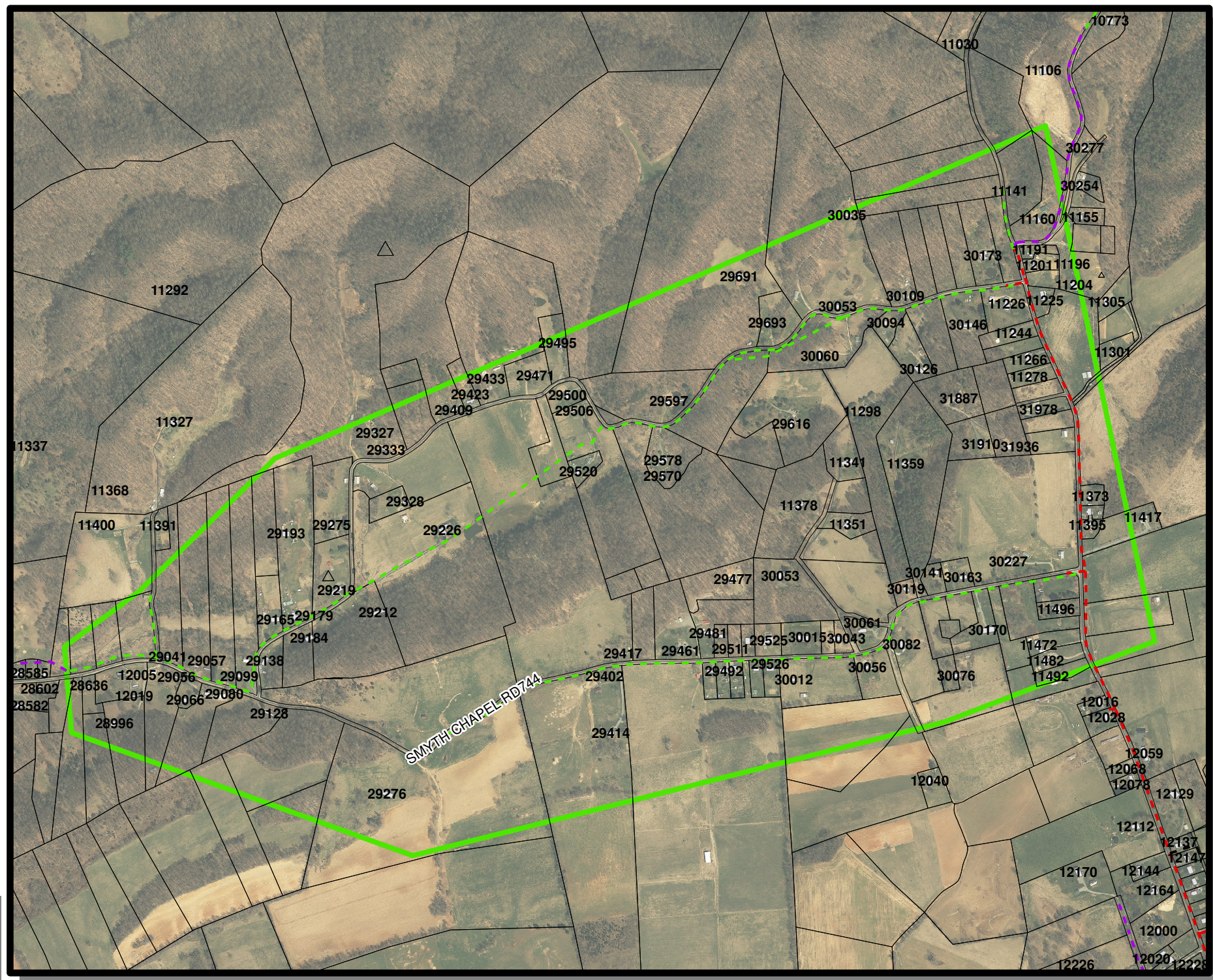
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Rte58Corridor

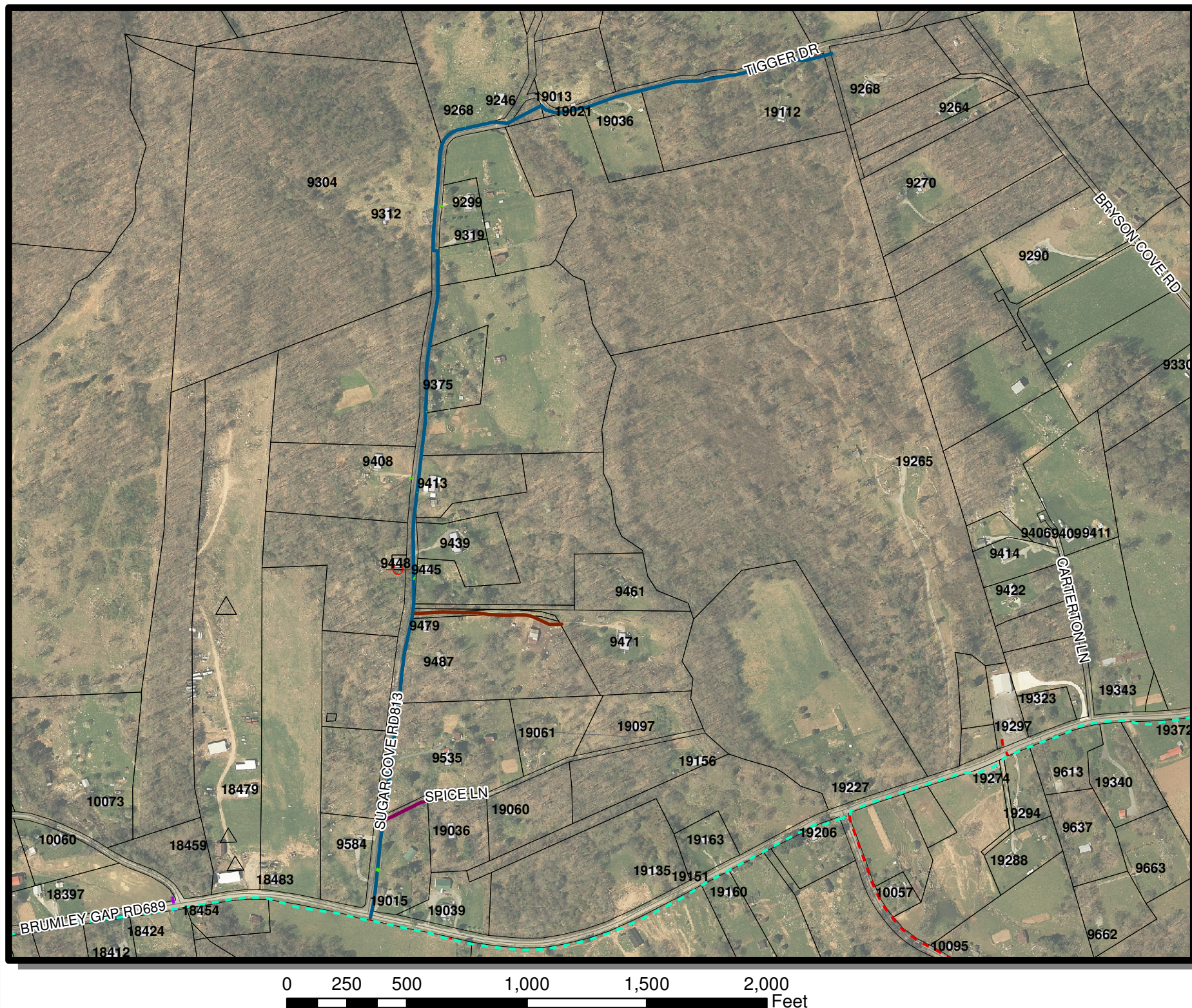
SmythChapel



Sugar Cove Road Water Line Extension

This project will construct 6,000 LF of 6-inch, 4-inch and 2-inch waterlines and associated appurtenances. One fire hydrant is purposed on the 6" waterline. A booster pump station is proposed for this project. This project will allow public water to be available to 12 existing residences. Residents presently rely on private wells, springs and cisterns, some of which are bacteriologically contaminated or do not provide an adequate quantity of water. A waterline extension to the area will eliminate their dependence on private water sources that are susceptible to contamination and do not provide a sufficient amount of water to meet their needs.

Funding was received from the Virginia Department of Health. Project is anticipated to advertise for construction in Fall 2019 with an estimated construction cost of \$400,000.



Small Micro Booster Pump Stations

This project will construct 3 micro booster pump stations at Pine Hill Road, Bella's Pumps Station and Stone Mountain Pump Station. These improvements will provide consistent pressures to the small areas of residents they serve. These improvements are anticipated to be made in the Spring of 2020. Estimated cost of construction for these stations is \$60,000.



Monte Vista Drive/Crescent Road Water Distribution Improvements

A Preliminary Engineering Report recommended improvements in the Route 91 (Monte Vista) corridor near Glade Spring, including the replacement of again and/or insufficiently sized waterline, reconfiguring the existing pressure zones in the areas and taking the Manheim pump and tank out of service. Hydraulic grades in the pressure zone make the tank unnecessary.

Estimated construction costs are \$940,000.

MONTE VISTA DR. / CRESCENT RD. WATER SYSTEM IMPROVEMENTS

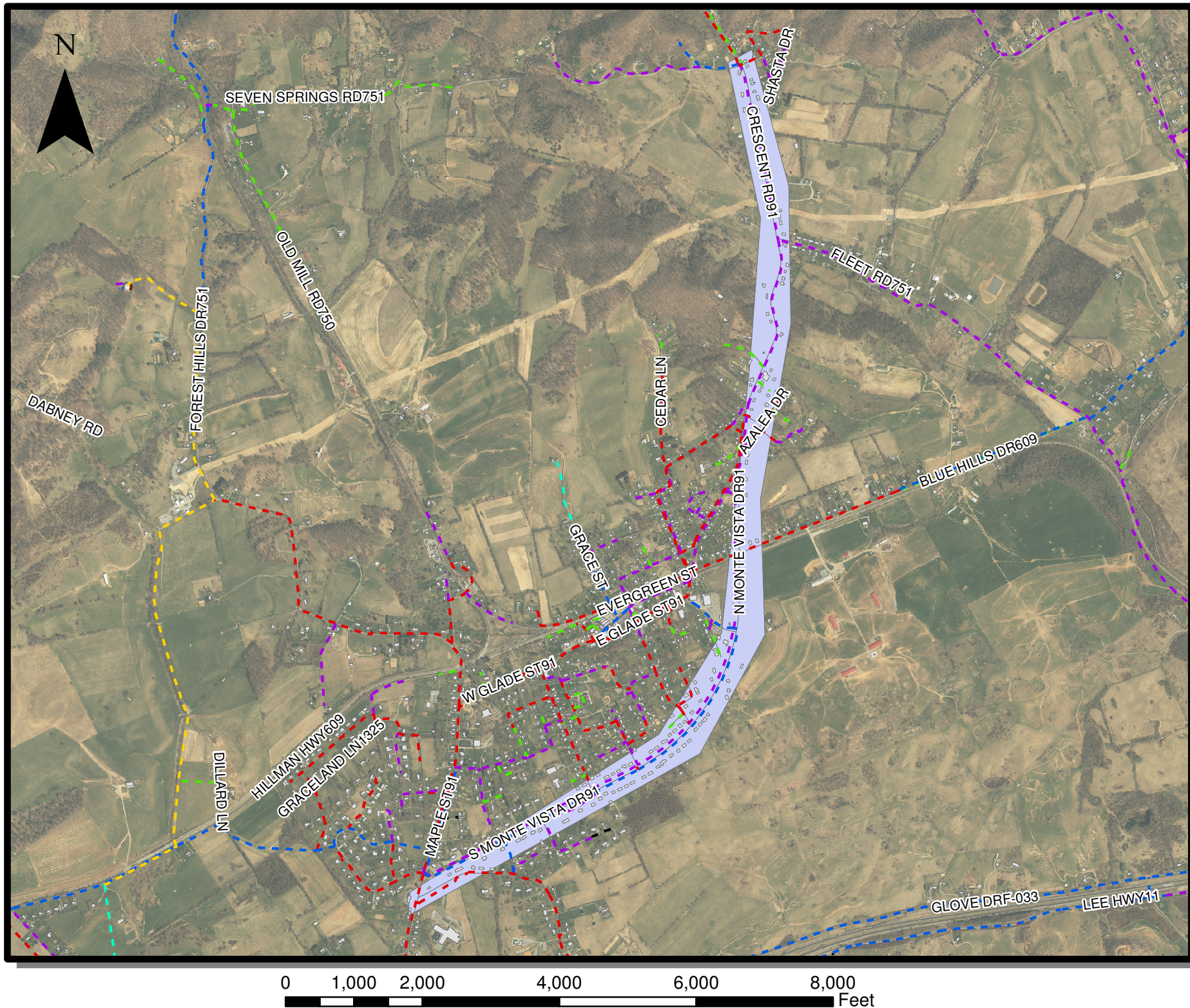


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Meter Replacement Project

As a regional provider of high quality and dependable water and wastewater services to residents and businesses, WCSA desires to service its customers in an efficient and effective manner as possible. Through this Request for Proposals (RFP) process, WCSA desires to replace its current meter reading system with an Advanced Metering Infrastructure (AMI) solution to automate the meter reading process. WCSA would also like to use this sourcing process as an opportunity to improve overall utility business functions, customer support services, productivity and the use of technology in serving its customers. WCSA is requesting proposals from interested and qualified Advanced Metering Infrastructure vendors to aid in the proposed improvements.

WCSA is seeking to implement an Advanced Metering Solution along with new water meters to help accurately read meters, recover lost revenue from meters that have reached the end of its useful life, provide usage information to its ratepayers, enable leak detection programs and run advanced metering analytics against the data collected. Some of the key drivers for the program are:

Enhanced Customer Service

With a service territory of 300 square miles, it can take hours to respond to meter related service requests. One of the core project drivers is to enhance our respond times, eliminate unnecessary truck rolls and then leverage the data provided by the AMI Solution to proactively manage field conditions and address situations as they come up. This may include information on system disruptions, customer service request status and/or method for customers to initiate a service request. Project will provide meter management tools to proactively monitor, troubleshoot and diagnose field situations that will result in operational efficiency gains.

Equip the Service Authority for Future Growth

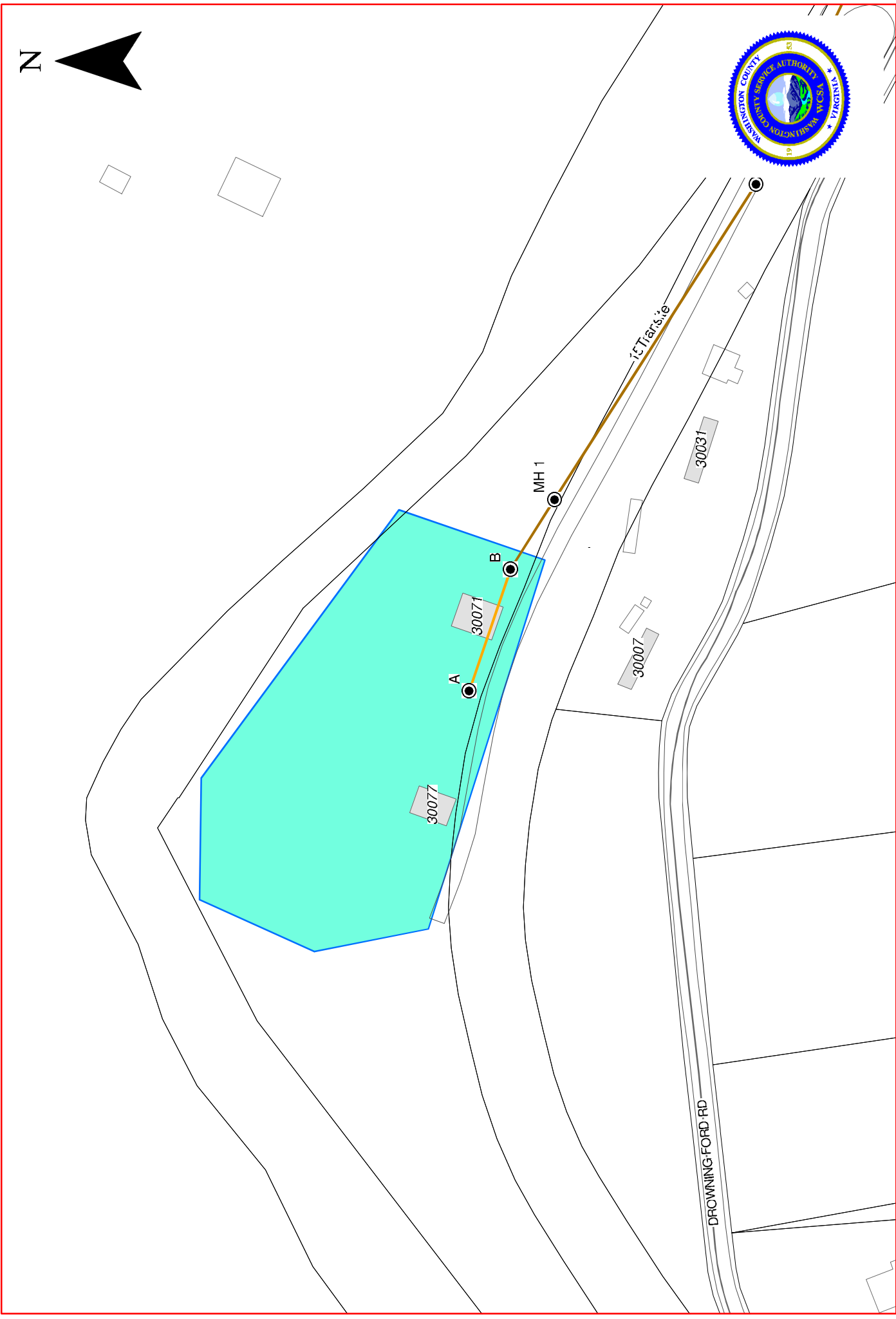
WCSA has experienced growth in its customer base and desires an AMI solution that will enable the Utility to serve this growth without the additional manpower and infrastructure typically associated with manually read or drive by systems. The Meter Upgrade Project is in the planning stages and is anticipated to cost \$9.2 Million.

Wastewater Projects

Damascus Wastewater Treatment Plant Operational Improvements Project

The Damascus Sewer system was transferred to WCSA in August 2012, adding approximately 470 sewer connections to the WCSA system. Several improvements need to be made to the Treatment Plant to enhance the operational efficiency of the system. The improvements to be made as identified in the Damascus Wastewater Treatment Plant (WWTP) Study include demolishing chlorine equipment and refurbishing room for storage; removing sludge thickener and press and relocating polymer feed system with containment; replacing blowers with new blowers in sound attenuating enclosure; converting to fine bubble diffused air to reduce energy costs; repairing slide gates in aeration basin; providing flow meters for the return activated sludge and waste activated sludge to enable more optimum control of sludge age; providing refrigerated automatic samplers for the influent and effluent samplers; mounting digester supernatant pump on a rail system that can be manually lowered to remove supernatant and to aid in sludge thickening; and providing a supervisory control and data acquisition (SCADA) system to enable remote monitoring of the WWTP as well as data logging of motor run times, trending, etc.

Since that time WCSA has made improvements to the plant clarifiers and improved upon the office of the plant. Associated improvements are estimated at \$440,000.



Damascus Wastewater Treatment Plant Operational Improvements Project

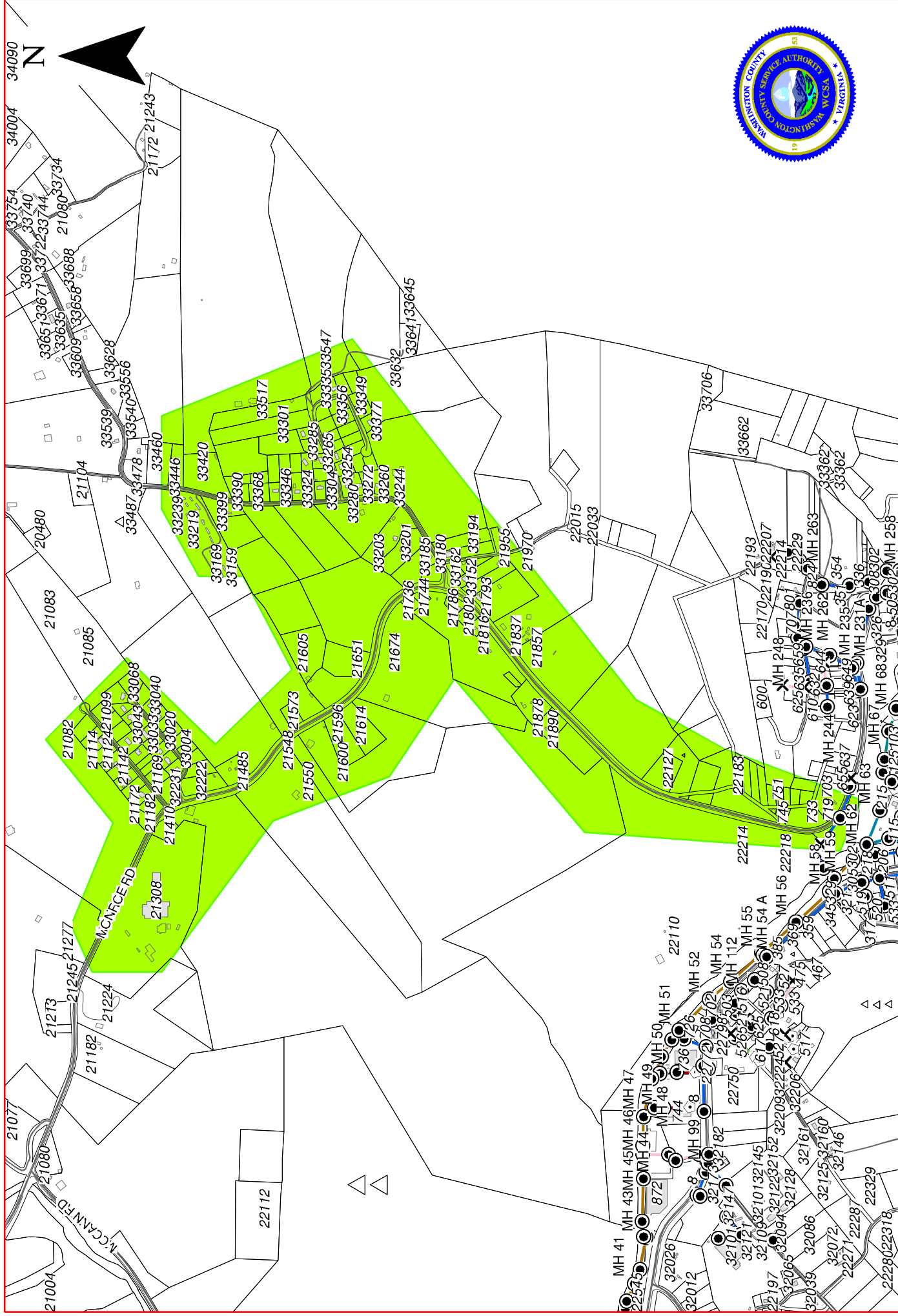
Damascus Wastewater Expansion Projects

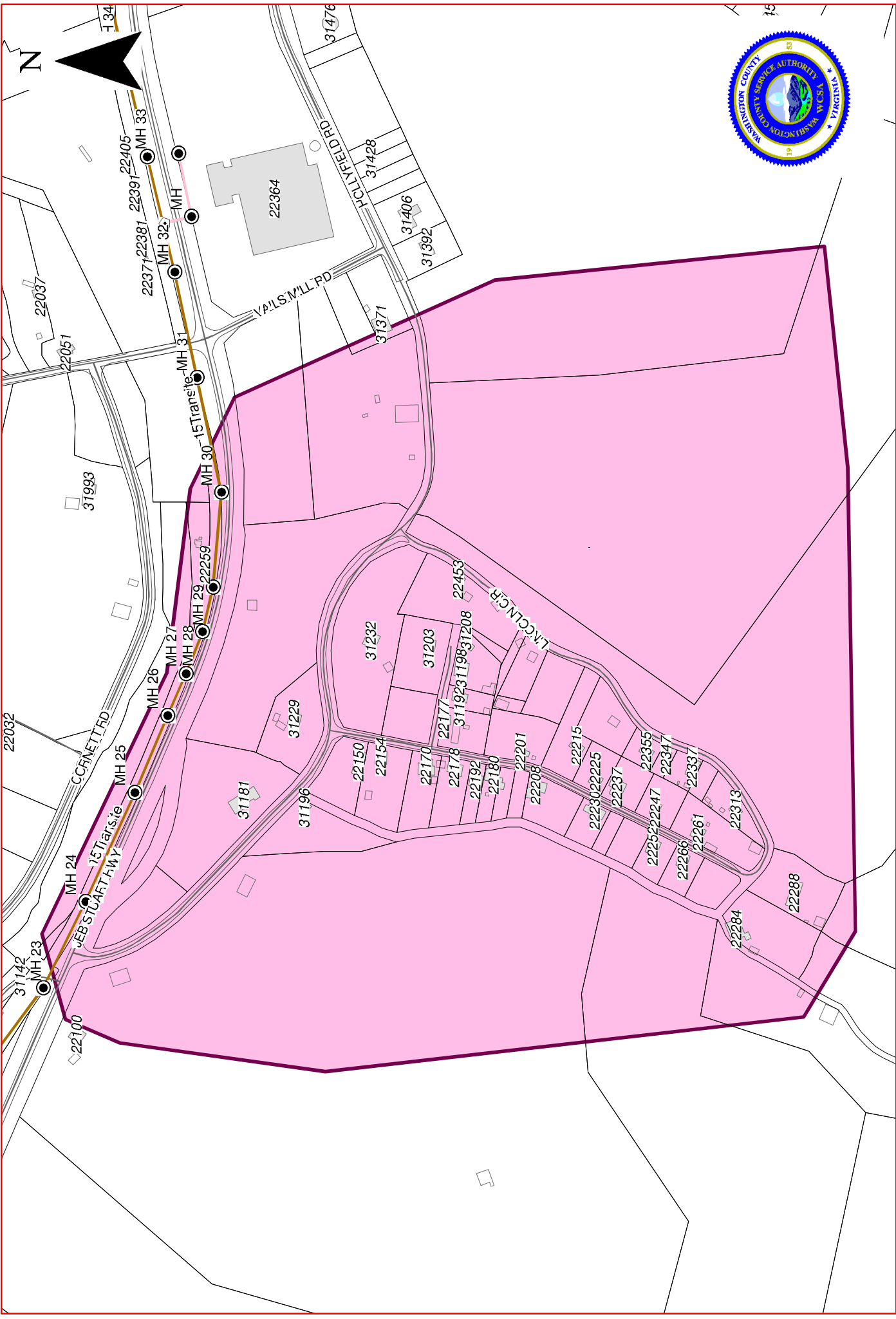
These potential wastewater extension projects were identified by the WCSA/Damascus Wastewater Collection Study.

The **Deerfield/Holston High School Area Wastewater Extension** could extend wastewater service to approximately 117 homes and Holston High School.

The **Hollyfield Community Wastewater Extension** could extend wastewater service to approximately 25 homes in the area south of Route 58.

The **Mountain City Road Wastewater Extension** could extend wastewater service to approximately 40 homes north of Route 58.





Hollyfield Community Wastewater Extension Project

Emory/Meadowview/Glade Spring Wastewater Extension Projects

These projects are expected to be identified by the Emory/Meadowview/Glade Spring Wastewater Improvements Study. Since the Study is not complete as of the writing of this report, the descriptions below are subject to change once the Study is complete.

Project A (Expanded Exit 26 Service Area) will extend service along Lee Highway and Old Stage Road in the Exit 26 area. The project area includes older single family homes and is one of the areas where the local Health Department Sanitarian is having difficulty in repairing septic tank drain fields. The area includes approximately 112 homes and would require approximately 10,000 linear feet of 8-inch gravity sewer and two small pump stations. The second pump station would pump through only 500 linear feet of force main into the Hall Creek interceptor. The pump station would be designed so that it could be expanded to handle the flow from not only the Exit 26 area but also the other areas along Lee Highway to be served in the future.

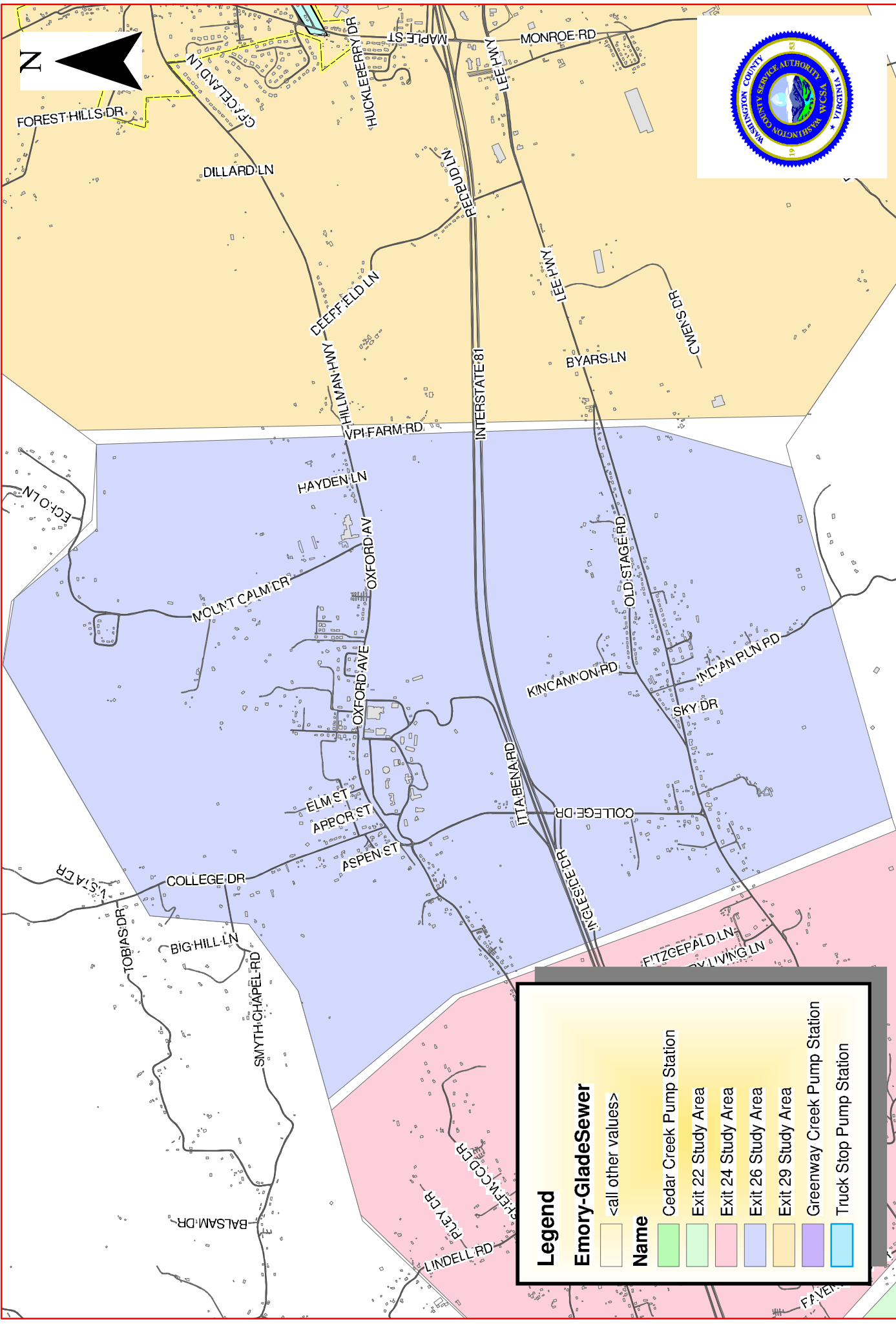
Project B (Expanded Exit 24 Service Area)

WCSA's project will require 25,000 linear feet of gravity sewer line and a pump station adjacent to Cedar Creek. Initially this pump station would deliver flow to a proposed truck stop pump station but would be designed to be expanded to convey the flows from the Exit 22 and Exit 24 areas. There are approximately 220 homes in the service area, which includes Ravenwood Drive, Lee Highway, Glenbrook Avenue, Cedar Creek Road, Lanier Drive, and Brandon Drive.

The above description assumes the proposed commercial facility (truck stop) proceeds forward and completes the proposed infrastructure development which includes the extension of gravity sewer to the Meadowview Elementary School and a new pump station adjacent to the school to handle the flow from the truck stop, the school, and the area between the two. If this proposed development does not advance, this proposed project will be evaluated.

Project C (Expanded Exit 22 Service Area) consists of approximately 134 homes, which could include the areas of Lee Highway, Watauga Road, Enterprise Road, Alpine Drive, Leisure Lane, Overbrook Drive, Stonybrook Road, Hawthorne Drive, and Belmont Lane. Flows from this area will be collected at a new proposed pump station on Greenway Creek. From Greenway Creek, this pump station could pump to either of three force-main termination points. The flow could be pumped to the Town of Abingdon Gravity Sewer System, the existing Exit 22 WCSA pump station, or from the proposed pump station located on Cedar Creek (flowing through projects A and B above).

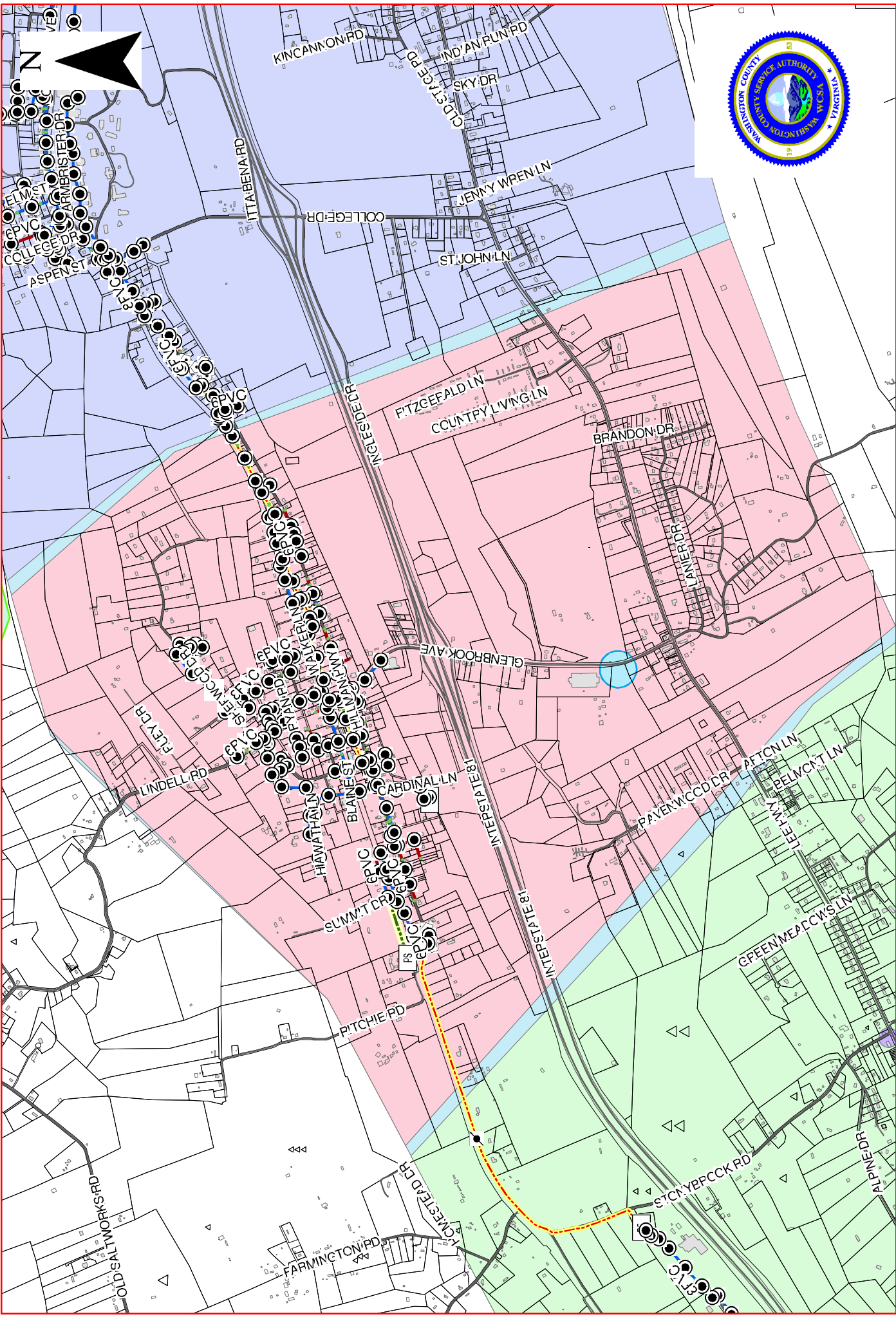
Project D (Exit 29 Service Area) consists of sewer collection expansions adjacent to the existing sewer system in Glade Spring. This project could be constructed at any time if there is sufficient interest in sewer service. Approximately 7,500 linear feet of 8-inch gravity sewer line would be required to serve the 78 homes in the project area, which could include Medallion Drive, Columbine Lane, Lee Highway, Prices Bridge Road, Glove Drive, Stagecoach Road, and Graceland Lane.



Legend

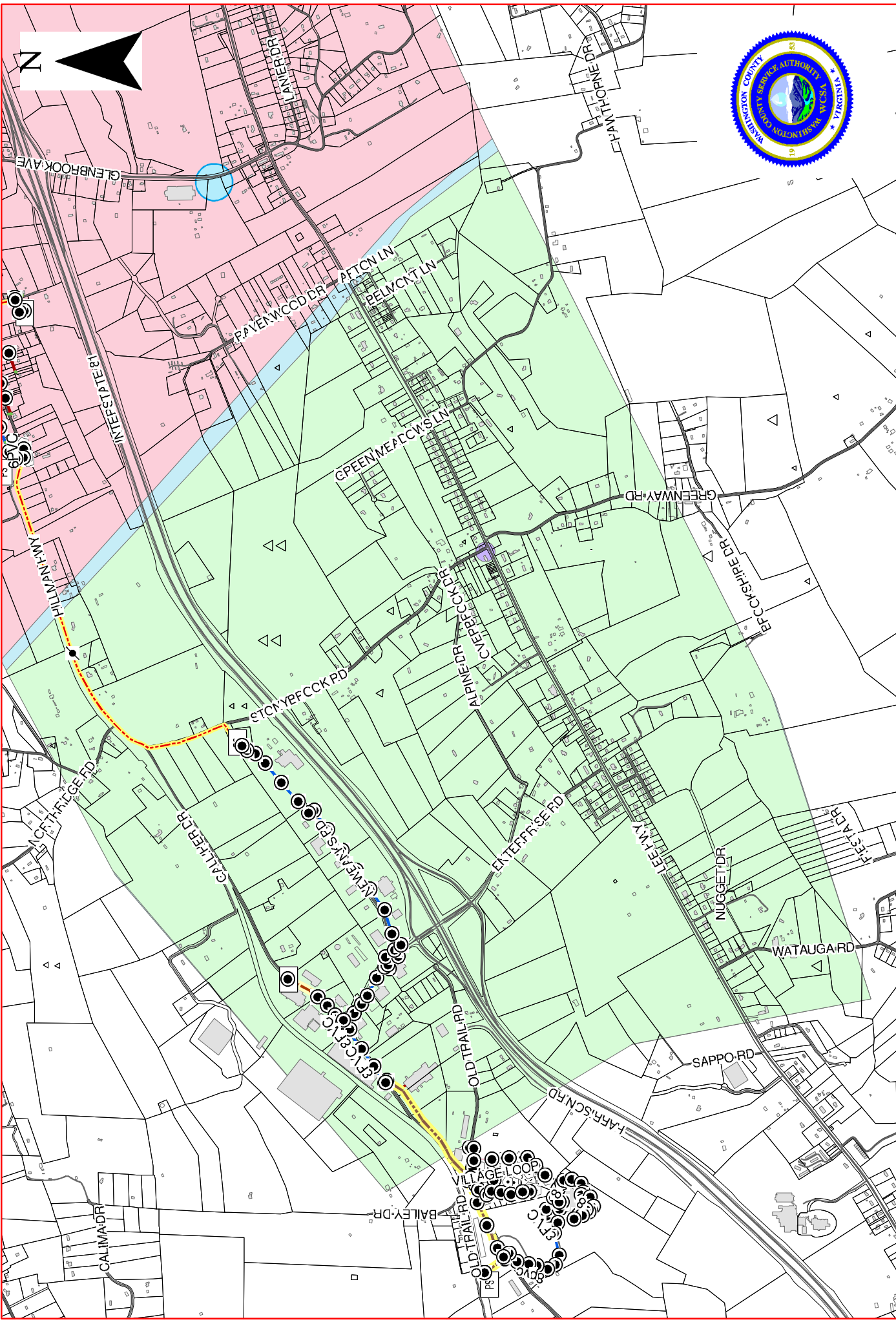
| | |
|-------------|-----------------------------|
| | Emory-Glade Sewer |
| | <all other values> |
| Name | |
| | Cedar Creek Pump Station |
| | Exit 22 Study Area |
| | Exit 24 Study Area |
| | Exit 26 Study Area |
| | Exit 29 Study Area |
| | Greenway Creek Pump Station |
| | Truck Stop Pump Station |

Exit 26 Wastewater Extension Project

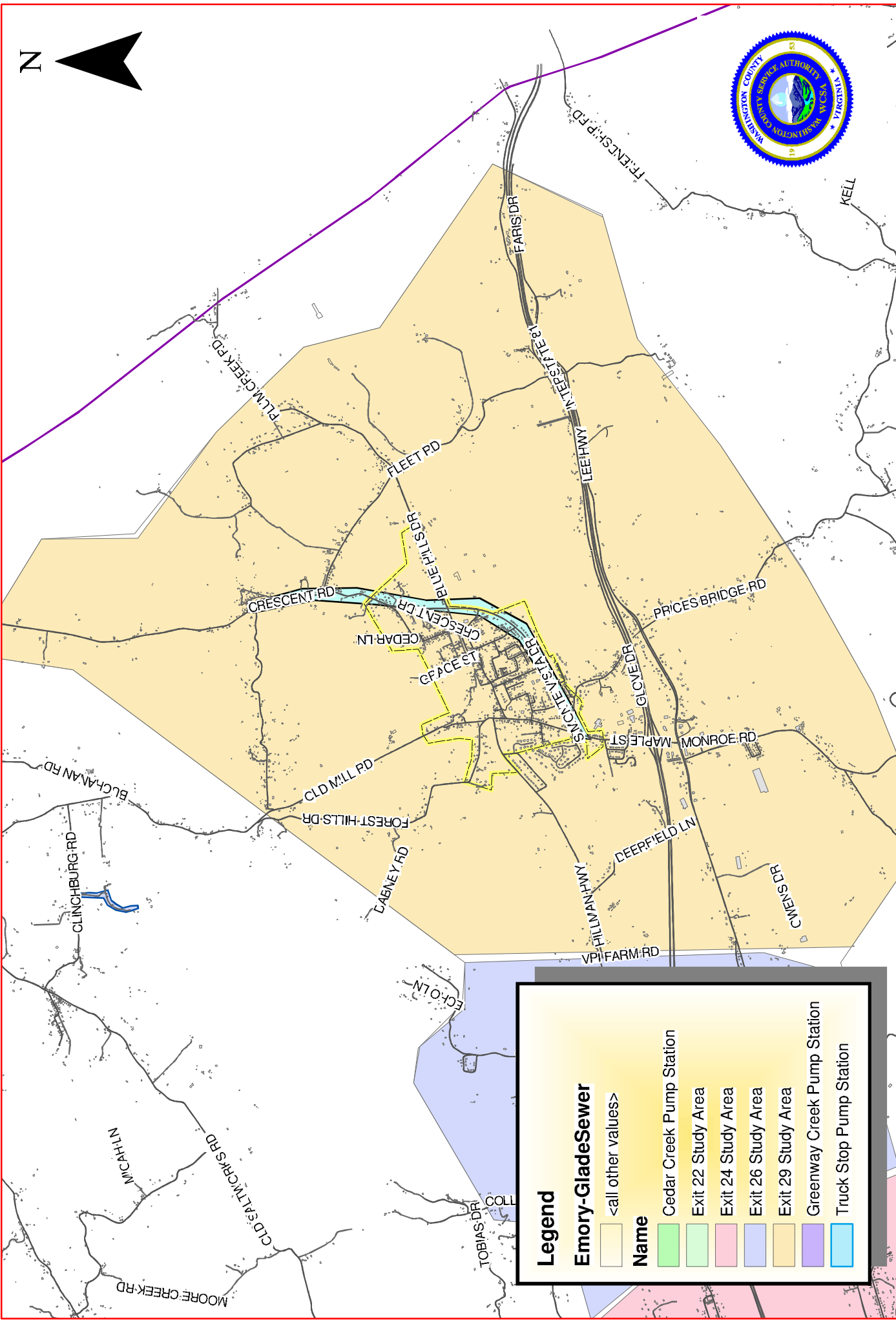


Exit 24 Wastewater Extension Project





Exit 22 Wastewater Extension Project



Legend

Emory-GladeSewer

<all other values>

Name

Cedar Creek Pump Station

Exit 22 Study Area

Exit 24 Study Area

Exit 26 Study Area

Exit 29 Study Area

Greenway Creek Pump Station

Truck Stop Pump Station

Exit 29 Wastewater Extension Project



Exit 13 Wastewater System Phase II

The proposed project is Phase 2 of WCSA's overall plan to provide sewer service in the I-81 Exit 13 area. The majority of the proposed collection system will flow by gravity to the Spring Creek Pump Station. WCSA will own, operate and directly service this new collection system while the Town of Abingdon will receive and treat the wastewater collected.

The installation of Phase 2 will provide sewer service along U.S. Route 11 (Lee Highway) located to the north of I-81. In addition to providing service to existing residences and businesses promoting growth in the corridor, Phase 2 will provide the sewer mains necessary to convey wastewater from future collection system expansions along Lee Highway to the Spring Creek Pump Station which will further promote growth along Lee Highway.

The **Phase 2A** Project area spans Lee Highway from Lilly's Die & Tool Manufacturing to the Virginia Highlands Airport. This is an almost exclusively commercial area and involves 52 connections. We have received funding from DEQ for this project. Construction for this project was completed in May 2017 with a construction cost of \$1.1 Million.

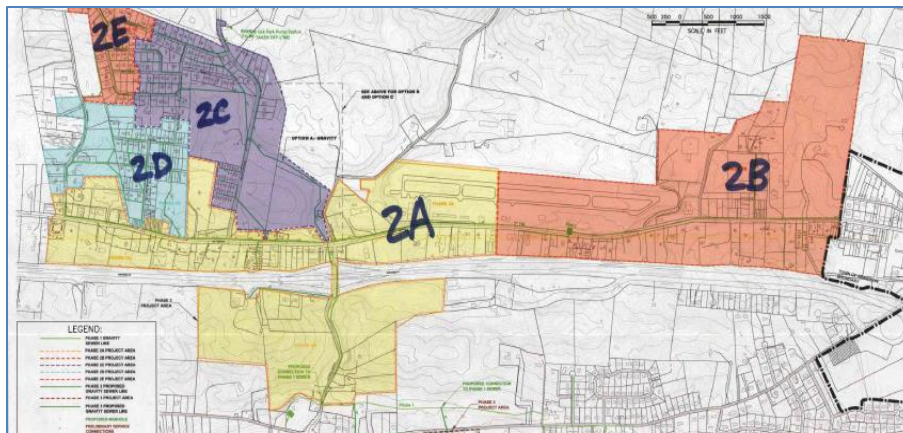
The **Phase 2B** Project could proceed after Phase 2A. This project area spans Lee Highway from the Virginia Highlands Airport to the Abingdon town limits. It requires a pump station and involves 65 connections. WCSA plans to solicit User Agreements for Phase 2B in early 2020 and follow up with applying for project funding.

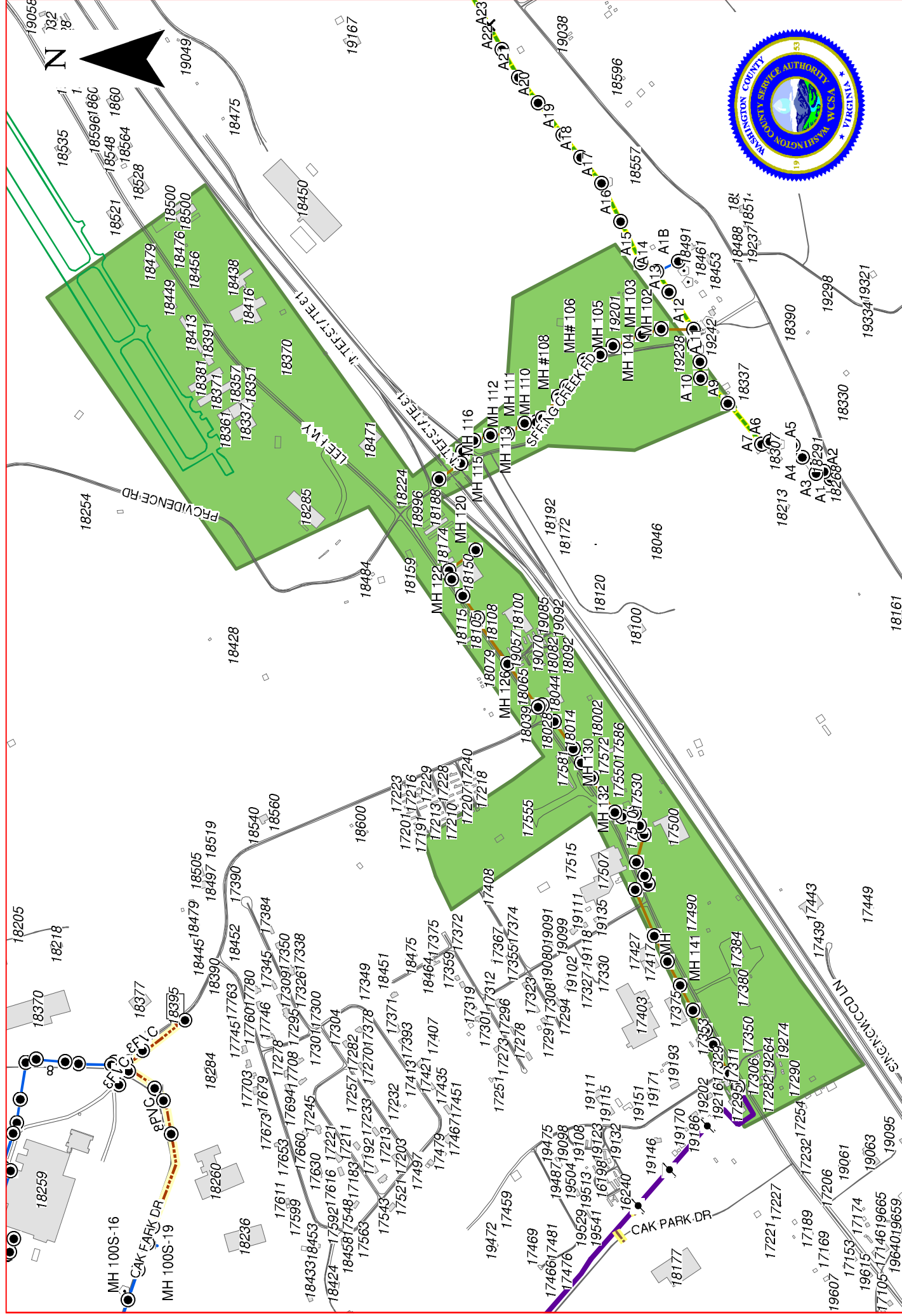
The **Phase 2C** Project could proceed after Phase 2A and involves 109 connections. This project area consists of the majority of Oak Hill Estates.

The **Phase 2D** Project could proceed after Phase 2A and involves 53 connections. This project area consists of the Melvin Hills subdivision.

The **Phase 2E** Project could proceed after Phase 2C and involves 39 connections. This project area includes the remainder of Oak Hill Estates.

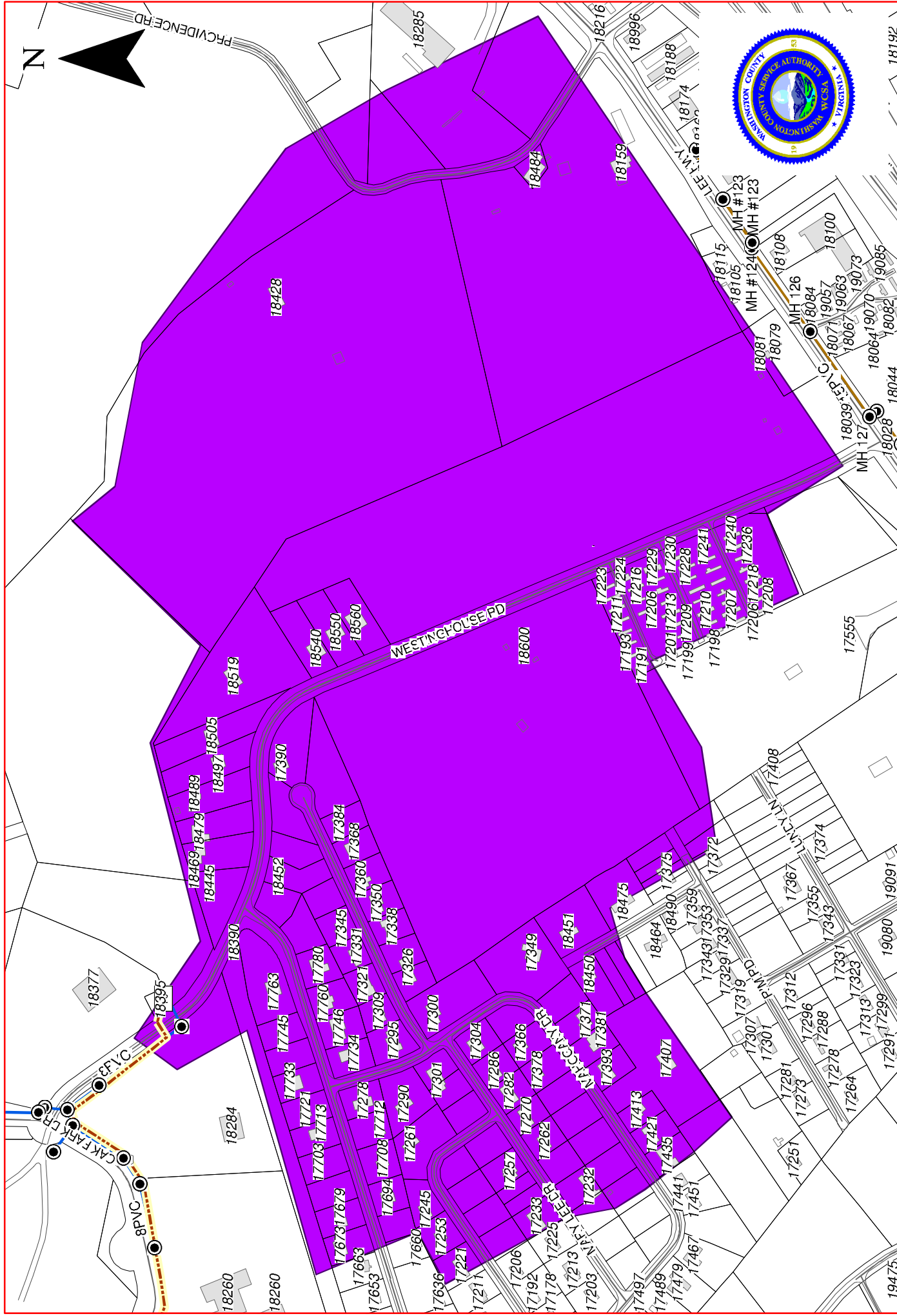
All Phases of this project, combined with the **Oak Park Wastewater Project**, will directly impact 358 existing residences and businesses.





Exit 13 Wastewater System Phase 2A





Exit 13 Wastewater Phase 2C

Exit 13 Wastewater System Phase III

The Exit 13 Phase 3 project is a part of WCSA's overall plan to provide much needed sewer service in the I-81 Exit 13 areas.

This completed sewer project located off of Old Jonesboro Road and serves portions of the Fox Fire Subdivision and the southern portion of Westwood (along McCray Drive). The project area now consists of 44 potential residential connections. In addition, the proposed sewer pump station allows additional properties of the community to be served by a future line extension if so desired. The project constructed approximately 6,000 L.F of 8" sewer line, 2,400 L.F of 4" force main and a pump station.

This project area includes portions of Foxfire subdivision and a portion of McCray Drive in Westwood, for a total of 44 potential connections.

Construction bids were accepted bids in the summer of 2017 and construction was completed in September 2018 with a construction cost of \$1,000,000.

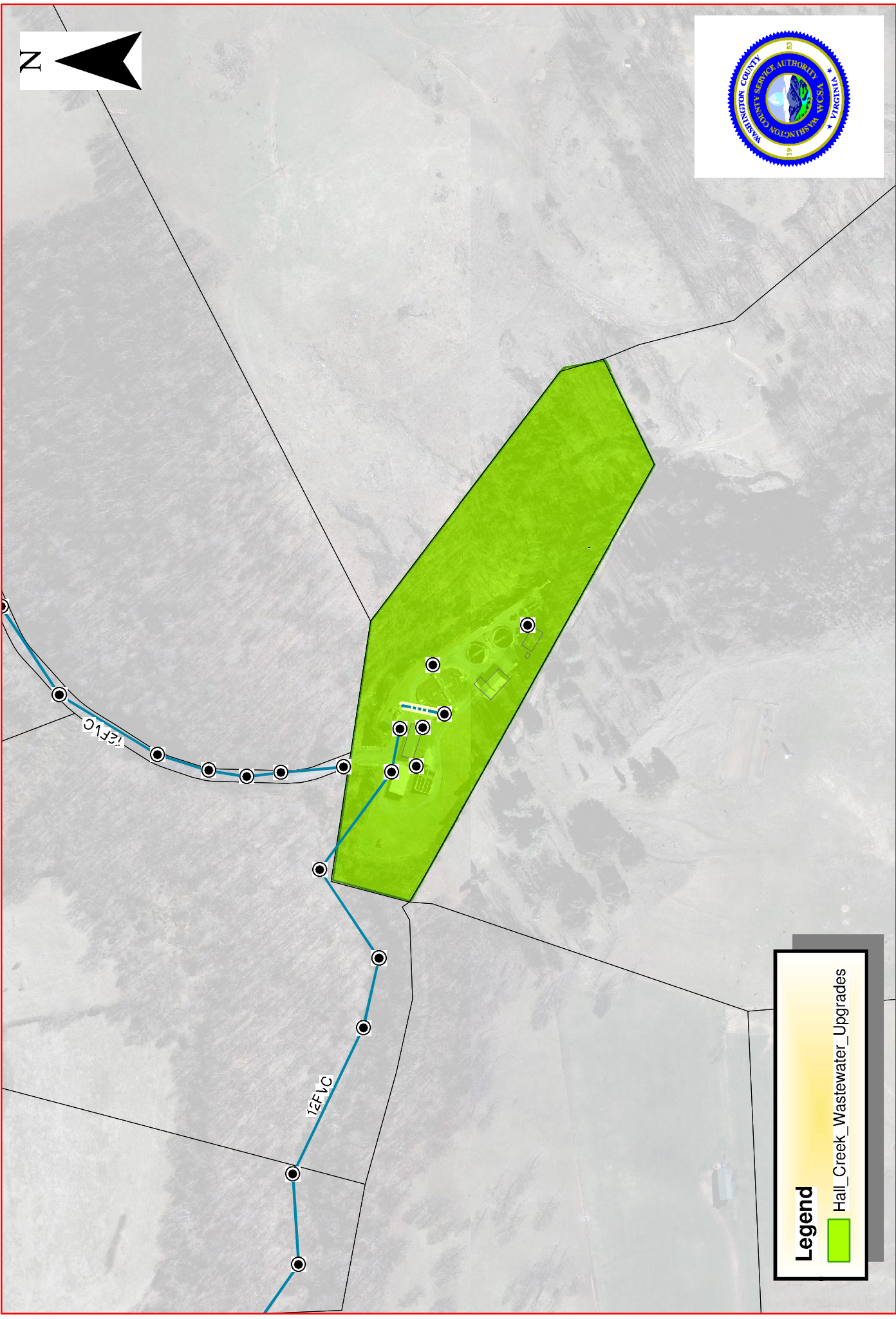


Hall Creek Wastewater Treatment Plant Upgrades Project

Several major equipment items at the Hall Creek Wastewater Treatment Plant are in need of replacement. WCSA will perform the necessary equipment replacements over the next 10 years in the order of necessity. The upgrades include replacement of grit removal equipment, replacement of screening equipment, addition of a new washer compactor, replacement of digester blowers, replacement of post aeration blowers, RAS pump station modifications, replacement of the laboratory HVAC system, and a hazardous liquid containment area. Improvement upgrade costs are in the order of \$1.9 Million.

Replacement of the screening equipment will be advertised in the Fall of 2019. Construction costs for the screening equipment upgrade is estimated at \$300,000.



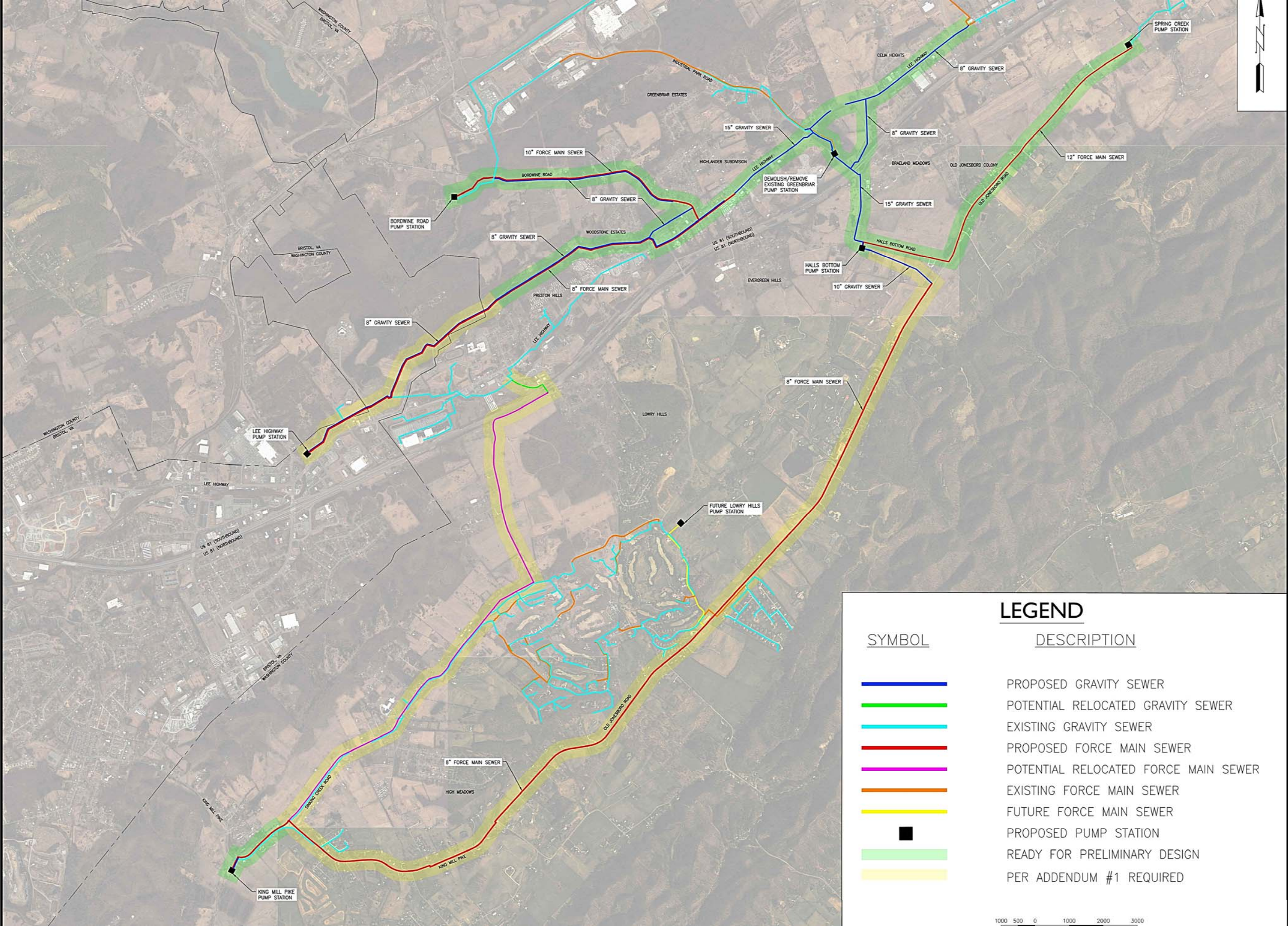


Hall Creek Wastewater Treatment Plant Upgrade Project

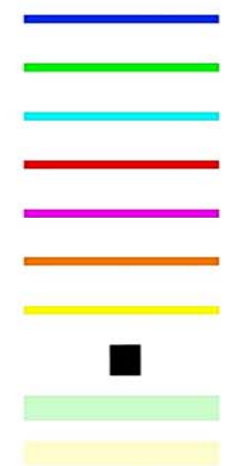
Lee Highway Corridor Wastewater Project

The service area between Oak Park to Exit 7 has been a topic of discussion over the past several years. In 2017, WCSA tasked engineering firms to formulate a Preliminary Engineering Report study to determine the best way to serve these areas. Other areas from where WCSA sends wastewater flow to the Bristol Virginia Utilities were included in this study. The finalization of the study is nearing completions. Outcomes of early reports allowed the WCSA to apply for project funding with Rural Development. The WCSA has received funding totaling \$18.8 Million for the first phase of the project.

The first phase of the project will be referred to as the “backbone” of the Lee Highway Corridor Project. This phase will predominately be the conveyance system to convey flow back to the Town of Abingdon. This initial project will serve approximately 130 new residential and commercial customers. Once the successful completion of the “backbone” is constructed, WCSA will begin to serve other outlying areas. Currently this project is in the design stages. Construction is anticipated to begin Late 2020.



SYMBOL



LEGEND

DESCRIPTION

- PROPOSED GRAVITY SEWER
- POTENTIAL RELOCATED GRAVITY SEWER
- EXISTING GRAVITY SEWER
- PROPOSED FORCE MAIN SEWER
- POTENTIAL RELOCATED FORCE MAIN SEWER
- EXISTING FORCE MAIN SEWER
- FUTURE FORCE MAIN SEWER
- PROPOSED PUMP STATION
- READY FOR PRELIMINARY DESIGN
- PER ADDENDUM #1 REQUIRED

1000 500 0 1000 2000 3000

Preliminary

LEE HIGHWAY CORRIDOR SEWER PROJECT
FOR THE
WASHINGTON COUNTY SERVICE AUTHORITY
PROPOSED SEWER MAP

| | |
|---------------------------|--|
| Purpose of Document Issue | |
| No. | |
| Date | |

| | |
|----------|-------------|
| Designed | |
| Drawn | CRD |
| Checked | TCR/BWK/JWT |
| Date | APRIL 2019 |

Project No. 14755



Sheet No.

EXHIBIT I

Capital Improvement Projects Summary

Project Cost and Cost Per Connection includes all sources of funding (WCSA, Grant, and Loan).

| | Project Name | Number of Connections | Project Cost | Cost Per Connection |
|-----------------------------|--|-----------------------|--------------|---------------------|
| PLANNED AND UNFUNDED | | | | |
| 1 | Damascus Wastewater Treatment Plant Operational Improvements Project | | \$440,000 | |
| 2 | Deerfield/Holston High School Area Wastewater Extension Project | 117 | \$2,081,840 | \$17,794 |
| 3 | Emory/Meadowview/Glade Spring Wastewater Improvements Project | | \$1,580,000 | |
| 4 | Exit 13 Wastewater System Phase 2B | 65 | \$1,274,211 | \$19,603 |
| 5 | Exit 13 Wastewater System Phase 2C | 109 | \$1,934,835 | \$17,751 |
| 6 | Exit 13 Wastewater System Phase 2D | 53 | \$1,051,024 | \$19,831 |
| 7 | Exit 13 Wastewater System Phase 2E | 39 | \$639,900 | \$16,408 |
| 8 | Exit 22 Wastewater Extension Project | 134 | \$3,223,000 | \$24,052 |
| 9 | Exit 24 Wastewater Extension Project | 220 | \$2,963,000 | \$13,468 |
| 10 | Exit 26 Wastewater Extension Project | 112 | \$1,400,000 | \$12,500 |
| 11 | Exit 29 Wastewater Extension Project | 78 | \$1,856,000 | \$23,795 |
| 12 | Hall Creek Wastewater Treatment Plant Upgrades Project | | \$1,594,000 | |
| 13 | Hollyfield Community Wastewater Extension Project | 25 | \$655,200 | \$26,208 |
| 13 | Meter Replacement Project | | \$9,200,000 | |
| 14 | Mendota Road Waterline Extension Project | 48 | \$3,040,000 | \$63,333 |
| 15 | Mid-Mountain (Zone 108) Water System Improvements Project Phase 1 | | \$1,999,710 | |

Capital Improvement Projects Summary

| | Project Name | Number of Connections | Project Cost | Cost Per Connection |
|------------------------|---|-----------------------|--------------|---------------------|
| 16 | Monte Vista Drive/Crescent Road Water Distribution Improvements | | \$940,000 | |
| 17 | McCann Road/Vail's Mill Wastewater Extension Project | 40 | \$1,052,094 | \$26,302 |
| 18 | Smyth Chapel Rd Water System Improvements | 15 | \$200,000 | \$13,333 |
| 19 | Small Micro Booster Pump Stations (Pine Hill, Bella's, Stone Mountain) | | \$60,000 | |
| TOTAL | | | \$37,184,814 | |
| UNDERWAY AND/OR FUNDED | | | | |
| 1 | Rich Valley Water Line Extension Project | 45 | \$3,400,000 | \$75,555.56 |
| 2 | Sugar Cove Road Waterline Extension Project | 14 | \$462,000 | \$33,000.00 |
| 3 | Hidden Valley Waterline Extension Project Phase 2 | 25 | \$730,000 | \$29,200.00 |
| 4 | Galvanized Waterline Replacement Phase 3 and Abingdon Water Storage Tank Replacement Projects | | \$16,450,000 | |
| 5 | Lee Highway Sewer Corridor Project (backbone) | 130 | \$18,800,000 | \$144,615.38 |
| TOTAL | | | \$39,842,000 | |
| COMPLETED SINCE 2017 | | | | |
| 1 | Exit 13 Wastewater Phase 3 Foxfire Phase 1 | 40 | \$1,000,000 | \$25,000 |
| 2 | Route 58 Corridor Water Supply Improvements Project | | \$1,830,000 | |
| 3 | Chip Ridge Road Water Line Extension Project | 4 | \$125,000 | \$31,250 |
| 4 | Mill Creek Regional Water Treatment Plant Upgrade Project | | \$3,700,000 | |
| 5 | Exit 13 Phase 2A | 52 | \$1,100,000 | \$21,153.85 |
| 6 | Rattle Creek Water Line Extension Project | 15 | \$300,000 | \$20,000 |

Capital Improvement Projects Summary

| Project Name | Number of Connections | Project Cost | Cost Per Connection |
|--------------|--------------------------|--------------|------------------------|
| TOTAL | | \$8,055,000 | |