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INDIANA UTILITY  
REGULATORY COMMISSION

**Petitioner's Exhibit No. 3**

**CITY OF EVANSVILLE**

**INDIANA UTILITY REGULATORY COMMISSION**

**CAUSE NO. 45545**

**DIRECT TESTIMONY**

**OF**

**MICHAEL LABITZKE**

**SPONSORING ATTACHMENTS ML-1 THROUGH ML-5**

**City of Evansville**

**Cause No. 45545**

**Direct Testimony of Michael Labitzke**

**I. INTRODUCTION**

1 **Q. Please state your name, occupation, and business address.**

2 A. My name is Michael Labitzke. I am the Director of the Program Management  
3 Office for the Evansville Water and Sewer Utility (“EWSU”), which is owned by  
4 the City of Evansville (“Evansville”), the Petitioner in this Cause. My business  
5 address is 1 SE 9<sup>th</sup> Street, Suite 200, Evansville, Indiana 47708.

6 **Q. Please describe your formal education and summarize your experience and**  
7 **current duties for Evansville.**

8 A. I graduated from the University of Evansville in 1992 with a Bachelor of Science  
9 in Civil Engineering. I worked for consulting engineering firms for 18 years  
10 completing planning, design, and construction projects working up to Branch  
11 Office Manager and Vice President. Since joining the Utility in 2010, I have been  
12 responsible for developing the Qualifications Based Selection process, Request for  
13 Proposal process, and developing rigor around project and program management  
14 including the creation of the Program Management Office, the development of  
15 program management, project management, and private development manuals. I  
16 am a licensed professional engineer in the States of Indiana and Missouri.

17 **Q. What is the purpose of your direct testimony in this Cause?**

1 A. The purpose of my direct testimony is to present the results from the previous rate  
2 case, Cause No. 45073, concerning the Refresh Evansville initiative, lay out the  
3 remaining work to be completed from the Cause No. 45073, present the risk-based  
4 project priority approach for this rate case, and present the cost estimating tool  
5 created during the implementation of the current rate case. I will also present the  
6 relocation costs to create space for the new water treatment plant.

7 **Q. Are you sponsoring any attachments in this Cause?**

8 A. Yes, I am sponsoring the following attachments:

- 9 • Attachment ML-1: EWSU Water Master Plan
- 10 • Attachment ML-2: Water Main Replacement Scoping Reports
- 11 • Attachment ML-3: EWSU 2022 Rate Case Complete Project Listing
- 12 • Attachment ML-4: Booster Station Improvements Scoping Reports
- 13 • Attachment ML-5: Facility Relocation Feasibility Assessment
- 14 CONFIDENTIAL

15 **Q. Were these documents prepared by you or under your supervision?**

16 A. Yes they were.

17 **II. REFRESH EVANSVILLE PROGRAM**

18 **Q. Please describe EWSU's Refresh Program.**

19 A. Refresh Evansville is a program which sets forth a long-term strategy to replace the  
20 City of Evansville's aging water mains and supporting infrastructure. EWSU  
21 maintains 1,000 miles of water lines, 415 miles of which is cast iron with an  
22 estimated average age of 78 years. Also, there is approximately 149 miles of ductile  
23 iron pipe estimated at 45 years of age. These lines, comprising the bulk of the

1 distribution system, are now at or past their life expectancy and are failing at a high  
2 rate as compared to the industry average. These failures can largely be attributed  
3 to a combination of age and material. In response, EWSU developed Refresh  
4 Evansville to prioritize the necessary replacement of aging water lines and ensure  
5 future generations of Evansville citizens will be able to enjoy safe, clean drinking  
6 water. EWSU also engaged HNTB Corporation (“HNTB”) to develop a Water  
7 Master Plan to evaluate EWSU’s existing assets, project the City’s future needs and  
8 propose improvements for the system to maintain the existing level of service, and  
9 meet projected future needs over a 30-year planning period. The Water Master Plan  
10 is included as Attachment ML-1 to my testimony and is the current 30-year Master  
11 Plan, which includes all of the potential water main replacement, water main  
12 extension, booster station/water storage and water treatment plant projects that had  
13 been identified when the Plan was published in 2016. EWSU then developed tools  
14 to prioritize the projects included in the Water Master Plan, and those projects are  
15 the ones we are proposing in this Cause. I will discuss EWSU’s prioritization  
16 methodology in greater depth later in my testimony.

17 **Q. With respect to the Refresh Program, what did Petitioner propose in its last**  
18 **rate case, Cause No. 45073?**

19 A. EWSU set forth a goal to replace 1.5%, or 15 miles, of water mains per year. More  
20 specifically, Evansville proposed 15 miles of water line replacement each year for  
21 3 years for a total of 45 miles. Petitioner set an aggressive goal in the last rate case  
22 because data for the five-year period 2014-2018 showed Evansville’s average water  
23 main breaks (35 main breaks per 100 miles) were well over the national average

1 (14 main breaks per 100 miles). EWSU felt it was important to set an aggressive  
2 goal in the last case in order to prevent this failure rate from climbing even higher.

3 **Q. How does EWSU's progress compare with what was proposed in Cause No.**  
4 **45073?**

5 A. For years 2019-2021, 7.5 miles, 11.0 miles, and 7.0 miles have been completed, to  
6 date, respectively. There are still 13.7 miles of water line planned to be bid for  
7 construction through the remainder of 2021 and approximately 5.0 miles will be  
8 bid for construction in the first half of 2022. With the projects still to be bid into  
9 construction, a total of 44.2 miles of water line is planned to be constructed by  
10 2022. If you look at the full three-year calendar period from June 2019 to June  
11 2022, the projected implementation rate will average 14.7 miles, only .3 miles less  
12 than what EWSU proposed in Cause No. 45073.

13 **Q. Originally, EWSU proposed to complete 15 miles/per year for years 2019-**  
14 **2021. Is there a reason why the project schedule was delayed into 2022?**

15 A. Yes. EWSU did not receive construction money at the beginning of 2019, thus  
16 reducing the effective construction time for the first year of construction. EWSU  
17 did not start substantial construction on these projects until June 2019, halfway  
18 through the year. We also made the decision to intentionally slow the pace of  
19 construction projects, as we worked to develop and refine the standards and  
20 construction standard operating procedures for each project. The development of  
21 these standards and procedures increased the transparency to the bidding  
22 constructors and, we believe, helped EWSU achieve lower cost per mile and keep  
23 the costs of construction down as low as possible. As I testified, if you look at the

1 full year calendar from June 2019 through June 2022, EWSU anticipates  
2 completing these projects very close to target.

3 **Q. You mention lower costs per mile in 2021. What were the construction costs**  
4 **per mile for Refresh?**

5 A. The construction cost per mile for the Refresh program from 2019-2021 to date is  
6 \$1.59M, \$1.76M, and \$1.24M, respectively. The weighted average per mile for the  
7 three-year program to date is \$1.55M per mile. Several factors play into the  
8 individual project cost per mile including main size, corridor congestion, and  
9 restoration complexity. Actual costs for the remaining 18.7 miles of project left to  
10 bid will affect the full three-year average cost per mile.

11 **Q. What other costs were incurred with these projects?**

12 A. There are three engineering soft costs associated with the projects that are not  
13 construction cost related. They include the program management, design  
14 engineering, and construction engineering of a project. The actual costs incurred  
15 for program management for the projects proposed in Cause No. 45073 and for  
16 program management planning for this rate case were split between two consulting  
17 firms. The cost for program management for Cause No. 45073 was \$1,675,370.  
18 The cost for program management planning for this case was \$1,623,900. This  
19 total is \$3,299,270. When you include the anticipated full cost of the projects to be  
20 built from Cause No. 45073 (\$105,133,500), the average cost for program  
21 management is 3.14%. 3.0% for program management was used when developing  
22 the capital costs for this Cause.

1 The design costs for projects bid thus far have been \$3,997,665. When you include  
2 the construction costs for projects designed in-house, the aggregate design costs for  
3 the three years to date is 10.36%. 10.0% for design services was used when  
4 developing the capital costs for this Cause.

5 The construction engineering costs for projects thus far have been \$5,622,259.  
6 When you divide these costs by the applicable construction costs, the aggregate  
7 construction engineering costs for the three years to date is 8.8%. 9.6% for  
8 engineering services was used when developing the capital costs for this Cause.

9 **Q. Why do you include Road Relocation reserves annually for these projects?**

10 A. Many of the linear water assets in our system are in public right-of-way. When a  
11 transportation agency decides to execute a project and identifies our facilities as  
12 interfering with their improvements, we are expected to move our facilities out of  
13 the right-of-way. In Cause No. 45073, four projects were known at the time of  
14 filing. Each of those projects had their own scoping reports. Additionally, an  
15 annual reserve was established for unknown road projects averaging \$3,388,900.  
16 These budgeted amounts totaled \$22,746,200. EWSU will end up completing 12  
17 projects totaling approximately \$18,385,000. The remaining balance to these  
18 reserves was used to address other Refresh project costs. This Cause has 5 known  
19 transportation relocation projects and 5 annual placeholders, with construction  
20 engineering services, totaling \$42,991,000. It is imperative to hold these reserves  
21 due to the opportunity transportation jurisdictions will have to complete more  
22 projects due to federal stimulus funding opportunities.

1 **Q. Has EWSU developed any tools that it plans to implement to help manage the**  
2 **Refresh Projects it is proposing in this Cause?**

3 A. Yes. EWSU has developed a number of cost control measures to help manage  
4 project costs for future Refresh projects. The Utility has four important initiatives  
5 that have contributed to controlling costs of Refresh projects. The four initiatives  
6 are 1. Continuous improvement of construction standards; 2. Incorporation of  
7 Standard Operating Procedures into construction bid documents for submittals,  
8 scheduling, planned shutdowns, disinfection, record drawings, asset value  
9 reporting; 3. The development of a cost estimating tool using current EWSU bid  
10 prices and applicable contingencies at different stages of plan development; and 4.  
11 The use of E-Builder as the project management tool for all participants.

12 **Q. How has the Cost Estimating Tool improved cost controls?**

13 A. The estimating tool uses the most current unit prices of waterline bid items to assist  
14 in developing estimates during the development of scoping reports through final  
15 plans. For projects completed from Cause No. 45073 to date, the original 24  
16 construction estimates totaled \$53,682,100. The actual bids received for these  
17 projects totaled \$40,547,023. The envelope of certainty from the scoping reports  
18 to the actual construction costs ranged from -58% to +224% with a weighted  
19 average of +36%. The estimating tool was created to tighten the range of  
20 uncertainty in the estimates. Rerunning the same projects through the estimating  
21 tool yields a range of certainty from -15% to +74% with a weighted average of  
22 +19% at the scoping report. This tool will continue to be refined as more data is  
23 available for the utility. This tool was used to create the estimates included within



1 the scoping reports developed by HNTB included with Petitioner’s case-in-chief  
2 and discussed below.

3 **Q. With respect to Refresh Evansville, what is Petitioner proposing in this Cause?**

4 A. For this Cause, EWSU is proposing to fund design and/or construction and  
5 construction engineering of seven (7) Refresh projects at an estimated cost of  
6 \$9.2M, ten (10) Roadway Relocation project or reserves at an estimated cost of  
7 \$43.0M, two (2) Booster Station Improvements projects at an estimated cost of  
8 \$939,000, and Program Management Planning. The Refresh projects are each  
9 described in detail within the scoping reports prepared by HNTB and included with  
10 my testimony as Attachment ML-2. The proposed projects are summarized in  
11 Table 2 on pages 7-8 of the report. The projects are:

- 12 1. Cardinal Drive, Stringtown to North Kentucky
- 13 2. Franklin Street, Tekoppel to Schreeder
- 14 3. South Evergreen Acres Neighborhood
- 15 4. East Mill Road and Weaver Road
- 16 5. Poplar Grove Neighborhood
- 17 6. Mount Vernon Road, Vaness Avenue to Harmony Way

18 A seventh Refresh project from the previous rate case, unconstructed, is proposed  
19 to be carried forward to this Cause because design is now complete. This project  
20 is identified in Table 3 of the report. The project is:

- 21 7. Charlotte Avenue and Russell Avenue

22 The Roadway relocation projects are identified in Table 4 of the report. The

1 projects are:

- 2 8. Walnut Phase 3, MLK to US41
- 3 9. Lloyd Expressway, Rosenberger to Epworth
- 4 10. Oak Hill Road, Eastwood to Millersburg
- 5 11. Booneville New Harmony, Petersburg to SR57
- 6 12. Oak Hill Road, Lynch to St. George
- 7 13. 2022 Annual Road Projects Reserve
- 8 14. 2023 Annual Road Projects Reserve
- 9 15. 2024 Annual Road Projects Reserve
- 10 16. 2025 Annual Road Projects Reserve
- 11 17. 2026 Annual Road Projects Reserve

12 **Q. How was this proposed list of Refresh projects identified?**

13 A. The proposed projects were identified using a prioritization methodology  
14 developed by EWSU. First, EWSU used Appendix A, Table A.1 “Main  
15 Replacement Project List” from the Water Master Plan to identify potential water  
16 main replacement projects. EWSU then used the Distribution System Analysis  
17 from Section 2.2 of the Water Master Plan to prepare criteria for scoring, weighting  
18 and evaluating the potential projects. The analysis used to determine project  
19 priorities included analyzing several criteria, including, historical rate of failure,  
20 expected remaining service life, operating pressure, soil corrosivity, location,  
21 projected demand shortfall, available fire flow, and pipe material. Each criteria has  
22 a scoring range with corresponding scores and criteria weight. These criteria,  
23 scores, and weights were developed by committee with representatives from the

1 EWSU Program Management Office, Engineering Services, and Operations. The  
2 results of this evaluation are included in Table 1, Water Main Replacement Rating  
3 Criteria, of the scoping reports. EWSU slightly refined the criteria for projects  
4 proposed in this Cause based on three additional years of experience and a larger  
5 inclusion of EWSU personnel. The projects were then re-evaluated with the revised  
6 criteria and reprioritized. The results of the evaluation are included in Attachment  
7 ML-3. 24 projects total were identified using EWSU's prioritization methodology  
8 and detailed scoping reports for each project were prepared by HNTB. Of these 24  
9 projects, EWSU identified 7 main replacement projects, totaling 6.5 miles, for  
10 inclusion in this Cause. As I testified, these projects are identified in Table 2 of the  
11 scoping reports. EWSU's Cost Estimating Tool was used to create scoping level  
12 estimates for each project. 22.6% engineering soft costs were also applied to each  
13 project. These scoping level estimates are included in the scoping reports prepared  
14 by HNTB.

15 **III. OTHER CAPITAL PROJECTS**

16 **Q. Besides the Refresh Evansville projects, is EWSU proposing any other capital**  
17 **projects in this Cause?**

18 A. Yes. As discussed in detail in the Direct Testimony of Simon M. Breese, P.ENG.,  
19 EWSU is proposing to replace its existing Water Treatment Plant. EWSU is also  
20 proposing certain Booster Station Improvements and Pump Addition  
21 Improvements which I will cover in my testimony.

22 **Q. Please describe the Booster Station Improvements EWSU is proposing in this**  
23 **Cause.**

1 A. EWSU is proposing two Booster Station Improvements projects in this Cause.  
2 Similar to the water main prioritization, Booster Stations and their components  
3 were prioritized with criteria, criteria scores and weighting factors. Of the over 280  
4 Booster Station asset components, five were identified and developed into scoping  
5 reports. Of the five, two are recommended in this Cause. The Campground Booster  
6 Station Electrical Improvements ranked critical for repair or replacement.  
7 Replacement of the VFDs, MCC, and transformer is estimated at \$708,000. The  
8 Killian Booster Station Improvements also ranked critical for repair or replacement.  
9 Foundation repairs, altitude valve replacement, coatings, and HVAC replacement  
10 lead the list for this rehabilitation project estimated at \$231,000. The scoping  
11 reports prepared by HNTB for these projects are included with my testimony as  
12 Attachment ML-4.

13 **Q. Is it possible that priorities could change such that other projects might be**  
14 **substituted for those currently identified in this Cause?**

15 A. Yes. With respect to both the Refresh Evansville and other capital projects  
16 identified in this Cause, it is possible that circumstances could change which would  
17 require other projects to be substituted for those that we are presently presenting.  
18 The decision to advance a project in place of a proposed project rests solely on the  
19 risks associated with failure if the asset is left to operate in its current condition.  
20 Some assets, while farther down the list, may deteriorate quicker over the next few  
21 years making them more important to replace than perhaps a project already at high  
22 priority. In fact, when reprioritizing projects for this Cause, only one of the four  
23 projects originally considered from the last Cause ranked high enough to complete

1 its construction in this proposed Cause. Other projects simply became a higher  
2 consequential risk if not addressed within these next five years. It is also possible  
3 that other projects identified in the Water Master Plan or in the HNTB scoping  
4 reports could be advanced if additional funds become available (such as from  
5 savings that might be identified by the Commission or otherwise).

#### 6 **IV. RELOCATION OF CITY GARAGE**

7 **Q. Why is EWSU proposing to relocate the City Garage to the new location?**

8 A. As explained in the Direct Testimony of Simon Breese and in the Water Treatment  
9 Plant Advanced Facility Plan (“WTPAFP”) included with his testimony, EWSU,  
10 in conjunction with its consultants, evaluated a number of potential locations for  
11 the new Water Treatment Plant. AECOM evaluated both the potential cost of  
12 building the new WTP at an alternate site further away from the existing intake  
13 structure, as well as building the new WTP on or near the existing site. As  
14 explained in Witness Breese’s testimony, AECOM’s evaluation indicated that  
15 building the WTP on or near the existing site would be the most cost-effective  
16 option. When it was determined that the most cost-effective solution would be to  
17 locate the WTP on or near the existing site, AECOM evaluated potential options to  
18 identify the most cost-effective location for the plant. As explained in Witness  
19 Breese’s testimony, AECOM identified the City Garage site as the preferable  
20 location for the new WTP (identified as Alternate 2B in the WTPAFP Report);  
21 therefore, EWSU is proposing to relocate the City Garage to a new location as part  
22 of this Cause.

23 **Q. How did EWSU identify the proposed location for the new Water Treatment**

1           **Plant and relocating the City Garage?**

2    A.    Witness Breese discusses AECOM’s evaluation of the various potential sites for  
3           locating the new Water Treatment Plant, so I will not cover that evaluation in my  
4           testimony. Once it was determined the City Garage was the preferable location for  
5           the new WTP, the EWSU Program Management Office began evaluating the  
6           benefits and costs of several possible locations for relocation of the City Garage.  
7           EWSU also engaged VS Engineering, a local consultant with experience in  
8           municipal operations and structural design, to prepare a Facility Relocation  
9           Feasibility Assessment. The Assessment is included as Attachment ML-5  
10          CONFIDENTIAL to my testimony. In preparing the assessment, VS Engineering  
11          interviewed City Garage Management and evaluated existing conditions, including  
12          footprints. Relocation criteria was then developed based on this evaluation, and  
13          several available properties were identified and evaluated based on criteria. All of  
14          the criteria and assessments are available in the attached Feasibility Assessment.  
15          During the evaluation, both the City Garage and the Levee Authority buildings were  
16          in consideration for relocation. After evaluation, only the City Garage is proposed  
17          to be relocated. After evaluation of the three most likely relocation alternates,  
18          EWSU settled on the preferable location because it offered the most compact  
19          facility for long term operations and maintenance at the lowest possible cost,  
20          including the costs of City Garage relocation. The relocation costs for the City  
21          Garage were developed in consultation with VS Engineering. The cost estimate to  
22          relocate the City Garage is \$13,114,999 and is identified in Table 5.1 of the  
23          Feasibility Assessment. As identified in the assessment, it is more cost effective to

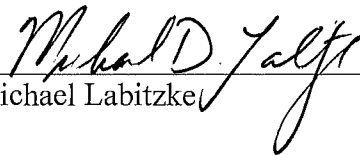
1 reorientate the proposed Water Filtration Plant and work around the Levee  
2 Authority property, than move both facilities. EWSU witness Doug Baldessari  
3 discusses the proposed City Garage relocation and how EWSU proposes to finance  
4 these costs in greater depth in his testimony.

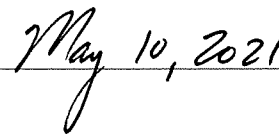
5 **Q. Does this conclude your testimony?**

6 **A. Yes.**

DMS 19791527v3

I, Michael Labitzke affirm under penalties of perjury that the foregoing representations are true and correct to the best of my knowledge, information and belief.

  
\_\_\_\_\_  
Michael Labitzke

Date:   
\_\_\_\_\_





**EVANSVILLE  
WATER AND SEWER UTILITY  
EVANSVILLE, INDIANA**

**WATER MASTER PLAN**

IURC  
PETITIONER'S  
EXHIBIT NO. Redirect  
DATE 9-5-13 REPORTER [Signature]

**SEPTEMBER 2016**

**HNTB**



**EVANSVILLE WATER AND SEWER UTILITY  
EVANSVILLE, INDIANA**

**WATER MASTER PLAN**

**SEPTEMBER 2016**

*Prepared by*

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- B Water Main Extension Project List
- C Booster Station and Storage Facility Project List
- D Water Treatment Plant Project List and Cost Estimates
- E Water Master Plan Compiled Project List
- F Water Mains and Booster Station Project Cost Estimates

## LIST OF ABBREVIATIONS

CCTV	Closed Circuit Televising
CT	Contact Time
EWSU	Evansville Water and Sewer Utility
GIS	Geographic Information Systems
gpm	Gallons per minute
GTWD	German Township Water District
HDPE	High Density Polyethylene
HVAC	Heating, Ventilation, and Air Conditioning
I&C	Instrumentation and Controls
LED	Light Emitting Diode
lbs	Pounds
MCC	Motor Control Center
MG	Million Gallons
MGD	Million Gallons per Day
NEC	National Electric Code
PAC	Powder Activated Carbon
PE	Polyethylene
PLC	Programmable Logic Controller
psi	Pounds per Square Inch
PVC	Polyvinyl Chloride
sf	Square Foot
SCADA	Supervisory Control and Data Acquisition
U.S.	United States
VFD	Variable Frequency Drives
WTP	Water Treatment Plant

## EXECUTIVE SUMMARY

### ES.1 WATER MASTER PLAN OVERVIEW

As part of asset management for their drinking water treatment plant and distribution system, the Evansville Water and Sewer Utility (EWSU) retained HNTB Corporation to develop a Water Master Plan that evaluates the existing assets, projects future needs including regulatory requirements, and proposes improvements for the existing system to maintain the existing level of service as well as meet projected future needs over a 30-year planning period. A Capital Improvement Plan was prepared that includes an implementation schedule and estimated project costs for those 30 years.

#### ES.1.1 Method of Analysis

Reviews of available information and site visits were used as the basis for the analysis of the drinking water treatment plant and distribution system. Site visits were conducted at each of the booster station sites and the water treatment plant, and evaluation forms were completed for each site. The available data utilized in the analysis includes geographic information system data, the Evansville-Vanderburgh County Area Plan Commission Comprehensive Plan, as well as work orders for the distribution system.

### ES.2 DISTRIBUTION SYSTEM ANALYSIS

The Evansville Distribution System consists of mains of varying size, age, and pipe material. The existing water mains were evaluated using GIS data and hydraulic modeling software. Life-cycle curves were approximated for representative samples of pipe materials to help identify trends for failing mains and recommendations were made for main integrity testing. In order to improve and maintain the existing system, water main replacement recommendations were prioritized using several rating criteria, which are outlined in **Chapter 2**. The ratings were used to prioritize replacement projects over the 30-year planning period with approximately 15 miles of water main replacements proposed per year. A map showing the recommended main replacements through 2046 are shown in **Figure 2-22**. A complete listing of main replacements has been provided in **Appendix A**.

Water main extensions were also proposed to eliminate dead-end mains that have the potential to reduce the water quality in the system and in areas that will be unable to meet future projected demands throughout the system. The proposed water main extensions are shown in **Figure 2-23** and a complete listing of main extension projects is included in **Appendix B**.

Booster stations were evaluated using site visits and hydraulic modeling software. Improvements are proposed for all of the existing booster stations to replace the equipment that has exceeded its intended service life and to meet the future projected system demands. Booster station improvements were sequenced in the implementation based on anticipated need, which includes immediate needs, pump age, and anticipated demand growth. The proposed booster station improvements are summarized in **Section 2.5.3** and the implementation schedule is listed in

**Chapter 4.** Since Evansville has a 20-year maintenance agreement for their existing storage facilities, the facilities were not evaluated in detail. However, two projects were recommended in this study to replace a reservoir which has passed its useful life and to install one new elevated storage facility to meet the projected system demands. The proposed water storage facility improvements are summarized in Section 2.5.4. A complete listing of booster station and storage facility projects is included in Appendix C.

### ES.3 WATER TREATMENT PLANT ANALYSIS

The Evansville Water Treatment Plant was originally constructed in 1870. Many improvements have been made to the plant since its original construction; however, there are several critical improvement projects that will need to be addressed in the next 30 years. Structural rehabilitations are required, equipment that has passed its intended useful life, and previously decommissioned equipment will need to be restored in order to utilize the full capacity of the plant. The projected demand growth, with a projected maximum day demand of 47 MGD by 2035, will require the plant to be restored to full capacity of 60 MGD. Each unit process of the plant was given a score to relate the condition of each unit process to each other. Many of the proposed replacement projects are considered critical and projects have been prioritized to maintain existing plant operation while improving upon the plant, as identified in Chapter 3. A complete listing of plant upgrade projects and cost estimate is included in Appendix D.

### ES.4 CAPITAL IMPROVEMENT PLAN

As a part of this Water Master Plan, a Capital Improvement Plan was developed with a prioritized list of capital projects in the distribution system and at the water treatment plant to meet current and future needs over a 30-year planning period. Project lists, criteria used to prioritize the projects, the proposed implementation schedule for the projects, estimated costs for all projects, and projected future cash flow needs have been included in Chapter 4 of this plan. Project categories, anticipated costs, and timeframes are summarized in Table ES.1.

**TABLE ES.1**  
**Proposed Capital Improvement Plan Project Costs and Timeframe**

<i>Project Category</i>	<i>2017-2021</i>	<i>2022-2026</i>	<i>2027-2036</i>	<i>2037-2046</i>	<i>Category Total</i>
Water Main Replacements	\$90,159,000	\$105,644,000	\$197,420,000	\$180,510,000	\$573,733,000
Water Main Extensions	\$2,596,000	\$3,294,000	\$7,364,000	\$7,432,000	\$20,686,000
Booster Station and Water Storage Facilities	\$3,285,000	\$2,130,000	\$19,700,000	\$8,060,000	\$33,175,000
Water Treatment Plant	\$110,651,000	\$29,394,000	\$21,791,000	\$14,029,000	\$175,865,000
<b>TOTAL</b>	<b>\$206,691,000</b>	<b>\$140,462,000</b>	<b>\$246,275,000</b>	<b>\$210,031,000</b>	<b>\$803,459,000</b>

*Note: Project Costs are in 2016 Dollars.*

## CHAPTER 1 INTRODUCTION AND BACKGROUND

### 1.1 PURPOSE OF REPORT

The Evansville Water and Sewer Utility (EWSU) treats raw surface water from the Ohio River and supplies drinking water to the City of Evansville, the majority of Vanderburgh County, and portions of Gibson and Warrick Counties. As part of asset management for the drinking water treatment plant and distribution system, EWSU retained HNTB Corporation to develop a Water Master Plan. The Water Master Plan includes evaluation of the existing assets, projection of future needs including meeting regulatory requirements, and proposed improvements for the existing system to maintain the existing level of service as well as meet projected future needs over a 30-year planning period. As part of the Master Plan, a Capital Improvement Plan was prepared that includes an implementation schedule and estimated project costs for the proposed improvements over the 30-year planning period.

### 1.2 METHOD OF ANALYSIS

Reviews of available information and site visits were used as the basis for the analysis of the drinking water treatment plant and distribution system. Documents and data utilized for the analysis included the following:

- EWSU Geographic Information System (GIS) Data for Water Distribution System
- Evansville-Vanderburgh County Area Plan Commission Comprehensive Plan 2004-2025, prepared by Area Plan Commission of Evansville and Vanderburgh County, 2004.
- *DRAFT* Evansville-Vanderburgh County Area Plan Commission Comprehensive Plan 2015-2035, prepared by the Area Plan Commission of Evansville and Vanderburgh County, 2015.
- Evansville Downtown Master Plan Update, prepared by Evansville Redevelopment Commission, 2016.
- I-69 Gateway Small Area Plan, prepared by Ratio Architects, Inc., 2010.
- New Groundwater Treatment Plant Feasibility Study, prepared by HNTB Corporation, 2014.

Site visits were conducted at each of the booster station sites and the water treatment plant. Evaluation forms were completed for each site. The site visits were used to form the basis for the condition assessments of the booster stations and water treatment plant. **Chapter 2** details the analysis and recommended improvements for the distribution system. **Chapter 3** details the analysis and recommended improvements for the water treatment plant including a summary of replacing the existing treatment plant with a new groundwater treatment plant. Finally, **Chapter 4** combines the recommended projects into a Capital Improvement Plan with an implementation schedule through the year 2046.

## CHAPTER 2 DISTRIBUTION SYSTEM ANALYSIS

### 2.1 BACKGROUND

The Evansville Water and Sewer Utility (EWSU) distribution system serves an area of approximately 160 square miles and consists of over five million lineal feet of water mains, six elevated storage tanks, two ground storage reservoirs, and seven booster stations. The booster stations boost the pressure in the distribution system and form the four pressure zones in the EWSU distribution system; the Central (also referred to as “city pressure”), Killian, Lincoln, and Northern zones. A map of the existing distribution system including storage tanks, reservoirs, booster stations, and pressure zones is shown in **Figure 2-1**. The remainder of **Chapter 2** details the analysis of the distribution system including water mains, booster stations, and storage facilities and the proposed improvements from the analysis.

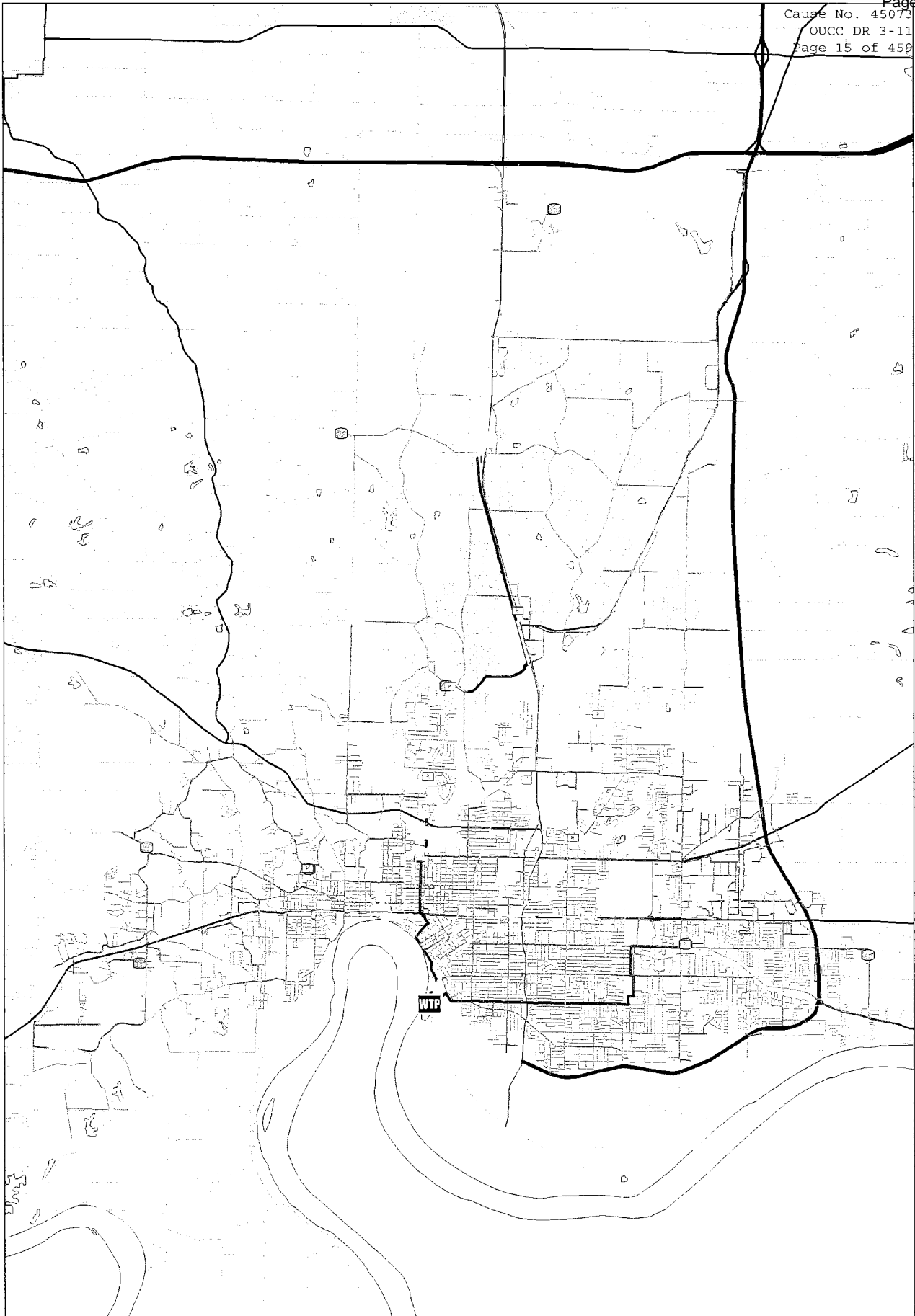
### 2.2 WATER MAINS

The existing water mains vary in size from 1-inch to 60 inches in diameter and have been installed over time since the late 1800s with over half of the mains installed prior to 1970. The total lengths of the water mains are broken down by material in **Table 2.1** and by installation date in **Table 2.2**.

**TABLE 2.1  
 Length of Water Main by Material**

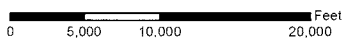
<i>Water Main Material</i>	<i>Total Length (feet)</i>	<i>Percent of Total (%)</i>
Cast Iron	2,429,643	45.6
Polyvinyl Chloride	1,791,692	33.2
Ductile Iron	764,326	14.2
Asbestos Concrete	90,267	1.7
Concrete	64,761	1.2
Steel	47,766	0.9
Galvanized Steel	19,562	0.4
Polyethylene	18,358	0.3
Copper	2,682	0.05
Unknown	130,114	2.4

Over 90 percent of the distribution system is constructed of cast iron, ductile iron, or polyvinyl chloride (PVC). Mains constructed of asbestos concrete, also called transite, and galvanized steel are all planned to be replaced and have been included in the proposed improvements.



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**FIGURE 2-1**  
Existing Distribution System



**Legend**

WTP	Water Treatment Plant	Water Main Diameter	Pressure Zone
	Booster Station	— 30 inch	Central
	Storage Tank	— 20 - 30 inch	Kalam
		— 12 - 15 inch	Leach
		— 12 inch	Northern

**TABLE 2.2**  
**Length and Percentage of Main by Installation Date**

<i>Mains Installed Prior To</i>	<i>Total Length (feet)</i>	<i>Percent of Total (%)</i>	<i>Cumulative Percentage (%)</i>
1930	830,777	15.4	15.4
1940	992,138	3.0	18.4
1950	1,423,224	8.0	26.4
1960	2,030,424	11.3	37.7
1970	2,765,005	13.6	51.3
1980	3,087,299	6.0	57.3
1990	3,281,073	3.6	60.9
2000	3,354,734	1.4	62.2
2010	3,468,479	2.1	64.4
2015	3,472,901	0.08	64.4
Unknown	1,916,272	35.6	100

The majority of mains were installed prior to 1970, though it is unknown when over a third of the system was installed. It has been common practice for water utilities to prioritize main replacement based exclusively on age of the pipe, but this could result in an inefficient allocation of funds if other criteria such as the criticality of the main or historical rate of failure are not considered. **Section 2.2.1** outlines the approach to develop and prioritize proposed main replacements. **Section 2.2.2** provides a review of and recommendations for implementation of methods for testing water main integrity. **Sections 2.2.3** and **2.2.4** detail the methods for evaluating where new mains are recommended, including any to meet future demands.

### 2.2.1 Existing Mains Condition Assessment

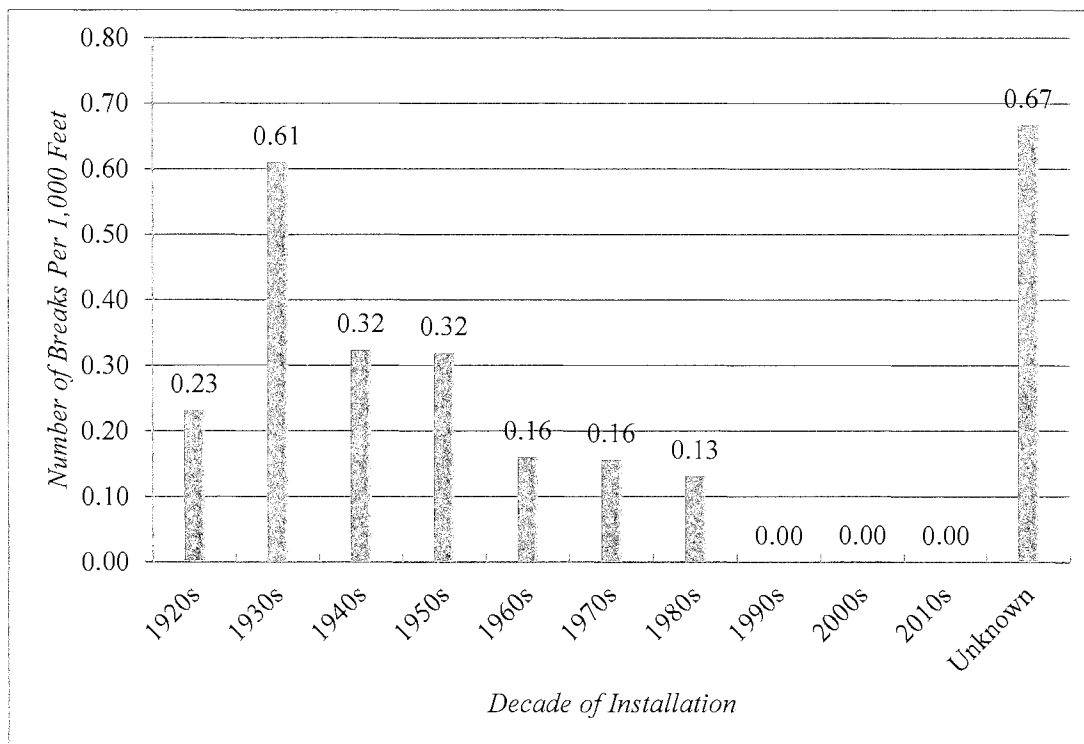
GIS data for the EWSU distribution system was obtained by HNTB Corporation as part of a distribution system analysis completed previously. The GIS data included all water mains, storage tanks, reservoirs, booster stations, valves, fire hydrants, fittings, and water meters. Also obtained at that time was a database of work orders for the distribution system. The database included work orders for main breaks, leaks, and water quality complaints as recorded by the EWSU staff from 2004 to 2015.

A hydraulic model was developed by HNTB Corporation for the EWSU in the late 1990s. The hydraulic model has been maintained and periodically updated by HNTB since that time. The hydraulic model was used to estimate pressures and velocities in the existing distribution system during an average day demand of 31.5 million gallons per day (MGD), a maximum day demand of 47.2 MGD, and a peak hour demand of 63 MGD. A description of demand data used in the hydraulic model is included in **Section 2.2.4**.

The work orders for main breaks and the hydraulic model output were combined with the EWSU GIS data to identify trends for repeated failures of the EWSU water mains. The data set was used to determine if pipe material, pipe age, pressure, velocity, or some combination of these items may be leading to premature or repeated failures. This information was also used to develop life cycle curves for representative samples of the distribution system.



In general, cast iron mains installed prior to 1960 break most frequently. The model outputs of pressure and velocity did not show any correlation with the break data. Approximately 68-percent of the work orders for main breaks in the data set were for cast iron mains which make up approximately 46-percent of the system. The next highest percentage was PVC with only 16-percent of the work orders, while PVC mains make up approximately 33-percent of the system. Approximately 59-percent of the work orders were for mains installed prior to 1960, approximately 70-percent were for mains installed prior to 1970, and approximately 23-percent were for mains with unknown installation dates. A breakdown of number of main breaks per 1,000 feet of main on cast iron mains by the decade of installation is shown in Figure 2-2. As noted above, cast iron mains represent around 45-percent of the total distribution system and over 90-percent of the cast iron mains were installed prior to 1970 (around 5-percent of cast iron mains had an unknown installation date).

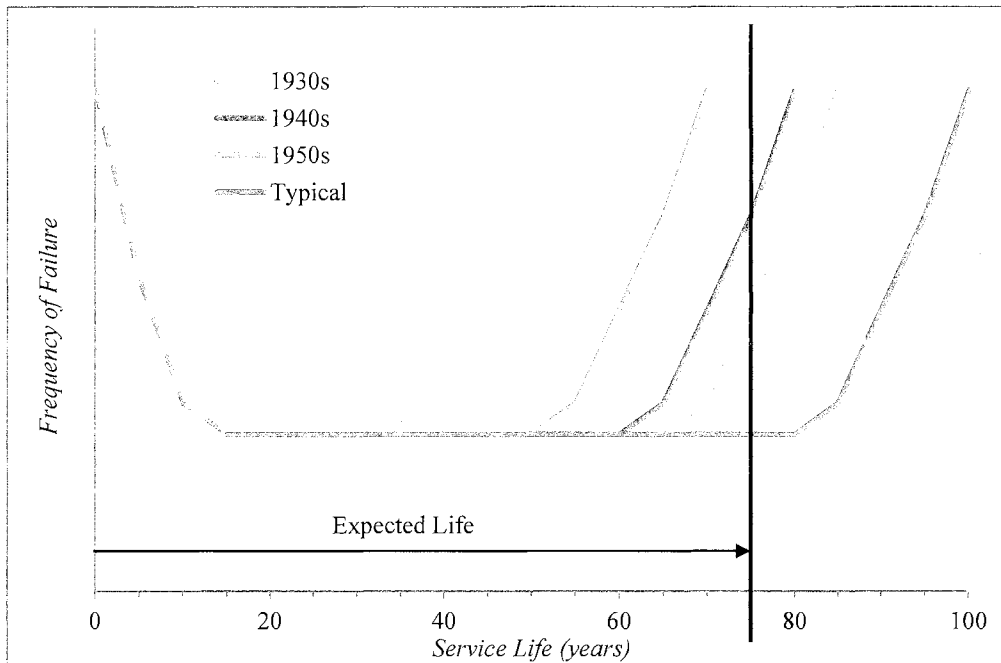


**FIGURE 2-2**  
**Main Breaks per 1,000 Feet of Cast Iron Main by Decade Installed**

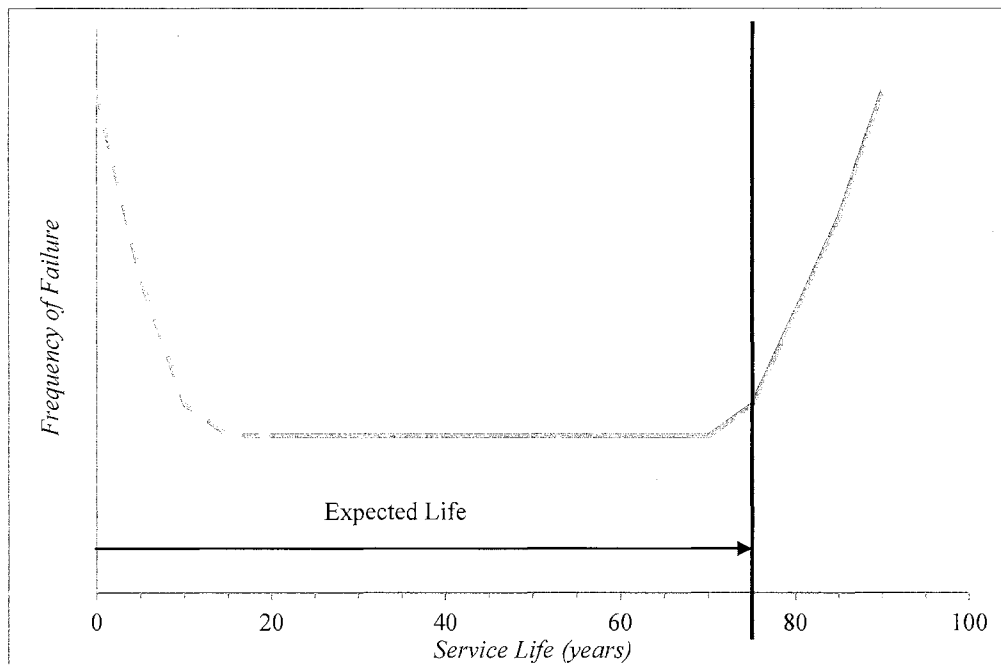
Although, the model outputs of pressure and velocity did not show any correlation with the main breaks, they may contribute to breaks during extreme events. The scenarios modeled are representative of more typical conditions in the distribution system and do not include surges that may result from upset or adverse conditions such as a fire, other main segments being out of service, extreme temperatures, or other atypical events.

Based on the above data, life cycle curves were created to estimate the expected service life for representative samples of the EWSU distribution system and are shown in Figures 2-3, 2-4, and

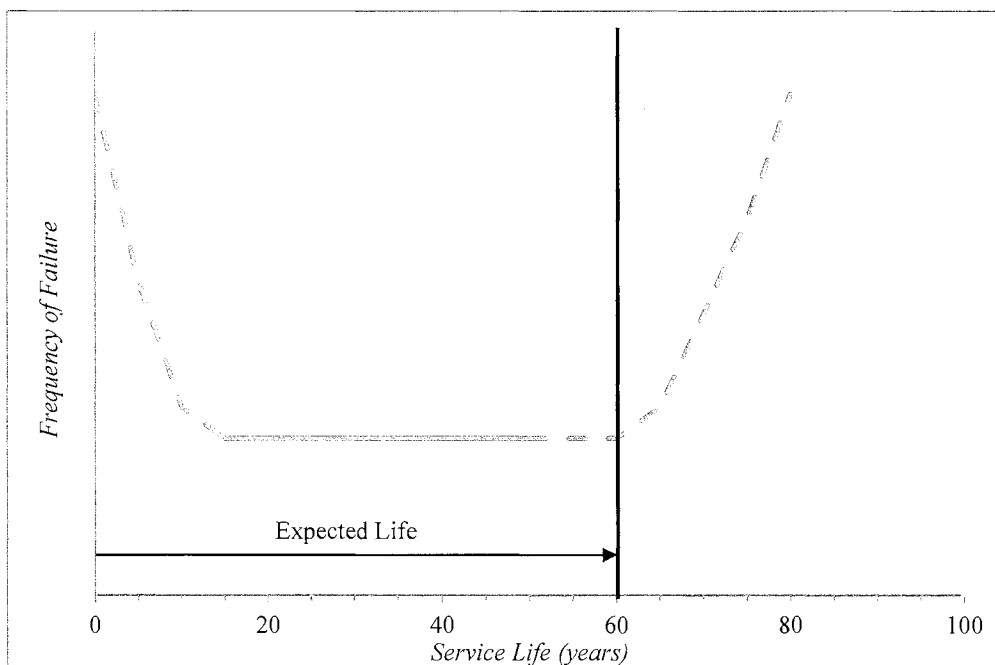
2-5. The life cycle curves were then used to rate representative samples of cast iron, ductile iron, and PVC pipe materials as short, expected or extended life.



**FIGURE 2-3**  
**Approximate Life-Cycle Curves for Cast Iron**



**FIGURE 2-4**  
**Approximate Life-Cycle Curve for Ductile Iron**



**FIGURE 2-5**  
**Approximate Life-Cycle Curve for PVC**

Note on the above figures, the dashed lines in the early years of service life are approximations of early failures that may typically result from defective materials or poor installation. Also, the expected service lives are based on data published by the American Water Works Association. The service lives of the selected representative samples of water main were rated based on the main break data using the following criteria:

- Short Life - the service life is less than the expected service life
- Expected Life - the service life is approximately equal to the expected service life
- Extended Life - the service life is greater than the expected service life

Based on the above life cycle curves, the following are the ratings for select portions of the distribution system, which comprise more than 90-percent of the system:

- Prior to 1930s Cast Iron - Extended Life
- 1930s Cast Iron - Expected Life
- 1940s Cast Iron - Short Life
- 1950s Cast Iron - Short Life
- Other Cast Iron - Expected Life
- Ductile Iron - Expected Life
- PVC - Expected Life

To identify the water mains with the highest priority for replacement, all water mains in the distribution system were rated based on the following criteria:

- Historical Rate of Failure – the work orders for main failures were utilized to count the number of breaks for each main segment. The number of breaks was then normalized per 100 lineal feet of main.
- Pipe Age – the installation dates for the mains were used to categorize each main into installation decades. If the installation date of the main was unknown, 1975 was assumed. Any main that was installed in the last 20 years was not considered for replacement as part of this Master Plan.
- Operating Pressure – the hydraulic model results were used to assign an approximate operating pressure (in pounds per square inch (psi)) to each main segment.
- Pipe Material – the water main’s material of construction (if known).
- Pipe Size – the water main’s nominal pipe diameter.
- Location – the physical location of the water mains were considered. The scores varied depending on the type of road or highway under which it is installed, if the main is located under a railroad or Pigeon Creek, if the main is located under a building, or if the main is located within 500 feet of a storage tank. If a main met the requirements of multiple location options, the higher scoring location option was used in ranking the main.
- Consequence of Failure – the hydraulic model was utilized to determine the predicted demand short fall should each individual main segment fail.

Each criterion was broken down into a variable number of options and each option was given a score ranging from one to five. Each criterion was also given a weight ranging from one to fifteen, depending on how important the criteria is for prioritizing main replacements. The criteria along with the possible scores and weights are shown in Table 2.3. The weighted ratings were used to develop and prioritize main replacement projects that are described in detail in Section 2.5. The highest rated water mains were given higher priority for replacement projects. For the purposes of this master plan, it was assumed that EWSU would replace 15 miles of mains per year, regardless of pipe size or location.

**TABLE 2.3  
Water Main Replacement Rating Criteria**

<i>Criteria</i>	<i>Scoring</i>		<i>Weight</i>
Historical Rate of Failure (breaks per 100 lineal feet)	>5	5	15
	3-5	4	
	1-2	3	
	<1	2	
Pipe Age	>60 years	5	10
	50-60 years	4	
	40-50 years	3	
	30-40 years	2	
	20-30 years	1	
	< 20 years	N/A	
	Unknown	3	
Operating Pressure	>100 psi	5	5
	80-100 psi	4	
	60-80 psi	3	
	<60 psi	2	
Pipe Material	Asbestos Concrete	5	15
	Galvanized Steel	4.5	
	Steel	4	
	Unknown	3.5	
	Cast Iron	3	
	Concrete	2.5	
	Ductile Iron	2	
	PVC, PE, HDPE	1.5	
	Copper	1	
Pipe Size	> 20 inch	5	1
	16-20 inch	4	
	10-12 inch	3	
	6-8 inch	2	
	< 6 inch	1	
Location	US or State Highway	5	10
	Pigeon Creek	5	
	Railroad	5	
	Building	4	
	Tanks	4	
	Arterial & Collector Road	3	
	Local Road	2	
Consequence of Failure (Projected Demand Shortfall)	>1,000 gpm	5	10
	500-1,000 gpm	4	
	200-500 gpm	3	
	<200 gpm	2	

## 2.2.2 Main Integrity Testing

A variety of methods are available for evaluating the integrity of water main. Testing of the water mains to determine the integrity is useful in that it can help identify mains likely to fail or reaching the end of their useful life. Most of the methods are non-destructive and can be done with the main in service. Below are brief descriptions of several methods and recommendations for implementation in the EWSU distribution system. Note that environmental testing, pit depth measurement, eddy current testing, magnetic flux leakage testing, and radiographic require that the pipes be metal or ferrous and are not applicable for plastic pipe materials (PVC and HDPE).

### 2.2.2.1 Environmental Testing

Environmental testing includes testing and cataloging the soil and groundwater conditions within the distribution system. This could include utilizing available GIS data of soil types and groundwater conditions as well as periodic testing in locations of water mains. There are a variety of testing devices available that can measure soil resistivity, pH, moisture content, temperature, reduction-oxidation potential, and ion content (such as chlorides, sulfites, or sulfates). These soil characteristics can give indication that a particular area has a soil environment is likely to corrode the water mains and therefore more frequent replacement of mains in that area would be required.

### 2.2.2.2 External Inspection

When a buried pipe has been exposed, either as part of an unrelated project, emergency maintenance, or for another reason, the main can be inspected to generally evaluate its condition. The inspection is typically best done by someone with familiarity and experience with water mains, but standard forms are available to document findings.

### 2.2.2.3 Closed Circuit Televising

For closed circuit televising (CCTV), robots with cameras are sent through mains, typically after they are taken out of service, to record a detailed visual inspection of the interior of the main. This is more typical in sanitary sewer systems since there are regular, more convenient access points at manholes. CCTV is difficult to implement in a drinking water distribution system due to the lack of access and the need to take the main being inspected out of service.

### 2.2.2.4 Pit Depth Measurement

Similar to an external inspection, when a buried pipe has been exposed, either as part of an unrelated project, emergency maintenance, or for another reason, the depth of pitting on the main can be measured. These measurements can be used to approximate the remaining life of the water main. To measure the pitting depth, the main has to be exposed and cleaned. Multiple procedures are available for cleaning of the main and selecting and measuring pitting. The depth of pitting can also be measured in a laboratory if a main is replaced. This could then be used to estimate the remaining life of mains of the same material and age.

#### 2.2.2.5 Acoustical Sounding

The thickness of a pipe can be approximated using equipment that measure the time it takes for an ultrasonic wave to travel through a pipe wall. These include tools that take external point measurements as well as in-line, intelligent pigs and are applicable to ferrous pipe materials. The external point measurements typically require that the pipe be exposed, cleaned, and external coating removed. The in-line, intelligent pigs required accessible locations for insertion and retrieval, but do provide thickness measurements for the entire pipe circumference between access points.

#### 2.2.2.6 Eddy Current Testing

Eddy currents are induced by placing an energized coil near the surface of a metal pipe. Eddy current testing can detect defects such as cracks or holes in metal pipes by measuring the impedance in the energized coil. The testing can be performed externally or internally. The internal tool is a proprietary technology called a "See Snake" which can navigate bends and fittings. Eddy current testing does not actually require contact with the pipe wall, but does require the energized coil to be within a few inches of the pipe wall. This allows the "See Snake" to pass through pipes even if there are some deposits, dents, offset joints, or other interior obstructions. Similar to in-line, intelligent pigs for acoustical sounding, the "See Snake" requires accessible locations for insertion and retrieval, and provides thickness measurements for the entire pipe circumference between access points.

#### 2.2.2.7 Magnetic Flux Leakage Testing

Magnetic flux leakage is tested by placing a magnet next to a metal pipe wall and measuring the flux density. Higher flux densities indicate flux leakage from the pipe wall and defects in the pipe wall. Magnetic flux leakage testing is standard in the oil and gas industries, where intelligent pigs are easily deployed through pipelines. External tools exist for testing water mains, but they must test the entire exterior circumference of the pipe.

#### 2.2.2.8 Radiographic Testing

Ferrous pipes can be x-rayed to identify areas of corrosion. Radiographic testing is expensive and requires specialized training and is rarely done on water mains for those reasons.

#### 2.2.2.9 Destructive Testing

There are a variety of destructive tests that can be done on coupons or segments of pipes extracted from the distribution system. While they are destructive, the tests provide good information about the expected future performance of the main. The tests include a variety of strength tests (burst test, tensile test, ring test, fracture toughness test, four-point bending test) and various metallurgical tests. These tests require that a portion of main be taken out or coupons are placed in the distribution system, so they are rarely done.

#### 2.2.2.10 Recommendations

Many of available techniques for evaluating main integrity require that the main be excavated and exposed. For that reason it is recommended that EWSU implemented a testing program that includes testing mains as they are exposed for repair or replacement. Acoustical sounding is the recommended testing method because ultrasonic devices for acoustical sounding are readily available and relatively inexpensive. Mains could be tested as repairs or replacements are made and a database created. Environmental conditions in the distribution system should also be documented and combined with the database of measured wall thicknesses. The database could then be used to estimate pipe thicknesses of other mains in the distribution system with similar size, age, pressure, and environmental conditions. The use of intelligent pigs (or “smart balls”) with any of acoustical sounding, eddy current testing, or magnetic flux leakage testing in select locations is also recommended. The use of these technologies is recommended in known problem areas that also have access locations for launching and retrieval. The data collected from the intelligent pigs would supplement the acoustical sounding measurement and improve the database with more complete data for the mains tested. This information could be used to identify additional mains that should be high priority for replacement due to thinning walls.

As mains are removed from service and replaced, it would also be beneficial to perform pit depth measurement as well as some of the destructive strength tests on the mains that are removed. These could give indication of the condition of pipes with the same age and material installed in similar environmental conditions.

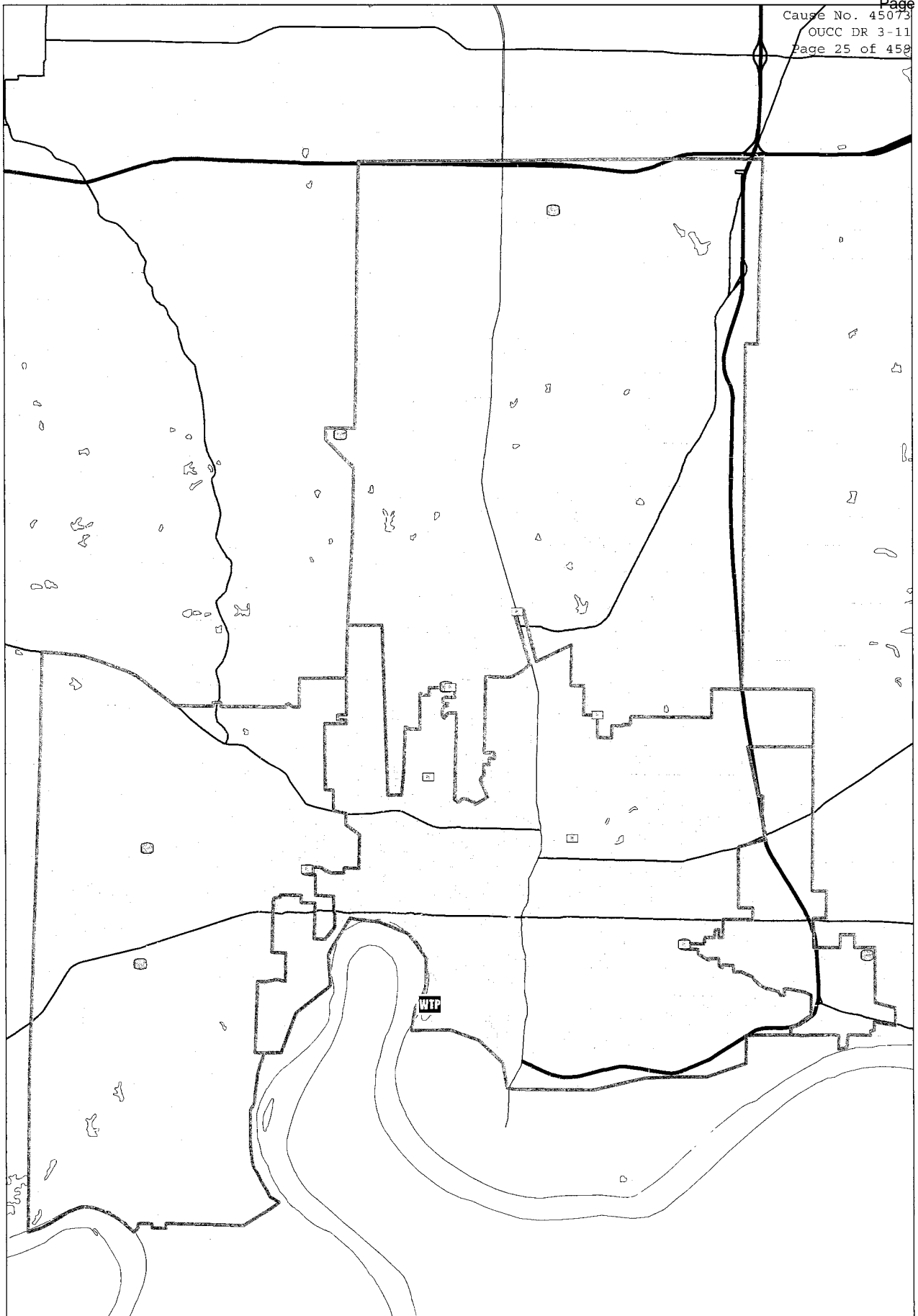
#### 2.2.3 Potential Water Main Extensions

The existing distribution system was reviewed using GIS and the existing hydraulic model. These were used in combination to determine if areas exist where the system is failing to meet current demand and where main extensions could provide looping to eliminate dead-end mains and improve water quality by reducing water age in the mains.

#### 2.2.4 Current and Future Demands

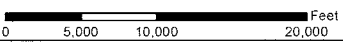
For this master plan, HNTB utilized the demand data for the existing service area based on land use. The projections for future demands were also based on projected land use. Existing land use information was based on information from the Vanderburgh County Area Plan Commission and is shown in **Figure 2-6**. The projected land use in 2035 is based on the information contained in the Evansville-Vanderburgh County Comprehensive Plan for 2015-2035 and is shown in **Figure 2-7**. Demand factors for each type of land use were developed based on the 2015 land use data and water use data from the United States Geological Survey. The demand factors used are shown in **Table 2.4** in gallons per day per acre (gpd/acre).



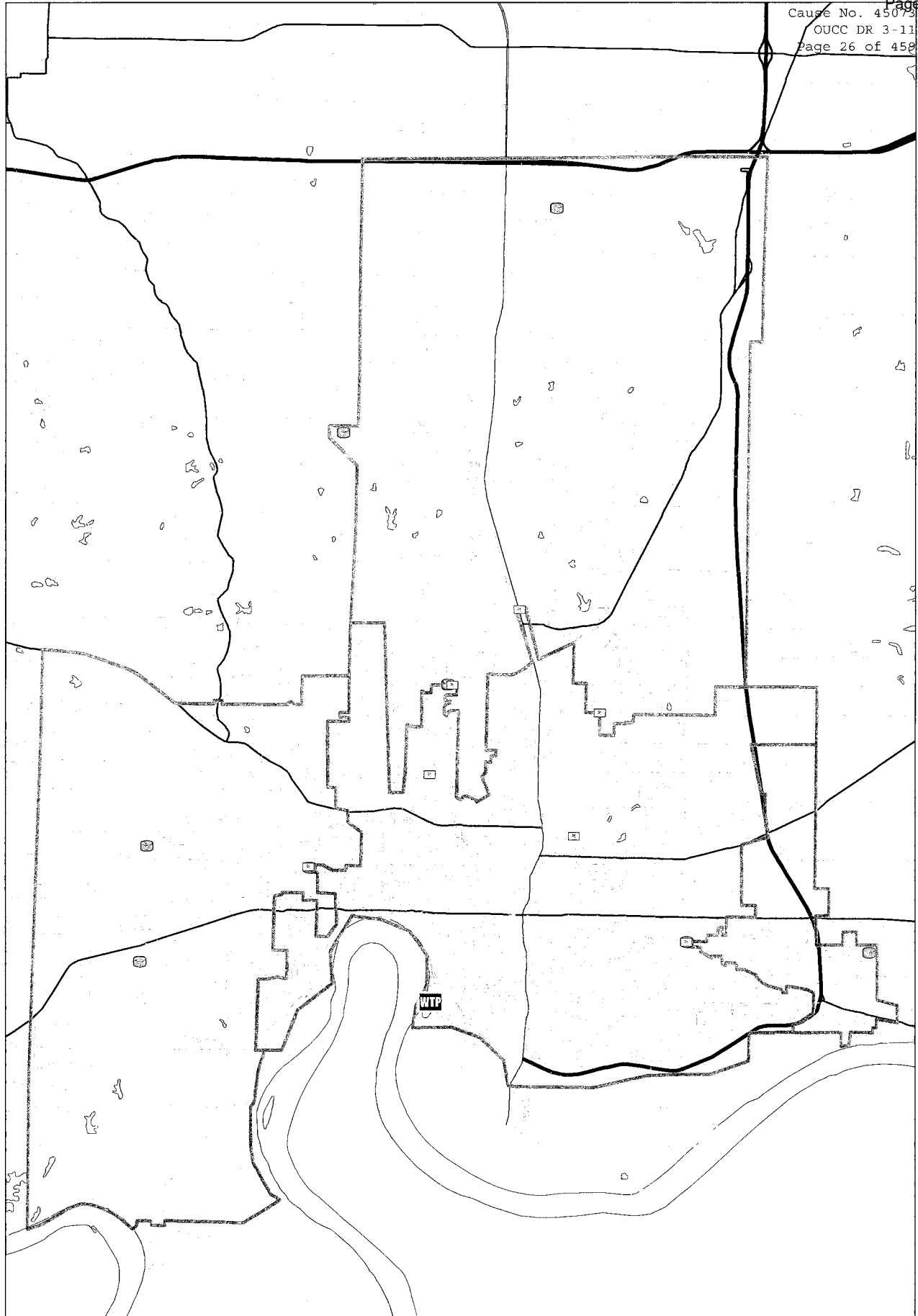


Print Date:  
September 2016

FIGURE 2-6  
2015 Land Use Map

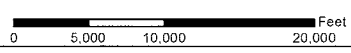


Legend	
WTP	Water Treatment Plant
	Booster Station
	Storage Tank
	Pressure Zone
2015 Land Use	
	Agricultural
	Commercial
	Industrial
	Infrastructure and Utilities
	Other
	Parks and Open Space
	Residential



Print Date:  
 September 2016

**FIGURE 2-7**  
**2035 Land Use Map**



Legend		
WTP	Water Treatment Plant	
	Booster Station	
	Storage Tank	
	Pressure Zone	
	2035 Land Use	
	Agricultural	
	Commercial	
	Forest	
	Government	
	Industrial	
	Infrastructure and Utilities	
	Mixed Use	
	Other	
	Parks and Open Space	
	Residential	
	Undeveloped	

**TABLE 2.4  
 Demand Factors**

<i>Land Use Type</i>	<i>Demand Factor (gpd/acre)</i>
Commercial	630
Government	630
Forest	0
Residential	420
Agricultural	0.5
Other	0
Undeveloped	0
Mixed Use	700
Parks and Open Space	0
Infrastructure and Utilities	630
Industrial	1560

Steady state simulations for average day, maximum day, and peak hour demands for both 2015 and 2035 were created. Extended period simulations for average day and maximum day for both 2015 and 2035 were also created. It is important to note that the extended period simulations were created using demand patterns developed during a 2007 model calibration. The model results for the extended period simulations with these demand patterns applied to 2015 and 2035 demands are un-calibrated and are considered reasonable approximations for the planning level estimations required for this Master Plan. Calibration of the model with recent data and detailed evaluations are recommended for short term, detailed planning when implementing the recommended projects.

#### 2.2.4.1 German Township Water District

German Township Water District (GTWD) is one of three wholesales users that purchase water from EWSU. They supply water to German and Armstrong Townships in Vanderburgh County as well as a portion of Posey County to the west. Currently GTWD has a single master meter to measure their water use. The master meter is located along Boonville - New Harmony Road, west of St. Joseph Avenue. GTWD has requested an additional master meter be installed in the southwest portion of EWSU service territory and that the average demand to be supplied through that meter would be 1 MGD. This additional demand was added to the hydraulic model to evaluate if improvements are needed to meet GTWD needs.

## 2.3 BOOSTER STATIONS

The seven booster stations were evaluated in two ways. First the site visits were used to identify proposed improvements. Second the hydraulic model with projected demands was used to determine if the booster stations would have sufficient capacity to meet future needs. For the purposes of this Water Master Plan, it was assumed that an upgrade or expansion would be

required if the flow out of a booster station meets or exceeds 80-percent of the design capacity of the station and the intended service life of a pump is approximately 30 years.

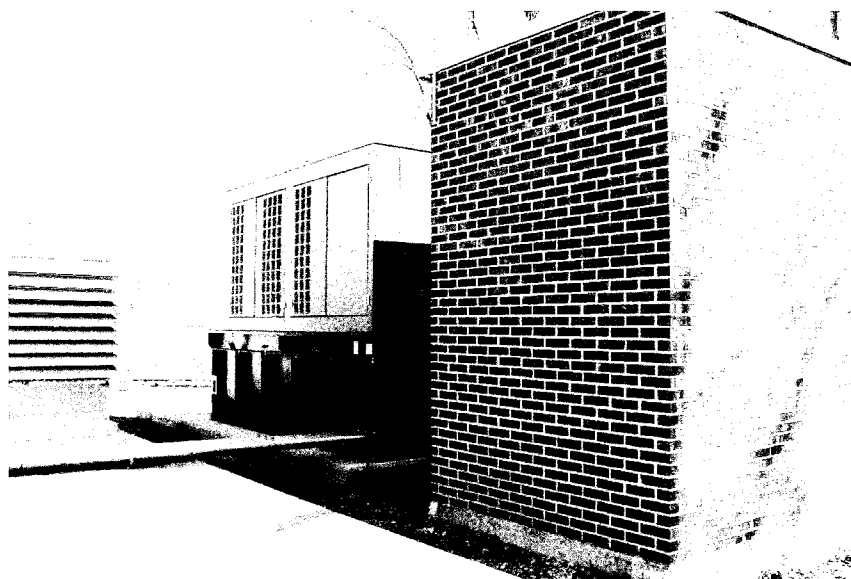
### 2.3.1 Campground Booster Station

The Campground Booster Station is located in an underground vault adjacent to the Campground Reservoir which is south of Campground Road between First Avenue and Old State Road. The pump station was constructed in 1994 and consists of two pumps as detailed in Table 2.5 and space for a third pump.

**TABLE 2.5  
 Campground Booster Station Pumps**

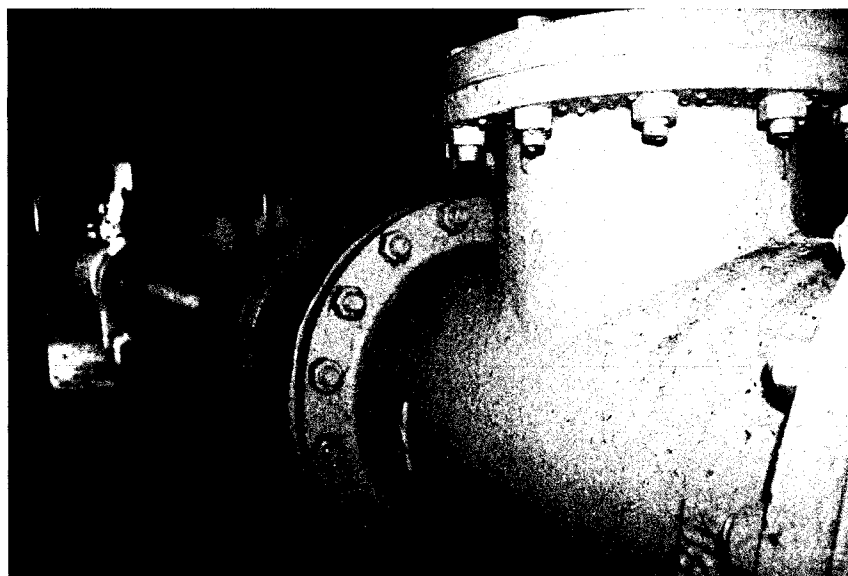
<i>Item</i>	<i>Pump Nos. 1 and 2</i>
Manufacturer	Aurora
Model	411 BF
Pump Type	Split-Case Centrifugal
Discharge Size (inches)	8
Rated Capacity (gpm)	2,800
Rated Discharge Head (feet)	165
Drive Type	Constant Speed
Motor Horsepower	200
Motor RPM	1,800

In addition the vault housing the pumps, there is a chlorine building and a back-up generator located on the booster station site, both of which are shown in Figure 2-8. The chlorine building has space for two 150-pound chlorine gas cylinders for boosting residual chlorine. The building is locked and has a chlorine gas detector with an external warning light.



**FIGURE 2-8**  
**Campground Booster Station Generator and Chlorine Building**

In general, the Campground Booster Station is in acceptable condition. The pumps have relatively low run times on their hour meters but are over 20 years old. The station structure is in generally good condition and improvements have recently been made to the station site including fencing. Significant condensation and corrosion were noted on the piping in the lower level of the booster station, an example of which is shown in Figure 2-9. Portions of the heating, ventilation, and cooling (HVAC) system for the booster station and chlorine building were not functional at the time of the site visit.

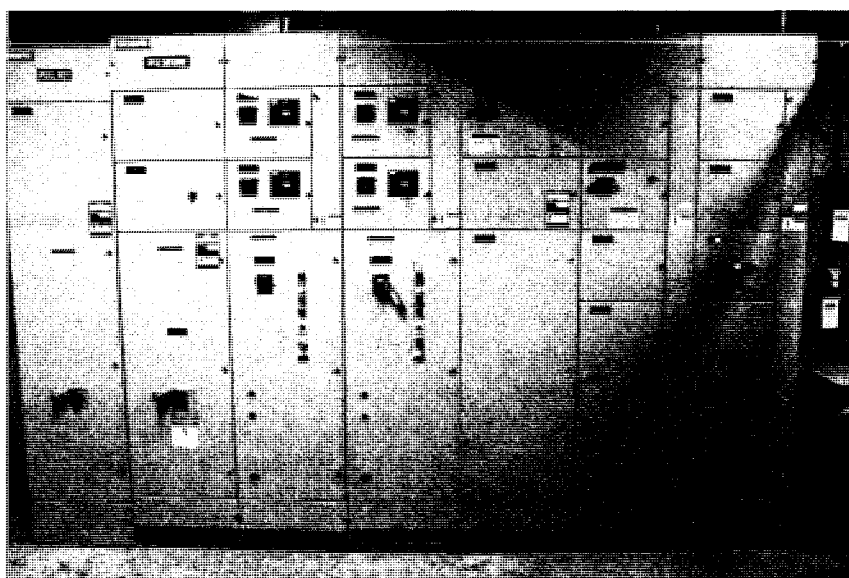


**FIGURE 2-9**  
**Campground Booster Station Condensation**

The hydraulic model results show that additional capacity will be needed at the booster station in the future, as a large amount of growth is anticipated in the northern portion of Vanderburgh County that the station serves.

### 2.3.1.1 Campground Booster Station Electrical Assessment

The booster station's primary electrical equipment is a motor control center (MCC) which is shown in **Figure 2-10**. The MCC is comprised of six original sections and one additional section that was added at a later date. The additional section is the main switch for the standby generator and includes a kirk-key interlock with the MCC's main switch.



**FIGURE 2-10**  
**Campground Booster Station Motor Control Center**

The MCC appears to be the original unit installed when the station was constructed and is over 20 years old. It is in fair condition but is past its intended life of approximately 20 years. The generator main switch and lighting panel are also past their intended lives. There is an old, unused variable frequency drive (VFD) located in the station that could be removed to clear room when needed. A sub-panel was added at some point many years ago to feed the heater and battery charger on the standby generator unit and is in good condition. Lighting for the station consists of seven open industrial type 2 lamp fluorescent fixtures. Fixtures were all in working condition at the time of the site visit and are in fair shape but appear to be from when the station was constructed. The units should be replaced with LED type units to reduce energy consumption for lighting and longer life. A standby power generator was recently added to the booster station and is in very good condition. The utility service and the generator supply were routed to an exterior mounted transfer switch which is also in very good condition.

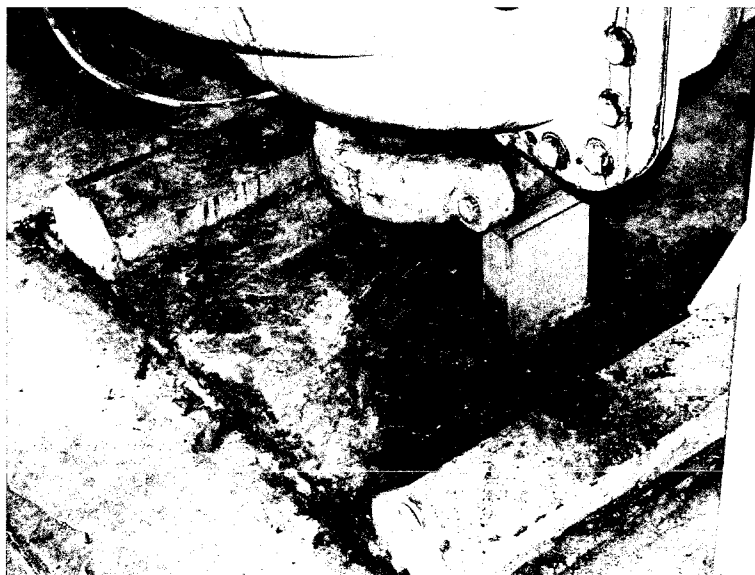
### 2.3.2 First Avenue Booster Station

The First Avenue Booster Station is located in an underground vault on the southeast corner of the intersection of First Avenue and Colonial Avenue. The booster station was constructed in 2004 and consists of two pumps as detailed in Table 2.6 and space for a third pump.

**TABLE 2.6**  
**First Avenue Booster Station Pumps**

<i>Item</i>	<i>Pump Nos. 1 and 2</i>
Manufacturer	Aurora
Model	413C BF
Pump Type	Split-Case Centrifugal
Discharge Size (inches)	12
Rated Capacity (gpm)	5,500
Rated Discharge Head (feet)	70
Drive Type	Variable Frequency Drive
Motor Horsepower	125
Motor RPM	1,190

In general, the First Avenue Booster Station is in good condition. The pumps have relatively low run times and are in fact rarely operated under current system conditions. The pumps are less than 15 years old and could have extended service lives if properly maintained and continue to operate infrequently. There are instances of corrosion within the booster station that are likely a result of high condensation from excess humidity from poor ventilation and dehumidification and a non-functioning cathodic protection system. An example of the corrosion found is shown in **Figure 2-11**. There is no permanent back-up power located at the site, but there is a location for connection of a portable generator. The hydraulic model results show that additional capacity will be needed at the booster station within the planning period of this Master Plan to supply the demand growth in the Northern zone.



**FIGURE 2-11**  
**First Avenue Booster Station Corrosion**

#### 2.3.2.1 First Avenue Booster Station Electrical Assessment

The station is less than 15 years old and most of the electrical equipment is original construction. The electrical equipment is generally in good condition though there is minor corrosion on some enclosures. The main switchboard is a 600 amp unit that supplies power to the pump VFDs and other equipment. A connection box for a portable generator is located above ground near the service entrance. Lighting for the station consists of twelve enclosed and gasketed two-lamp fluorescent fixtures. All fixtures were working and are in good condition at the time of the site visit. The station's lighting panel is located within the pump control panel. Relocating all lighting circuits to a separate lighting panel would eliminate the need to open a pump control panel for access and would provide spare capacity.

#### 2.3.3 Killian Booster Station

The Killian Booster Station is located adjacent to the Killian Reservoir at the intersection of Harmony Way and Schoenfield Avenue. The booster station was constructed in 1972, renovated in 1991, and consists of four pumps as detailed in Table 2.7.



**TABLE 2.7**  
**Killian Booster Station Pumps**

<i>Item</i>	<i>Pump Nos. 1, 2, and 3</i>	<i>Pump No. 4</i>
Manufacturer	Crane Deming	Crane Deming
Model	5063	5063
Pump Type	Split-Case Centrifugal	Split-Case Centrifugal
Discharge Size (inches)	8	4
Rated Capacity (gpm)	2,080	700
Rated Discharge Head (feet)	185	185
Drive Type	Constant Speed	Constant Speed
Motor Horsepower	150	60
Motor RPM	1,770	1,770

In addition the building housing the pumps, there is a back-up generator located on the booster station site. The Killian Booster Station also has a space for two 150-pound chlorine gas cylinders for boosting residual chlorine. The chlorine feed system is in the same room as the pumps and is not compliant with current applicable standards and codes.

In general, the Killian Booster Station is in poor condition. The pumps are in working order, but are more than 20 years old, have relatively high run times on their hour meters and the pump bases on three of the four pumps are in need of replacement. The station building is in very poor condition, with cracks in the foundation and concrete block walls, two of which are shown in **Figure 2-12**. The windows are on booster station building are not secured and represent a significant security risk. Numerous valves leak and there are areas of significant corrosion. The chlorine feed point should be removed until the station can be upgraded to accommodate a chlorine feed system that is compliant with applicable standards and codes. The hydraulic model results show that additional capacity will be needed at the booster station within the planning period of this Master Plan.



**FIGURE 2-12**  
**Killian Booster Station Structure Cracks**

### 2.3.3.1 Killian Booster Station Electrical Assessment

The station's MCC consists of six sections. It appears to be from the original construction and is more than 30 years old. The standby generator has an automatic transfer switch, both of which are in good condition. Lighting in the station consists of thirteen open style two-lamp fluorescent lighting fixtures for the upper level and seven open style two-lamp fluorescent lighting fixtures for the lower level. Two of the fixtures on each level (four total) are not functioning. The fixtures appear to be original construction and are past their intended life. The units should be replaced with LED type units to reduce energy consumption for lighting and longer life.

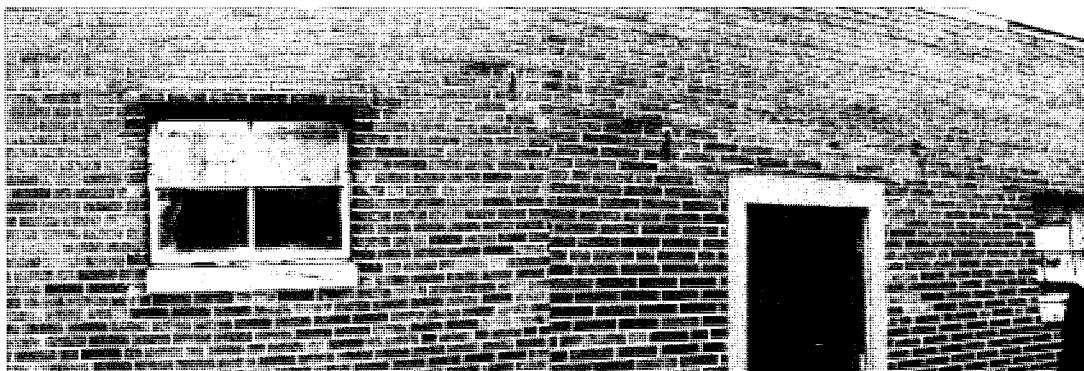
### 2.3.4 Lincoln Booster Station

The Lincoln Booster Station is located adjacent to the Lincoln Tank northeast of the intersection of Green River Road and Lincoln Avenue. The booster station was constructed in 1967, renovated in 1990, and consists of three pumps as detailed in Table 2.8.

**TABLE 2.8**  
**Lincoln Booster Station Pumps**

<i>Item</i>	<i>Pump Nos. 1 and 2</i>	<i>Pump No. 3</i>
Manufacturer	Fairbanks Morse	Aurora
Model	D4A2B2	411 BF
Pump Type	Split-Case Centrifugal	Split-Case Centrifugal
Discharge Size (inches)	4	4
Rated Capacity (gpm)	750	975
Rated Discharge Head (feet)	96	75
Drive Type	Variable Frequency Drive	Variable Frequency Drive
Motor Horsepower	30	30
Motor RPM	1,750	1,750

In general, the Lincoln Booster Station is in very poor condition. All pumps are functional, however all are over 20 years old and only Pump No. 2 is in good working order, but has a high run time on its hour meter. There are areas of significant corrosion on the casings and bases of Pump Nos. 1 and 3. The station building is in poor condition, with cracks in the brick walls, missing bricks, and broken windows, as shown in Figure 2-13. There is excessive condensation and severe corrosion in the lower level of the station, as shown in Figure 2-14. There is no permanent back-up power located at the site, but there is a location for connection of a portable generator.



**FIGURE 2-13**  
**Lincoln Booster Station Structural Issues**

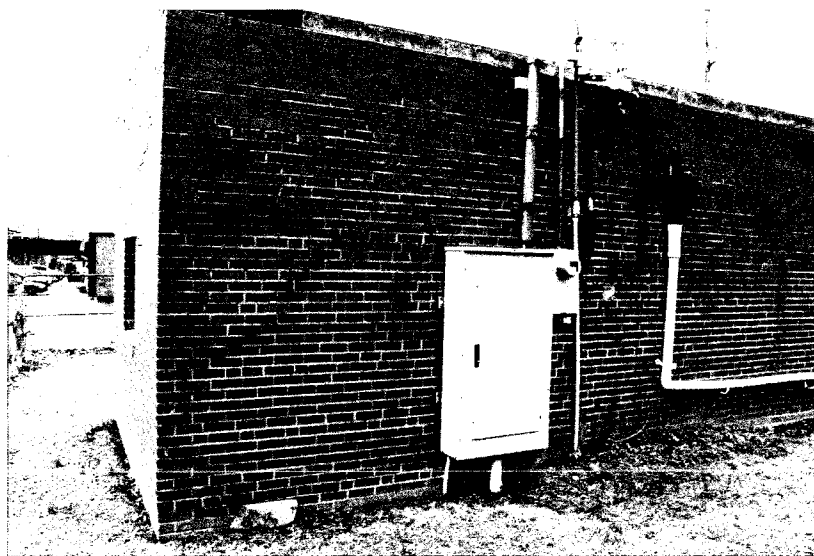


**FIGURE 2-14**  
**Lincoln Booster Station Corrosion**

The hydraulic model results show that additional capacity will be needed at the booster station in the future, as industrial and commercial growth are expected along the Interstate 69 corridor.

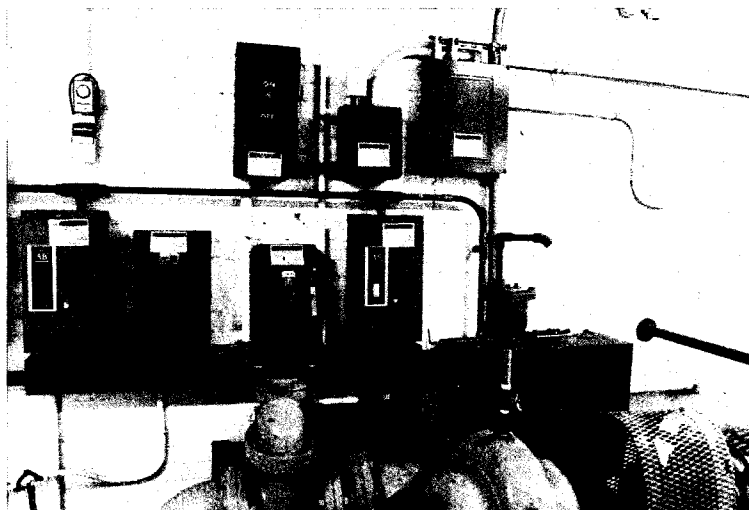
#### 2.3.4.1 Lincoln Booster Station Electrical Assessment

The main electrical service for the building is connected to an external power distribution panel, shown in **Figure 2-15**, that is at least 25 years old and past the end of its intended life. The pump starters and disconnect switches, and other electrical enclosures are in fair condition. Very little corrosion was noted on these panels, however all of the equipment is past its end of intended life.



**FIGURE 2-15**  
**Lincoln Booster Station Power Distribution Panel**

The lighting panel is a residential grade load center past its intended life. The pump disconnect switches, starters and the lighting panel are in violation of the National Electrical Code (NEC) because they do not have the required clearance. NEC Article 110.26.A(1) requires 3.5 feet minimum of clear working space in front of 480 volt equipment if there are grounded metal items on the other side. A pump and piping are located immediately in front of the switches and panels as shown in **Figure 2-16**. The switches should be relocated to a location that provides the required clearances as soon as possible. The control panel for the station is in very poor condition, the bottom of the panel is severely rusted through, and the station operates using an obsolete Programming Logic Controller (PLC).



**FIGURE 2-16**  
**Lincoln Booster Station Code Violation**

### 2.3.5 Stallings Booster Station

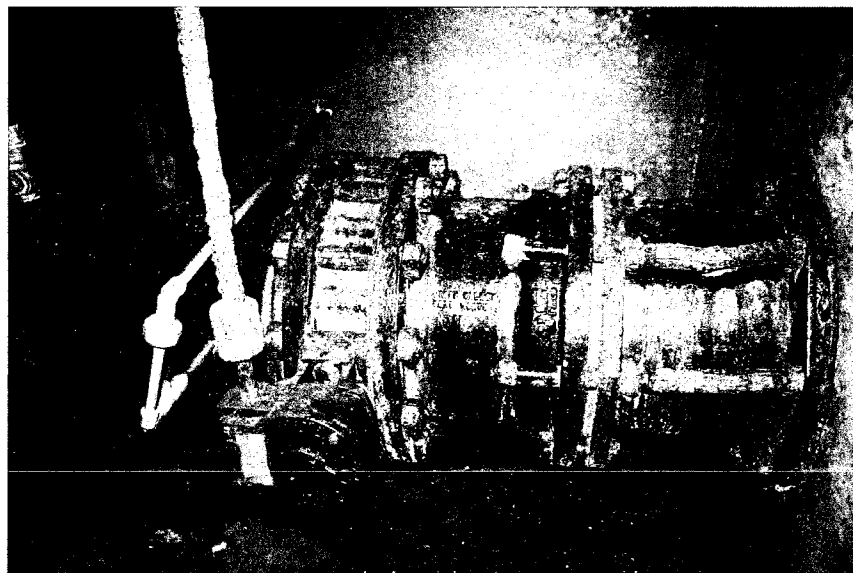
The Stallings Booster Station is located on the east side of U.S. Highway 41 approximately one-quarter mile north of the intersection of U.S. 41 and State Route 57. The booster station was constructed in 1974, renovated in 1991, and consists of three pumps as detailed in Table 2.9.

**TABLE 2.9**  
**Stallings Booster Station Pumps**

<i>Parameter</i>	<i>Pump Nos. 1 and 2</i>	<i>Pump No. 3</i>
Manufacturer	Peerless	Aurora
Model	6AE16	411 BF
Pump Type	Split-Case Centrifugal	Split-Case Centrifugal
Discharge Size (inches)	6	6
Rated Capacity (gpm)	1,400	2,100
Rated Discharge Head (feet)	170	155
Drive Type	Constant Speed	Constant Speed
Motor Horsepower	100	100
Motor RPM	1,780	1,785

The Stallings Booster Station has a space for two 150-pound chlorine gas cylinders for boosting residual chlorine. The chlorine feed system is in the same room as the pumps and is not compliant with current applicable standards and codes.

In general, the Stallings Booster Station is in acceptable to poor condition. The station building has cracks in the foundation and gaps around windows and doors. The piping, supports, and conduit on the lower level of the station are severely corroded and in need of replacement, as shown in Figure 2-17. The concrete culvert under the entrance drive is spalling and in need of replacement. The chlorine feed point should be removed until the station can be upgraded to accommodate a chlorine feed system that is compliant with applicable standards and codes. There is no permanent back-up power located at the site, but there is a location for connection of a portable generator. The hydraulic model results show that additional capacity will be needed at the booster station in the future, as a large amount of growth is anticipated in the northern portion of Vanderburgh County that the station serves.



**FIGURE 2-17**  
**Stallings Booster Station Corrosion**

#### 2.3.5.1 Stallings Booster Station Electrical Assessment

The booster station's primary electrical equipment is MCC comprised of four sections. The MCC appears to be the original unit installed when the station was constructed circa and is over 40 years old. During the 1991 renovations a main circuit breaker was added to bring power into the station from a portable generator. It is nearing its end of intended life after 25 years of service and the exterior power connection box for the portable generator shows considerable corrosion as shown in Figure 2-18.



**FIGURE 2-18**  
**Stallings Booster Station Portable Power Connection Box Corrosion**

The lighting panel for the station is from the original construction and does not have any spare breakers available. Lighting for the station is by sixteen open type 2 lamp fluorescent fixtures using the older version T12 lamps. Two of the fixtures were not working at the time of the site visit. The units should be replaced with LED type units to reduce energy consumption for lighting and longer life. The weather head for the power cable from the building to the exterior pole mounted light has broken off and is hanging on the cable. This should be repaired as soon as possible. Also the cable appears to be suspended too low to meet NEC requirements. When the weather head issue is resolved, the cable should be raised to meet NEC Article 225.18.

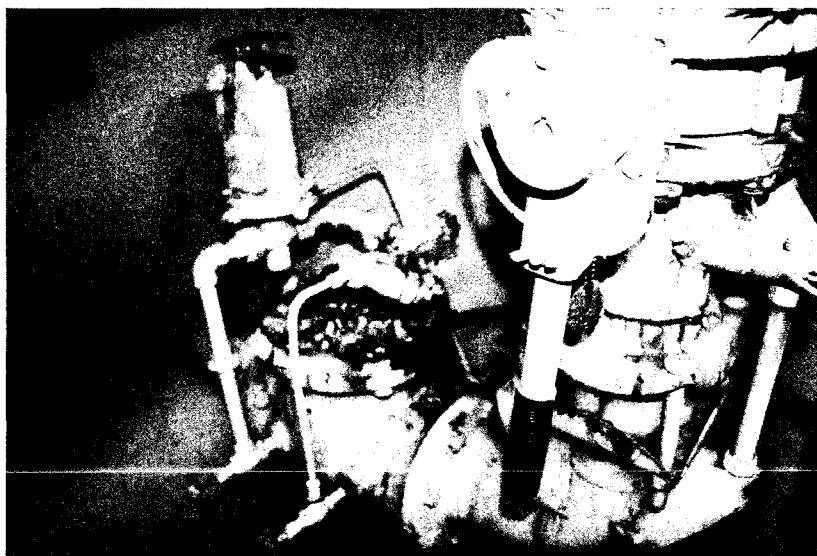
### 2.3.6 Ward Road Booster Station

The Ward Road Booster Station is located in an underground vault on the northeast corner of the intersection of St. George Road and Ward Road. The booster station was constructed in 1994 and consists of two pumps as detailed in Table 2.10.

**TABLE 2.10**  
**Ward Road Booster Station Pumps**

<i>Parameter</i>	<i>Pump Nos. 1 and 2</i>
Manufacturer	Layne & Bowler
Model	8TH
Pump Type	Submersible Can-Type
Discharge Size (inches)	12
Rated Capacity (gpm)	700
Rated Discharge Head (feet)	100
Drive Type	Constant Speed
Motor Horsepower	25
Motor RPM	1,750

In general, the Ward Road Booster Station is in acceptable to poor condition. The pumps are in good working condition, but are over 20 years old. There are large amounts of condensation and corrosion inside the station as shown in Figure 2-19. Paint has chipped off or is chipping off the station access hatch, vents, and piping. The hydraulic model results show that additional capacity will be needed at the booster station within the planning period of this Master Plan, as a large amount of growth is anticipated in the northern portion of Vanderburgh County that the station serves.



**FIGURE 2-19**  
**Ward Road Booster Station Condensation and Corrosion**

2.3.6.1 Ward Road Booster Station Electrical Assessment

The main electrical equipment for the station is located above ground inside a large steel enclosure with doors on both sides. One side of the enclosure houses the main pump starters and other power equipment, the other side houses the control equipment. The pump station control is from a PLC that was installed in 2014. Most of the power equipment is over 20 years old and is past its intended life. The main breaker for the enclosure is newer than the rest of the equipment and is good condition. The pumps have local electrical disconnect switches inside the below ground pump station which are in fair condition and in need of some repair.

2.3.7 Weinbach Booster Station

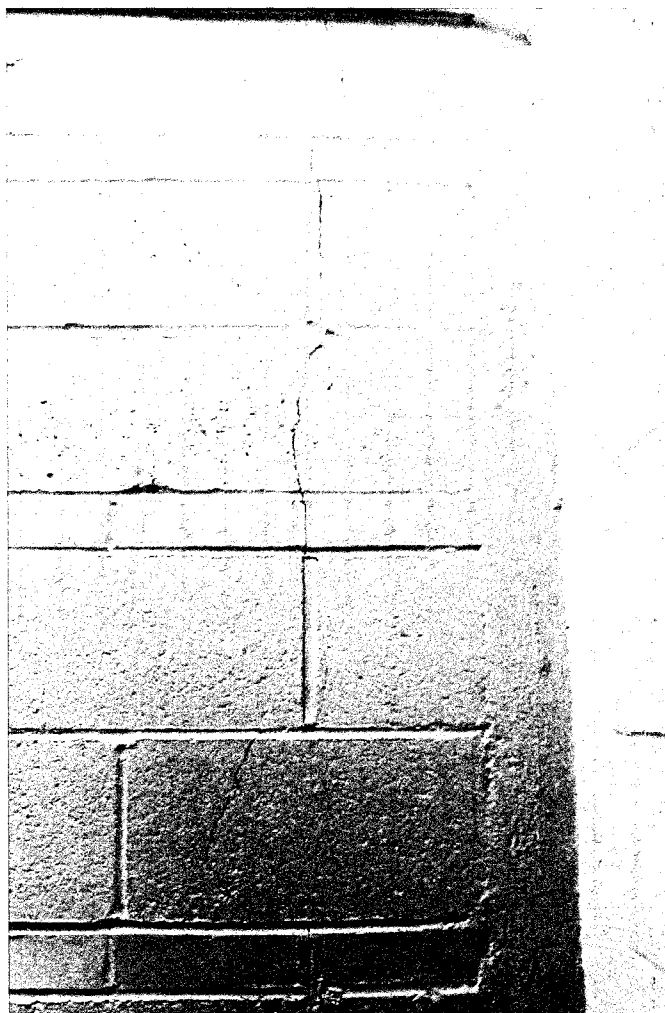
The Weinbach Booster Station is located on the east side of Weinbach Avenue just before the road turns northwest and becomes Diamond Avenue. The booster station was constructed in 1974, renovated in 2004 and consists of two pumps as detailed in Table 2.11.

**TABLE 2.11**  
**Weinbach Booster Station Pumps**

<i>Parameter</i>	<i>Pump Nos. 1 and 2</i>
Manufacturer	Goulds
Model	VIT-TCC/IMP.14.56
Pump Type	Vertical Turbine
Discharge Size (inches)	16
Rated Capacity (gpm)	5,500
Rated Discharge Head (feet)	70
Drive Type	Variable Frequency Drive
Motor Horsepower	125
Motor RPM	1,180



In general, the Weinbach Booster Station is in good condition. The station has a separate electrical room and most equipment including the pumps is less than 15 years old. There are cracks in the concrete block walls, specifically between the electrical room and pump room and as shown in **Figure 2-20**. There are minor locations with condensation, corrosion, or paint that needs to be touched up. The hydraulic model results show that additional capacity will be needed at the booster station within the planning period of this Master Plan to supply the demand growth in the Northern zone.



**FIGURE 2-20**  
**Weinbach Booster Station Concrete Block Crack**

#### 2.3.7.1 Weinbach Booster Station Electrical Assessment

The booster station has a separate electrical room and the equipment is in very good condition with very little corrosion on any of the enclosures. The station is setup for connection to a portable generator on the building exterior with a manual transfer switch adjacent to the main switch. The local disconnect switches for the pump motors are in violation of the NEC Article

110.26.A(1) that requires 3.5 feet minimum of clear working space in front of 480 volt equipment if there are grounded metal items on the other side. A pump and piping are located in front of the switches as shown in Figure 2-21. The disconnect switches should be relocated to a location that meets code requirements as soon as possible.



**FIGURE 2-21**  
**Weinbach Booster Station Code Violation**

### 2.3.8 Booster Station General Electrical

In general at the booster stations, many of the lighting panels do not have identification designating their name, e.g. LP-2A, or power source e.g. MCC-4. Also, many panels did not have legible descriptions of what is connected to each breaker.

As work is done on various projects and locations within and around each station it is recommended that unused electrical equipment, conduits, and wiring be removed. Conduits should be cut off near the walls and capped. If possible a pull wire should be installed in the empty conduit and routing identified for possible future use.

In 2014 the radio telemetry system was upgraded for all remote sites including the booster stations. All sites communicate with the water treatment plant via a repeater link. During the 2014 project all booster stations received additional water quality instruments as required to monitor the following parameters: turbidity, pH, chlorine residual, and temperature. Some of the stations also have conductivity probes. All analytical information is sent to the water treatment plant.

## 2.4 WATER STORAGE TANKS AND RESERVOIRS

The eight water storage facilities in the EWSU distribution system are summarized in Table 2.12.

**TABLE 2.12**  
**Storage Tank and Reservoir Summary**

<i>Tank / Reservoir Name</i>	<i>Type</i>	<i>Year Constructed</i>	<i>Dimensions</i>	<i>Storage Volume</i>
Campground Reservoir	Underground Reservoir	1927	325 feet long, 325 feet wide, 25.5 feet deep	20 MG
Darmstadt Tank	Elevated Tank	1974	100 feet tall, 80 feet diameter	1.0 MG
Grimm Road Tank	Elevated Tank	1974	100 feet tall, 50 feet diameter	0.5 MG
Killian Reservoir	Ground Reservoir	1972	35 feet tall, 150 feet diameter	4.0 MG
Lincoln Tank	Elevated Tank	1967	105 feet tall, 60 feet diameter	0.5 MG
Upper Mount Vernon Tank	Elevated Tank	1971	95 feet tall, 50 feet diameter	0.5 MG
USI Tank	Elevated Tank	2010	153 feet tall, 51.5 feet diameter	0.5 MG
Volkman Tank	Elevated Tank	1999	120 feet tall, 90 feet diameter	1.5 MG

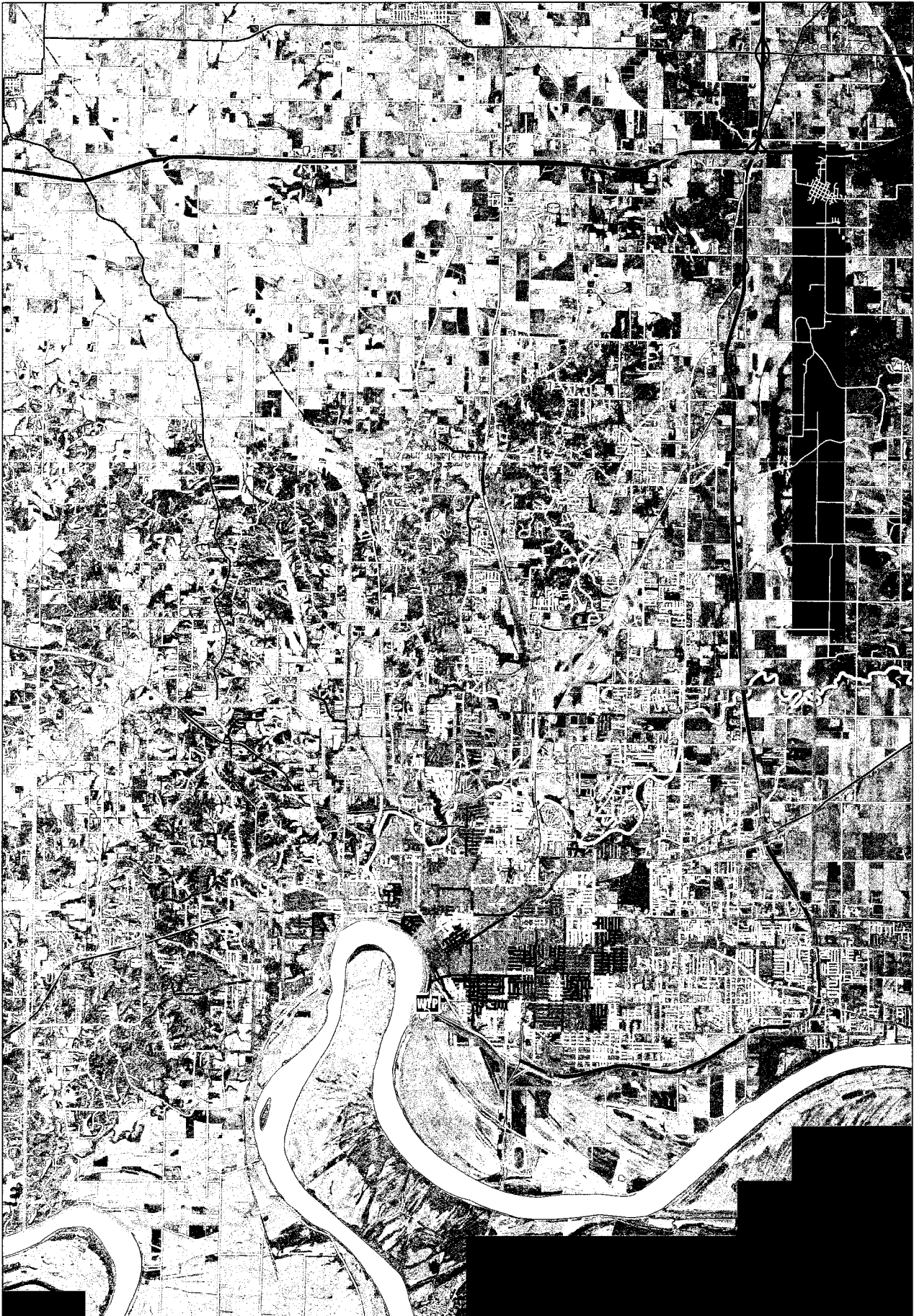
EWSU signed an agreement with Utility Service Group to maintain their storage facilities for a 20-year term. The agreement includes repainting the tanks as well as the installation of active mixers in the tanks. Considering this agreement, no site inspections or further evaluations were done and no recommendations were made for the storage facilities as part of this Water Master Plan, with the exception of new storage tanks and the replacement of Campground Reservoir which is nearing 100-years-old.

## **2.5 PROPOSED DISTRIBUTION SYSTEM IMPROVEMENTS**

The proposed improvements for the distribution system are listed in the following sections as main replacement, new water main, booster station, and storage facility projects. The compiled list of projects and implementation schedule are discussed in Chapter 4.

### **2.5.1 Main Replacement Projects**

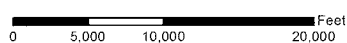
The existing water mains were scored and prioritized for replacement as described in Section 2.2. The proposed replacements and the time period for the replacements are shown in Figure 2.22 and a complete listing of main replacement projects is included in Appendix A. The proposed replacement projects included upsizing of select mains based on the hydraulic model results to meet current and future demands. Included in the upsized mains are mains to supply the projected growth in the Lincoln and Northern pressure zones and German Township Water at the current master meter and the requested new master meter.



**HNTB**

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September 2016

**FIGURE 2-22**  
**Water Main Replacement Projects**



**Legend**

Water Treatment Plant	Existing Water Mains	2021
Booster Station	<b>Proposed Replacement Year:</b>	2022-2026
Storage Tank	2017	2027-2031
Pressure Zone	2018	2032-2036
	2019	2037-2046
	2020	

## 2.5.2 Water Main Extension Projects

Proposed improvement projects with new water mains were considered to correct existing system deficiencies and meet future demand needs. The existing hydraulic model results do not indicate that there are any locations where the existing distribution system is failing to meet present day demand. However a number of new mains are proposed to eliminate dead end mains and provide looped mains to improve water quality by reducing water age in the system. New mains are also proposed to supply future demands in areas not currently served by EWSU water mains. The proposed water mains are shown in **Figure 2.23** and a complete listing of main extension projects is included in **Appendix B**.

### 2.5.2.1 German Township Water

To accommodate the request by GTWD for an additional master meter in the southwest portion of EWSU service territory, it is recommended that two main extensions be installed, as shown in **Figure 2.23**, along Hogue Road, Creamery Road, Posey County Line Road, and Middle Mount Vernon Road. This would allow the new master meter to be installed near Creamery Road and Posey County Line Road as requested by GTWD.

## 2.5.3 Booster Station Projects

The proposed projects are summarized by booster station below and a complete listing of booster station and storage facility projects is included in **Appendix C**. The proposed implementation schedule is included in the Capital Improvement Plan in **Chapter 4**.

### 2.5.3.1 Campground Booster Station

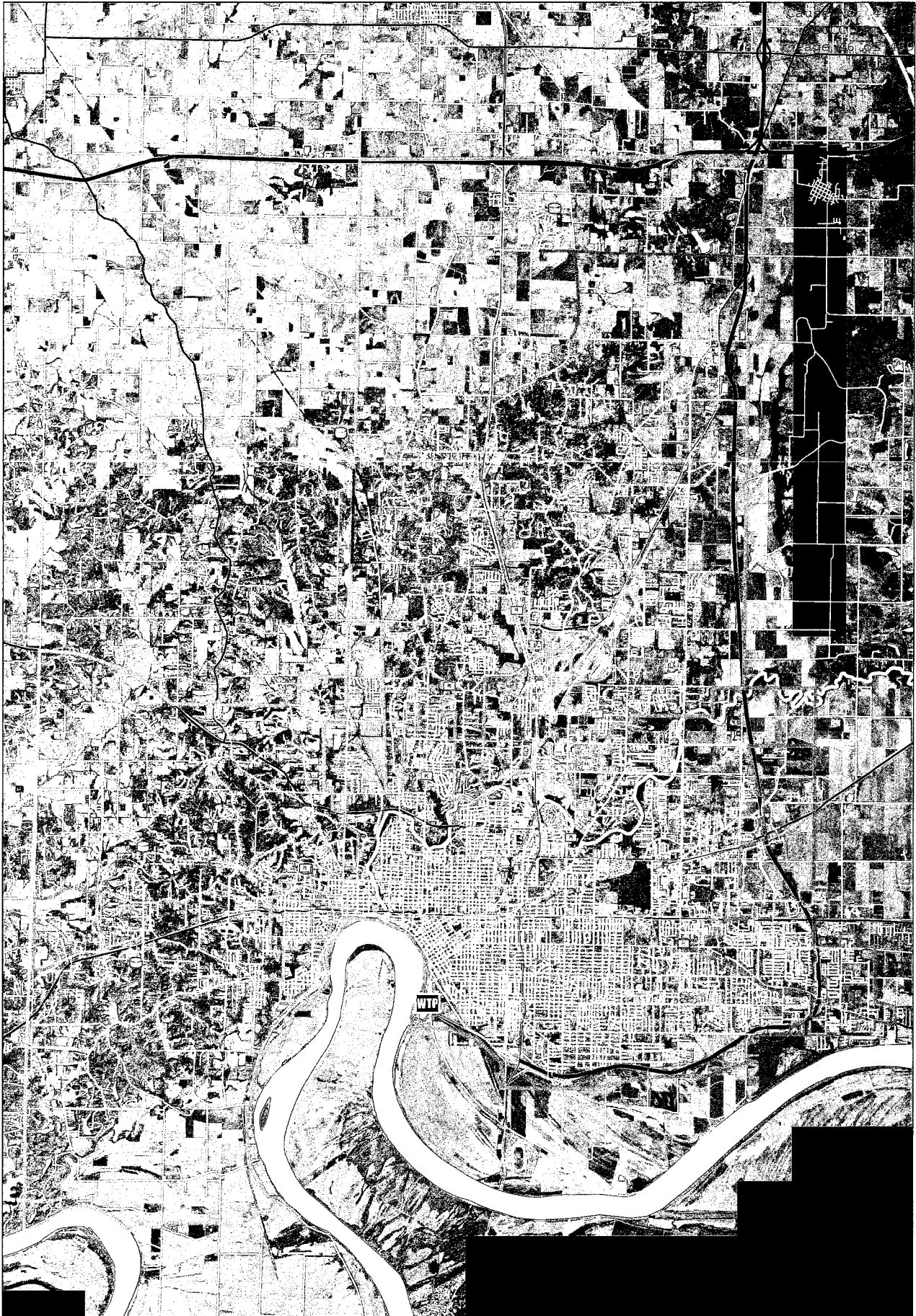
Heating, Ventilation and Cooling (HVAC) and Electrical improvements  
HVAC improvements are proposed for the Campground Booster Station to replace non-operable portions of the HVAC equipment to reduce the amount of condensation and corrosion in the booster station and replace electrical that is beyond its intended service life.

#### Pump Replacement

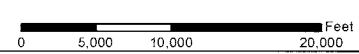
The existing pumps in the Campground Booster Station will surpass 30 years of service within ten years. Therefore replacement of both pumps with two pumps of higher capacity is recommended in the range of years five through ten of the planning period.

#### Pump Addition





The results from the hydraulic model run for projected demands indicate that the Campground Booster will not have sufficient capacity to meet future needs. Therefore, the installation of a third pump with a greater capacity than the existing pumps is recommended.



**FIGURE 2-23**  
**Water Main Extension Projects**



**Legend**

 Water Treatment Plant	Existing Water Mains	2021
 Booster Station	Proposed Installation Year	2022-2036
 Storage Tank	2016	2027-2032
 Pressure Zone	2019	2032-2036
	2020	2037-2046

### 2.5.3.2 First Avenue Booster Station

#### Cathodic Protection Improvements

Testing and replacement of the anodes for the cathodic protection system is proposed for the First Avenue Booster Station to prevent corrosion in the booster station.

#### Pump Addition

The results from the hydraulic model run for projected demands indicate that the First Avenue Booster will not have sufficient capacity to meet future needs. Therefore, the installation of a third pump with the same capacity as the existing pumps is recommended.

#### Pump Replacement

The existing pumps in the First Avenue Booster Station will surpass 30 years of service near the end of the planning period. Therefore replacement of both pumps is recommended in the range of years 21 through 30 of the planning period.

### 2.5.3.3 Killian Booster Station

#### Pump Replacement

The existing pumps in the Killian Booster Station are nearing 30 years of service. Therefore, replacement of the pumps is recommended early in the planning period, prior to replacing the station at the end of the planning period as part of the next project.

#### Booster Station Replacement

The Killian Booster Station building is in poor condition, and the existing pumps in the station are nearing 30 years of service. Additionally, the results from the distribution system modeling indicate that the Killian Booster Station will not have sufficient capacity to meet future needs. Therefore, the complete replacement of the station with a new station on the same site is recommended.

### 2.5.3.4 Lincoln Booster Station

#### Booster Station Replacement

The Lincoln Booster Station building is in poor condition and the existing pumps in the station are nearing 30 years of service. Additionally, the results from the distribution system modeling indicate that the Lincoln Booster Station will not have sufficient capacity to meet future needs. Therefore, the complete replacement of the station at a new location is recommended.

### 2.5.3.5 Stallings Booster Station

#### Piping Replacement

Replacement of all piping and supports in the booster station is proposed due to corrosion.

#### Culvert Replacement

Replacement of the failing culvert underneath the entrance drive is proposed.

#### Booster Station Replacement

The results from the hydraulic model run for projected demands indicate that the Stallings Booster will not have sufficient capacity to meet future needs. Therefore, complete replacement of the station at a new location is recommended.

#### 2.5.3.6 Ward Road Booster Station

##### Booster Station Replacement

The existing pumps in the Ward Road Booster Station will surpass 30 years of service within ten years and the existing piping and station structure have large amounts of condensation and corrosion. Therefore, complete replacement of the station on the same site is recommended.

#### 2.5.3.7 Weinbach Booster Station

##### Structural Repair

Minor repairs are proposed to correct structural issues with the booster station building.

##### Pump Replacement

The existing pumps in the Weinbach Booster Station will surpass 30 years of service near the end of the planning period. Therefore replacement of both pumps is recommended in the range of years 21 through 30 of the planning period.

### 2.5.4 Water Storage Facility Projects

Since EWSU contracted with Utility Service Group to maintain their storage tanks and reservoirs, only two improvement projects are proposed for storage facilities. A complete listing of booster station and storage facility projects is included in **Appendix C**.

#### Campground Reservoir Replacement

The existing concrete structure for the Campground Reservoir will be 100 years old in 2027; therefore, replacement of the reservoir is proposed. For the purposes of this master plan, replacement with a similar sized storage tank is proposed, though the final size could potentially be reduced during a detailed evaluation.

#### Northern Pressure Zone Elevated Storage Tank

A 0.5 MG elevated storage tank is proposed for the northeast portion of the distribution system. The tank is proposed to meet fire flow needs and peak demands for the proposed growth, particularly industrial growth, in the northeast portion of the EWS service area.



## CHAPTER 3 WATER TREATMENT PLANT ANALYSIS

### 3.1 BACKGROUND

The EWSU surface water treatment plant (WTP) is a conventional water treatment facility using the Ohio River as its source of raw water and located approximately one mile upstream of downtown Evansville. The WTP consists of two interconnected treatment systems, namely the North Plant and South Plant, each with a hydraulic capacity of approximately 36 and 24 MGD, respectively.

Raw water withdrawn from the river is pumped to the treatment facilities, where it is chemically conditioned, coagulated, flocculated, and clarified in the primary and secondary sedimentation basins (separating settleable solids from the conditioned water). Clarified water enters deep bed filters for removal of additional solids and microorganisms (mainly algae and bacteria). The filtered water is then chemically conditioned for stability and disinfected prior to being stored in clear well tanks designed to achieve a required contact time to produce finished water. The potable water is then pumped into the water distribution system, as described in Chapter 2.

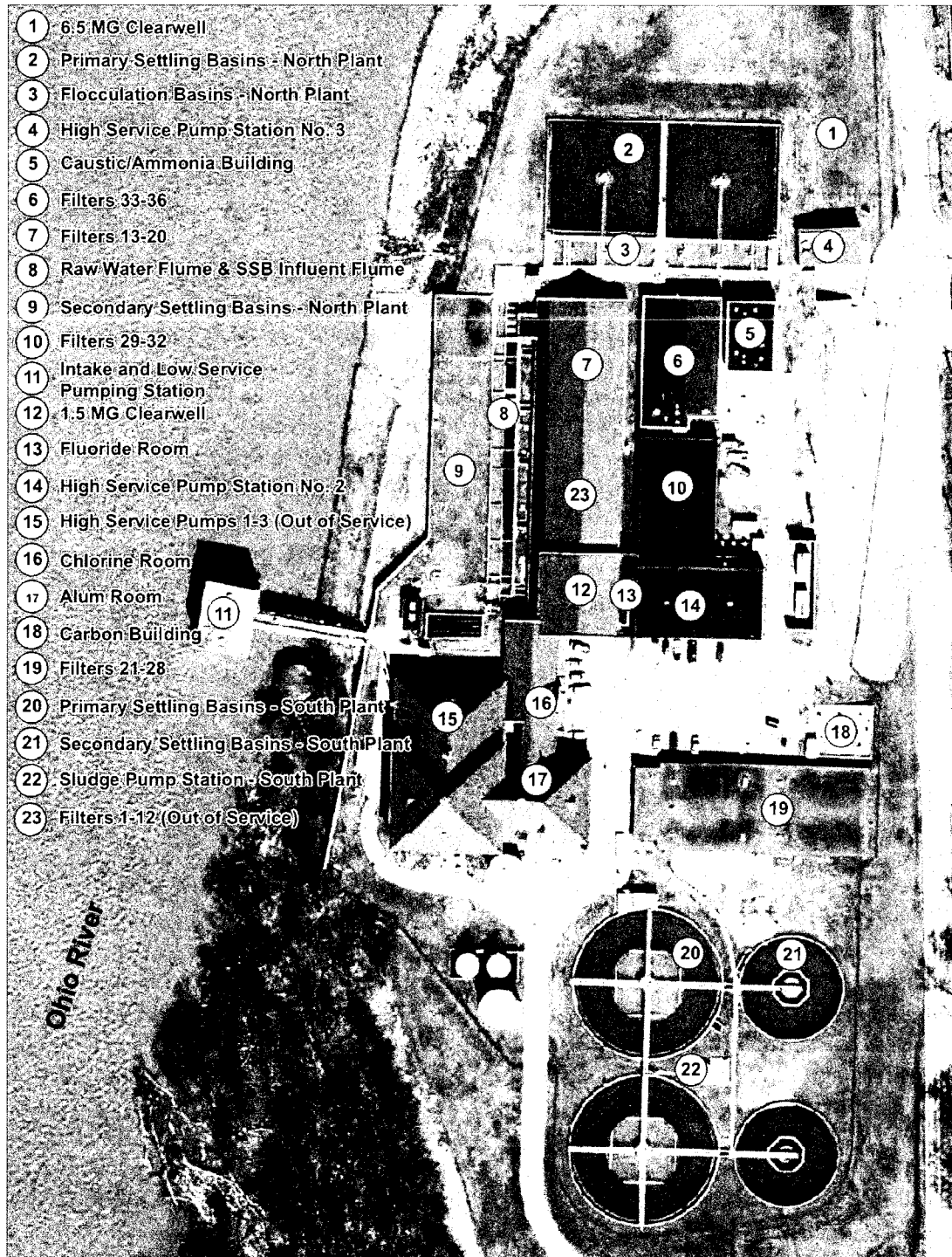
A site plan of the treatment facilities is shown in Figure 3-1. The remainder of Chapter 3 details the evaluation of the existing treatment facilities, including the electrical system and instrumentation and control system. This chapter concludes with an approach to replace the existing surface water plant with a groundwater treatment plant and recommended improvements to the existing plant. Capital improvements required to expand the plant's firm capacity, comply with anticipated future permit limitations, and replace or rehabilitate aging structures and equipment over a 30-year service period are presented in Chapter 4.

### 3.2 PLANT CAPACITY ASSESSMENT

Both the existing North Plant and South Plant are supplied with raw water by the Low Service Pump Station. Table 3.1 tabulates existing treatment facilities comprising each plant and their associated hydraulic capacities. The capacity ratings were determined by assigning nominal or design capacity ratings to the treatment processes and then calculating firm treatment capacity (capacity with the largest unit out of service), operational treatment capacity (actual treatment capability based on operator knowledge of the process and historical data), and total capacity (sum of all parallel unit processes working together at maximum rated capacity). The sedimentation process is the limiting factor in the plant's firm capacity rating, and will have to be expanded to achieve a firm capacity of 60 MGD.

The finished water storage capacity is limited to 2.0 MG if the 6.5 MG clearwell is out of service. This condition will be of particular concern in the future as the disinfection characteristics (required CT values) of the 1.5 MG clearwell are estimated to be deficient for adequate inactivation of microbial organisms. From a finished water distribution standpoint, 45 MGD of the total 85 MGD pumping capacity would also be lost if the 6.5 MG clearwell is out of service

(leaving the plant with only 40 MGD of pumping capacity). As such, an additional 6.0 MG clearwell with 30 MGD of pumping capacity should be added within the 30-year study period.



**FIGURE 3-1**  
**Site Plan of the Water Treatment Plant**

**TABLE 3.1  
Water Treatment Plant Firm Capacities**

<i>Unit Process</i>	<i>North Plant<sup>1</sup></i>	<i>South Plant<sup>1</sup></i>	<i>Total Capacity</i>	<i>Firm Capacity<sup>2</sup></i>
<b>River Intakes<sup>3</sup></b>			<b>90-140 MGD</b>	<b>70 MGD</b>
Screened Cells (3)			60-80 MGD	
30-inch Pipes Backup (3)			30-60 MGD	
<b>Low Service Pumping</b>	<b>86 MGD</b>	<b>60 MGD</b>	<b>146 MGD</b>	<b>126 MGD</b>
Pumps 4-6 <sup>4</sup>	86 MGD			
Pumps 1-3		60 MGD		
<b>Mixing</b>	<b>36 MGD</b>	<b>24 MGD</b>	<b>60 MGD</b>	<b>42 MGD<sup>5</sup></b>
Type	Rapid	Static		
G-Value Estimate	1,200 s <sup>-1</sup>	500-1,500 s <sup>-1</sup>		
Hydraulic Detention Time	10 sec	2 sec		
<b>Flocculation</b>	<b>36 MGD</b>	<b>24 MGD</b>	<b>60 MGD<sup>6</sup></b>	<b>42 MGD<sup>6</sup></b>
G-Value Estimate	60 - 80 s <sup>-1</sup>	45 s <sup>-1</sup>		
Hydraulic Detention Time	24 min	38 min		
<b>Primary Sedimentation</b>	<b>36 MGD</b>	<b>24 MGD</b>	<b>60 MGD<sup>6</sup></b>	<b>42 MGD<sup>6</sup></b>
Total Area	20,000 sf <sup>7</sup>	21,707 sf <sup>7</sup>		
Overflow Rate	1,800 gpd/sf <sup>7</sup>	1,105 gpd/sf <sup>7</sup>		
Total Volume	2,550,000 gal	3,484,000 gal		
Hydraulic Detention Time	102 min	208 min		
<b>Secondary Sedimentation</b>	<b>36 MGD</b>	<b>24 MGD</b>	<b>60 MGD<sup>6</sup></b>	<b>42 MGD<sup>6</sup></b>
Total Area	19,795 sf	12,724 sf		
Overflow Rate	1,818 gpd/sf	1,886 gpd/sf		
Total Volume	2,078,500 gal	1,431,500 gal		
Hydraulic Detention Time	83 min	86 min		
<b>Gravity Filtration<sup>8</sup></b>	<b>36 MGD</b>	<b>24 MGD</b>	<b>60 MGD</b>	<b>57 MGD</b>
Filters 13-20	12 MGD			
Filters 21-28		24 MGD		
Filters 29-32	12 MGD			
Filters 33-36	12 MGD			
<b>Finished Water Storage</b>	<b>8.0 MG<sup>9</sup></b>	<b>0.5 MG</b>	<b>8.5 MG</b>	<b>2.0 MG<sup>10</sup></b>
<b>High Service Pumping</b>	<b>85 MGD</b>	<b>0 MGD</b>	<b>85 MGD</b>	<b>70 MGD</b>
HSP Station 2 (Pumps 4-7)	40 MGD			
HSP Station 3 (Pumps 8-10)	45 MGD			
<b>Plant Firm Capacity</b>			<b>60 MGD</b>	<b>42 MGD<sup>6</sup></b>

Notes:

<sup>1</sup> Capacity figures are based on previous engineering reports and analyses.

<sup>2</sup> Firm capacity based on largest single unit being out of service under worst-case conditions (such as high raw turbidity and high system demand).

<sup>3</sup> Capacity estimates vary based on river elevations and actual pipe velocities.

<sup>4</sup> Pump capacities based on 53 ft. TDH.

<sup>5</sup> Plant functioned adequately without rapid mixer until 1997; coagulation may be impacted, but it is not recommended to limit overall plant capacity by the firm capacity of mixing process.

<sup>6</sup> Total and firm capacities are based on nominal design overflow rates; operational information and historical experience indicate an operational capacity of approximately 48 MGD.

<sup>7</sup> South primary clarifiers are flocculating clarifiers with 18-percent of volume and surface area for flocculation and 82-percent for clarification.

<sup>8</sup> Filters 1-12 are currently out of service.

<sup>9</sup> All 3 clearwells are interconnected via finished water channel between the Diesel Room and Filters 29-32 Building.

<sup>10</sup> Although plant firm capacity is not based on firm clearwell capacity, risk of failure/emergency closure of 6.5 MG clearwell poses significant potential impact to plant capacity and disinfection capabilities.

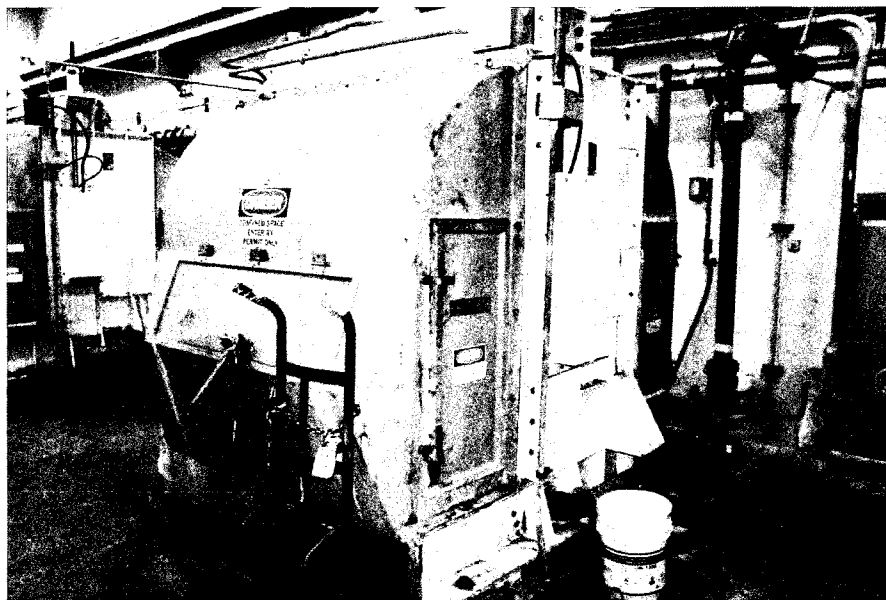
### 3.3 PLANT DESCRIPTION AND CONDITION ASSESSMENT

The existing plant was constructed in stages. The oldest major unit processes still in service are Filters 13-20 constructed in the late 1930s, while the newest (Filters 35 and 36) were completed in 2008. Many of the older structures are in need of rehabilitation, and much of the process equipment is old or beyond the intended service life and in need of replacement. Specific summaries and comments on grouped treatment processes, pumping and storage facilities follow.

#### 3.3.1 Low Service Pumping Station

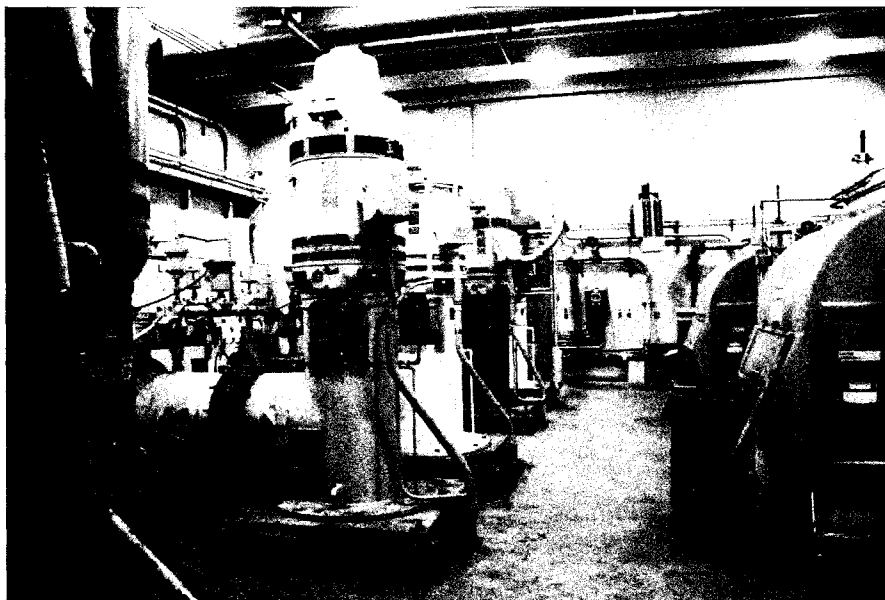
There are three traveling screens in the Low Service Pump Station that remove debris from the river intake water prior to pumping for treatment, as shown in **Figure 3-2**. Screen No. 1 was most recently rebuilt in 2009. Six vertical turbine pumps transfer raw water from the river to the treatment facilities in both the North and South Plants. Within this building are also an air compressor for the pneumatically actuated discharge valves and a potassium permanganate feed system.

Each of the low service pumps, as shown in **Figure 3-3**, require periodic pump rebuilds and replacement of the motors and drives. Low Service Pump Nos. 1, 3, and 6 were rebuilt in a 2015 project and Pump No. 1 had a new motor and variable frequency drive installed. Low Service Pump Station interior and exterior coatings and HVAC system improvements will be needed over the next 30 years in addition to scheduled process equipment rebuilds/replacements. The interior

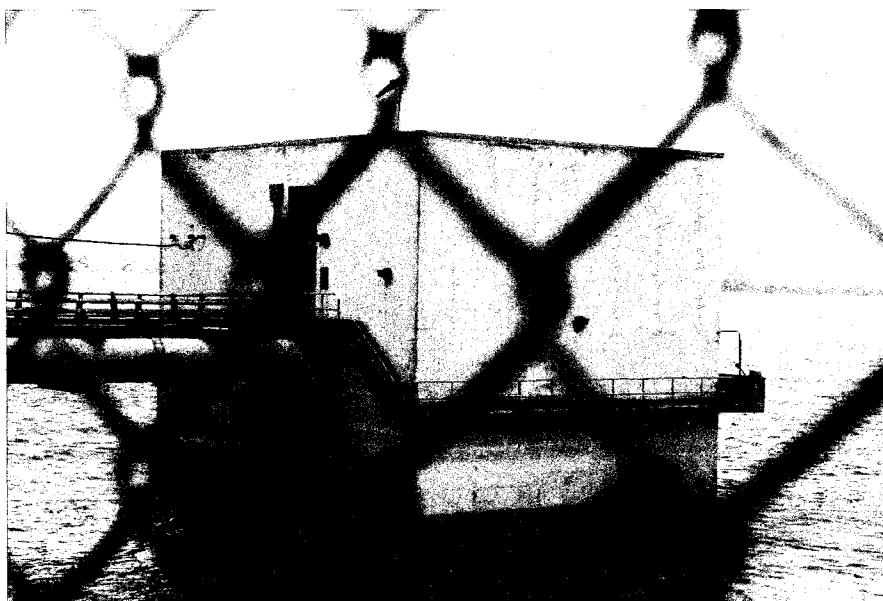


**FIGURE 3-2**  
**One of Three Travelling Screens Located Inside the Low Service Building**

and exterior of the low service pump station building are shown in Figures 3-4 and 3-5. Another significant Low Service Pump Station cost is river dredging to remove sediment that continually accumulates and threatens to choke off the plant intakes. In the recent years, sediment accumulation has gotten worse and dredging has become an annual need.



**FIGURE 3-3**  
**Low Service Pumps**



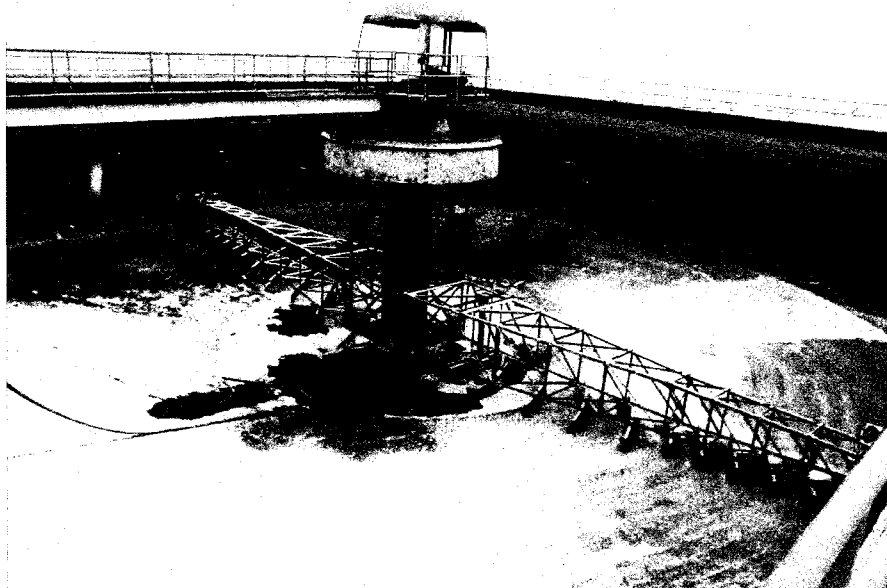
**FIGURE 3-4**  
**Low Service Pump Station Building Exterior**



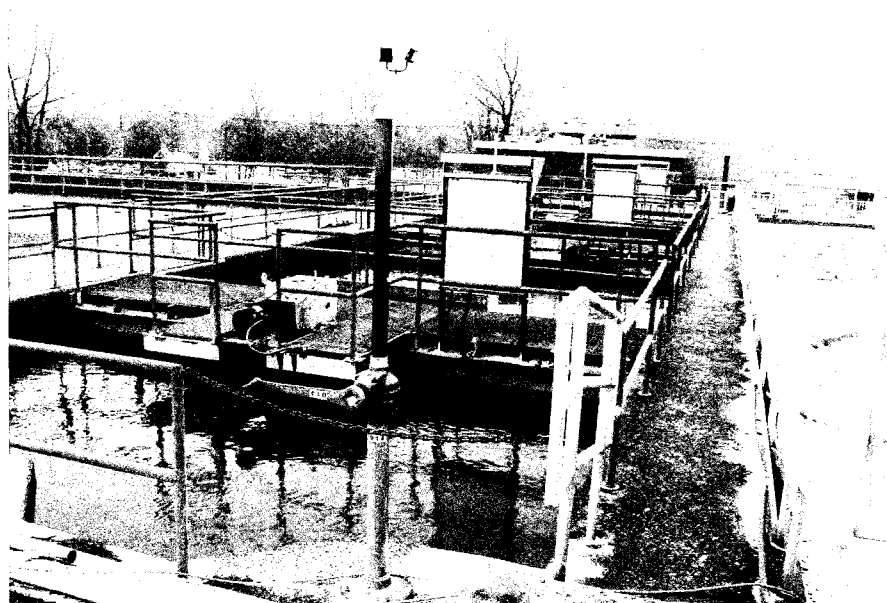
**FIGURE 3-5**  
**Low Service Pump Station Interior**

### 3.3.2 Primary Sedimentation

There are two sets of primary sedimentation basins, South and North. At the North Plant Settling Basins, new V-notch weirs were installed and the sludge collector drive units were replaced during a project in 2015. Replacement of the sludge collector mechanisms was an alternate item in the 2015 project, but not performed due to project budget constraints. The manufacturer has estimated approximately five years of remaining life for the sludge collection mechanisms and their replacement. The equipment has a 20-year lifespan, so replacement of the sludge removal mechanisms in both of the North Plant sedimentation basins has been accounted for in the 30-year timeframe of this Master Plan. One of the North Plant primary sedimentation basins during the 2015 project is shown in **Figure 3-6**. The rapid mixer and four of the six vertical flocculators in the North Plant are original, built in the 1950s, and are past their useful life. New drivers were installed on two of the six flocculator mixers in the 2015 project. A new variable speed rapid mixer and rebuild/replacement of the six flocculator drives is anticipated over the next 30 years. There is currently no redundancy with the rapid mixer at the North Plant. The North Plant sedimentation and flocculation basin tank walls are showing significant signs of concrete surface deterioration as a result of chemical attack. The bridges and piping are showing signs of corrosion. The existing variable speed rapid mixer and flocculator drive arrangement for the South Plant are shown in **Figure 3-7**.

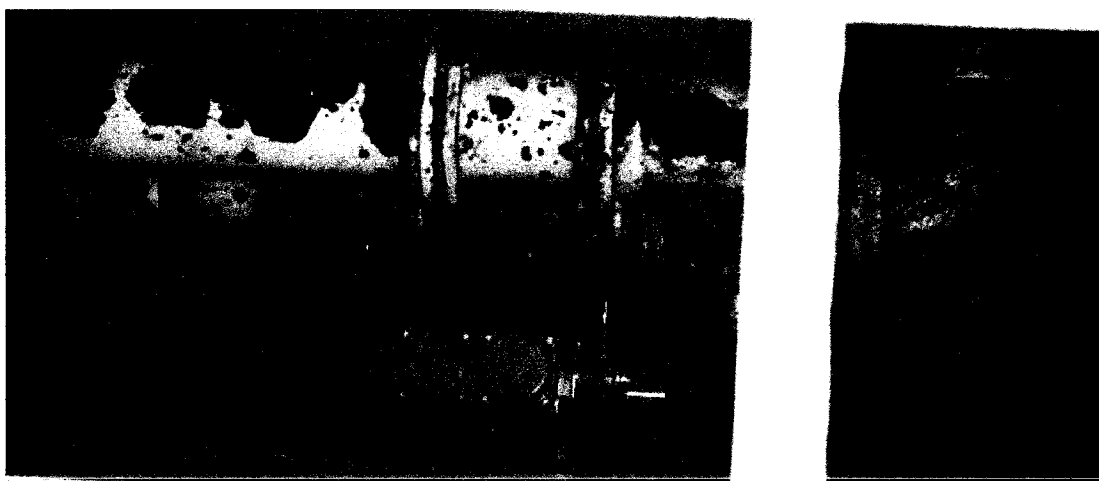


**FIGURE 3-6**  
**Sludge Rake in North Primary Sedimentation Basin**



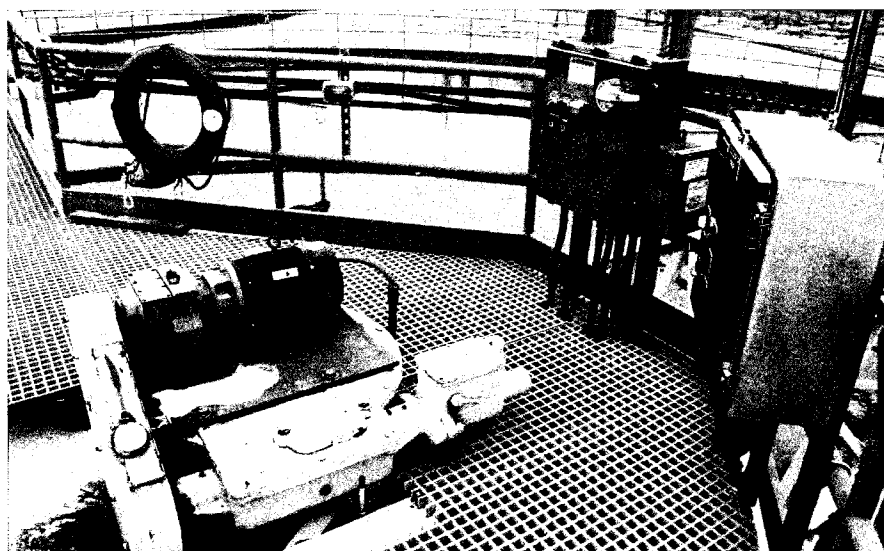
**FIGURE 3-7**  
**North Plant Flocculation Tanks**

The North Sludge Station consists of a drain pump and sludge withdrawal valves in a deep valve vault with a small above grade structure that will require rehabilitation near the beginning of the study period. Two new 8-inch electric actuated plug valves were replaced in this station in the 2015 project. The interior of the existing valve vault for the north sludge station through the fall protection grating is shown in Figure 3-8.



**FIGURE 3-8**  
**North Sludge Station Valve Vault Interior**

The South Plant includes a static mixer for chemical injection followed by two reactor-type Primary Sedimentation Basins that include both flocculator drives and sludge rake drives. The flocculator drive arrangement for the South Plant Primary Sedimentation Basins is shown in Figure 3-9. The drives on the two Primary Sedimentation Basins need replaced early in the planning phase as all four drives are original. The South Sludge Pump Station, located in the center of the four existing South Sedimentation Basins, needs improvements, as shown in Figures 3-10 and 3-11. This station was placed in operation around 1969, without significant mechanical or structural rehabilitation since then. Rehabilitation of the South Sludge Pump Station should include an additional sump pump, new hatches, stairs and coatings. Additional piping and valves are also needed for this station to serve the proposed third set of South Sedimentation Basins.

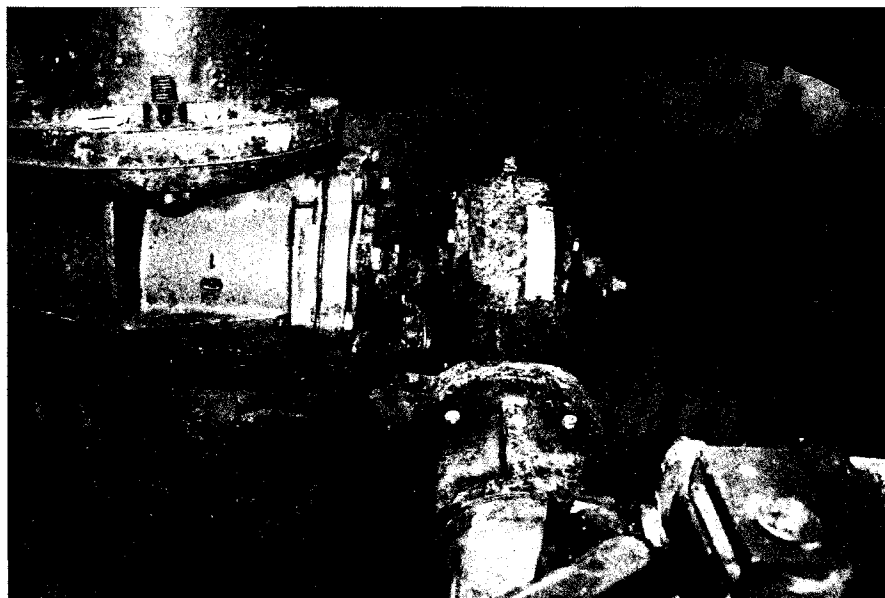


**FIGURE 3-9**  
**Flocculator Drive in the South Sedimentation Basins**





**FIGURE 3-10**  
**Interior Degradation in the South Sludge Pump Station**



**FIGURE 3-11**  
**Corroded Piping in the South Sludge Pump Station**

### 3.3.3 Secondary Sedimentation

Similar to the primary system, there are two sets of secondary sedimentation basins – North and South. The North Secondary Sedimentation Basins, shown in **Figure 3-12**, were expanded in the 1930s to five buried basins. There is noticeable settlement over the top of the basins along the alignment of the washwater pipe, shown in **Figure 3-13**, and a known severe crack in the wall between basins No.1 and No. 2. These will require replacement early in the planning period. The

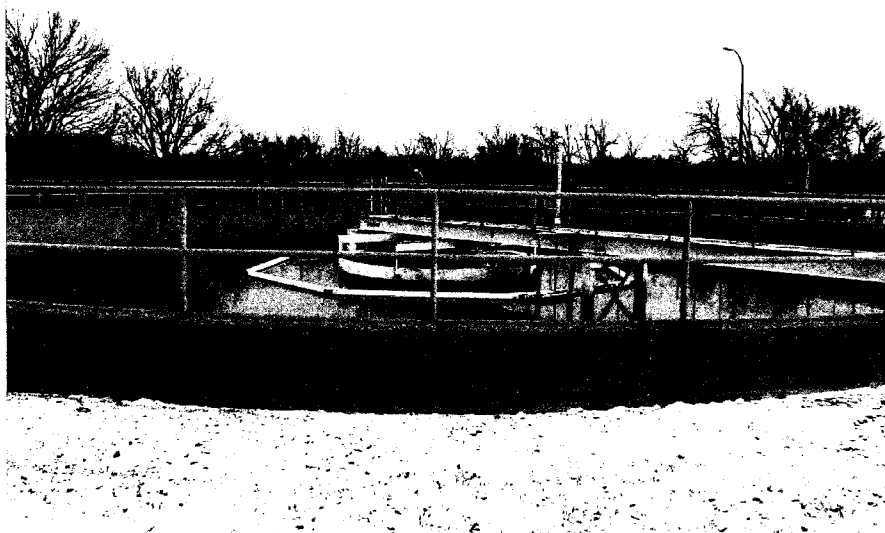
equipment in the two existing South Primary Sedimentation Basins, shown in Figure 3-14, will require blasting and coating of all submerged and bridge-supported equipment and replacement of the weirs. . Additionally, to achieve a firm capacity of 60 MGD through the settling process, a third set of South Primary and Secondary sedimentation basins will be needed early in the planning period. This third set of basins would include flood protection levee modifications on the south end, along with support piles for the new structures.



**FIGURE 3-12**  
**North Secondary Sedimentation Basins (Underground)**



**FIGURE 3-13**  
**Ground Settlement Over North Secondary Sedimentation Basins**



**FIGURE 3-14**  
**South Secondary Sedimentation Basins**

#### 3.3.4 Filtration

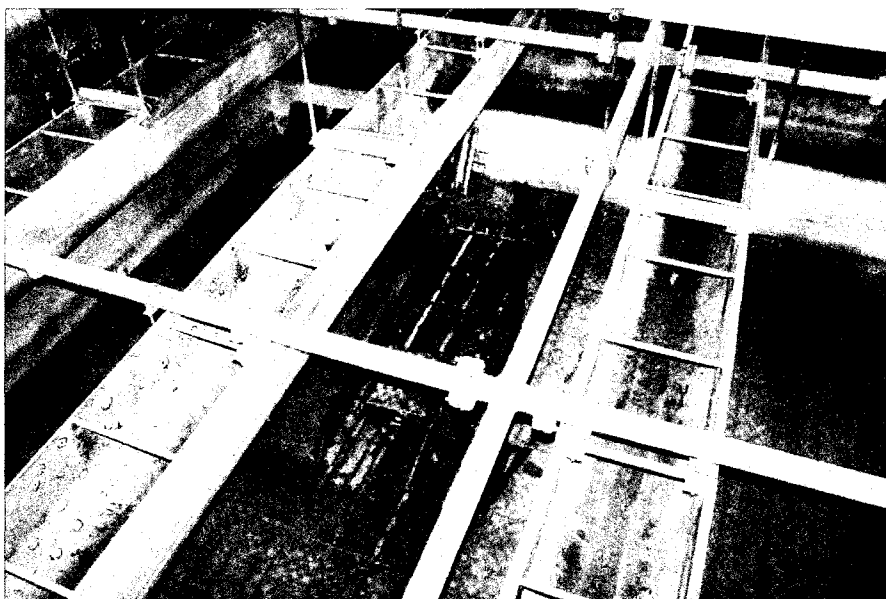
There are five sets of filters in a variety of configurations for both the North Plant and South Plant. The location and groupings of the filter banks are indicated in **Figure 3-1**.

The original set of filters in the North Plant (Filters 1-12), have been decommissioned (as the filter bed depth of these filters is not suitable for reuse as conventional sand or mixed media filters by today's standards). The decommissioned filters are shown in **Figure 3-15**. For filter redundancy and firm capacity, filtration capacity in addition to the active 24 in-service filters (Filters 13-36) is required. It is therefore planned to retrofit the existing Filters 1-12 structure with membrane filters of 6 MGD capacity.

Filter media used in surface water treatment has an intended useful life expectancy of about 10 years. Currently, the plant staff's goal to replace media in four of the plant's 24 active filters each year to meet this media life-expectancy timeframe. Additionally, most of the filter underdrains are the original clay tile, including that of Filter 17 which was the most recent to experience a filter bed failure, as shown in **Figure 3-16**. Tile underdrain replacement is included for all 24 filters during the 30 year planning period. Media replacement is planned concurrently with the underdrain replacement and then at 10-year increments. Existing filter bed media includes 6 inches of anthracite, 26 inches of sand, and 10 inches of varying gradations of support gravel, and replacement media is anticipated to remain the same proportionally.



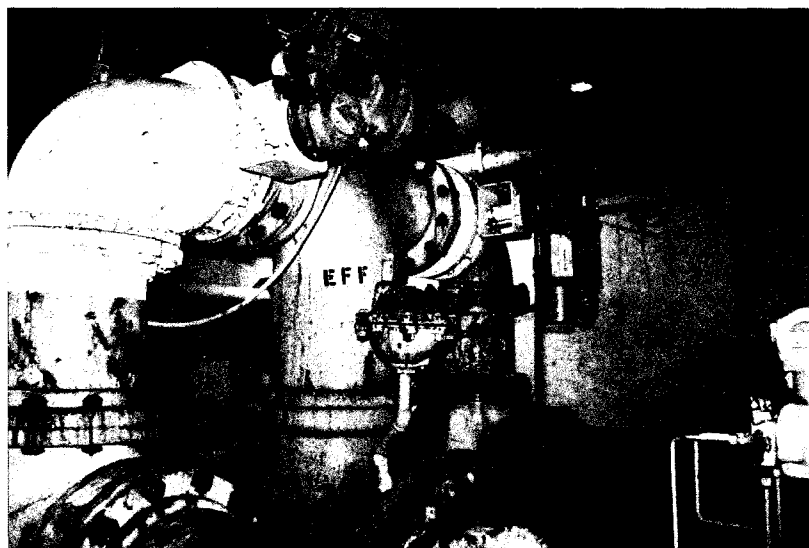
**FIGURE 3-15**  
**Decommissioned Filters 1-12**



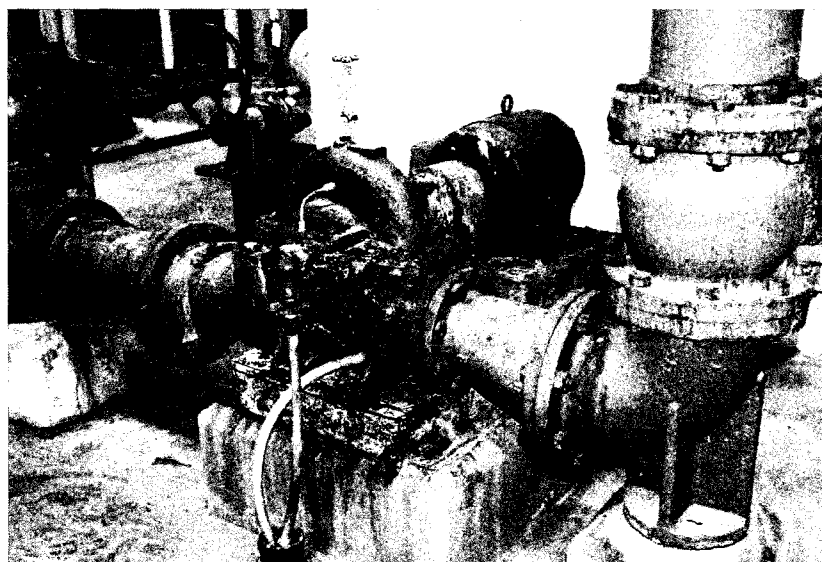
**FIGURE 3-16**  
**Filter Bed Failure in Filter No. 17**

The pipe galleries for Filters 13-20 and Filters 29-32 are in extremely poor condition and the other pipe galleries are in marginal condition. Coating of all pipes and equipment in these pipe galleries is required currently and should be planned to be performed again in 20 years. For the pipe galleries in poor condition, where corrosion has taken significant hold, all flange bolts and ferrous metal pipe supports are also planned to be replaced. The extent of corrosion in these galleries as shown in Figures 3-17 through 3-19 is largely a result of inadequate humidity control, and

dehumidification improvements are recommended to be included as part of each filter gallery upgrade. The vent for the 1.5 MG clearwell needs relocated out of the Filter 13-20 pipe gallery to aid in the reduction of future corrosion. The piping and valves within the pipe gallery for Filters 13-20 requires significant rehabilitation if not replacement due to these issues. There was work done to replace critical valves and electric actuators within the past ten years but the majority of the gallery was not addressed due to budget constraints. Several of the existing filter buildings were constructed while lead based paint was still prevalent and remediation may be required if lead is confirmed. The building housing Filters 13-20 is known to contain lead based paint and other filter buildings will need to be evaluated for lead and other deleterious materials.



**FIGURE 3-17**  
**Corrosion in Pipe Gallery for North Filters 13-20**

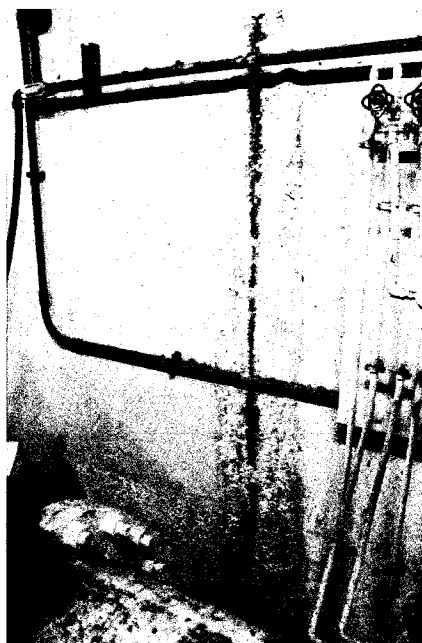


**FIGURE 3-18**  
**Corrosion in Pipe Gallery for South Filters 21-28**



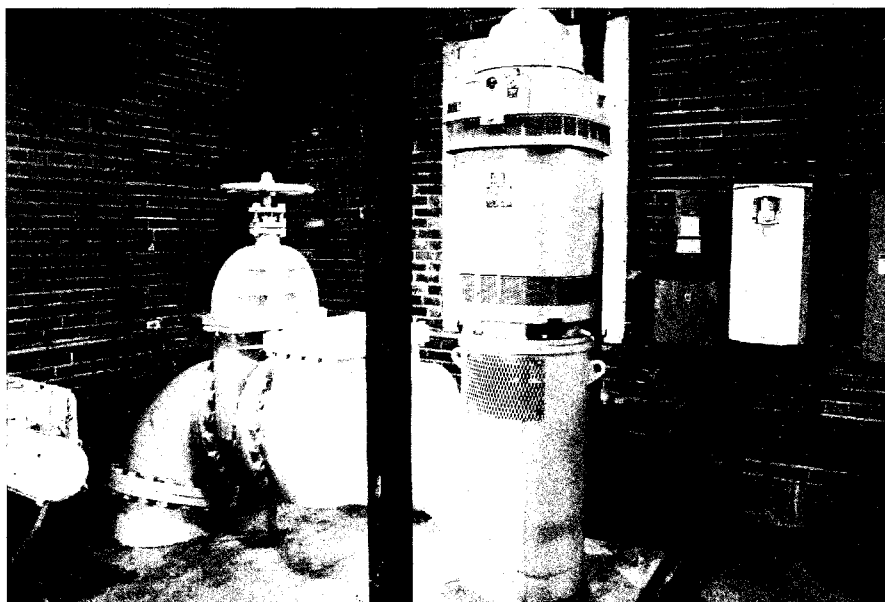
**FIGURE 3-19**  
**Corrosion in Pipe Gallery for North Filters 29-32**

Structural concerns for the filters are the concrete condition in many of the filter beds (13-20, 21-28, and 29-32). The filters are beyond their intended useful life of the concrete. Additionally, in many of the filter galleries and specifically Filters 21-28, there is quite a bit of concrete efflorescence present as seen in Figure 3-20. Efflorescence is the migration of a salt to the surface of the concrete and is generally only an aesthetic issue. The case shown in Figure 3-20 is more serious though and shows the concrete rebar within the wall corroding. It is recommended that this area be surface prepared and recoated to protect the reinforcing steel.



**FIGURE 3-20**  
**Concrete Efflorescence**

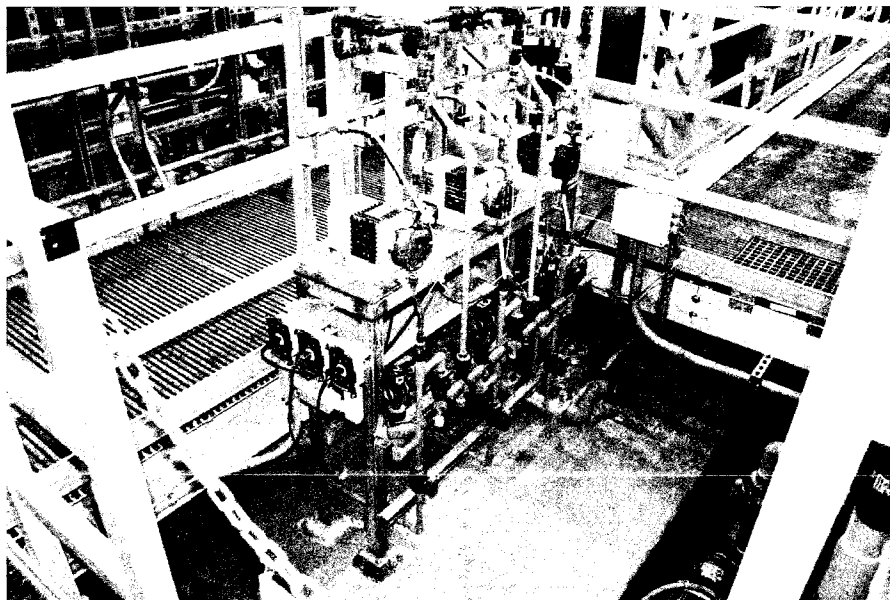
All backwash and filter-to-waste flows are directed through a 36-inch interceptor to the Ohio River via Outfall No. 4. During flood events, two vertical turbine flood pumps in the Filter 13-20 Building, as shown in **Figure 3-21**, lift the waste flow to overcome the elevated river level. These pumps run only intermittently as needed but are critical to plant operation when required. Rebuilding one of the two flood pumps every 15 to 20 years is recommended.



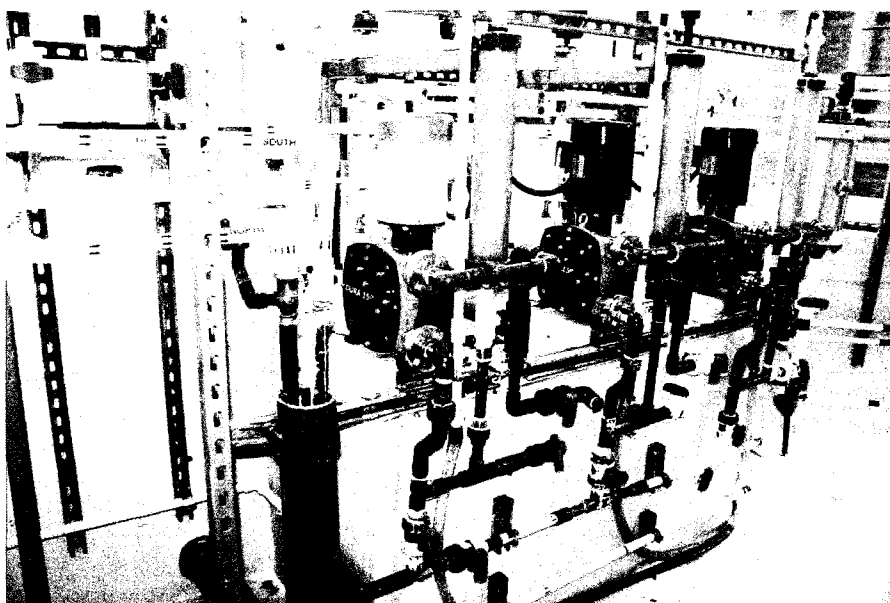
**FIGURE 3-21**  
**Flood Pumps to be Rebuilt Every 15-20 Years**

### 3.3.5 Chemical Systems

The plant utilizes DelPAC 2020 (aluminum chloride hydroxide sulfate), caustic (sodium hydroxide), and powder activated carbon for raw water conditioning. For finished water conditioning and disinfection the plant uses ammonium hydroxide, fluoride, and chlorine. Sulfur dioxide is used to dechlorinate backwash discharges. Sodium chlorite facilities exist; however, this chemical has not been purchased for the past several years. Many of the chemical storage and feed systems were upgraded in the late 2000 timeframe. Replacement of chemical systems should occur every 20 years, and each chemical system's components are slated to be replaced within the 30-year planning period. The existing DelPAC 2020, Caustic, PAC and Sodium Chlorite chemical feed systems are shown in **Figures 3-22 through 3-25**.

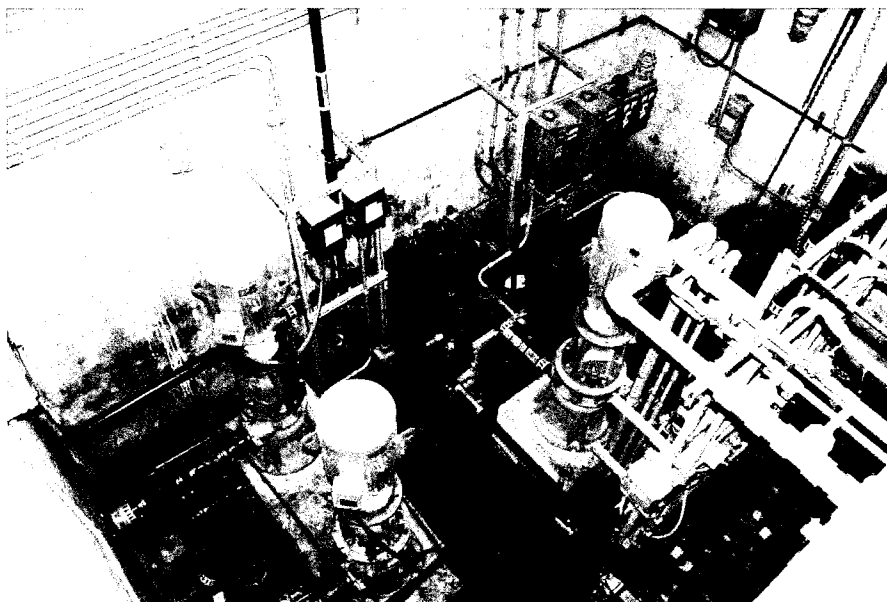


**FIGURE 3-22**  
**DelPAC 2020 Chemical Feed System for Coagulation/Flocculation**



**FIGURE 3-23**  
**Caustic Chemical Feed System for pH Neutralization**





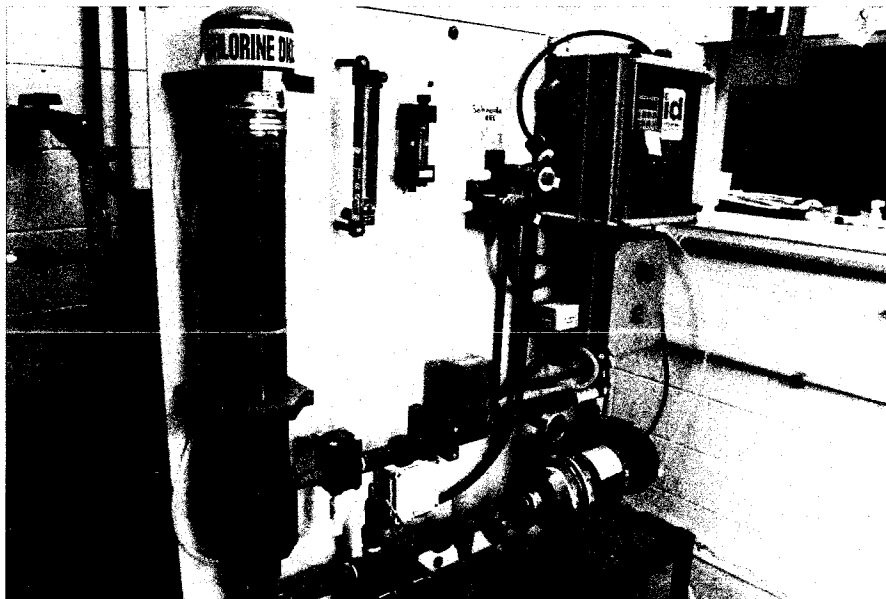
**FIGURE 3-24**  
**PAC Feed System for Adsorption of Organic Contaminants**



**FIGURE 3-25**  
**Sulfur Dioxide Chemical Feed System for Backwash Disinfection**

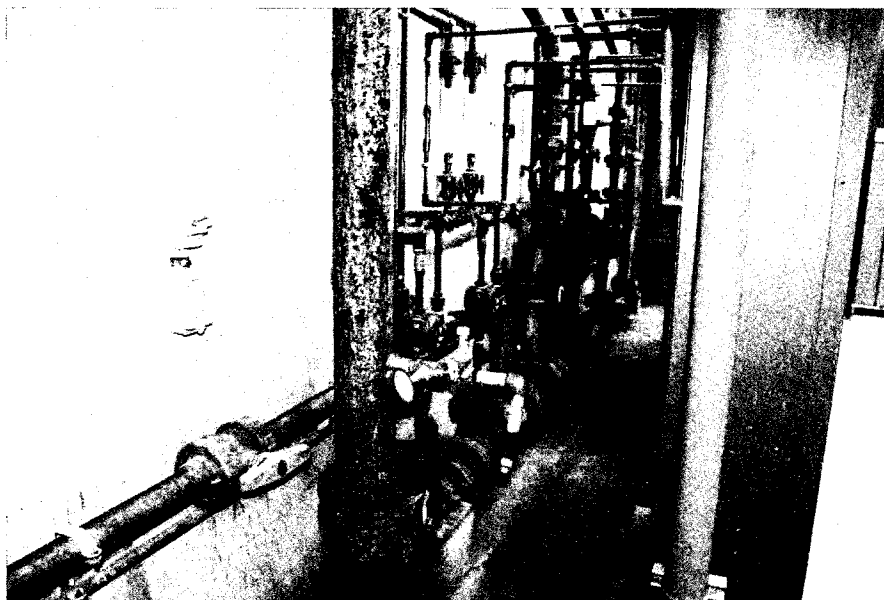
Types and amounts of chemicals used to condition the raw water, along with stabilizing and disinfecting the finished water, vary seasonally. The chlorine dioxide system was injected into the raw water in the summer for use as a pre-oxidant and source of primary disinfection but this system has since been abandoned. The existing chlorine dioxide chemical feed system is shown in Figure 3-26. It is recommended to remove this facility. In lieu of chlorine dioxide, potassium permanganate is added to the raw water for taste and odor control, reduction of nuisance

organisms, and minimization of disinfection by-products formation. The potassium permanganate system should remain with a replacement of all feed equipment during the planning period.

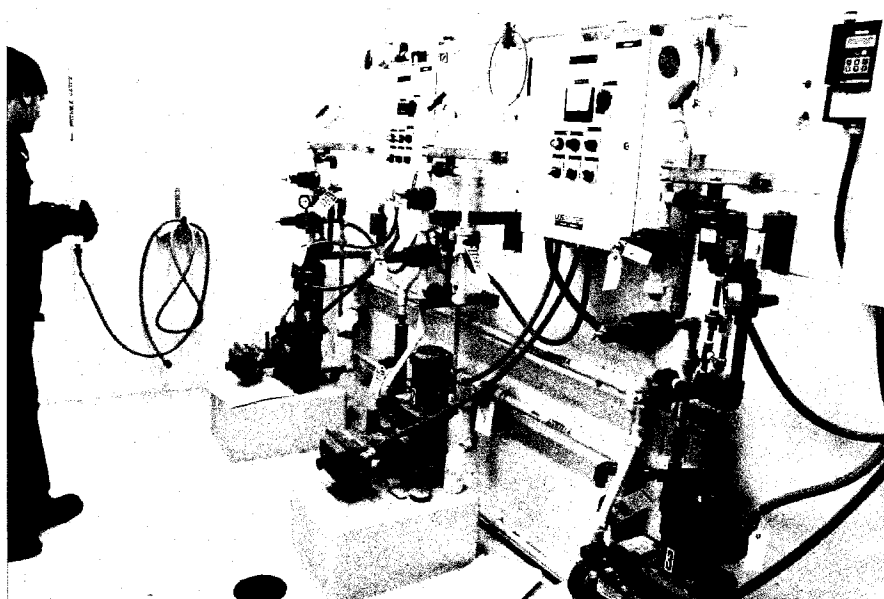


**FIGURE 3-26**  
**Chlorine Dioxide Chemical Feed System**

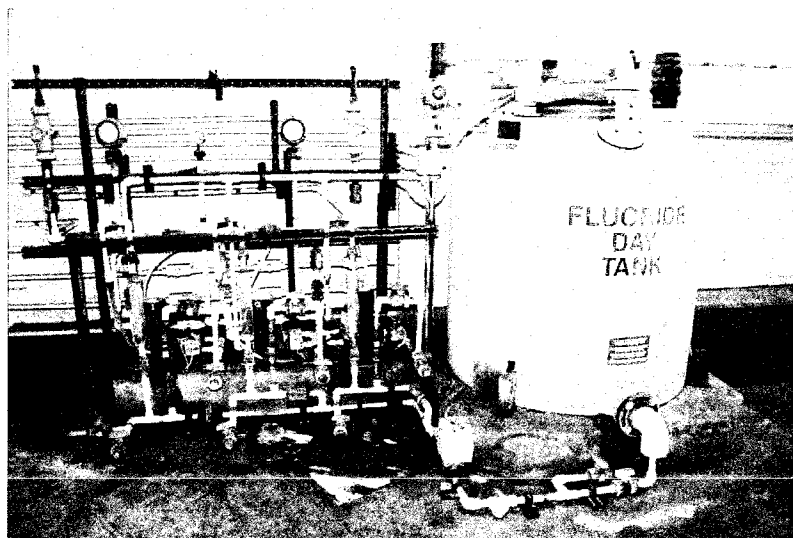
Chlorine is added after the primary sedimentation basins, and ammonia and caustic are added after the secondary sedimentation basins to achieve chloramine disinfection and pH adjustment. The plant has utilized the chlorine-ammonia process (chloramination) for disinfection and to maintain distribution system residual chlorine since March 2000. Chlorine is also added to the clearwell to maintain target chlorine residual in the finished water leaving the plant. Sodium hydroxide (caustic) is added prior to the filters to remove carbonate and non-carbonate hardness. Fluoride is added to the suction side of the high service pumps. Powdered-activated carbon may also be added as an emergency absorbent during spill events on the Ohio River. Each of these chemical systems is anticipated to be needed during the 30-year planning period. The chlorine, ammonia and fluoride chemical feed systems are shown in Figures 3-27 through 3-29.



**FIGURE 3-27**  
**Chlorine Chemical Feed System for Disinfection**



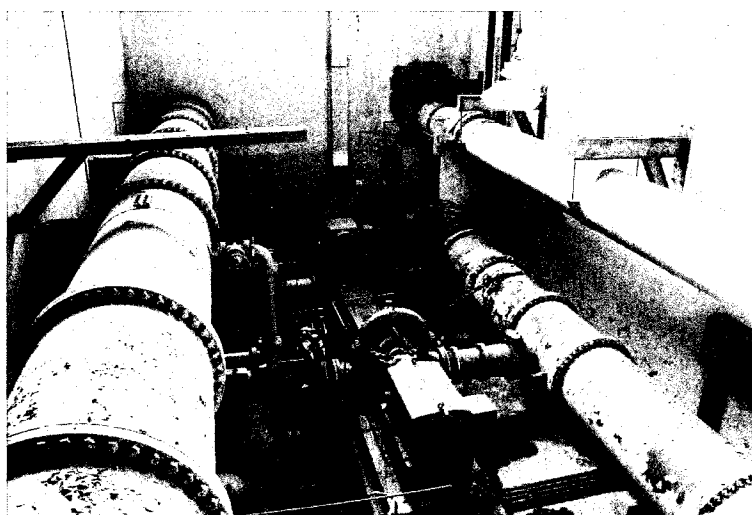
**FIGURE 3-28**  
**Ammonia Chemical Feed System for Disinfection**



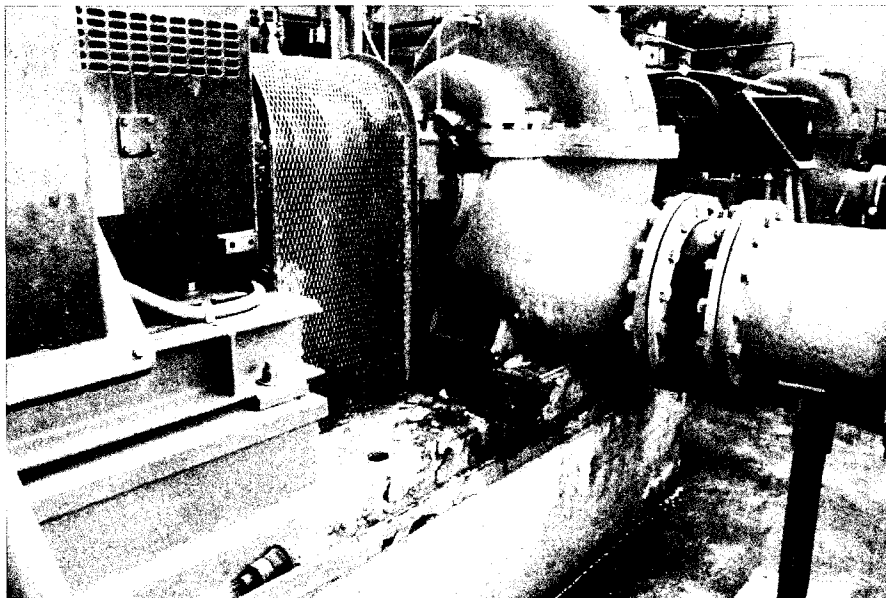
**FIGURE 3-29**  
**Fluoride Chemical Feed System**

### 3.3.6 High Service Pumps

The high service pumps transfer finished water from the onsite water storage clearwells to the distribution network of piping and booster pump stations. The seven existing high service pumps in High Service Pump Station Nos. 2 and 3 will also need to be rebuilt and require replacement motors and drives over the anticipated service life. High Service Pump Nos. 6, 7, and 9 were rebuilt in a 2015 Project and Pump Nos. 7 and 9 had new motors and drives installed. All piping and equipment in these pump stations will also require coating over the 30-year planning period. High Service Pump Station No. 2 and its associated corroded equipment are shown in Figures 3-30 through 3-32. The pumps and effluent piping in High Service Pump Station No. 3 are shown in Figures 3-33 and 3-34.



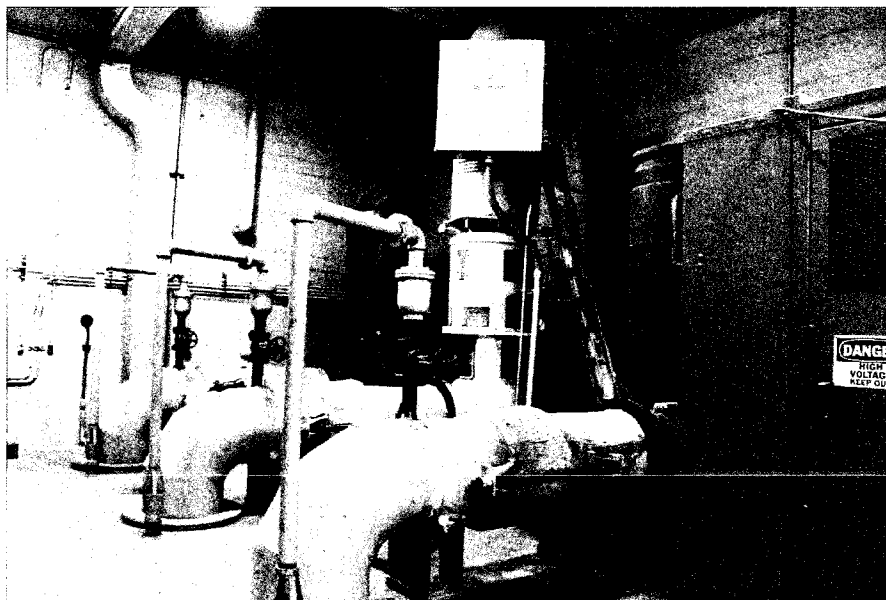
**FIGURE 3-30**  
**High Service Pump Station No. 2**



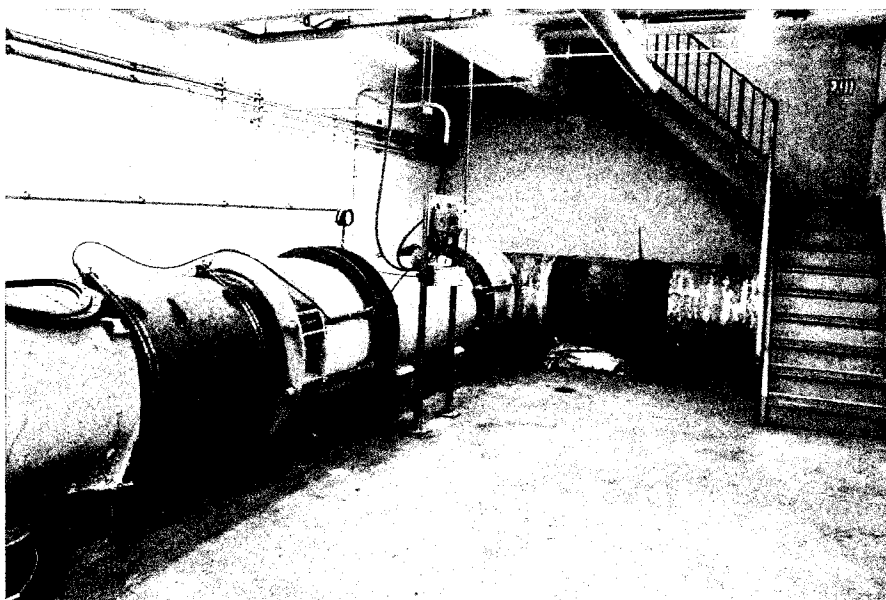
**FIGURE 3-31**  
**Pump Base Corrosion at High Service Pump Station No. 2**



**FIGURE 3-32**  
**Interior of Effluent Piping from High Service Pump Station No. 2**



**FIGURE 3-33**  
**High Service Pump Station No. 3**



**FIGURE 3-34**  
**Effluent Piping in High Service Pump Station No. 3**

### 3.3.7 Clearwells and Disinfection

The existing 6.5 million gallon (MG) capacity clearwell served by existing High Service Pump Station No. 3 is in need of repair (structural improvements that can presumably be performed by chemical grout injection). However, without additional clearwell capacity the 6.5 MG clearwell cannot be taken out of service to perform the repair without interruption of service. A new 6.0

MG, two-chamber clearwell is proposed along with a new High Service Pump Station No. 4 consisting of three new high service pumps.

In addition to chemical addition, disinfection includes storage of the water for a proper contact time (CT) prior to transferring the water to distribution. To improve chlorine contact time, a 36-inch pipe interconnection is needed between the South Plant clearwell and the 1.5 MG clearwell (located below out-of-service Filters 1-12).

### 3.3.8 Laboratory

The laboratory facilities are located in the central complex of buildings. Some of the laboratory equipment is shown in **Figure 3-35**. Over the planning period, the lab will need remodeled such that better separation of sampling areas and equipment can be achieved as well as updated cabinets and countertops. Currently much of the lab equipment such as the mass spectrometer is provided and maintained by ORSANCO in exchange for being a sampling site and providing data back to ORSANCO. On April 1, 2016, the Revised Total Coliform Rule (RTCR) went into effect. The RTCR further establishes a maximum contaminant level (MCL) for *E. coli*, a more specific indicator of fecal contamination. Additional sampling and testing requirements are anticipated over the planning period.

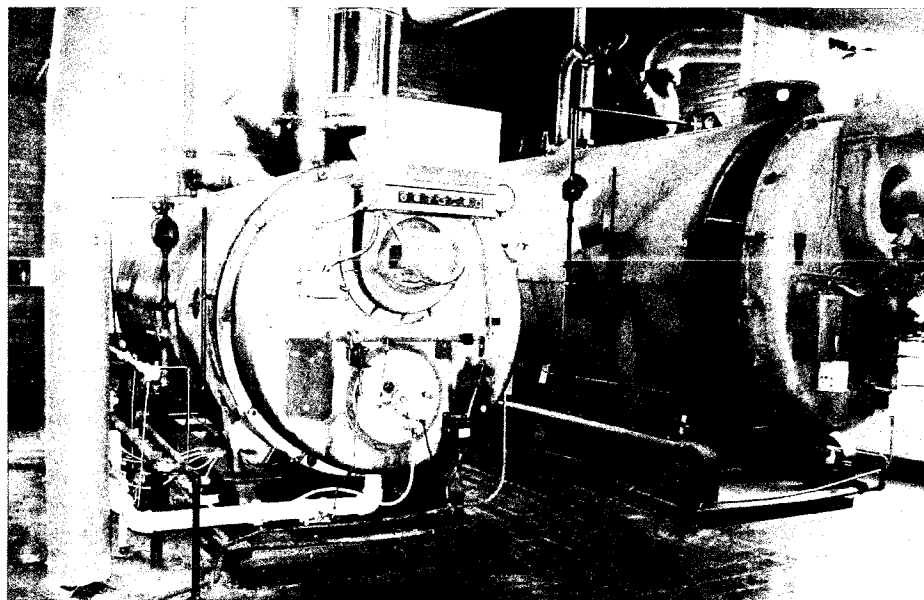


**FIGURE 3-35**  
**Water Treatment Plant Laboratory**

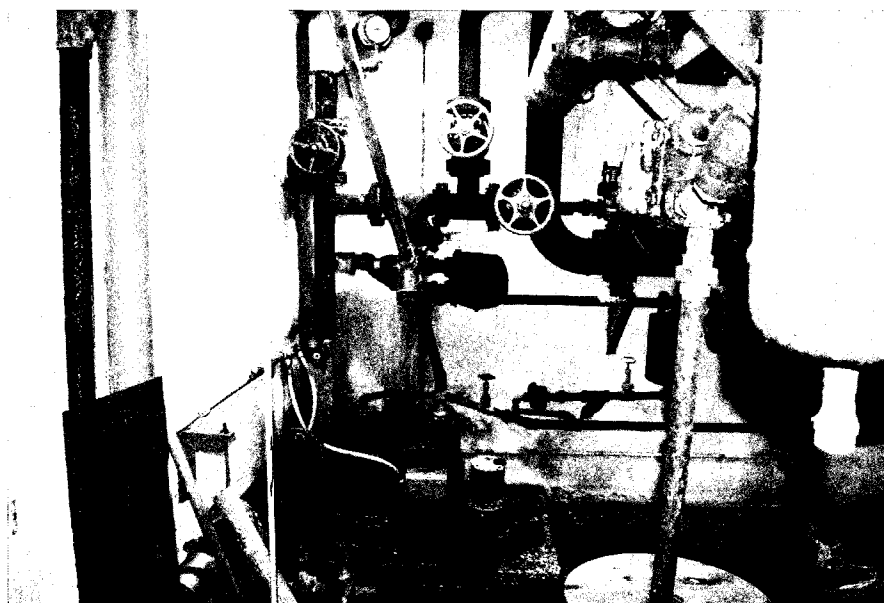
### 3.3.9 Headhouse and Miscellaneous Items

The plant heating is comprised of a converted natural gas-fired centralized boiler system located in the head house and electric unit heaters. The boiler/steam heating system consists of 2 boilers, 5 condensate pumps, an estimated 36 unit heaters, and all associated piping and valves required for operation. All components of this system are beyond the intended useful life. The two boilers, as shown in **Figure 3-36**, are manufactured by Cleaver Brooks with one being

manufactured in 1963 and the other in 1976. The boiler manufactured in 1963 has been decommissioned. It is recommended to evaluate and replace the entire system due to age and severe corrosion, as shown in Figures 3-37 and 3-38. Further evaluation and comparison of boiler/steam heating, electric, and natural gas heating should be performed to determine the best method for the affected structures.

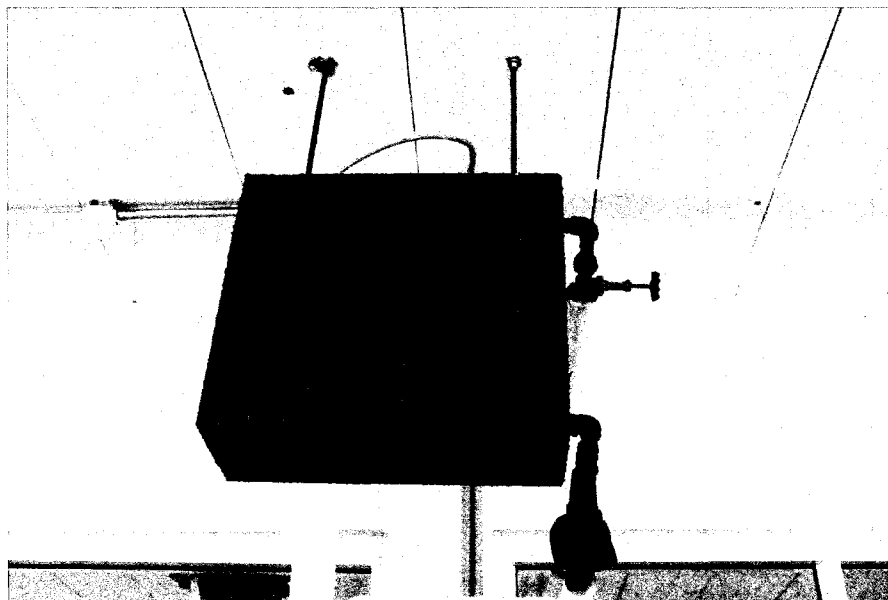


**FIGURE 3-36**  
**Boilers**



**FIGURE 3-37**  
**Condensate Pump and Steam/Condensate Piping in South Filter Gallery**





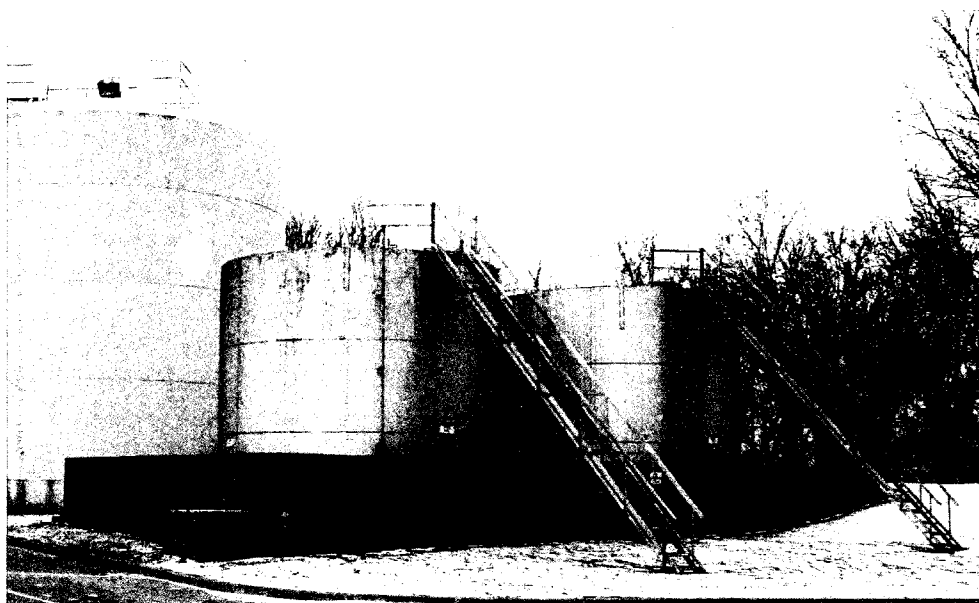
**FIGURE 3-38**  
**Unit Heater in South Filter Building**

Over the planning period the roofing of the fluoride area, caustic/ammonia building, low service and intake building, and High Service Pump Station No. 2 will need maintained and replaced. All other buildings had the roofing replaced in 2006-2007. The synthetic slate roofing installed at that time has a warranty of 50 years and will not need replaced within the planning period.

The site has two existing 900kW diesel generators, shown in **Figure 3-39**, installed around 1990. The two existing diesel storage tanks, shown in **Figure 3-40**, and associated piping need demolished and two new diesel storage tanks will be required. The two new storage tanks shall be located closer to the generators with new piping installed to minimize the length of piping required. Both diesel storage tanks shall have fuel conditioning systems installed to ensure a quality fuel supply is available. The estimated burn rate at full load for both generators combined is approximately 130 gal./hour. It is recommended to have adequate storage for two days of continuous operation (48 hours) for a total stored amount of approximately 6,250 gallons. There should be agreements in place to ensure that if a long-term power outage were to occur, EWSU would have priority on diesel fuel deliveries to maintain plant operations. The two existing diesel storage tanks, containment structure, stairs, and all piping shall be demolished.



**FIGURE 3-39**  
**Back-Up Diesel Generators**



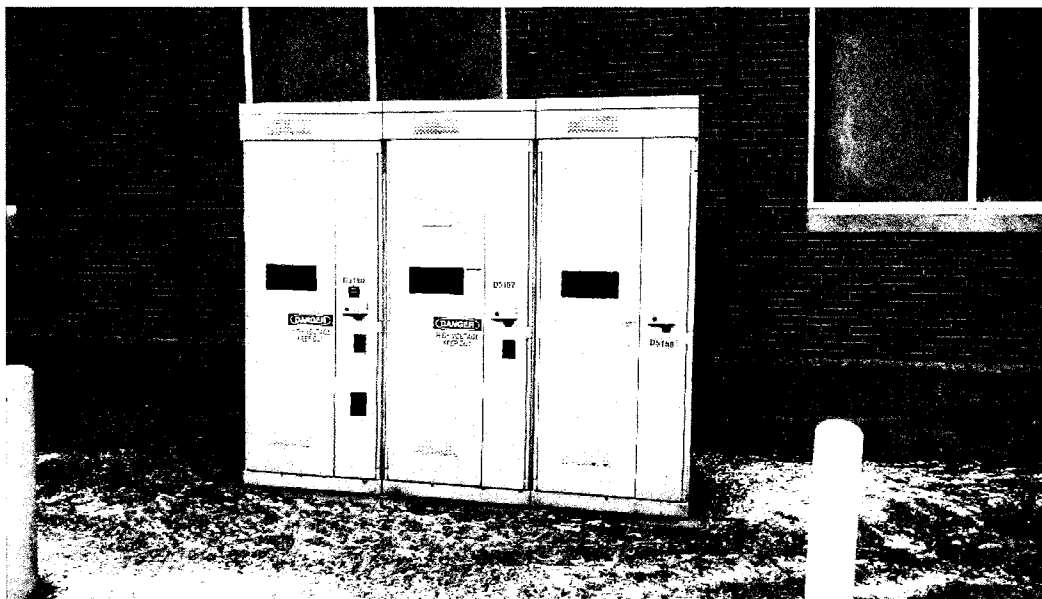
**FIGURE 3-40**  
**Existing Diesel Fuel Storage**

### **3.4 ELECTRICAL SYSTEM ASSESSMENT**

This analysis includes standby power.

In the 2008 *Circuit Breaker Replacement Scoping Report*, the main 5kV Plant Switchgear (MVA), as shown in Figure 3-41, was estimated to have been installed in 1960. However, replacement of

this switchgear, that receives supply from the dual utility feeds or back-up generators and distributes power for all plant equipment, was not recommended in the study. For operation of the plant over the planning period, the MVA is now approximately 56 years old, and must be replaced for improved reliability and redundancy.



**FIGURE 3-41**  
**WTP Switchgear (MVA)**

### 3.4.1 General Electrical Issues

Many of the lighting panels throughout the plant lack proper identification information including their name, e.g. LP-2A, power source e.g. MCC-4, etc. Many panels are also missing breaker connection descriptions. Plant-wide, it is recommended to replace all receptacles, light switches, etc. in chemical rooms with corrosion-resistant alternatives. Additionally, NEC Article 110.26.A(1) requires 3.5 feet minimum of clear working space in front of 480-volt equipment if there are grounded metal items on the other side. This code is violated at several locations throughout the plant. The associated panels should be replaced in order to meet the code or should be relocated to locations that provide the required clearances throughout the plant.

### 3.4.2 Low Service / Raw Water Pump Station

#### Switchgear

Main power equipment, MVC, as shown in Figure 3-42, is a lineup of medium voltage, 4,160 volts, switchgear/motor control center units. The switchgear receives two (2) feeders to improve reliability, but only one (1) is used at a time. The switchgear is by General Electrical model Limitamp and is approximately 40 years old. In April 2016, the switchgear was shut down for maintenance and cleaning, which is recommended every three to five years. Shutting down the

switchgear for maintenance and testing while continuing raw water pumping is expensive and time consuming.

Since the MVC is not set up for redundancy, it would take a considerable amount of time to resume full plant operations if a major fault were to occur in the system. Due to the age of the equipment and the lack of redundancy, it is recommended that the equipment be replaced within the next one to three years. The new gear should be split into separate halves, each supplying three pumps in order to prevent one fault from taking down the entire station and to allow for easier maintenance.



**FIGURE 3-42**  
**WTP Switchgear (MVC)**

#### Distribution Transformer

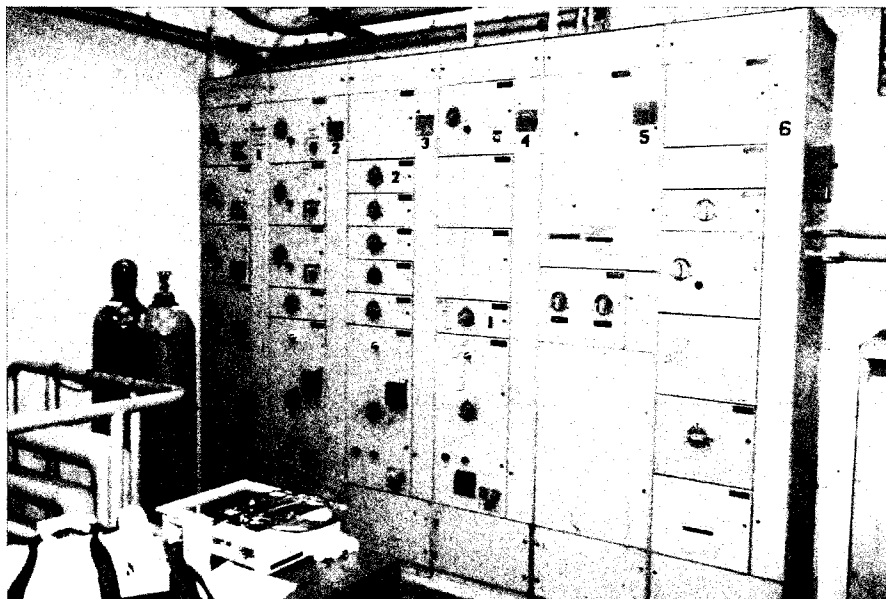
A 75 kVA Federal Pacific transformer is supplied from medium-voltage switchgear MVC, and provides 480-volt, 3-phase power to the MCC.

#### Motor Control Center, MCC-1 (tag per original drawings)

The MCC consists of six sections of GE model 7700 line of motor control centers, as shown in **Figure 3-43**. MCC includes a 24-pole, single-phase lighting panelboard. No spare circuits are shown on its schedule.

The equipment is from the original construction (approximately 40 years old) and is past the end of its intended useful life. Additionally, spare parts for this equipment are expensive and difficult to obtain. It is recommend to replace the motor control center within three to five years.

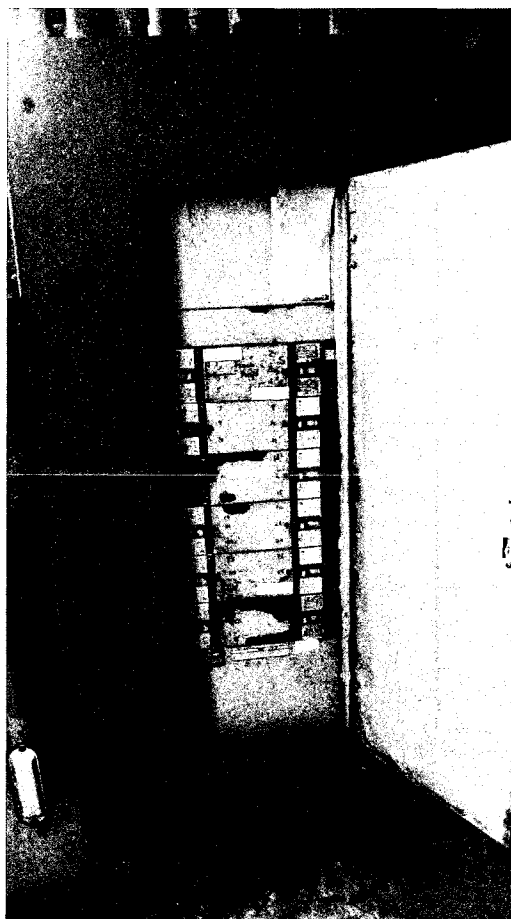
Due to the lack of redundancy in the MCC and the transformer, if failure were to occur in either system, the ability of plant to produce finished water would be seriously impacted. When these items are replaced, it is recommended that all loads be divided between two smaller transformers, motor control centers, and lighting panels.



**FIGURE 3-43**  
**Low Service Pump Station MCC**

### 3.4.3 Filters 13 to 20

Power Panel No. 3 (PP-3), shown in **Figure 3-44**, is made by GE and is rated 400 amps, 480 volts, 3-phase. It is located on the west side of the north wall by Filter 20 and is fed from Panel PP-4, Ckt. 14. It is severely corroded and is past the end of the intended useful life. The panel currently feeds the two flood pumps, the sample pump for the dechlorination system, and the power panel in the north sludge building. Other circuits are unknown / unmarked.



**FIGURE 3-44**  
**Power Panel No. 3 (PP-3)**

#### 3.4.4 South Filter Building, Filters 21 to 28

##### Electrical Room Equipment

The electrical room is physically separated from the filter area. This has contributed to the life of the equipment by not exposing it to the high humidity of the filter gallery.

##### Electrical Room Motor Control Center (MCC)

The motor control center, shown in **Figure 3-45**, is a General Electric Model 7700 line control center. It consists of 7 sections, rated 480 volts, 3-phase, 3-wire with a 600 amp bus. The equipment appears to be from original construction (1970) and is past the end of its intended useful life. Spare parts are difficult to obtain for the aged equipment. The MCC should be replaced in the next three to five years.

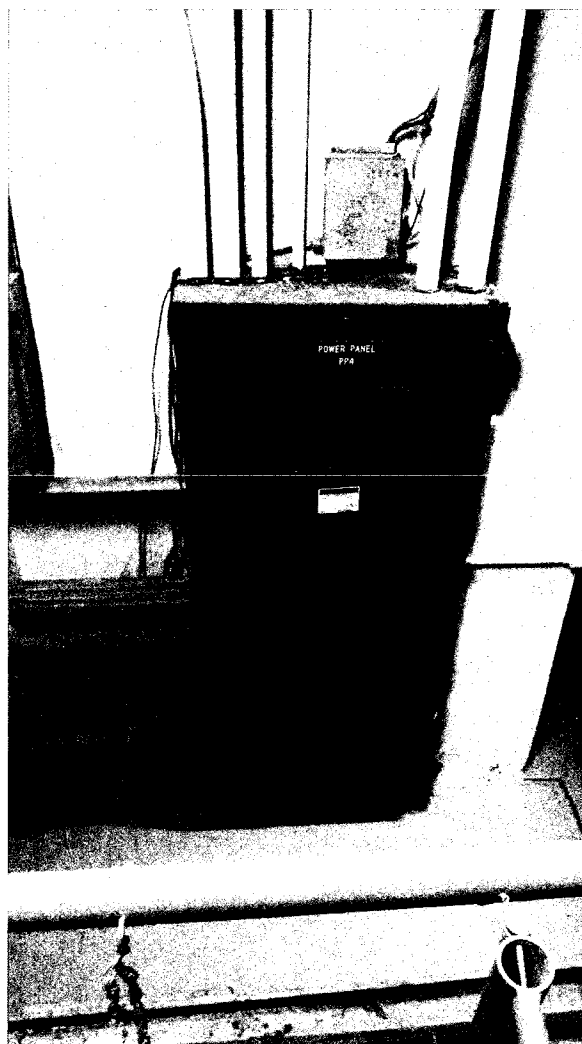


**FIGURE 3-45**  
**South Filter Building Electrical Room MCC**

#### 3.4.5 High Service Pump Station No. 2

Power Panel PP-4 is a 480-volt, 3-phase distribution panel located in the service and storage space area. Based on the equipment's appearance, it appears to be in excess of 50 years old. Several circuits are still in use from this panel. It is recommended to replace this panel in the next one to three years.

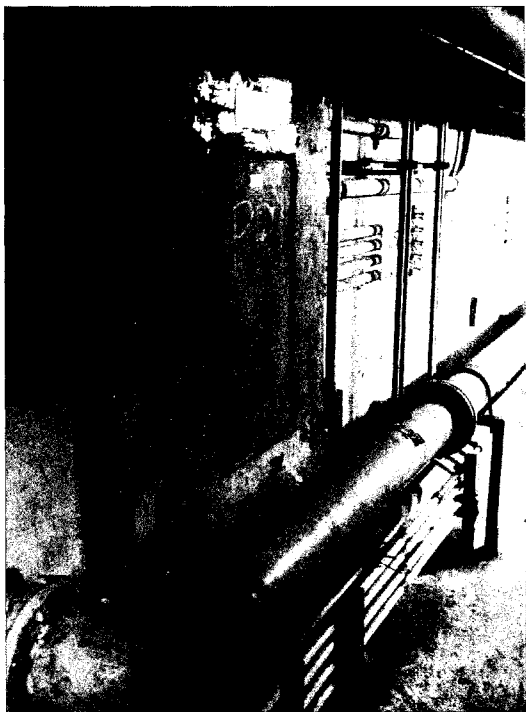
Power Panel C is a 480-volt, 3-phase type and is approximately 20 to 30 years old. Circuit breakers require special mounting brackets that are difficult to obtain if needed. Additionally, the enclosure shows considerable corrosion. It is recommended to replace this panelboard in the next three to five years.



**FIGURE 3-46**  
**Power Panel No. 4 (PP-4)**

Power Panel No. 1 (PP-1) and Power Panel No. 2 (PP-2) are both located in the tunnel below the switchboards for High Service Pump Station No. 2. Installation date is unknown, but both panels appear to be in excess of 50 years old. The enclosures show considerable corrosion and spare parts are difficult, time-consuming, and expensive to obtain. Both of these panels also violate the NEC Code, as shown in Figures 3-47 and 3-48. Required headroom clearance of 6'-6" for the working space is not possible within the tunnel for either panel. It is recommended to replace and relocate both of these panels within the next one to three years.





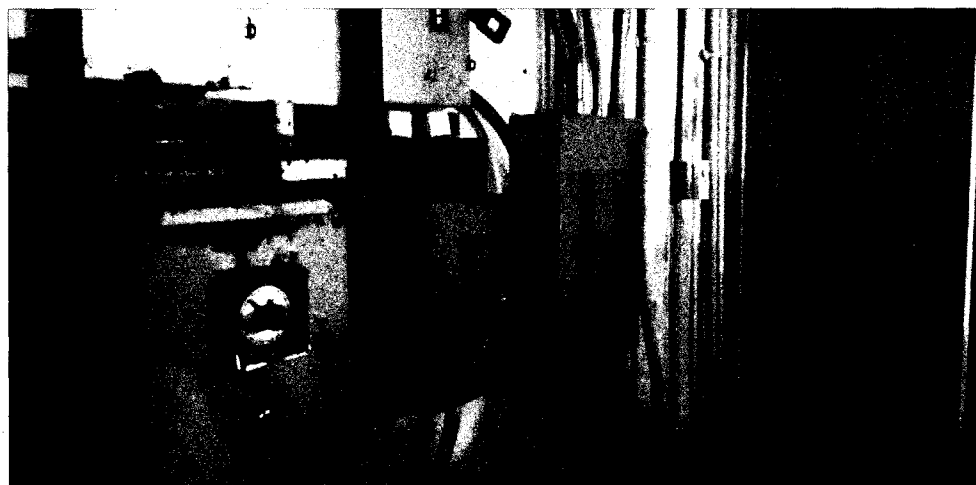
**FIGURE 3-47**  
**Power Panel No. 1 (PP-1)**



**FIGURE 3-48**  
**Power Panel No. 2 (PP-2)**

### 3.4.6 South Sludge Pumping

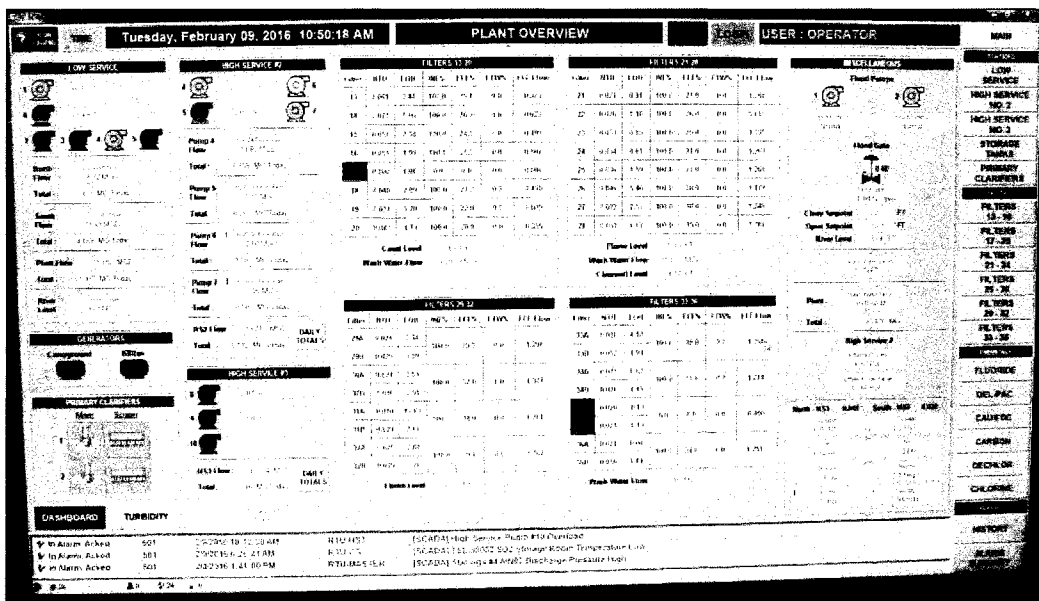
The south sludge pumping building has a small power panel that is from the original construction around 1970. The power panel, as seen in Figure 3-49, is over 45 years old and is past its intended useful life. It is recommended to replace the panel in the next three to five years.



**FIGURE 3-49**  
**South Sludge Pumping Power Panel**

### 3.5 INSTRUMENTATION AND CONTROL SYSTEM ASSESSMENT

Plant-wide SCADA system improvements were recently completed in a SCADA System and Dechlorination Improvements project. An existing SCADA output from the South Filter Galleries is shown in Figure 3-50. During the 30-year planning period, two SCADA system upgrades have been included. Upgrades are anticipated to include improvements of the SCADA system software, along with replacement of computers and associated peripheral hardware that match current standards.



**FIGURE 3-50**  
**SCADA Output for the South Filter Galleries**

### 3.6 PROPOSED TREATMENT PLANT IMPROVEMENTS

The critical plant projects that should be included in the 30-year Master Plan were identified through the condition assessment summarized throughout this Chapter. In order to prioritize the projects, each area of the plant was rated from one to ten, or from worst to best condition. The criticality of each project, in terms of plant operation and the ability to meet existing demands, was then evaluated in order to determine an effective timeline for replacement.

The proposed improvements for the water treatment plant are summarized in the following sections by plant area. The compiled list of projects and estimated implementation schedule are included in Appendix D.

#### 3.6.1 Low Service Pumping Station

The process equipment at the low service pumping station was given a condition score of eight. The immediate concerns that were identified were the status of the intake screens, river silt

deposition at the intake, as well as minor corrosion and paint chipping inside the building. The electrical equipment was given a condition score of two due to the age (around 40 years old) and the lack of redundancy. The station is vulnerable to complete shut down if a single electrical fault were to occur.

Improvements recommended at the low service pumping station include: maintenance and replacement of each traveling screen, low service pump annual maintenance, low service pump motor and drive replacements, river dredging, coating or all interior and exterior of the building and bridge, coating of all interior and exterior process piping, HVAC system improvements, air compressor replacement, pneumatic actuator rebuilds, additional sump pump in lower level for redundancy, upgrades to the potassium permanganate system, and replacement of the MCC and switchgear.

### 3.6.2 Primary Sedimentation

The rapid mix equipment at the North Plant was given a condition score of three, the flocculation equipment was given a condition score of seven, and the primary sedimentation basins were assigned a condition score of four. The immediate concerns that were identified were the age of the infrastructure, the lack of redundancy in the rapid mixer, the degradation of the concrete, the condition of the sludge removal mechanisms, and the corrosion in the bridges and gates. The sludge station was given a condition score of six. The immediate concerns were the condition of the concrete and the metals within the station.

Recommended improvements at the North Plant include equipment replacement in Basin No. 1 and No. 2, drive rebuild in each of the flocculation units, concrete tank improvements, new rapid mixer with redundancy, coating of all support beams for walkways and handrails, and replacement of sluice gates and tank access ladders.

The primary sedimentation equipment at the South Plant was given a condition score of six. Recommended improvements at the South Plant include replacement of all the basin equipment, coating all equipment, concrete rehabilitation to existing basins, and the addition of the third primary and all associated sludge equipment.

### 3.6.3 Secondary Sedimentation

The secondary sedimentation basins at the North Plant were not scored since the infrastructure is buried, but the conditions are concerning due to the settlement above the basins and the crack in the wall between the basins. Recommendations include structural repair to basin wall separating Basin No. 1 and No. 2, installation of fall protection grating over basin inlets, concrete rehabilitation and bridge replacement over the influent flume, and washwater piping rehab/lining to fix ground settlement over basins.

The secondary sedimentation basins at the South Plant were given a condition score of four. The immediate concerns included the corrosion and integrity of the equipment below the water line and the condition of the weirs. The South Plant recommendations include coating of all

equipment, addition of third basin and all associated sludge equipment, replacement of the weirs, and concrete rehabilitation to existing basins.

#### 3.6.4 Filtration

Filters 13-20 were given a condition score of two. The immediate concerns were the corrosion in the equipment, the bed failure in Filter 17 and the lead paint in the building. It was identified that these filters are beyond their intended life. It is recommended to recoat support beams and trusses throughout the filter gallery, to rehabilitate the piping, to replace the filter underdrains and the filter media, and to remediate any lead paint issues. Since the decommissioned filters are reducing the firm capacity of the plant, they need to be restored so the plant can meet the system demands.

Filters 21-28 were given a condition score of six. The immediate concerns were the pipe corrosion, the status of the heaters, concrete efflorescence, and the condition of the condensate pump and surface wash pumps. It is recommended to rehabilitate or replaced the dehumidifier, to replace the unit heaters and associated piping, to recoat all piping and equipment, and to replace or repair equipment.

Filters 29-32 were given a condition score of five. The immediate concerns were the corrosion on the metal roofs, the steel pipe supports, the lintels and the stairs, and the status of the dehumidifier. It is recommended to install a functional dehumidifier, to replace all steel pipe supports, to rehabilitate the piping, and to address the issue of roof drainage into the filters.

Filters 33-36 were given a condition score of six. The immediate concerns were the leakage of steam in the active filter gallery, and the corrosion in the steel piping. It was recommended to repair the steam piping, to ensure that the dehumidifier is operational, and to recoat the piping.

#### 3.6.5 Chemical Systems

Many of the chemical systems were in fair condition but the major equipment including bulk tanks, day tanks, transfer pumps, metering pumps, scales, and control equipment will need replaced during the planning period due to the harsh environments this equipment is exposed to. Costs have been assigned to each chemical system in **Appendix D**.

The carbon building was given a condition score of six. The immediate concerns are the condition of the mixer in the southeast corner (cracked equipment pad), the status of the dilute slurry pump out of service, and the equipment access limitations. There appears to be several minor leaks in the concrete walls between the holding tanks.

The chlorine dioxide system was given a condition score of six; however, the plant does not feed this chemical any longer and this system (the bulk chlorite storage and generator building) shall be demolished.

The fluoride room was given a condition score of six. The immediate concerns in this room are one leaking transfer pump and the other pump appears to be out of service due to a failure. Both

transfer pumps will need immediate maintenance for continued reliable use of the fluoride system.

The sulfur dioxide system was given a condition score of nine. There are no immediate concerns with this system.

The caustic system was given a condition score of seven. This system appears to be functional but the bulk tanks will need replaced within the next five years for reliable storage. The existing bulk tanks were manufactured in 2006.

The aqua ammonia system was given a condition score of six. The immediate concern is there is no containment for the truck offloading station. The tank was manufactured in 1997 and is nearing the end of its intended useful life. The pumps for this equipment appear to be in good condition.

The DelPAC 2020 system was given a condition score of seven. The two day tanks were manufactured in 2007 and the three bulk tanks were rehabilitated and coated at that time.

The chlorine feed system was given a condition score of five. The immediate concerns within this area is replacing the chlorinators (EWSU has already purchased and is awaiting installation) and rehabilitating and coating the piping within this room. All safety equipment appears fully functional.

### **3.6.6 High Service Pumps**

High Service Pump Station No. 2 was given a condition score of six. The immediate concerns were the status of the sump pumps, the corrosion in the base of Pump No. 4, the dripping in the suction header, the status of the piping, and the corrosion in the stair supports. It has been recommended to install a back-up sump pump at the station, to repair the leak in the suction header, to recoat the suction/discharge header and to replace the stairs and the supports.

High Service Pump Station No. 3 was given a condition score of six. The immediate concern in the station was the status of Pump No. 10. It has been recommended to recoat all of the station piping and to continue with the high service pump/drive/motor rebuild and replacement projects.

### **3.6.7 Clearwells and Disinfection**

The 1.5 MG Clearwell was given a condition score of three. The immediate concerns were the severe corrosion on the metal stairs, the steel supports, the pipes near the water, the vent pipe into the filter gallery (causing humidity issues in the pipe gallery), and the stairs outside of the clearwell. It is recommended to replace the stairs and piping as needed, to recoat the piping, and to continue regular inspections of this clearwell.

The 6.5 MG clearwell was given a condition score of four. This clearwell cannot be taken out of service for inspection or repair. It has been recommended to install an additional clearwell for capacity and to allow for repair to the existing clearwell.

### 3.6.8 Laboratory

The laboratory was given a condition score of seven. The laboratory equipment needs remodeled to accommodate the current and future needs of the lab staff. Better separation of the sampling areas and equipment are recommended as well as new cabinetry, countertops, ventilation hoods, sink locations, and replacement of the bench top lab equipment.

### 3.6.9 Electrical System

The electrical system was given a cumulative condition score of three. The electrical system throughout much of the plant is past the intended useful life. The main plant switchgear as well as the switchgear and motor control centers for the intake/low service pump building and both high service pump stations need replaced. Many lighting panels spread throughout the plant are corroded and should also be replaced. There is a significant portion of the wiring that is using cloth insulation that should be replaced for safety and reliability concerns. Costs for the electrical system improvements have been included in **Appendix D**.

### 3.6.10 Headhouse and Miscellaneous Items

The plant's boiler heating system was given a score of three. The boiler heating system for the plant was manufactured in 1976. The immediate concerns include the age of the boiler, condition of the unit heaters, and condition of the steam/condensate piping. Many of the steam unit heaters throughout the plant are corroded and in need of replacement. The steam and condensate piping is heavily corroded and will need replaced. The insulation on the steam piping contains asbestos and will require proper removal. The five condensate return pumps are in poor condition and need replaced. Where electric unit heaters are installed, the condition is generally good and the unit heaters functional appropriately.

Over the planning period the roofing of the fluoride area, caustic/ammonia building, low service and intake building, and high service pump station No. 2 will need maintained and replaced. All other buildings had the roofing replaced in 2006-2007. The synthetic slate roofing installed at that time has a warranty of 50 years and will not need replaced within the planning period. Costs have been included for this. Refer to **Appendix D** for more information. Additional improvements to the buildings should include remodeled office space and significant remodeling for the laboratory.

The site has two existing 900kW diesel generators installed around 1990. The two existing diesel storage tanks and associated piping need demolished and two new diesel storage tanks will be required. The two new storage tanks shall be located closer to the generators with new piping installed to minimize the length of piping required. Both diesel storage tanks shall have fuel conditioning systems installed to ensure a quality fuel supply is available. The estimated burn rate at full load for both generators combined is ~130 gal./hour. It is recommended to have adequate storage for two days of continuous operation (48 hours) for a total stored amount of approximately 6,250 gallons. There shall be agreements in place to ensure that if a long-term

power failure were to occur, EWSU would have priority on diesel fuel to maintain plant operations.

### 3.7 GROUNDWATER TREATMENT PLANT SUMMARY

An alternative to upgrading the existing surface water plant is to replace it with a new groundwater treatment plant (GWTP). The new GWTP would be located across Waterworks Road from the existing plant. The entire existing plant, with the exception of High Service Pump Station No. 3 and the 6.5 MG clearwell would be abandoned in place. A process flow schematic of the new groundwater plant is shown in **Figure 3-51**.

#### 3.7.1 New Groundwater Treatment Plant

Raw water quality and the treatment approach are the two aspects that would be most impacted should EWSU change their raw water source from the Ohio River to groundwater from the aquifer southeast of the existing WTP site. This Section describes the anticipated raw groundwater quality and the treatment facilities anticipated to efficiently treat it to potable water standards (following Ten States Standards).

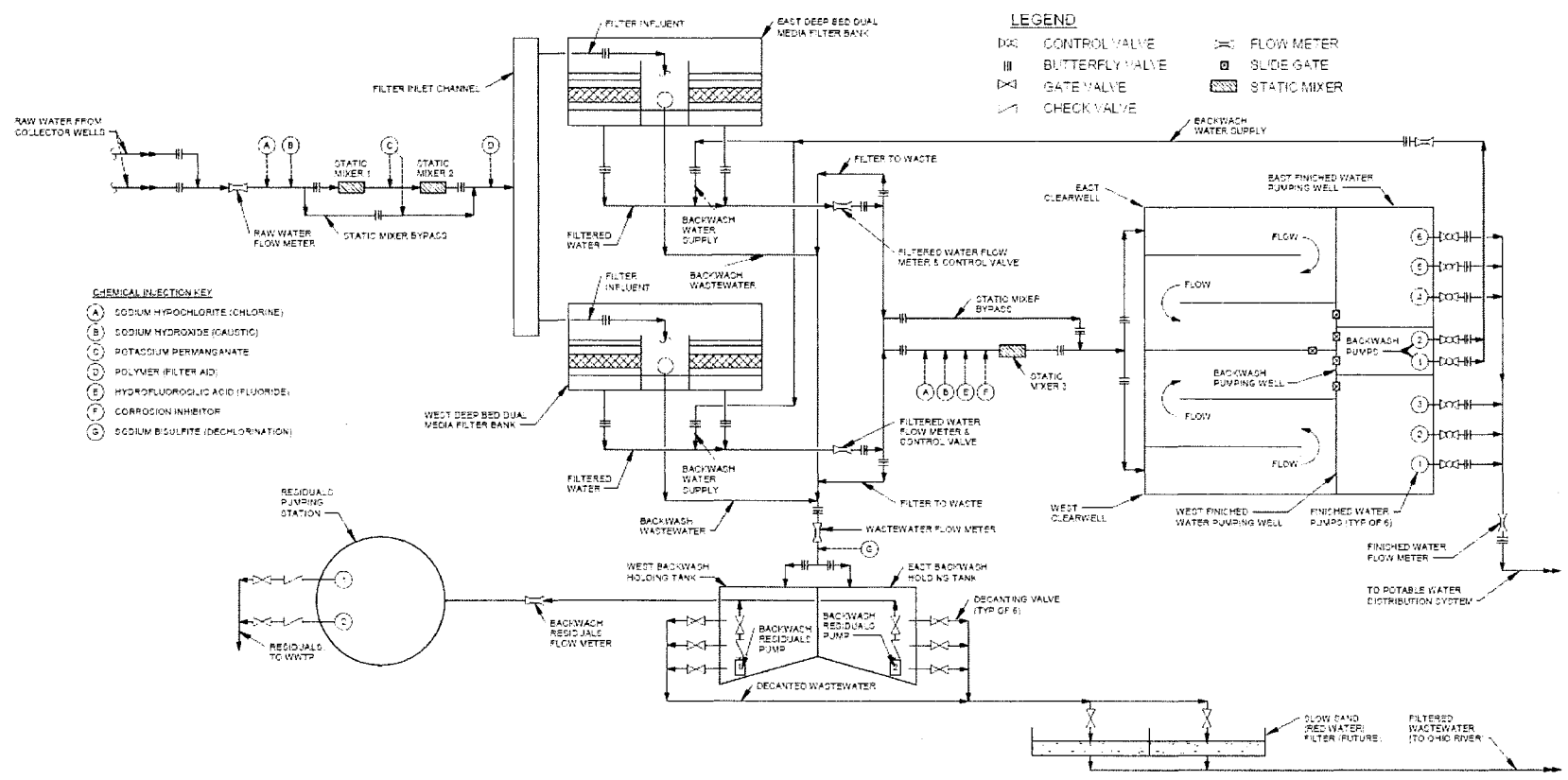
Raw water would be higher in iron, manganese, and hardness as compared to surface water, in the approximate ranges tabulated below in **Table 3.2**.

**TABLE 3.2**  
**Raw Water Quality Estimate**

Constituents	Units	Anticipated Concentrations	
		Groundwater	Surface Water
Hydrogen Sulfide	mg/L	Detectable Odor	Undetectable
Iron	mg/L	2.0 - 2.5	Trace
Manganese	mg/L	0.5 - 0.8	Trace
Hardness (as CaCO <sub>3</sub> )	mg/L	180-400	150

The GWTP treatment processes described below are designed to produce water meeting the following finished water quality goals:

- Compliance with secondary standard goals for maximum concentrations of iron (0.3 mg/L) and manganese (0.05 mg/L).
- Filtered water turbidity below 0.1 NTU.
- Stable water that will comply with the Lead and Copper Rule and minimize corrosion, precipitation and deposition within the water distribution system.
- Reduction of taste and odor to the lowest acceptable level.
- Maintaining a free chlorine residual of 1.0 mg/L through the treatment process and provide adequate disinfection protection in the distribution system by meeting the TSS standard of 1.0 to 2.0 mg/L throughout the system.
- Maintaining minimum finished water pH of 7.5.



**FIGURE 3-51**  
**Process Flow Schematic of the New Groundwater Treatment Plant.**



- Planning WTP layout and hydraulics to allow a softening process to be added in the future (producing finished water with hardness in the 120-180 mg/L range).
- Providing WTP with a firm treatment capacity of 60 MGD and an onsite finished water storage capacity of 6 million gallons (MG), in a two train arrangement so that 30 MGD can be filtered, stored, and pumped with half the filters and clearwell out-of-service.

The GWTP treatment process schematic shown in **Figure 3-51** illustrates the primary features applicable for Evansville's anticipated groundwater quality and quantity. A total of nine 5,500 gpm collector well pumps would supply raw water to the new WTP. Following metering of the raw water, chemical oxidation of iron and manganese with chlorine (sodium hypochlorite) and potassium permanganate will result in the formation of insoluble iron and manganese hydroxides precipitates. Typical doses for oxidation of the anticipated groundwater are 3 mg/L and 0.5 mg/L for chlorine and potassium permanganate, respectively. The incoming water will be conditioned to a minimum pH of about 7.5 while maintaining a chlorine residual of 0.5 to 1.0 mg/L.

The chemically conditioned water will be conveyed by gravity and distributed to the filters, where those oxidized metals solids will be removed by adsorption and entrapment within the filter media. Media will consist of anthracite and sand in a deep-bed gravity arrangement with modern block or plate underdrain media supports. Polymer will be added ahead of the filters to aid in filtration. The typical dose is 0.5 mg/L.

Ten State Standards recommends filtering rates with regard to raw water quality, pretreatment, and filter media. The recommended range is from 2 to 4 gallons per minute per square foot of filter media surface (gpm/sf). In using the maximum filtering rate of 4 gpm/sf with a firm capacity of 60 MGD (one filter out-of-service), 10 filters will be required. Each 1,200 sf filter is recommended to be a two-cell arrangement (with each cell 600 sf, with an approximate geometry of 20-ft by 30-ft).

Following filtration, the water will be disinfected with chlorine and ammonium hydroxide at anticipated doses of 1.0 mg/l and 1.5 mg/l respectively. Filtered water will also be chemically conditioned with sodium hydroxide (for pH adjustment), hydrofluorosilic acid (for fluoridation), and a corrosion inhibitor if warranted.

Finished water will be stored in an onsite ground storage reservoir prior the distribution to the Evansville system via high service finished water pumps. The clearwell will consist of two 3 MG baffled compartments and interconnected with three pumping wells (two for finished water pumps and one for the filter backwash pumps). The new finished water pumps will have a 500 hp motor and a capacity of 15 MGD each. The existing 6.5 MG clearwell will continue to be used to store finished water, and will be interconnected with both compartments of the proposed clearwell. The existing three 500 HP pumps in High Service Pump Station No. 3 will distribute finished water from the existing clearwell to the system.

Each filter cell will be backwashed separately but sequentially (one backwashed while the other cell isolated). The maximum backwash flow rate is approximately 9,000 gpm, which represents a filter cell with an area of 600 square feet (sf) and Ten States Standards maximum wash rate of 15

gpm/sf. Two backwash pumps will be provided, each with adjustable speed drives so that backwashing flow rates can be fine-tuned as the WTP transitions from a new to established facility. Per Ten States Standards, the filters may have a backup backwash water supply system consisting of a pressure-reducing valve between the finished water pump discharge main and the backwash water supply header. This secondary system takes finished water going from the discharge main, and reduces its pressure to an acceptable level for backwashing prior to entering the filters.

The iron and manganese residuals removed from the treated water will be collected in a two-compartment backwash water holding tank. Residuals settled in the tank will be pumped to the sanitary sewer system by two residuals pumps. The spent backwash water drawn off the holding tanks by two pumps will be chemically conditioned with sodium bisulfite or thiosulfate to eliminate its chlorine residual, and filtered through a slow sand filter to reduce any solids prior to being discharged to the Ohio River via the Bee Slough Channel. Dependent on requirements of a National Pollution Discharge Elimination System (NPDES) permit for the new plant, the slow sand filter to reduce solids prior to discharge may only be needed in the future.

### **3.7.2 Raw Water Collector Wells and Raw Water Main**

Three horizontal collector wells are planned to be installed to the southeast of the existing WTP. Each collector well would include three, 5,500 gpm capacity well pumps, for a total of nine well pumps. The estimated distance from the furthest well to the plant site is 9,200 feet. Two parallel 48-inch raw water force mains are planned from the wells to the plant site for system redundancy.

### **3.7.3 Abandoned Equipment Removal and Disposal**

The existing WTP can be abandoned in place; however, many of the structures could be repurposed after removal and disposal of abandoned equipment, along with removal of deleterious materials incorporated into the buildings' structure and support components.

### **3.7.4 Existing 6.5 MG Clearwell Repair**

The existing 6.5 million gallon (MG) capacity clearwell served by existing High Service Pumps Station No. 3 is in need of repair (presumably chemical grout injection to improve water-containment integrity). This repair could be completed after construction of the new groundwater WTP and its new 6.0 MG clearwell.

### **3.7.5 High Service Pumps**

Existing High Service Pump Station No. 2, including Pumps Nos. 4-7 would be decommissioned with implementation of the groundwater WTP alternative. Periodically reconditioning of High Service Pumps Nos. 8-10, including installing replacement motors and drives, would match the approach for upgrading the existing WTP. Similarly, recoating all piping and equipment in HSP Station No. 3 would be included with the GWTP alternative.

### **3.7.6 Electrical System**

For the groundwater WTP alternative, replacement of the main plant switchgear is necessary (although not to the extent required for upgrading the existing WTP). The proposed GWTP would be powered separately from the existing WTP main switchgear, and provisions for existing clearwell and high service pump station would be incorporated into the upgraded electrical distribution system.

### **3.7.7 Building Roofing Replacements**

For the GWTP alternative, the only existing WTP roofed structure to remain in service is High Service Pump Station No. 3. This building is planned to receive new membrane roofing system in 10 to 15 years.

### **3.7.8 Filter Media Replacement**

Filter media used for the groundwater treatment has an estimated life of 20 years. Accordingly, a complete media replacement for all the GWTP filters is planned to occur once over the 30-year planning period. The filter media for new GWTP filters is proposed to consist of 24 inches of anthracite, 24 inches of sand, and 15 inches of support gravel.

### **3.7.9 Property Acquisition**

For the groundwater WTP alternative, property acquisitions are necessary for the collector wells, raw water main, and the new GWTP (including the new 6.0 MG clearwell and the spent backwash water holding tank).

## **CHAPTER 4 CAPITAL IMPROVEMENT PLAN**

### **4.1 DEVELOPMENT OF PLAN**

The intent of this master plan is to develop a Capital Improvement Plan with a prioritized list of capital projects for the existing treatment plant and distribution system to meet current and future needs over a 30-year planning period. Proposed projects were developed for the distribution system as described in **Chapter 2** and for the water treatment plant in **Chapter 3**. The remainder of **Chapter 4** details the project lists, criteria used to prioritize the complete list of projects, the proposed implementation schedule for the projects, estimated costs for all projects, and projected future cash flow needs.

### **4.2 CAPITAL IMPROVEMENT PLAN PROJECT LIST**

Lists of proposed capital improvement projects have been included in the following locations:

1. Existing Water Main Replacements: **Table A.1 in Appendix A**
2. Proposed Water Main Extensions: **Table B.1 in Appendix B**
3. Existing Booster Station and Storage Facility Improvements: **Table C.1 in Appendix C**
4. Existing Water Treatment Plant Upgrades: **Appendix D**
5. Compiled Project List: **Appendix E**

### **4.3 CAPITAL IMPROVEMENT PLAN IMPLEMENTATION SCHEDULE**

As described in **Chapter 2**, the water main replacement recommendations were prioritized using several different criteria, including historical rate of failure, pipe age, operating pressure, pipe material, pipe size, location, and consequence of failure. When sizing the new water main for these replacement projects, the location of the pipe in regards to water storage tanks and booster stations were considered, as well as locations where the fire flows reported in the hydraulic model were below National Fire Protection Association (NFPA) recommendations. The replacement projects were limited to a total linear distance of 15 miles per calendar year, regardless of pipe size.

In addition to the water main replacement projects, new water main projects were proposed in order to increase the flow in areas where the system was not able to meet projected demands or to loop in dead-end mains throughout the system to reduce water age in the pipes and to improve overall water quality. New water mains were prioritized based on adjacent main replacement priority and whether the project would address fire flow, water quality, or future demand.

The existing booster stations were evaluated via visual inspections to determine the physical condition of the stations as well as hydraulic modeling to determine whether the existing capacities would be able to withstand projected future demands. If the existing booster station capacities were projected to exceed 80-percent capacity, station upgrades were recommended. Booster stations improvements were sequenced in the implementation based on anticipated need as far as immediate needs, pump age, and anticipated demand growth.

As described in Chapter 3, the existing water treatment plant was evaluated via visual inspections during several site visits in addition to historical plant operational data. Plant upgrades were recommended to replace equipment that has passed its intended useful life, to improve the structural integrity of the water treatment plant, and to increase the overall capacity of the plant to meet projected demands through the replacement of decommissioned equipment. A portion of the equipment used at the plant exceeds 85 years in age. Although many of the proposed replacement projects are considered critical, a strategic ranking process was used to prioritize the projects to maintain the existing plant operation.

The proposed implementation schedule, with a projects listed by year, is included in the compiled project list included in Appendix E.

#### 4.3.1 Equivalent System Age

Equivalent system age was used to estimate composite age of the treatment and distribution system at the beginning and end of the planning period. The results are shown in Table 4.1 and, as should be expected, the proposed projects and implementation schedule result in decreases in equivalent system age across the board. Ages were calculated for individual pieces of the treatment and distribution system and the equivalent system ages were calculated using weights as follows:

- Water mains - weighted by length of main
- Booster stations - weighted by total capacity of station
- Tanks and Reservoirs - weighted by storage capacity
- Treatment Plant – weighted by unit process criticality for finished water production
- Total System – weighted based upon asset valuation for each subsystem and equivalent subsystem age

**TABLE 4.1**  
**Equivalent System Ages**

<i>System</i>	<i>Current Equivalent System Age (Year 2016)</i>	<i>Future Equivalent System Age (Year 2046)</i>
Water Mains	65	56
Booster Stations	18	17
Tanks and Reservoirs	73	33
Treatment Plant	60	55
<b>TOTAL SYSTEM</b>	<b>61.7</b>	<b>52.0</b>

#### 4.4 CAPITAL IMPROVEMENT PLAN COSTS

Total project cost estimates were prepared for all proposed water main, booster station, and storage projects. The cost estimates were prepared in 2016 dollars and include the following general assumptions:

- General Conditions = 2% of Construction Costs
- Bonds and Insurance = 3% of Construction Costs
- Mobilization / Demobilization = 5% of Construction Costs
- Clean-Up and Site Restoration = 3% of Construction Costs
- Construction Contingency = 30% of Construction Costs
- Non-Construction Costs = 25% of Construction Costs

All of the individual project cost estimates for the water mains, booster stations, and tanks are included in **Appendix F**.

Total project cost estimates were prepared for all proposed water treatment plant projects. The cost estimates were prepared in 2016 dollars and include the following general assumptions:

- Construction Contingency = 30% of Construction Costs
- Non-Construction Costs = 25% of Construction Costs

Project cost estimates for the existing water treatment plant are included in **Appendix D**.

#### 4.4.1 Project Cost Summary

A summary of the total estimate costs per year for all projects over the planning period is shown in **Table 4.2**.

#### 4.4.2 Cash Flow Analysis and Future Cash Needs

To calculate overall future cash value and for a cash flow analysis, an average rate of inflation from the previous ten years (2005 to 2015) was determined from the consumer price index published on a monthly basis by the Bureau of Labor Statistics. The average rate of inflation over this time period was calculated to be 2.28% per year. All cost estimates for this plan were developed in 2016 dollars. The following equations were used to estimate future cash values.

$$Future\ Value = 2016\ Value * (1 + \frac{Rate\ of\ Inflation}{100})^{(Future\ Year - 2016)}$$

$$2022\ Value = 2016\ Value * (1 + \frac{2.28}{100})^{(2022 - 2016)}$$

Examples of the future value calculations have been performed and are shown in **Table 4.3** in 2022 dollars. It is recommended as the annual rate of inflation changes; the average rate of inflation should be re-calculated and then applied to this data to better represent the cash value in the year of interest.

**TABLE 4.2**  
**Project Cost Summary by Year**

<i>Project Category</i>	<i>2017</i>	<i>2018</i>	<i>2019</i>	<i>2020</i>	<i>2021</i>	<i>2022-2026</i>	<i>2027-2031</i>	<i>2032-2036</i>	<i>2037-2046</i>	<i>Category Total</i>
Water Main Replacement	\$15,151,000	\$14,288,000	\$14,475,000	\$19,394,000	\$26,851,000	\$105,644,000	\$98,053,000	\$99,367,000	\$180,510,000	\$573,733,000
Water Main Extension	\$0	\$125,000	\$358,000	\$1,399,000	\$714,000	\$3,294,000	\$3,738,000	\$3,626,000	\$7,432,000	\$20,686,000
Booster Stations and Storage Facilities	\$70,000	\$190,000	\$210,000	\$1,900,000	\$915,000	\$2,130,000	\$19,700,000	\$0	\$8,060,000	\$33,175,000
Water Treatment Plant	\$2,568,000	\$3,549,000	\$24,537,000	\$18,277,000	\$61,720,000	\$29,394,000	\$14,133,000	\$7,658,000	\$14,029,000	\$175,865,000
<b>Total</b>	<b>\$17,789,000</b>	<b>\$18,152,000</b>	<b>\$39,580,000</b>	<b>\$40,970,000</b>	<b>\$90,200,000</b>	<b>\$140,462,000</b>	<b>\$135,624,000</b>	<b>\$110,651,000</b>	<b>\$210,031,000</b>	<b>\$803,459,000</b>

*Note: Project costs are in 2016 dollars.*

**TABLE 4.3**  
**Estimated Future Cash Value of Project Costs for Year 2022**

<i>Project Category</i>	<i>2022-2026</i>	<i>2027-2031</i>	<i>2032-2036</i>	<i>2037-2046</i>	<i>Category Total</i>
Water Main Replacement	\$118,250,000	\$109,753,000	\$111,224,000	\$202,049,000	\$541,276,000
Water Main Extension	\$3,688,000	\$4,185,000	\$4,059,000	\$8,319,000	\$20,251,000
Booster Stations and Storage Facilities	\$2,385,000	\$22,051,000	\$0	\$9,022,000	\$33,458,000
Water Treatment Plant	\$32,902,000	\$15,820,000	\$8,572,000	\$15,703,000	\$72,997,000
<b>Total</b>	<b>\$157,225,000</b>	<b>\$151,809,000</b>	<b>\$123,855,000</b>	<b>\$235,093,000</b>	<b>\$667,982,000</b>

*Note: Project costs are in estimated 2022 dollars.*



## **APPENDIX A**

### **Water Main Replacement Project List**

**TABLE A.1  
Main Replacement Project List**

<i>Project Name</i>	<i>Project Description</i>	<i>Project Year</i>	<i>Total Project Cost</i>
Frey Rd	Frey north of Broadway approx 1950' (1,910' of 8")	2017	\$288,000
Herndon Ave	Herndon between Stringtown and Evans (860' of 8")	2017	\$177,000
Keck Rd	Keck from Stringtown to Grand (2,100' of 8")	2017	\$474,000
Lodge Rd	Lodge from Walnut to Riverside (9,120' of 8")	2017	\$1,542,000
New Harmony from Allens Ln	New Harmony from Allens to Harmony Way (2,540' of 8")	2017	\$415,000
Wills Rd	Wills from Virginia to Michigan (290' of 8")	2017	\$62,000
Walcott Rd	Walcott west of Vanness to dead end (460' of 8")	2017	\$119,000
Broadway Ave - Phase I	Broadway from Red Bank to Schutte (9,680' of 8"; 2,660' of 12")	2017	\$2,572,000
Heidelbach Rd	Heidelbach from Morgan to Olmstead; Olmstead from Heidelbach to Stringtown (6,170' of 12")	2017	\$1,700,000
Hogue Road - Phase I	Hogue from Red Bank to Williams (7,780' of 8"; 80' of 12")	2017	\$3,272,000
St George - Phase I	St George from Twickingham to Oak Hill (3,760' of 8")	2017	\$627,000
Stringtown Rd - Phase I	Stringtown from Louisiana to Morgan (1,400' of 20")	2017	\$804,000
Weinbach Rd	Weinbach from Lloyd to Pollack (4,980' of 8"; 5,210' of 12")	2017	\$2,684,000
Morgan Ave - Phase I	Morgan from Harding to Marie (1,700' of 12")	2017	\$415,000
Bartels Rd	Bartels south of Evergreen to dead end (2,460' of 8")	2018	\$412,000
Bayard Park Dr	Bayard Park from Lodge to Weinbach (1,730' of 8")	2018	\$342,000
Bellemeade Rd	Bellemeade east of Lodge to dead end (120' of 8")	2018	\$43,000
Ingle Rd	Ingle from Forest to Marion (600' of 8")	2018	\$113,000
Lant Circle	Lant Circle from Lodge to Bayard Park (1,010' of 8")	2018	\$184,000
Marshall Rd	Marshall from Washington to Covert (2,690' of 8")	2018	\$643,000
Main St	Main St from Wedeking to Richardt (330' of 8")	2018	\$58,000
Poplar Grove Neighborhood	Poplar Grove Neighborhood (Austin, Addison, Marion, Tunis, Edgewood, Hillcrest Terrace, and Walker) (14,610' of 8"; 350' of 12")	2018	\$3,194,000
Melody Hill Neighborhood	Melody Hill south of St George (9,260' of 8")	2018	\$1,765,000
Presidents Neighborhood Central	Benninghof, Englewood) (430' of 4"; 9,800' of 8")	2018	\$2,272,000
Presidents Neighborhood West	Presidents Neighborhood West (Harlan, Henning, Madison from Washington to Covert) (5,650' of 8")	2018	\$1,320,000
Sweetser Rotherwood Area	bounded by Covert, Weinbach, Pollack, and Lodge) (16,540' of 8")	2018	\$3,059,000
Benninghof, Englewood, and Brookside	Benninghof and Englewood from Bayard Park to Lincoln; Brookside from Washington to Rotherwood (5,170' of 8")	2018	\$883,000
Bell and Lemcke Neighborhood	Bell and Lemcke Neighborhood (Marine, Illinois, Indiana, Franklin, Lemcke, Bell, and Hess) (5,920' of 8")	2019	\$1,414,000
Bexley Rd	Bexley east of Oak Hill to dead end (700' of 4"; 660' of 8")	2019	\$273,000
Cardinal Rd	Cardinal west of Stringtown approx 1200' (1,160' of 8")	2019	\$212,000
Charlotte and Russel Sts	Charlotte and Russel (3,510' of 8")	2019	\$638,000
Fendrich Neighborhood	Fendrich Neighborhood (Richardt, Oakland, Herndon between Wedeking, Hercules, Morgan, and Haven) (4,340' of 8")	2019	\$882,000
Gayne St	Gayne west of Vanness to dead end (1,420' of 8")	2019	\$242,000
Lake Rd	Lake east of Oak Hill; Wayside, Cottage, North Ct, South Ct (880' of 4"; 10,100' of 8")	2019	\$1,758,000
Newburgh Rd	Newburgh from Lincoln Station to Kingswood (10,020' of 8")	2019	\$1,603,000
Southeast Blvd	Southeast south of Washington approx 200' (180' of 8"). Dead end elimination	2019	\$39,000
Residential area bounded by Vogel, Boeke, Division, and Weinbach	Residential area bounded by Vogel, Boeke, Division, and Weinbach, including Vogel, Boeke, and Weinbach (31,980' of 8")	2019	\$5,274,000
Boeke Rd	Boeke from Lloyd to Washington (4,570' of 8")	2019	\$699,000
Burkhardt and Plaza	Burkhardt and Plaza from Washington to Lincoln (5,290' of 8")	2019	\$834,000
Maryland Ave	Maryland from Harmony to Wessel (3,850' of 8")	2019	\$607,000

**TABLE A.1 (continued)**  
**Main Replacement Project List**

Project Name	Project Description	Project Year	Total Project Cost
Tupman Rd	Tupman Rd north of Upper Mt. Vernon (2,080' of 8")	2020	\$360,000
Petes	8"; 1,500' of 12")	2020	\$1,450,000
Mesker Park - Phase I and Allens Ln - Phase I	Allens from Mesker Park to New Harmony, under SR 66 (4,510' of 8")	2020	\$1,309,000
Grove St	Grove south of Allens Ln (2,580' of 8")	2020	\$3,584,000
7th St and Shanklin	7th from Florida to Shanklin and Shanklin from 7th to Fulton (2,330' of 8")	2020	\$609,000
Neighborhood of Evans Middle School	Residential area and Evans Middle School bounded by Stringtown, Diamond, Kentucky, and Pigeon Creek (820' of 4"; 20,640' of 8"; 370' of 12")	2020	\$4,164,000
Morton Ave and Franklin St	Morton from Division to Franklin and Franklin from Morton to Kentucky (2,850' of 8")	2020	\$938,000
Neighborhood of Madison, Weinbach, Covert, and Rotherwood	Residential area bounded by Madison, Weinbach, Covert, and Rotherwood (4,820' of 8")	2020	\$985,000
Neighborhood of Washington, Vann, Covert, and Boeke	Residential area bounded by Washington, Vann, Covert, and Boeke (340' of 4"; 24,150' of 8")	2020	\$4,760,000
Neighborhood south of Riverside and west of Lodge	Residential area south of Riverside and west of Lodge (460' of 4"; 4,930' of 8")	2020	\$992,000
Schmitt Ln	Schmitt east of Oak Hill to dead end (1,240' of 8")	2020	\$243,000
Upper Mt Vernon - Phase I and Red Bank	Upper Mt Vernon from Vanness to Red Bank; Red Bank from Upper Mt. Vernon to New Harmony (3,500' of 8"; 10,600' of 16")	2021	\$4,968,000
Reichman Rd Neighborhood	Reichman, Muensterman, Easy, and Hartig south of Wimberg (3,600' of 8")	2021	\$590,000
Lakeview Blvd	Lakeview from Harmony to Golfmoor (760' of 8"; 1,090' of 16")	2021	\$569,000
Harmony - Phase I	Harmony from Mt. Vernon to Maryland (1,320' of 8")	2021	\$295,000
Ohio west of Pigeon Creek	Ohio from Pigeon Creek to St. Joseph and south on Broadway for 900' (3,620' of 12")	2021	\$5,069,000
Park St	Park from Florida to Shanklin (680' of 8"; 580' of 12")	2021	\$360,000
Allens Ln	Allens from Fulton to 1st (2,050' of 16")	2021	\$1,044,000
Senate Ave	5,380' of 24"; 500' of 36")	2021	\$3,877,000
Area bounded by Kentucky, SR 66, and US 41	Residential and commercial area bounded by Kentucky, SR 66, and US 41 (10' of 4"; 13,760' of 8")	2021	\$829,000
Dead end main east of Evans and north from Louisiana	Parking lot east of Evans from Louisiana north to dead end (1,330' of 12")	2021	\$333,000
Division St	Division from Governor to Canal and Canal from Division to US 41 (40' of 8"; 200' of 20"; 5,220' of 30")	2021	\$5,564,000
Washington Ave - Phase I	Washington from Garvin to Lodge (4,090' of 8"; 1,470' of 12")	2021	\$1,268,000
Neighborhood of Covert, Vann, Graham, and Hawthorne	Residential area bounded by Covert, Vann, Graham, and Hawthorne (770' of 4"; 8,900' of 8")	2021	\$1,777,000
Inglefield	Inglefield approx 1500 ft east of Darmstadt (1,580' of 12")	2021	\$308,000
Big Cynthiana - Phase I	Big Cynthiana from Kasson to Char Mar (3,290' of 8")	2022-2026	\$542,000
Hogue Road - Phase II, Vanness and Red Bank	Red Bank from Upper Mt Vernon to Hogue; Hogue from Red Bank to Vanness; Vanness from Hogue to Upper Mt Vernon (500' of 8"; 5,160' of 12")	2022-2026	\$1,753,000
Speaker Rd, James Ave, Nolan Ave	Speaker from Broadway to Nolan; Nolan and James west from Speaker to dead end (2,800' of 8")	2022-2026	\$160,000
Broadway Ave - Phase II	Broadway from Irvington to Claremont (5,230' of 8"; 4,110' of 12")	2022-2026	\$4,390,000
Lloyd Ex west of Pigeon Creek	Tekoppel from Edgewood to Lloyd and Lloyd from Tekoppel to Wabash (2,500' of 8"; 3,720' of 12"; 5,130' of 20"; 250' of 24")	2022-2026	\$4,794,000
Mount Vernon Rd	Upper Mt Vernon from Vanness to Mt Vernon; Mt Vernon from Upper Mt Vernon to Michigan; Rheinlander north from Mt Vernon to dead end (2,580' of 8"; 8,250' of 16")	2022-2026	\$3,779,000
Golfmoor Rd and Schoenfeld Ave	Schoenfeld east from Harmony to dead end, along Golfmoor to Hess, Hess to Iowa (430' of 8"; 4,990' of 24")	2022-2026	\$2,892,000
Mesker Park - Phase II	Mesker Park from Diamond to Wimberg, plus 700' past Wimberg (2,380' of 8"; 810' of 12")	2022-2026	\$817,000
Maryland Ave and Buchanan Rd	Maryland from St Joseph, under Pigeon Creek, to Fulton; Buchanan north from Maryland to St Joseph (4,870' of 8"; 2,630' of 12")	2022-2026	\$1,097,000
9th Ave, Franklin St, and Michigan St	9th from Ohio to Maryland; Michigan and Franklin from 12th east to dead end (820' of 8"; 3,200' of 12"; 2,220' of 16"; 4,330' of 20")	2022-2026	\$4,567,000
2nd and 3rd Ave	Tennessee from Fulton to 1st; 2nd and 3rd from Indiana to Tennessee (9,570' of 8"; 940' of 12"; 5,000' of 24"; 7,260' of 36")	2022-2026	\$10,632,000

**TABLE A.1 (continued)**  
**Main Replacement Project List**

<i>Project Name</i>	<i>Project Description</i>	<i>Project Year</i>	<i>Total Project Cost</i>
Grove St and Florida St	Grove from Shanklin to Florida and Florida from Grove to 7th (1,160' of 8"; 550' of 12")	2022-2026	\$650,000
Neighborhood of Lloyd, Governor, Walnut, and Martin Luther King Jr	Area bounded by Lloyd, Governor, Walnut, and Martin Luther King Jr (10,170' of 8"; 4,950' of 12"; 1,920' of 16"; 280' of 20"; 4,400' of 30")	2022-2026	\$6,587,000
Morgan Ave - Phase II	Morgan from Heidelback to Read and Read from Morgan north 900' (1,770' of 8"; 2,010' of 12")	2022-2026	\$654,000
Neighborhood of Buena Vista, 1st, and Pigeon Creek	Residential area bounded by Buena Vista, 1st, and Pigeon Creek (110' of 4"; 25,170' of 8")	2022-2026	\$1,609,000
Neighborhood of 1st, Stringtown, and Mill	Residential area bounded by 1st, Stringtown, and Mill (490' of 4"; 27,090' of 8")	2022-2026	\$4,299,000
Old State - Phase I	Old State from Mt. Ashley south 2600' (2,510' of 12")	2022-2026	\$870,000
Neighborhood of Oak Hill, St. George, and the airport	Residential area bounded by Oak Hill, St. George, and the airport (5,100' of 8"; 5,320' of 16")	2022-2026	\$2,947,000
US 41 and Lynch Rd	US 41 from St. George to Lynch; Lynch from Hitch Peters to Kentucky (4,260' of 8"; 6,220' of 12"; 6,380' of 16")	2022-2026	\$16,675,000
Morgan Ave - Phase III and Residential area	Area bounded by Diamond, Business 41, Morgan, and Stringtown, including Morgan and Stringtown (17,570' of 8"; 6,580' of 12"; 2,950' of 20")	2022-2026	\$8,660,000
Columbia - Phase I	Fares from Morgan to Columbia, Columbia from Fares to Governor, Governor from Columbia to Louisiana (3,320' of 8"; 3,970' of 12"; 1,680' of 20")	2022-2026	\$2,918,000
Downtown area on 1st Ave and 2nd Ave	1st and 2nd from Chandler to Riverside; Monroe, Jackson, Taylor, Parrett, Judson, and Culver from Riverside to Madison (12,030' of 8"; 450' of 20")	2022-2026	\$2,749,000
Neighborhood of Riverside, Governor, and Ohio River	Residential area bounded by Riverside, Governor, and Ohio River (5,060' of 8")	2022-2026	\$1,068,000
Neighborhood of Riverside, Bedford, Bayse, and Linwood	Area bounded by Riverside, Bedford, Bayse, and Linwood (7,410' of 8"; 1,430' of 12")	2022-2026	\$1,693,000
Neighborhood of Seale, Gilbert, Bayse, and Kerth	Area bounded by Seale, Gilbert, Bayse, and Kerth; New York from Riverside to Seale (9,450' of 8")	2022-2026	\$1,760,000
Kentucky - Phase I	Kentucky from Covert to Adams (2,320' of 12")	2022-2026	\$632,000
Neighborhood of Lloyd, Boeke, Lincoln, and Weinbach	Residential area bounded by Lloyd, Boeke, Lincoln, and Weinbach (21,480' of 8")	2022-2026	\$3,722,000
Stockwell Rd	Stockwell from Indiana to Morgan (4,460' of 12")	2022-2026	\$1,097,000
Bergdot Rd	Bergdot from O'Hara to Oak Hill (2,030' of 4"; 1,280' of 12")	2022-2026	\$710,000
Green River - Phase I	Green River from Lloyd to Lincoln (2,150' of 16")	2022-2026	\$932,000
Neighborhood of Riverside, Villa, Rheinhardt, and Boeke	Residential area bounded by Riverside, Villa, Rheinhardt, and Boeke, including Villa and Rheinhardt (8,690' of 8")	2022-2026	\$1,720,000
Neighborhood of Newburgh, Fuquay, Covert, and Southfield	Residential area bounded by Newburgh, Fuquay, Covert, and Southfield, including Southfield (340' of 4"; 18,290' of 8")	2022-2026	\$3,060,000
Rollett Ln	Rollett south of Broadway to dead end (1,520' of 8")	2022-2026	\$268,000
Neighborhood of Westmore, Raintree and Marigold north of Hogue	Westmore, Raintree and Marigold north of Hogue to dead end (2,890' of 8")	2022-2026	\$449,000
Haven, Meadow Lark, Caren, and Magnolia	Haven, Meadow Lark, Caren, and Magnolia west of Red Bank (5,410' of 8")	2022-2026	\$913,000
Robin Hood Dr	Robin Hood south of New Harmony to dead end (740' of 8")	2022-2026	\$257,000
Division St	Division for approx 1500 ft between Vann and Stockwell (1,480' of 16")	2022-2026	\$623,000
Shady Vista	Shady Vista from Lant to Brookside (330' of 8")	2022-2026	\$209,000
New York Ave	New York from Bayse to Riverside (2,120' of 8")	2022-2026	\$339,000
Haven Rd	Haven from Keck to Wedeking (690' of 8")	2022-2026	\$210,000
Willemette Rd	Willemette south of Diamond to dead end (140' of 8")	2022-2026	\$145,000
Elmridge Ave	Elmridge from Oak Hill to Oak Ter (510' of 8")	2022-2026	\$194,000
Rode Rd	Rode from Memory to Oak Hill (1,470' of 8")	2022-2026	\$308,000
Whetstone Ln	Whetstone west from Oak Hill approx 600 ft (620' of 8")	2022-2026	\$204,000
Bellaire Rd	Bellaire from Oak Hill to Weinbach (840' of 8")	2022-2026	\$237,000
Telephone Rd	Telephone for approx 1600' west of dead end at airport (1,570' of 8")	2022-2026	\$319,000
Erskine Rd	Erskine north from Kansas to dead end; SE Browning from Peterburg to Kansas (3,210' of 8")	2022-2026	\$534,000
Peerless Rd	Upper Mt Vernon from West Wind to Peerless and Peerless from Upper Mt Vernon to Moya (4,020' of 12"; 800' of 16")	2027-2031	\$1,424,000
Marlene Dr	Marlene north from Hogue to dead end (1,230' of 8")	2027-2031	\$219,000
Boehne Camp Rd	Boehne Camp north from Hogue to dead end (2,300' of 8")	2027-2031	\$382,000
Neighborhood of Broadway between Felstead and Hillside	Residential area north of Broadway between Felstead and Hillside (15,080' of 8")	2027-2031	\$3,143,000

**TABLE A.1 (continued)**  
**Main Replacement Project List**

Project Name	Project Description	Project Year	Total Project Cost
Broadway Ave - Phase III	Nurebern from Lyle to Red Bank, Red Bank from Nurebern to Broadway, Broadway from Red Bank to Tekoppel (10,010' of 8"; 2,720' of 12")	2027-2031	\$2,203,000
Neighborhood of Broadway, Tekoppel, and rail yard	Residential area bounded by Broadway, Tekoppel, and rail yard (14,480' of 8")	2027-2031	\$3,217,000
Claremont, Bosse, and Craig Aves	Claremont from Bosse to Dreier; Banker from Claremont to Dennison; Craig north of Claremont to dead end; Bosse from Schaefer to Claremont (4,150' of 8"; 3,120' of 12")	2027-2031	\$2,150,000
Neighborhood of Mt Vernon, Maine, Lloyd, and Tekoppel	Residential area bounded by Mt Vernon, Maine, Lloyd, and Tekoppel (460' of 4"; 20,930' of 8"; 1,400' of 12")	2027-2031	\$4,674,000
Neighborhood north of Upper Mt Vernon from Craig to Helfrich	Residential area north of Upper Mt Vernon from Craig to Helfrich; Genesta and Terrace north from Clement to dead end (6,310' of 8")	2027-2031	\$1,219,000
Mesker Park - Phase III	Golfmoor from Sonntag along southern edge of golf course to Mesker Park; Mesker Park from St Joseph to Bement; Bement from Mesker Park to St Joseph (6,490' of 8")	2027-2031	\$1,083,000
St. Joseph Ave - Phase I	St Joseph from Mill to Mohr (9,090' of 12")	2027-2031	\$2,059,000
Neighborhood of Crossgate, Fulton, Mill, and Kratzville	Residential area bounded by Crossgate, Fulton, Mill, and Kratzville, including Crossgate (370' of 4"; 5,110' of 8")	2027-2031	\$1,049,000
Residential area on Idlewild and Allens west of 1st Ave	Idlewild and Allens from Fulton to 1st (6,860' of 8"; 50' of 12"; 2,090' of 16")	2027-2031	\$2,138,000
Neighborhood of Mill, Stringtown, Buena Vista, and 1st	Residential area between Mill, Stringtown, Buena Vista, and 1st (20,780' of 8")	2027-2031	\$4,139,000
Neighborhood of Mt Pleasant, Old State, Evergreen, and Darmstadt	Residential area between Mt Pleasant, Old State, Evergreen, Darmstadt, including Mt Pleasant; Whispering Tree and Wind north of Mt Pleasant (1,820' of 4"; 21,960' of 8")	2027-2031	\$3,775,000
Petersburg Rd and US 41	US 41 from Petersburg to Mt Pleasant; Petersburg from Northfield to approx 1000' east of US 41 (9,060' of 12"; 4,400' of 20"; 9,450' of 36")	2027-2031	\$12,557,000
St George - Phase II	St George from Kentucky to Hitch Petes; Faress from St George north approx 1300' (4,030' of 8"; 7,140' of 24"; 450' of 30")	2027-2031	\$5,968,000
Mill - Phase I	Mill from Weaver to approx 750' west of Stringtown; Weaver from Hesmer to approx 400' north of Mill (3,960' of 8")	2027-2031	\$674,000
Neighborhood of Stringtown and Negley	Residential area bounded by Pigeon Creek, Stringtown, and Negley, excluding Heidelbach and Olmstead which were recently replaced (14,690' of 8"; 80' of 12")	2027-2031	\$3,099,000
Neighborhood of Diamond, Stringtown, Morgan, and Read	Residential area bounded by Diamond, Stringtown, Morgan, and Read, excluding recently replaced Main from Wedeking to Richardt (14,530' of 8"; 110' of 12")	2027-2031	\$3,304,000
Neighborhood of Morgan, Read, Louisiana, and 1st	Area bounded by Morgan, Read, Louisiana, and 1st (6,300' of 8")	2027-2031	\$1,377,000
Neighborhood of 1st, Dresden, and Fulton	Area bounded by Pigeon Creek, 1st, Dresden, and Fulton (4,320' of 8"; 890' of 12"; 900' of 30")	2027-2031	\$1,645,000
Fulton Ave	Fulton from Franklin to Shanklin (4,300' of 20")	2027-2031	\$2,143,000
Franklin Ave and 1st Ave east of Pigeon Creek	Franklin from Pigeon Creek to 5th; Illinois from 7th to 5th (950' of 16"; 2,170' of 20")	2027-2031	\$1,455,000
Neighborhood of Franklin, Main, Division, and 2nd	Area bounded by Franklin, Main, Division, and 2nd, including Division; Harriet from Franklin to Columbia, Columbia from Harriet to Edgar (11,240' of 8"; 1,560' of 12"; 1,000' of 16"; 440' of 24")	2027-2031	\$3,360,000
Neighborhood of 4th, Chandler, 1st, and 5th	Area bounded by 4th, Chandler, 1st, and 5th, including 4th; Liberty from 4th to Governor; Parrett from Chandler to Adams (6,640' of 8"; 1,380' of 16"; 750' of 20"; 4,510' of 24")	2027-2031	\$4,975,000
Virginia Ave and Oak Hill Rd east of US 41	Canal from US 41 to Virginia, Virginia/Oak Hill from Canal to Weinbach, Weinbach from Oak Hill to Morgan (260' of 8"; 6,380' of 30")	2027-2031	\$4,363,000
Neighborhood of Virginia/Oak Hill, Weinbach, Division, and US 41	Residential area bounded by Virginia/Oak Hill, Weinbach, Division, and US 41, excluding Willow (18,880' of 8")	2027-2031	\$2,388,000
Neighborhood of Lincoln, Boeke, Washington, and Weinbach	Residential area bounded by Lincoln, Boeke, Washington, and Weinbach (21,300' of 8")	2027-2031	\$4,760,000
Neighborhood of Covert, Boeke, Pollack, and Weinbach	Residential area bounded by Covert, Boeke, Pollack, and Weinbach (640' of 4"; 21,390' of 8")	2027-2031	\$4,430,000
Neighborhood of Welworth and Roosevelt	Residential area bounded by Pigeon Creek, Welworth, and Roosevelt (220' of 4"; 12,160' of 8")	2027-2031	\$3,104,000
Green River	Green River from Daylight to 57 (1,420' of 12")	2027-2031	\$300,000
Cross Pointe Blvd	Cross Pointe from Indiana to Eagle Creek (930' of 12")	2027-2031	\$767,000
Kern and Laurel	Kern and Laurel north of New Harmony to dead end (1,810' of 8")	2027-2031	\$300,000
Harmony - Phase II	Harmony from Rodenberg to Maryland; Maryland from Harmony to Albert; Albert south of Maryland to dead end (1,430' of 8"; 3,030' of 16")	2027-2031	\$1,442,000
Fine Ave	Main west of Eine, north from Washington to dead end (1,150' of 8")	2027-2031	\$269,000
Lincoln Ave - Phase I	Lincoln from Villa to Trinity (1,880' of 8"; 790' of 12")	2027-2031	\$507,000

**TABLE A.1 (continued)**  
**Main Replacement Project List**

<i>Project Name</i>	<i>Project Description</i>	<i>Project Year</i>	<i>Total Project Cost</i>
Carlton Ave	Carlton from Lake to Capitol (640' of 8")	2027-2031	\$205,000
Eichel Rd	Eichel from 7th to 5th; 5th from Eichel to Florida (2,190' of 8")	2027-2031	\$400,000
Meyer Rd	Meyer east of 1st to dead end (590' of 8")	2027-2031	\$200,000
Rosewood St	Rosewood from Weaver to Fall Creek; Walden from Hiermann east to dead end (940' of 8")	2027-2031	\$244,000
SR57 from Kansas Rd	57 north from Kansas for approx 1700' (1,730' of 12")	2027-2031	\$943,000
Boonville New Harmony Rd - Phase I and US 41	Boonville New Harmony from Tibarand to US 41 and US 41 from Boonville New Harmony to Radio (3,660' of 16"; 200' of 20"; 4,810' of 24")	2032-2036	\$4,515,000
Old State - Phase II	Old State from Wortman to Brookview (1,630' of 8"; 3,450' of 12")	2032-2036	\$902,000
N 1st Ave to Reservoir	1st from Colonial to Old Post; east into field to Old State, then south on Old State to Fellman (2,070' of 8"; 3,480' of 12"; 20' of 20"; 2,810' of 24"; 9,690' of 30"; 1,270' of 36")	2032-2036	\$10,002,000
Mill Rd and St Joseph Ave - Phase II	St Joseph from St Joseph Industrial Pk to Mill, Mill From St Joseph to approx 1100' past France (4,760' of 8"; 1,960' of 12")	2032-2036	\$1,137,000
Kasson Dr and Big Cynthiana - Phase II	Big Cynthiana from New Harmony to Kasson, Kasson from Big Cynthiana to dead end (7,880' of 8")	2032-2036	\$1,637,000
Wimberg Ave	Wimberg from Harmony to Mesker Park (2,800' of 8")	2032-2036	\$484,000
Neighborhood of Lloyd, Broadway, and Baker, including Baker	Residential and school area bounded by Lloyd, Broadway, and Baker, including Baker; excluding Hillcrest, Edgewood, and Marion, which were recently replaced (13,030' of 8"; 1,290' of 12")	2032-2036	\$2,384,000
Neighborhood north of Broadway including Stinson, Arlington, Tieman, and Delmar (3,030' of 8")	Residential area north of Broadway including Stinson, Arlington, Tieman, and Delmar (3,030' of 8")	2032-2036	\$600,000
Neighborhood of Maryland, Fulton, Franklin, and Pigeon Creek	Area bounded by Maryland, Fulton, Franklin, and Pigeon Creek (9,150' of 8"; 1,860' of 12")	2032-2036	\$1,678,000
Neighborhood of Division, 4th, Court, and Fulton	Area bounded by Division, 4th, Court, and Fulton, including Fulton (9,000' of 8"; 1,910' of 12"; 4,930' of 24"; 1,410' of 30")	2032-2036	\$5,244,000
Governor Phase I and Delaware	Delaware from Harriet to Governor, Governor from Delaware to Indiana (3,090' of 16"; 2,030' of 20")	2032-2036	\$2,424,000
Neighborhood of Walnut, Governor, Liberty, and 4th	Area bounded by Walnut, Governor, Liberty, and 4th, including Walnut (11,440' of 8"; 2,620' of 12"; 3,130' of 16")	2032-2036	\$3,282,000
Governor Phase II	Governor from Washington to Canal, Canal from Governor to Lloyd (3,020' of 16"; 3,940' of 24")	2032-2036	\$3,467,000
Riverside outside of WTP	Riverside from Sycamore to Judson; Shawnee, Sunset, Park, and Waterworks south of Riverside (3,030' of 8"; 100' of 12"; 2,400' of 16"; 1,130' of 20"; 260' of 24"; 12,380' of 30"; 300' of 36")	2032-2036	\$10,883,000
Downtown area between Washington, US 41, Riverside, and 2nd	Area bounded by Washington, US 41, Riverside, and 2nd, including Riverside (53,240' of 8"; 7,700' of 12"; 6,660' of 16"; 3,660' of 48")	2032-2036	\$16,828,000
Elliot and Morton Ave	Elliot south of Riverside to dead end; Garvin and Morton from Riverside to Sweetser (3,520' of 8")	2032-2036	\$644,000
Neighborhood of Lincoln, Lodge, Washington, and Kentucky,	Area bounded by Lincoln, Lodge, Washington, and Kentucky, including two mains under US 41 (19,030' of 8")	2032-2036	\$4,335,000
Neighborhood of Lincoln, Weinbach, Washington, and Rotherwood	Area bounded by Lincoln, Weinbach, Washington, and Rotherwood, including Rotherwood, excluding Bayard Park (13,080' of 8"; 50' of 12")	2032-2036	\$2,523,000
Neighborhood of Washington, Boeke, Covert, and Weinbach	Area bounded by Washington, Boeke, Covert, and Weinbach (22,630' of 8")	2032-2036	\$3,894,000
Neighborhood of Lloyd, Vann, Lincoln, and Boeke	Area bounded by Lloyd, Vann, Lincoln, and Boeke (22,830' of 8")	2032-2036	\$4,253,000
Neighborhood of Lincoln, Walnut, Washington, and Boeke	Area bounded by Lincoln, Walnut, Washington, and Boeke, including Washington (30,950' of 8")	2032-2036	\$5,215,000
Washington Ave - Phase II	Washington from Lodge to Dexter (6,970' of 12")	2032-2036	\$1,503,000
Covert Ave - Phase I	Covert from Fairlawn to Vann (3,530' of 8")	2032-2036	\$480,000
Neighborhood of Covert, Hawthorne, Pollack, and Boeke	Area bounded by Covert, Hawthorne, Pollack, and Boeke (15,850' of 8")	2032-2036	\$2,800,000
Martins Ln	Lincoln from Burkhardt to Martins, Martins from Burkhardt to Newburgh; Washington west of Martins to dead end; Adams east of Martins to dead end (8,480' of 8")	2032-2036	\$1,262,000
Neighborhood of Morgan and Weinbach	Area bounded by Pigeon Creek, Morgan, and Weinbach (4,480' of 8")	2032-2036	\$729,000
New Harmony	New Harmony from Woodbridge to Korning (1,390' of 8")	2032-2036	\$212,000
Country Lake Dr	Country Lake from New Harmony to Meadow Circle (550' of 8")	2032-2036	\$107,000
Detroy	Detroy from Buena Vista to approx 300 ft east of US 41 (1,440' of 8")	2032-2036	\$707,000
Neighborhood of Stonegate, Kings Valley, and Woodcrest	Stonegate, Kings Valley, and Woodcrest west of Weaver (2,850' of 8")	2032-2036	\$444,000
Dead end east of Fuquay	Dead end main running east of Fuquay approx 430 ft south of Coventry (240' of 8")	2032-2036	\$59,000
Meade Ave	Meade from Lincoln to Walnut; Lincoln from Meade to Martins (1,760' of 8")	2032-2036	\$254,000

**TABLE A.1 (continued)**  
**Main Replacement Project List**

<i>Project Name</i>	<i>Project Description</i>	<i>Project Year</i>	<i>Total Project Cost</i>
Oak Rd	Oak from Burkhardt to Greenfield; Bonnie View from Lincoln to Oak (1,480' of 8")	2032-2036	\$269,000
Optimist St	Optimist from Bismark to Auburn (3,110' of 8")	2032-2036	\$472,000
Vann Ave	Vann from Graham to Covert; Waggoner from Vann to Joyce; Conlin from Vann to Dalehaven; Diane and Lombard from Conlin to Pollack (6,850' of 8")	2032-2036	\$990,000
Madison	Madison from Henning to Lodge (680' of 8")	2032-2036	\$209,000
Covert Ave - Phase II and Wedge Ave	Wedge from US 41 to Covert; Covert from Wedge to Weinbach (3,920' of 8")	2032-2036	\$613,000
Cass and Ridgway	Cass and Ridgway from Henning to Lodge (1,280' of 8")	2032-2036	\$288,000
Riverside St	Riverside from approx 50 ft west of US 41 to Lodge (1,450' of 12")	2032-2036	\$388,000
Taylor Ave	Taylor from Harlan to Henning; Ravenswood from Wedge to Lodge (650' of 8")	2032-2036	\$207,000
Hartin Rd	Hartin west of Stringtown to dead end; Pfeiffer from Stringtown to Hermann (1,100' of 8"; 810' of 20")	2032-2036	\$724,000
Berry St	Berry from Koehler to Old Post (1,380' of 12")	2032-2036	\$379,000
Walnut, Park, and Campbell Rds	Walnut and Park north of Hillsdale to dead end; Campbell and Radio east of US 41 to dead end (10,600' of 8"; 180' of 12")	2037-2046	\$2,129,000
Greenbriar, Meadowview, Bujey, and Sunrise Drs	Greenbriar and Meadowview south of Evergreen; Bujey and Sunrise west from Old State to dead end; Old State from Evergreen to Bob Court (200' of 4"; 7,490' of 8"; 910' of 16")	2037-2046	\$1,688,000
Petersburg Rd and Heinlein Rd	Petersburg from Bussing to Heinlein; Heinlein from Petersburg to Manchester (1,660' of 8"; 2,220' of 12")	2037-2046	\$957,000
Spring Park Dr and Weaver Rd	Spring Park south of Senate to dead end; Weaver south of Senate approx 1500' (2,470' of 8")	2037-2046	\$368,000
Mill - Phase II, Fulton and Heerdink	Fulton from Buena Vista to Mill; Mill from Fulton to Straiford; Heerdink west of 1st to dead end (9,870' of 8")	2037-2046	\$1,530,000
Allens Ln - Phase II, Gibson, Huber, Hobart, Bower, 11th, and Eric	Kratzville from Hobart to Allens; Allens from Kratzville to 11th; Hobart, 6th, Bower, Park, Huber, and Gibson west of Kratzville (8,860' of 8"; 5,440' of 12")	2037-2046	\$3,890,000
Upper Mt Vernon - Phase II	Upper Mt Vernon from Red Bank to Brookside; Meadowbrook and Meadowdale south of Upper Mt Vernon to dead end (2,340' of 8"; 6,160' of 16")	2037-2046	\$2,778,000
Schutte Rd and Peerless Rd	Schutte from Pine Ridge to Lloyd; Peerless from Lloyd to Eichele; Williams and Autumn east of Peerless; Suls west of Peerless; Holly and Welling east of Schutte to dead end; Pine Ridge west of Schutte to dead end (200' of 4"; 18,360' of 8"; 8,350' of 12")	2037-2046	\$5,100,000
Selzer Rd	Selzer, Short Selzer, and Ridewood south of Broadway to dead end (7,080' of 8")	2037-2046	\$1,040,000
Tekoppel Ave	Tekoppel from Broadway to Edgewood (260' of 8"; 5,130' of 12")	2037-2046	\$1,018,000
South Barker Ave	Barker from Broadway to B; B, C, Dennison, Egmont, and Floyd east from Barker to dead end (3,810' of 8"; 1,760' of 12")	2037-2046	\$1,093,000
Neighborhood of Maryland, St Joseph, Franklin, and Sonntag	Area bounded by Maryland, St Joseph, Franklin, and Sonntag, including Maryland and Sonntag (10,090' of 8"; 1,300' of 12"; 1,570' of 16"; 750' of 20")	2037-2046	\$3,048,000
Neighborhood of Maryland, 9th, Franklin, and St Joseph	Area bounded by Maryland, 9th, Franklin, and St Joseph (13,600' of 8"; 410' of 20"; 1,130' of 24")	2037-2046	\$3,255,000
Franklin Ave, Illinois, and Indiana west of Pigeon Creek	Franklin, Illinois, and Indiana from St Joseph to 9th; 12th, 10th, and Wabash from Lloyd to Franklin (11,220' of 8"; 110' of 12"; 1,120' of 24")	2037-2046	\$2,459,000
Neighborhood of Fulton and Shanklin	Area bounded by Pigeon Creek, Fulton, and Shanklin; main extending west from Keller under Pigeon Creek to Buchanan (17,760' of 8"; 8,250' of 12"; 210' of 20")	2037-2046	\$5,479,000
Neighborhood of Florida, Fulton, Maryland, and Grove	Area bounded by Florida, Fulton, Maryland, and Grove, including Florida and Grove (9,370' of 8"; 2,060' of 12")	2037-2046	\$1,978,000
Neighborhood of Tennessee, 1st, Indiana, and Fulton	Area bounded by Tennessee, 1st, Indiana, and Fulton, excluding 2nd and 3rd which were recently replaced, Columbia (Project 135), and Franklin (Project 137) (19,970' of 8"; 1,450' of 12"; 3,140' of 16"; 1,370' of 20")	2037-2046	\$5,912,000
S 1st Ave	1st from Franklin to Morgan (4,350' of 8")	2037-2046	\$750,000
Neighborhood of Morgan, Evans, and Columbia	Area bounded by Morgan, Evans, and Columbia, excluding mains replaced in Project 79 (58,350' of 8"; 5,880' of 12"; 30' of 16"; 20' of 20")	2037-2046	\$13,367,000
Columbia - Phase II	Columbia from Fulton to Lafayette (6,040' of 8")	2037-2046	\$952,000
Neighborhood of Columbia, US 41, Franklin, and Oakley	Area bounded by Columbia, US 41, Franklin, and Oakley, including Oakley; Franklin from Canal to Kentucky (45,440' of 8"; 6,960' of 12")	2037-2046	\$8,128,000
Franklin Ave downtown	Franklin from Fulton to Morton (10,370' of 8")	2037-2046	\$1,478,000
Neighborhood of 6th, Walnut, Riverside, and Bord	Area bounded by and including 6th, Walnut, Riverside, and Bord (22,790' of 8"; 6,760' of 12"; 110' of 20"; 50' of 24"; 8,220' of 30")	2037-2046	\$10,468,000

**TABLE A.1 (continued)**  
**Main Replacement Project List**

<i>Project Name</i>	<i>Project Description</i>	<i>Project Year</i>	<i>Total Project Cost</i>
Lincoln Ave - Phase II	Lincoln from Canal to Villa (490' of 8"; 10,640' of 12")	2037-2046	\$2,327,000
Kentucky - Phase II	Kentucky from Adams to Lloyd (5,440' of 12")	2037-2046	\$1,087,000
Neighborhood of Lincoln, Kentucky, Washington, 2nd, and Mulberry	Area bounded by Lincoln, Kentucky, Washington, 2nd, and Mulberry, including Washington (47,830' of 8"; 600' of 12")	2037-2046	\$7,685,000
S New York Ave and S Kerth Ave	New York and Kerth from Lincoln to Sycamore, Sycamore from New York to Kerth (5,000' of 8")	2037-2046	\$937,000
Neighborhood of Lloyd, Weinbach, Lincoln, and US 41	Area bounded by Lloyd, Weinbach, Lincoln, and US 41; Runnymede from Lincoln to Bayard Park (15,530' of 8")	2037-2046	\$2,545,000
Division St	Division from Harlan to Weinbach (1,340' of 8"; 2,900' of 20")	2037-2046	\$1,704,000
Governor Phase IV	Governor from Riverside south to dead end; Riverside from Judson to Elliot (2,700' of 8"; 500' of 12")	2037-2046	\$542,000
Neighborhood of Riverside, Weinbach, I164, and Sunburst	Residential area bounded by Riverside, Weinbach, I164, and Sunburst, including Weinbach and Sunburst (400' of 4"; 22,590' of 8"; 680' of 12")	2037-2046	\$3,997,000
Covert Ave - Phase III and Vann	Washington from Dexter to Vann, Vann from Washington to Covert, Covert from Vann to Burdette (6,510' of 8"; 1,490' of 12"; 530' of 16"; 480' of 36")	2037-2046	\$1,983,000
Green River - Phase II and Washington - Phase III	Green River from Bellemeade to Washington, Washington from Green River to Lombard, Lombard from Washington to Lincoln (890' of 8"; 8,960' of 12")	2037-2046	\$2,045,000
St Marys, Mulberry, and Trinity Dr	St Marys and Trinity from Lincoln to Bellemeade, Mulberry from St Marys to Trinity, Bellemeade from Walnut to Trinity (4,210' of 8")	2037-2046	\$650,000
Neighborhood of Lloyd, Green River, Lincoln, and Congress	Area bounded by Lloyd, Green River, Lincoln, and Congress, including Lincoln and Congress; E and W Blue Ridge Dr (19,410 of 8"; 670 of 12")	2037-2046	\$3,353,000
Neighborhood of Morgan, Boeke, railroad, and golfcourse	Area bounded by Morgan, Boeke, railroad, and golfcourse (7,790' of 8")	2037-2046	\$1,504,000
Stockwell Rd and Negley, Joan, Diamond, Richardt, and Herndon	Stockwell from Theatre to Negley; Negley, Joan, Diamond, Richardt, and Herndon west from Stockwell to dead end (200' of 4"; 9,370' of 8")	2037-2046	\$1,629,000
Morgan Ave - Phase IV	Morgan from Welworth to Stockwell (3,310' of 8"; 2,750' of 12")	2037-2046	\$1,430,000
E Morgan Ave and Old Booneville Hwy	Old Booneville from Green River to Kotter; Wedgewood from Old Booneville to Morgan, and Morgan from Wedgewood to Hoosier (8,930' of 12")	2037-2046	\$1,739,000
Pollack Ave	Pollack from Green River to Shoshoni, Shoshoni from Pollack to Beaver (3,450' of 12")	2037-2046	\$708,000
Neighborhood of Lloyd, Kentucky, Lincoln, and Governor	Area bounded by Lloyd, Kentucky, Lincoln, and Governor (26,750' of 8")	2037-2046	\$4,135,000
Business 41	Business 41 from Morgan to Diamond (1,840' of 8"; 2,900' of 12")	2037-2046	\$1,040,000
Stringtown Rd - Phase II	Stringtown from Negley to Cardinal (420' of 8"; 2,300' of 20")	2037-2046	\$1,379,000
Haven, Aviation, and Garrison Neighborhood	Haven, Aviation, and Garrison from Kack to Morgan; Maxwell and Enlow from Haven to Aviation (6,250' of 8")	2037-2046	\$1,398,000
St Joseph	St Joseph from Wyoming to Glenview (1,340' of 8"; 1,790' of 12")	2037-2046	\$580,000
Lincoln Ave - Phase III	Lincoln from Winterwood to Martins (2,610' of 8"; 7,260' of 16")	2037-2046	\$3,288,000
Vann Ave	Vann from Lincoln to Lloyd (2,590' of 8")	2037-2046	\$429,000
Eichel Rd	Eichel east of Fares to dead end; Louisiana west of Fares to dead end; Missouri east of Fares to dead end (2,280' of 8"; 740' of 12")	2037-2046	\$620,000
Neighborhood bounded by Christ, Kentucky, Mill, and Weaver	Residential area bounded by Christ, Kentucky, Mill, and Weaver, including Christ and Mill (1,500' of 4"; 8,920' of 8")	2037-2046	\$1,652,000
From Killian Tank to Maryland	From tank on Harmony Way west across field to Maryland; Varner from Maryland to Martin (90' of 8"; 2,150' of 16"; 170' of 20"; 280' of 24")	2037-2046	\$1,227,000
Morgan Ave - Phase V	Morgan from 1st to Read (30' of 8"; 1,930' of 12")	2037-2046	\$697,000
Eastview Rd	Eastview west of Oak Hill (2,050' of 8")	2037-2046	\$572,000
Neighborhood of Gum, Bayard Park, Chandler, Powell, Blackford, and Park Plaza	Residential area along Gum, Bayard Park, Chandler, Powell, Blackford, and Park Plaza west of Martins (5,540' of 8")	2037-2046	\$1,035,000
Alvord Blvd	Alvord from Illinois to Division (890' of 8")	2037-2046	\$194,000
Rodenberg Ave	Rodenberg from Elm west to cul-de-sac (2,730' of 8")	2037-2046	\$474,000
Landbridge Way	Landbridge Way from 1st to Cross Valley (330' of 8")	2037-2046	\$70,000
Stringtown Rd - Phase III	Stringtown from Mill to Christ (90' of 8"; 1,610' of 12")	2037-2046	\$423,000
Morton Ave and Franklin St	From Morton to Franklin through lot on SE corner of Morton-Franklin intersection (1,720' of 8"; 2,510' of 12")	2037-2046	\$707,000



**TABLE A.1 (continued)**  
**Main Replacement Project List**

<i>Project Name</i>	<i>Project Description</i>	<i>Project Year</i>	<i>Total Project Cost</i>
Morgan Ave - Phase VI	Morgan and through parking lot from Heidelbach to Gavin (1,340' of 12")	2037-2046	\$693,000
Rotherwood Ave	Rotherwood from Southeast to Bayard Park (1,180' of 8")	2037-2046	\$210,000
Neighborhood bounded by Morgan, Vogel, Boeke, and Oak Hill	Area bounded by Morgan, Vogel, Boeke, and Oak Hill, including Oak Hill and Boeke (8,700' of 8")	2037-2046	\$1,494,000
Covert Ave - Phase IV	Covert from Weinbach to Fairlawn (1,660' of 8")	2037-2046	\$287,000
Franklin Ave	Franklin east of Boeke to dead end (1,290' of 8")	2037-2046	\$184,000
Fernwood Dr	Fernwood west of Stringtown to dead end (700' of 8")	2037-2046	\$163,000
Buchanan Dr	Buchanan from Mesker Park to St Joseph (2,420' of 8")	2037-2046	\$384,000
Dieffenbach	Dieffenbach from Krueger to Koring (260' of 8"; 5,040' of 12")	2037-2046	\$1,092,000
Lynch Rd	Lynch from Maxx to Oak Hill (4,710' of 12")	2037-2046	\$942,000
Neighborhood bounded by Ashwood, Clover, Ridgewood, and Tanglewood	Residential area on Ashwood, Clover, Ridgewood, and Tanglewood (3,010' of 8")	2037-2046	\$540,000
Park east of Vann	Main through park east of Vann from Lincoln to Lloyd (2,630' of 12")	2037-2046	\$815,000
Neighborhood of Evans, Peters, and Denby north of Pfeffer	Evans, Peters, and Denby north of Pfeffer to dead end (1,130' of 8")	2037-2046	\$200,000
Little Creek Dr and Wansford	Little Creek and Wansford from Pfeffer to Kentuck (1,790' of 8")	2037-2046	\$357,000
Neighborhood bounded by Lloyd, Tekoppel, Claremont, and Red Bank	Area bounded by Lloyd, Tekoppel, Claremont, and Red Bank; University north of Lloyd in parking lot; Bosse from Schaffer to Claremont, Detroy and Sorenson west of Bosse to dead end (14,320' of 8"; 7,100' of 12")	2037-2046	\$3,854,000
Hoguc Road - Phase III	Hoguc from Peerless to Eickhoff (4,100' of 16")	2037-2046	\$1,574,000
North of Lincoln Ave. under nursing home	Main east of tank, under nursing home, north of Lincoln; Fielding from main to Lincoln (470' of 12"; 450' of 16"; 2,690' of 24")	2037-2046	\$1,764,000
Hitch Petes Dr	Hitch Petes from St George to Weinbach (11,640' of 30")	2037-2046	\$7,768,000
Darmstadt	Darmstadt from Senate to Boonville New Harmony (26,220' of 16")	2037-2046	\$9,748,000
Boonville New Harmony Rd - Phase II	Boonville New Harmony from Tibarand to St Joseph (9,270' of 24")	2037-2046	\$5,063,000
US 41 from Petersburg to Fares	US 41 from Petersburg to Fares; along north side of residential area on Kerth and New York to Kentucky (5,430' of 24")	2037-2046	\$2,983,000
US 41 from 57 to Mt Pleasant	US 41 from 57 to Mount Pleasant; west on Mount Pleasant approx 200 ft (1,800' of 24"; 1,370' of 36")	2037-2046	\$2,822,000
Volkman Rd	Volkman from US 41 to Cambridge Village; Cambridge Village to Rayleigh; Rayleigh north to dead end (7,610' of 16")	2037-2046	\$2,923,000

## **APPENDIX B**

### **Water Main Extension Project List**

**TABLE B.1**  
**Water Main Extension Project List**

<i>Project Name</i>	<i>Project Description</i>	<i>Project Year</i>	<i>Total Project Cost</i>
Bayard Park Dr	Bayard Park from Lodge to Englewood (900' of 8")	2018	\$125,000
Oregon Rd	Oregon from Alvord to west Fairway; Oregon from east Fairway to Boeke (910' of 8")	2019	\$157,000
Alvord Blvd from Iowa to Delaware	Alvord from Iowa to Delaware (320' of 8")	2019	\$59,000
On north side of commercial area from Weinbach to Spring	From Weinbach to Spring on north side of shopping center (660' of 12")	2019	\$142,000
Ohio under Pigeon Creek	Ohio under Pigeon Creek, then north to Pennsylvania on the east side of the creek (approx 1100') (1,090' of 12")	2020	\$785,000
Cross Pointe Blvd II	Cross Pointe Blvd for approx 3000' south of Oak Grove (2,930' of 12")	2020	\$545,000
IHebron Rd	IHebron approx 260' north of Washington (260' of 12")	2020	\$69,000
Inglefield Rd	Inglefield between Darmstadt and Warner for approx 1300' (1,310' of 12")	2021	\$252,000
Cemetery Rd	Cemetery for approx 1000' south of Baseline (980' of 12")	2021	\$202,000
Covert Rd	Covert from Thompson to Greenfield (1,550' of 8")	2021	\$260,000
Schmuck Rd	Schmuck from Bayou Creek to Hahns (3,200' of 8")	2022-2026	\$407,000
W Franklin St	West Franklin south of Old Mt Vernon approx 2400' (2,400' of 8")	2022-2026	\$314,000
Broadway Ave	Broadway between Posey County Line and Old Mt Vernon (2,800' of 12")	2022-2026	\$524,000
Hirsch Rd	Hirsch between Green River and Burkhardt; Green River and Burkhardt for approx 600' south of Hirsch (6,630' of 12")	2022-2026	\$1,287,000
Pollack Ave II	Pollack from Calf to Eastland (3,620' of 12")	2022-2026	\$762,000
S Boehne Camp Rd	Boehne Camp south of Upper Mt Vernon for approx 950' (950' of 8")	2027-2031	\$134,000
Indiana Ave	Indiana west of Barker for approx 180' (180' of 8")	2027-2031	\$35,000
Seven Hills/Volkman Rd	Seven Hills/Volkman from Cambridge Village to Old Hwy 57 (17,790' of 12")	2027-2031	\$3,324,000
Barker St	Barker from Stinson to Cumberland (1,500' of 8")	2027-2031	\$198,000
Mill St	Mill from Ivy to Norbourne (280' of 8")	2027-2031	\$47,000
Kasson Dr	Kasson west of Mesker Park for approx 2300' (2,330' of 8")	2032-2036	\$307,000
Schenck and St Joseph	Schenck for approx 1600' east of St Joseph; St Joseph from Schenck to approx 1550' south of Fleener; Orchard for approx 2450' east of St Joseph (12,540' of 12")	2032-2036	\$2,438,000
Darmstadt Rd	Darmstadt for approx 430' south of Baseline; Baseline between Darmstadt and Princeton; Princeton for approx 800' south of Baseline (2,550' of 12")	2032-2036	\$507,000
Southeast Blvd	From Southeast to Powell (150' of 8")	2032-2036	\$39,000
Oak Hill Rd	Oak Hill north from Holiday approx 1060 ft (760' of 8"; 300' of 12")	2032-2036	\$162,000
Kansas Rd	Kansas east from Moffet approx 1300 ft (1,300' of 8")	2032-2036	\$173,000
McDowell Rd	McDowell between Struch Hendricks and Greystone, approx 1200' (1,130' of 8")	2037-2046	\$155,000
Eickhoff Rd	Eickhoff for approx 560' south of West Terrace, and West Terrace for approx 600' east of Eickhoff (1,160' of 12")	2037-2046	\$237,000
Delaware Ave	Delaware west of Wabash for approx 320' (320' of 8")	2037-2046	\$62,000
Hillside Dr	Hillside approx 620' north of Orchard for approx 750' (710' of 8")	2037-2046	\$104,000
Wortman Rd	Wortman for approx 1400' east of Oak Trail (1,300' of 8")	2037-2046	\$178,000
Campbell Rd	Campbell for approx 500' east of US 41 (490' of 8")	2037-2046	\$74,000
Woodland Hill	Woodland Hill for approx 600' west of Honeysuckle (660' of 8")	2037-2046	\$85,000
Seib Rd	Seib for approx 420' north of Lameys (400' of 8")	2037-2046	\$57,000
Seib and Broadwing	Seib approx 1100' north of Broadwing for approx 1250' (1,240' of 8")	2037-2046	\$167,000
Championship Dr	Championship for approx 1100' west of Petersburg (1,110' of 8")	2037-2046	\$149,000
Kansas Rd from Green River	Kansas for approx 2540' west of Green River (2,540' of 12")	2037-2046	\$483,000
Virginia Ave	Virginia from Normandy to approx 260' west of Royal (70' of 8"; 1,510' of 12")	2037-2046	\$317,000
Royal Ave	Royal north from Virginia for approx 1000' (1,310' of 12")	2037-2046	\$258,000
Lincolnwood Rd	Lincolnwood approx 300' north of Newburgh (270' of 8")	2037-2046	\$52,000
Polaris Rd	Polaris approx 1700' north of Pollack (1,680' of 8")	2037-2046	\$287,000
Pollack Ave III	Pollack from Huntington Creek Dr to Riverwalk Cir (2,590' of 8")	2037-2046	\$350,000

**TABLE B.1 (continued)**  
**Water Main Extension Project List**

Cause No. 45073  
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<i>Project Name</i>	<i>Project Description</i>	<i>Project Year</i>	<i>Total Project Cost</i>
Elliot Rd	Elliot from Virginia to Iowa (330' of 8")	2037-2046	\$70,000
Middle Mt Vernon	Middle Mt Vernon from Korff to Posey County Line; Posey County Line from Middle Mt Vernon to Creamery; Creamery from Posey County Line to Eickhoff (14,860' of 12")	2037-2046	\$2,817,000
Old State Rd	Old State from Baseline to Volkman (8,160' of 12")	2037-2046	\$1,530,000

## **APPENDIX C**

### **Booster Station and Storage Facility Project List**

**TABLE C.1  
 Booster Station Storage Facility Project List**

<i>Project Name</i>	<i>Project Description</i>	<i>Project Year</i>	<i>Total Project Cost</i>
First Avenue Booster Station Cathodic Protection Improvements	Replace non-working cathodic protection system	2017	\$10,000
Stallings Booster Station Culvert Replacement	Replace failing culvert	2017	\$60,000
Stallings Booster Station Piping Replacement	Replace corroded piping and valves	2018	\$190,000
Campground Booster Station HVAC and Electrical Improvements	Replace non-working HVAC equipment and aging electrical equipment	2019	\$210,000
Lincoln Booster Station Replacement	Replace aging booster station to meet projected demand growth	2020	\$1,900,000
Campground Booster Station Pump Addition	Add additional pump to meet projected demand growth and facilitate future pump replacements	2021	\$200,000
Killian Booster Station Pump Replacement	Replace pumps that have exceeded intended service life	2021	\$620,000
Weinbach Booster Station Structural Repair	Minor repairs to cracking concrete masonry walls	2021	\$95,000
Campground Booster Station Pump Replacement	Replace pumps that have exceeded intended service life	2022-2026	\$370,000
Ward Road Booster Station Replacement	Replace aging booster station to meet projected demand growth	2022-2026	\$1,600,000
First Avenue Booster Station Pump Addition	Add additional pump to meet projected demand growth and facilitate future pump replacements	2022-2026	\$160,000
Stallings Booster Station Replacement	Replace aging booster station to meet projected demand growth	2027-2031	\$4,300,000
Campground Reservoir Replacement	Replace 100-year old concrete reservoir	2027-2031	\$15,400,000
First Avenue Booster Station Pump Replacement	Replace pumps that have exceeded intended service life	2037-2046	\$370,000
Killian Booster Station Replacement	Replace aging booster station to meet projected demand growth	2037-2046	\$4,100,000
Weinbach Booster Station Pump Replacement	Replace pumps that have exceeded intended service life	2037-2046	\$590,000
Northern Pressure Zone Elevated Storage Tank	0.5 MG elevated tank to meet peak hour demand and fire flow requirements for demand growth	2037-2046	\$3,000,000

## **APPENDIX D**

### **Water Treatment Plant Project List and Cost Estimates**

TABLE D.1  
Water Treatment Plant Project List and Cost Estimates

Evansville Existing Surface Water Treatment Plant  
Rehabilitation Cost Estimate for 30-Year Life

Description	Unit	Quantity	Unit Cost	Installation	Present Cost	Timeframe(s) of Improvements (2016 Dollars)								
						2017	2018	2019	2020	2021	2022 - 2026	2027 - 2031	2032 - 2036	2037 - 2046
<b>Intake and Low Service Pumping</b>														
Traveling Screen #1 (\$100,000 Rebuild Every 3 Years)	ea	1	\$ 104,000	\$ 26,000	\$ 130,000	\$ 100,000			\$ 100,000		\$ 200,000	\$ 100,000	\$ 200,000	\$ 300,000
Traveling Screen #2 (\$100,000 Rebuild Every 3 Years)	ea	1	\$ 104,000	\$ 26,000	\$ 130,000		\$ 100,000			\$ 100,000	\$ 100,000	\$ 200,000	\$ 100,000	\$ 300,000
Traveling Screen #3 (\$100,000 Rebuild Every 3 Years)	ea	1	\$ 104,000	\$ 26,000	\$ 130,000			\$ 100,000			\$ 20,000	\$ 100,000	\$ 200,000	\$ 300,000
LS Pump #1 Pump Maintenance	ea	1	\$ 24,000	\$ 6,000	\$ 30,000		\$ 30,000			\$ 30,000	\$ 30,000	\$ 30,000	\$ 60,000	
LS Pump #1 Motor/Drive	ea	1	\$ 112,000	\$ 28,000	\$ 140,000									\$ 140,000
LS Pump #2 Pump Maintenance	ea	1	\$ 24,000	\$ 6,000	\$ 30,000	\$ 30,000					\$ 30,000	\$ 30,000	\$ 60,000	
LS Pump #2 Motor/Drive	ea	1	\$ 112,000	\$ 28,000	\$ 140,000				\$ 30,000			\$ 140,000		
LS Pump #3 Pump Maintenance	ea	1	\$ 24,000	\$ 6,000	\$ 30,000			\$ 30,000			\$ 30,000	\$ 30,000	\$ 60,000	
LS Pump #3 Motor/Drive	ea	1	\$ 112,000	\$ 28,000	\$ 140,000								\$ 140,000	
LS Pump #4 Pump Maintenance	ea	1	\$ 24,000	\$ 6,000	\$ 30,000		\$ 30,000			\$ 30,000	\$ 30,000	\$ 30,000	\$ 60,000	
LS Pump #4 Motor/Drive	ea	1	\$ 112,000	\$ 28,000	\$ 140,000							\$ 140,000		
LS Pump #5 Pump Maintenance	ea	1	\$ 24,000	\$ 6,000	\$ 30,000	\$ 30,000					\$ 30,000	\$ 30,000	\$ 60,000	
LS Pump #5 Motor/Drive	ea	1	\$ 112,000	\$ 28,000	\$ 140,000				\$ 30,000			\$ 140,000		
LS Pump #6 Pump Maintenance	ea	1	\$ 24,000	\$ 6,000	\$ 30,000			\$ 30,000			\$ 30,000	\$ 30,000	\$ 60,000	
LS Pump #6 Motor/Drive	ea	1	\$ 112,000	\$ 28,000	\$ 140,000								\$ 140,000	
Dredging in front of Intake Structure (Approx. \$100,000/YR.)	ls	1	\$ 500,000	\$ -	\$ 500,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 1,000,000
Coating of Low Service Pump Station Building Interior/Exterior/Bridge	ls	1	\$ 130,000	\$ -	\$ 130,000			\$ 130,000						\$ 130,000
Coating of Low Service Pump Station Piping/Equipment	ls	1	\$ 50,000	\$ -	\$ 50,000			\$ 50,000						\$ 50,000
Misc. Replacement of Piping, Flanges, Bolts/Nuts	ls	1	\$ 7,000	\$ 2,450	\$ 9,450			\$ 9,450						
Additional Sump Pump in Lower Level	ea	1	\$ 1,000	\$ 350	\$ 1,350		\$ 1,350							
HVAC System Improvements	ls	1	\$ 40,000	\$ 14,000	\$ 54,000							\$ 54,000		
Duplex Air Compressor Replacement	ls	1	\$ 6,000	\$ 2,100	\$ 8,100						\$ 8,100			
Pneumatic Actuator Rehabilitation	ls	1	\$ 4,000	\$ 1,400	\$ 5,400						\$ 5,400			
Replacement of Switchgear and MCC	ls	1	\$ 560,000	\$ 190,000	\$ 750,000		\$ 750,000							
<b>High Service Pumps</b>														
HIS Pump #4 Pump Maintenance	ea	1	\$ 200,000	\$ 50,000	\$ 250,000	\$ 40,000					\$ 250,000		\$ 250,000	
HIS Pump #4 Motor/Drive	ea	1	\$ 112,000	\$ 28,000	\$ 140,000							\$ 140,000		
HIS Pump #5 Pump Maintenance	ea	1	\$ 200,000	\$ 50,000	\$ 250,000	\$ 40,000					\$ 250,000		\$ 250,000	
HIS Pump #5 Motor	ea	1	\$ 56,000	\$ 14,000	\$ 70,000							\$ 70,000		
HIS Pump #6 Pump Maintenance	ea	1	\$ 200,000	\$ 50,000	\$ 250,000			\$ 30,000				\$ 250,000		
HIS Pump #6 Motor/Drive	ea	1	\$ 112,000	\$ 28,000	\$ 140,000								\$ 140,000	
HIS Pump #7 Pump Maintenance	ea	1	\$ 200,000	\$ 50,000	\$ 250,000		\$ 40,000					\$ 250,000		
HIS Pump #7 Motor/Drive	ea	1	\$ 112,000	\$ 28,000	\$ 140,000								\$ 140,000	
HIS Pump #8 Pump Maintenance	ea	1	\$ 200,000	\$ 50,000	\$ 250,000		\$ 40,000				\$ 250,000		\$ 250,000	
HIS Pump #8 Motor/Drive	ea	1	\$ 200,000	\$ 50,000	\$ 250,000							\$ 250,000		
HIS Pump #9 Pump Maintenance	ea	1	\$ 200,000	\$ 50,000	\$ 250,000			\$ 40,000				\$ 250,000		
HIS Pump #9 Motor/Drive	ea	1	\$ 160,000	\$ 40,000	\$ 200,000								\$ 200,000	
HIS Pump #10 Pump Maintenance	ea	1	\$ 200,000	\$ 50,000	\$ 250,000			\$ 40,000			\$ 250,000		\$ 250,000	
HIS Pump #10 Motor	ea	1	\$ 56,000	\$ 14,000	\$ 70,000						\$ 70,000			
Coating of High Service Pump Station #2 Piping/Equipment	ls	1	\$ 60,000	\$ -	\$ 60,000			\$ 60,000						\$ 60,000
Coating of High Service Pump Station #3 Piping/Equipment	ls	1	\$ 40,000	\$ -	\$ 40,000						\$ 40,000			\$ 40,000
Additional Sump Pump HISPS2	ea	1	\$ 1,000	\$ 350	\$ 1,350	\$ 1,350								
Allowance for Lead Paint Abatement (HISPS2)	ls	1	\$ 100,000	\$ 35,000	\$ 135,000			\$ 135,000						
HISPS2 Structural Rehab (Walls, Replace Stairs and Platforms, Etc)	ls	1	\$ 35,000	\$ 12,250	\$ 47,250			\$ 47,250						
Replace Select Piping in HISPS2	ls	1	\$ 90,000	\$ 30,000	\$ 120,000			\$ 120,000						
MCCs/Switchgears/Transformers Replacement (both stations)	ls	1	\$ 650,000	\$ 200,000	\$ 850,000			\$ 850,000						



TABLE D.1  
Water Treatment Plant Project List and Cost Estimates

Description	Unit	Quantity	Unit Cost	Installation	Present Cost	Timeframe(s) of Improvements (2016 Dollars)								
						2017	2018	2019	2020	2021	2022 - 2026	2027 - 2031	2032 - 2036	2037 - 2046
HVAC System Rehab (Exhaust Fans, Louvers, Dampers, Etc)	ls	1	\$ 60,000	\$ 21,000	\$ 81,000						\$ 81,000			
<b>North Flocculation / Sedimentation Basins / Rapid Mix/Sec Sed Basins/Flumes</b>														
North Settling Basin No. 1 (Costs Includes Replacing Scrapers)	ea	1	\$ 240,000	\$ 60,000	\$ 300,000						\$ 300,000			
North Settling Basin No. 2 (Costs Includes Replacing Scrapers)	ea	1	\$ 240,000	\$ 60,000	\$ 300,000						\$ 300,000			
Floc. Unit Replacement	ea	6	\$ 48,000	\$ 12,000	\$ 360,000						\$ 360,000			\$ 360,000
North Basin Variable Speed Rapid Mixer	ea	1	\$ 80,000	\$ 20,000	\$ 100,000						\$ 100,000			
Coating of All Tanks/Channel Walls/Floors/Troughs	ls	1	\$ 1,300,000	\$ -	\$ 1,300,000						\$ 1,300,000			
Coating of support beams/handrail	ls	1	\$ 20,000	\$ -	\$ 20,000						\$ 20,000			
Sec Sed Basin Inlet Protection	ea	6	\$ 1,000	\$ -	\$ 6,000	\$ 6,000								
Flumes - Concrete Rehab, Replacement Walkways, and Coating	ls	1	\$ 290,000	\$ -	\$ 290,000						\$ 290,000			
Replacement of 30" x 30" Sluice Gates (Floc. Structure)	ea	6	\$ 20,000	\$ 5,000	\$ 150,000						\$ 150,000			
Replacement of 48" x 48" Sluice Gates (Primary Sed Basins)	ea	2	\$ 30,000	\$ 5,000	\$ 70,000						\$ 70,000			
Replacement of Slide Gates (Inlets to Sec. Sed. Basins)	ea	5	\$ 15,000	\$ 5,000	\$ 100,000						\$ 100,000			
Replacement of Motor Control Center	ls	1	\$ 120,000	\$ 30,000	\$ 150,000						\$ 150,000			
<b>North Sludge Station / Electrical Building</b>														
Rehabilitation of small building and deep pipe/valve vault	ea	1	\$ 25,000	\$ -	\$ 25,000				\$ 25,000					
Replacement of Electrical Components	ls	1	\$ 30,000	\$ -	\$ 30,000				\$ 30,000					
<b>South Primary/ Secondary Sedimentation Basins</b>														
Replace South Pri. and Sec. Sed. Basin 1 & 2 Equip. (4 tanks)	ls	1	\$ 1,192,000	\$ 298,000	\$ 1,490,000					\$ 1,490,000				
South Pri. and Sec. Sed. Basin Expansion (New 3rd Set)	ls	1	\$ 4,560,000	\$ 1,140,000	\$ 5,700,000						\$ 5,700,000			
Coat Equipment in all South Pri./Sec. Basins (6 tanks)	ls	1	\$ 72,000	\$ 18,000	\$ 90,000					\$ 90,000				\$ 90,000
Replacement of Electrical Components	ls	1	\$ 30,000	\$ -	\$ 30,000					\$ 30,000				
<b>South Sludge Pump Station</b>														
Rehabilitation of South Sludge Pump Station (Stairs, Hatches, Floc/Sec. No. 3 Needs)	ls	1	\$ 272,000	\$ 68,000	\$ 340,000				\$ 340,000					
Additional Sump Pump Installation	ea	1	\$ 1,000	\$ 350	\$ 1,350				\$ 1,350					
<b>Plant Interconnect</b>														
36" DIP Between South Plant and North Plant 1.5 MG Clearwell	ls	1	\$ 300,000	\$ 75,000	\$ 375,000			\$ 375,000						
<b>Filter Media Replacement (24 Filter Beds)</b>														
Media Replacement Filters 13-20 (8 filters)	ls	1	\$ 666,000	\$ -	\$ 666,000	\$ 133,200	\$ 133,200	\$ 133,200	\$ 133,200	\$ 133,200		\$ 666,000		\$ 666,000
Media Replacement Filters 21-28 (8 filters)	ls	1	\$ 1,322,000	\$ -	\$ 1,322,000						\$ 1,322,000		\$ 1,322,000	\$ 1,322,000
Media Replacement Filters 29-36 (8 filters)	ls	1	\$ 1,350,000	\$ -	\$ 1,350,000							\$ 1,350,000		\$ 1,350,000
Underdrain Replacement Filters 13-20 HDPE Blocks (8 filters)	ls	1	\$ 1,796,000	\$ -	\$ 1,796,000	\$ 359,200	\$ 359,200	\$ 359,200	\$ 359,200	\$ 359,200				
Underdrain Replacement Filters 21-28 HDPE Blocks (8 filters)	ls	1	\$ 3,564,000	\$ -	\$ 3,564,000						\$ 3,564,000			
Underdrain Replacement Filters 29-36 HDPE Blocks (8 filters)	ls	1	\$ 3,640,000	\$ -	\$ 3,640,000							\$ 3,640,000		
<b>Filter Buildings and Pipe Galleries</b>														
Allowance for Lead Paint Removal/Abatement	ls	1	\$ 350,000	\$ -	\$ 350,000			\$ 350,000						
Filters 1-12 Membrane Filtration Retrofit	ea	12	\$ 300,000	\$ 75,000	\$ 4,500,000			\$ 2,250,000	\$ 2,250,000					
Filters 1-12 Building Upper Floor Coating/Rehab.	ls	1	\$ 16,000	\$ 4,000	\$ 20,000			\$ 10,000	\$ 10,000					
Filters 1-12 Pipe Gallery Demo for Membrane Retrofit/Relocate 1.5 MG Vent	ls	1	\$ 100,000	\$ -	\$ 100,000			\$ 50,000	\$ 50,000					
Filters 1-20 Building Dehumidification Improvements	ls	1	\$ 75,000	\$ 18,750	\$ 93,750			\$ 93,750						
Filters 13-20 Building Upper Floor Coating/Rehab.	ls	1	\$ 16,000	\$ 4,000	\$ 20,000					\$ 20,000				
Filters 13-20 Pipe Gallery Coatings/Rehab/Replace	ls	1	\$ 64,000	\$ 16,000	\$ 80,000					\$ 80,000			\$ 20,000	
Filters 21-28 Pipe Gallery Coatings/Rehab.	ls	1	\$ 48,000	\$ 12,000	\$ 60,000					\$ 60,000			\$ 40,000	
Filters 29-32 Building Dehumidification Improvements	ls	1	\$ 55,000	\$ 13,750	\$ 68,750				\$ 68,750					

TABLE D.1  
Water Treatment Plant Project List and Cost Estimates

Description	Unit	Quantity	Unit Cost	Installation	Present Cost	Timeframe(s) of Improvements (2016 Dollars)									
						2017	2018	2019	2020	2021	2022 - 2026	2027 - 2031	2032 - 2036	2037 - 2046	
Filters 29-32 Pipe Gallery Coatings/Stairs/Rehab.	ls	1	\$ 48,000	\$ 12,000	\$ 60,000				\$ 60,000					\$ 20,000	
Filters 33-36 Building Dehumidification Improvements	ls	1	\$ 55,000	\$ 13,750	\$ 68,750					\$ 68,750					
Filters 33-34 Pipe Gallery Coatings/Rehab.	ls	1	\$ 24,000	\$ 6,000	\$ 30,000									\$ 20,000	
Filters 35-36 Pipe Gallery Coatings/Rehab.	ls	1	\$ 24,000	\$ 6,000	\$ 30,000									\$ 20,000	
Vertical Turbine Backwash Pump Replacement	ea	1	\$ 15,000	\$ 3,750	\$ 18,750										
Replacement of Electrical Components	ls	1	\$ 100,000	\$ -	\$ 100,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000					
<b>Filter Backwash System</b>															
Replace Washwater Pump in 1.5 MG Clearwell	ls	1	\$ 60,000	\$ -	\$ 60,000						\$ 60,000				
Replace Main In/Out Floodwall to Tanks	ls	1	\$ 600,000	\$ -	\$ 600,000			\$ 600,000							
Replace Backup Fill Valve Actuator	ls	1	\$ 5,000	\$ -	\$ 5,000			\$ 5,000							
Reline/Rehab Piping from Tanks to Filters	ls	1	\$ 400,000	\$ -	\$ 400,000					\$ 400,000					
<b>Chemical Feed Systems</b>															
Alum (DelPAC 2020)	ls	1	\$ 216,000	\$ 54,000	\$ 270,000								\$ 270,000		
Fluoride	ls	1	\$ 184,000	\$ 46,000	\$ 230,000								\$ 230,000		
Caustic (Sodium Hydroxide)	ls	1	\$ 384,000	\$ 96,000	\$ 480,000								\$ 480,000		
Carbon (PAC)	ls	1	\$ 288,000	\$ 72,000	\$ 360,000								\$ 360,000		
Potassium Permanganate	ls	1	\$ 24,000	\$ 6,000	\$ 30,000										
Dechlorination System	ls	1	\$ 36,000	\$ 9,000	\$ 45,000									\$ 45,000	
Ammonium Hydroxide	ls	1	\$ 40,000	\$ 10,000	\$ 50,000						\$ 50,000			\$ 50,000	
Gaseous Chlorine - Install Chlorinators (EWSU Already Purchased)	ls	1	\$ -	\$ 35,000	\$ 35,000						\$ 35,000			\$ 35,000	
Chlorine System Safety Equipment Upgrades	ls	1	\$ 160,000	\$ 40,000	\$ 200,000								\$ 200,000		
Sodium Chlorite Demo	ls	1	\$ 50,000	\$ -	\$ 50,000			\$ 50,000							
<b>Flood Pumps and Outfall Sewer</b>															
Flood Pump Maintenance (Two - 100 HP Vert. Turbines on VFDs)	ea	1	\$ 24,000	\$ 6,000	\$ 30,000						\$ 30,000			\$ 30,000	
Cured in Place Liner for 36" Outfall #4 Sewer and Below Exits, Filter Bldgs.	ls	1	\$ 80,000	\$ -	\$ 80,000			\$ 80,000							
Replacement of Electrical Components	ls	1	\$ 20,000	\$ -	\$ 20,000						\$ 20,000				
<b>Residuals Treatment and Disposal</b>															
New Waste Stream Treatment and Residuals Handling Facility	ls	1	\$ 34,300,000	\$ -	\$ 34,300,000					\$ 34,300,000					
*Sludge Hauling/Management Vehicles	ls	1	\$ 400,000	\$ -	\$ 400,000						\$ 400,000		\$ 400,000	\$ 400,000	
<b>Clearwell Capacity Expansion and Repair</b>															
New 6.0 MG Clearwell and TSP Station #4	ls	1	\$ 9,760,000	\$ 2,440,000	\$ 12,200,000			\$ 6,100,000	\$ 6,100,000						
Support Piles (Auger Cast up to 75 ft. deep anticipated)	ea	640	\$ 2,500	\$ -	\$ 1,600,000			\$ 800,000	\$ 800,000						
Chemical Grout Injection to Repair Existing 6.5 MG Clearwell Concrete	ls	1	\$ 150,000	\$ -	\$ 150,000					\$ 150,000					
<b>Plantwide Abandoned Equipment Removal and Disposal</b>															
Decommissioning and Removal of Abandoned Equipment	ls	1	\$ 1,000,000	\$ -	\$ 1,000,000						\$ 1,000,000				
<b>Plantwide Electrical Upgrade</b>															
Circuit Breaker Replacement	ls	1	\$ 1,680,000	\$ 420,000	\$ 2,100,000	\$ 420,000	\$ 420,000	\$ 420,000	\$ 420,000	\$ 420,000					
Replace and Upgrade Main Plant Switchgear	ls	1	\$ 800,000	\$ 200,000	\$ 1,000,000			\$ 1,000,000							
Rehab/Maintain Generators	ea	2	\$ 50,000	\$ 12,500	\$ 125,000				\$ 125,000					\$ 125,000	
Replace Wiring Throughout Facility	ls	1	\$ 500,000	\$ -	\$ 500,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000					
Transformer Switches (Allows Bypass of Switchgear)	ls	1	\$ 60,000	\$ -	\$ 60,000		\$ 60,000								
<b>SCADA System Upgrades</b>															
Upgrade SCADA System PCs, Software, and Programming	ea	1	\$ 50,000	\$ -	\$ 50,000							\$ 50,000		\$ 50,000	

**TABLE D.1**  
**Water Treatment Plant Project List and Cost Estimates**

Description	Unit	Quantity	Unit Cost	Installation	Present Cost	Timeframe(s) of Improvements (2016 Dollars)								
						2017	2018	2019	2020	2021	2022 - 2026	2027 - 2031	2032 - 2036	2037 - 2046
<b>Building and Misc. Improvements</b>														
Intake and Low Service Roofing	ls	1	\$ 45,000	\$ 11,250	\$ 56,250								\$ 56,250	
High Service Pump Station #2 Roofing	ls	1	\$ 32,000	\$ 8,000	\$ 40,000								\$ 40,000	
Office and Headhouse Improvements	ls	1	\$ 100,000	\$ -	\$ 100,000						\$ 100,000			
Coat all Headhouse Roof Support Members	ls	1	\$ 200,000	\$ -	\$ 200,000	\$ 200,000								
Lab Expansion and Improvements	ls	1	\$ 200,000	\$ -	\$ 200,000						\$ 200,000			
Demo & Replace Boiler Heat System (2 Boilers, 5 Pumps, 36 UTIs, Piping)	ls	1	\$ 420,000	\$ 105,000	\$ 525,000			\$ 525,000						
Asbestos Insulation Demo Allowance (Steam Piping)	ls	1	\$ 100,000	\$ -	\$ 100,000			\$ 100,000						
Diesel Storage Tanks for 3-day Supply w/ Conditioning System (Two 5000 Gal Tanks)	ca	2	\$ 25,000	\$ 6,250	\$ 62,500						\$ 62,500			
Demo Old Fuel Tanks, Containment Area, and All Piping	ls	1	\$ 200,000	\$ -	\$ 200,000						\$ 200,000			

Total Increment Subtotal Construction Cost Estimates (2016 \$) =	\$	1,579,750	\$	2,183,750	\$	15,099,100	\$	11,246,250	\$	37,981,150	\$	18,088,000	\$	8,696,250	\$	4,712,000	\$	8,633,000
Contingency (30%) =	\$	473,925	\$	655,125	\$	4,529,730	\$	3,373,875	\$	11,394,345	\$	5,426,400	\$	2,608,875	\$	1,413,600	\$	2,589,900
<b>Total Probable Construction Costs =</b>	<b>\$</b>	<b>2,054,000</b>	<b>\$</b>	<b>2,839,000</b>	<b>\$</b>	<b>19,629,000</b>	<b>\$</b>	<b>14,621,000</b>	<b>\$</b>	<b>49,376,000</b>	<b>\$</b>	<b>23,515,000</b>	<b>\$</b>	<b>11,306,000</b>	<b>\$</b>	<b>6,126,000</b>	<b>\$</b>	<b>11,223,000</b>
Non Construction Costs (25%)	\$	514,000	\$	710,000	\$	4,908,000	\$	3,656,000	\$	12,344,000	\$	5,879,000	\$	2,827,000	\$	1,532,000	\$	2,806,000
<b>Total Increment Estimated Project Costs (2016 \$) =</b>	<b>\$</b>	<b>2,568,000</b>	<b>\$</b>	<b>3,549,000</b>	<b>\$</b>	<b>24,537,000</b>	<b>\$</b>	<b>18,277,000</b>	<b>\$</b>	<b>61,720,000</b>	<b>\$</b>	<b>29,394,000</b>	<b>\$</b>	<b>14,133,000</b>	<b>\$</b>	<b>7,658,000</b>	<b>\$</b>	<b>14,029,000</b>
<b>Total 30-Year Estimated Project Costs (2016 \$) =</b>	<b>\$</b>	<b>175,900,000</b>								<b>\$</b>	<b>110,651,000</b>	<b>\$</b>	<b>29,394,000</b>	<b>\$</b>	<b>21,791,000</b>	<b>\$</b>	<b>14,029,000</b>	

\*Note: Vehicle costs for sludge hauling / residuals treatment facility is reduced 20% above since 20% non-construction costs is included for all construction costs to account for engineering, legal, financial

## **APPENDIX E**

### **Water Master Plan Compiled Project List**

**TABLE E.1**  
**Water Master Plan Compiled Project List**

<i>Project Name</i>	<i>Project Description</i>	<i>Project Year</i>	<i>Total Project Cost</i>
Frey Rd	Frey north of Broadway approx 1950' (1,910' of 8")	2017	\$288,000
Herndon Ave	Herndon between Stringtown and Evans (860' of 8")	2017	\$177,000
Keck Rd	Keck from Stringtown to Grand (2,100' of 8")	2017	\$474,000
Lodge Rd	Lodge from Walnut to Riverside (9,120' of 8")	2017	\$1,542,000
New Harmony from Allens Ln	New Harmony from Allens to Harmony Way (2,540' of 8")	2017	\$415,000
Wills Rd	Wills from Virginia to Michigan (290' of 8")	2017	\$62,000
Walcott Rd	Walcott west of Vanness to dead end (460' of 8")	2017	\$119,000
Broadway Ave - Phase I	Broadway from Red Bank to Schutte (9,680' of 8"; 2,660' of 12")	2017	\$2,572,000
Heidelhach Rd	Heidelhach from Morgan to Olmstead; Olmstead from Heidelhach to Stringtown (6,170' of 12")	2017	\$1,700,000
Hogue Road - Phase I	Hogue from Red Bank to Williams (7,780' of 8"; 80' of 12")	2017	\$3,272,000
St George - Phase I	St George from Twickingham to Oak Hill (3,760' of 8")	2017	\$627,000
Stringtown Rd - Phase I	Stringtown from Louisiana to Morgan (1,400' of 20")	2017	\$804,000
Weinbach Rd	Weinbach from Lloyd to Pollack (4,980' of 8"; 5,210' of 12")	2017	\$2,684,000
Morgan Ave - Phase I	Morgan from Harding to Marie (1,700' of 12")	2017	\$415,000
First Avenue Booster Station Cathodic Protection Improvements	Replace non-working cathodic protection system	2017	\$15,000
Stallings Booster Station Culvert Replacement	Replace failing culvert	2017	\$53,000
Traveling Screen #1 (\$100,000 Rebuild Every 3 Years)	Traveling Screen #1 (\$100,000 Rebuild Every 3 Years)	2017	\$100,000
LS Pump #2 Pump Maintenance	LS Pump #2 Pump Maintenance	2017	\$30,000
LS Pump #5 Pump Maintenance	LS Pump #5 Pump Maintenance	2017	\$30,000
Dredging in front of Intake Structure (Approx. \$100,000/YR.)	Dredging in front of Intake Structure (Approx. \$100,000/YR.)	2017	\$100,000
HS Pump #4 Pump Maintenance	HS Pump #4 Pump Maintenance	2017	\$40,000
IIS Pump #5 Pump Maintenance	IIS Pump #5 Pump Maintenance	2017	\$40,000
Additional Sump Pump HSPS2	Additional Sump Pump HSPS2	2017	\$1,350
Sec Sed Basin Inlet Protection	Sec Sed Basin Inlet Protection	2017	\$6,000
Media Replacement Filters 13-20 (8 filters)	Media Replacement Filters 13-20 (8 filters)	2017	\$133,200
Underdrain Replacement Filters 13-20 HDPE Blocks (8 filters)	Underdrain Replacement Filters 13-20 HDPE Blocks (8 filters)	2017	\$359,200
Replacement of Electrical Components	Replacement of Electrical Components in Filter Buildings and Pipe Galleries	2017	\$20,000
Circuit Breaker Replacement	Circuit Breaker Replacement	2017	\$420,000
Replace Wiring Throughout Facility	Replace Wiring Throughout Facility	2017	\$100,000
Coat all Headhouse Roof Support Members	Coat all Headhouse Roof Support Members	2017	\$200,000
Bartels Rd	Bartels south of Evergreen to dead end (2,460' of 8")	2018	\$412,000
Bayard Park Dr	Bayard Park from Lodge to Weinbach (1,730' of 8")	2018	\$342,000
Bellemeade Rd	Bellemeade east of Lodge to dead end (120' of 8")	2018	\$43,000
Ingle Rd	Ingle from Forest to Marion (600' of 8")	2018	\$113,000
Lant Circle	Lant Circle from Lodge to Bayard Park (1,010' of 8")	2018	\$184,000
Marshall Rd	Marshall from Washington to Covert (2,690' of 8")	2018	\$643,000
Main St	Main St from Wedkeing to Richardt (330' of 8")	2018	\$58,000
Poplar Grove Neighborhood	Poplar Grove Neighborhood (Austin, Addison, Marion, Tunis, Edgewood, Hillcrest Terrace, and Walker) (14,610' of 8"; 350' of 12")	2018	\$3,194,000
Melody Hill Neighborhood	Melody Hill south of St George (9,260' of 8")	2018	\$1,765,000
Presidents Neighborhood Central	Presidents Neighborhood Central (Adams, Madison, Monroe, Jackson, Taylor, and Ravenswood between Lodge and Rotherwood; Brookside, Benninghof, Englewood) (430' of 4"; 9,800' of 8")	2018	\$2,272,000
Presidents Neighborhood West	Presidents Neighborhood West (Harlan, Henning, Madison from Washington to Covert) (5,650' of 8")	2018	\$1,320,000

**TABLE E.1 (continued)**  
**Water Master Plan Compiled Project List**

Project Name	Project Description	Project Year	Total Project Cost
Sweetser Rotherwood Area	Sweetser Rotherwood Area (Wagoner, Cass, Ridgeway, Sweetser, Conlin, Crystal Court, Plantation, Rotherwood, Frederick, and Norman bounded by Covert, Weinbach, Pollack, and Lodge) (16,540' of 8")	2018	\$3,059,000
Benninghof, Englewood, and Brookside	Benninghof and Englewood from Bayard Park to Lincoln; Brookside from Washington to Rotherwood (5,170' of 8")	2018	\$883,000
Bayard Park Dr	Bayard Park from Lodge to Englewood (900' of 8")	2018	\$125,000
Stallings Booster Station Piping Replacement	Replace corroded piping and valves	2018	\$157,000
Traveling Screen #2 (\$100,000 Rebuild Every 3 Years)	Traveling Screen #2 (\$100,000 Rebuild Every 3 Years)	2018	\$100,000
LS Pump #1 Pump Maintenance	LS Pump #1 Pump Maintenance	2018	\$30,000
LS Pump #4 Pump Maintenance	LS Pump #4 Pump Maintenance	2018	\$30,000
Dredging in front of Intake Structure (Approx. \$100,000/YR.)	Dredging in front of Intake Structure (Approx. \$100,000/YR.)	2018	\$100,000
Additional Sump Pump in Lower Level	Additional Sump Pump in Lower Level of Intake and Low Service PS	2018	\$1,350
Replacement of Switchgear and MCC	Replacement of Switchgear and MCC of Intake and Low Service PS	2018	\$750,000
HS Pump #7 Pump Maintenance	HS Pump #7 Pump Maintenance	2018	\$40,000
HS Pump #8 Pump Maintenance	HS Pump #8 Pump Maintenance	2018	\$40,000
Media Replacement Filters 13-20 (8 filters)	Media Replacement Filters 13-20 (8 filters)	2018	\$133,200
Underdrain Replacement Filters 13-20 IIDPE Blocks (8 filters)	Underdrain Replacement Filters 13-20 IIDPE Blocks (8 filters)	2018	\$359,200
Replacement of Electrical Components	Replacement of Electrical Components in Filter Buildings and Pipe Galleries	2018	\$20,000
Circuit Breaker Replacement	Circuit Breaker Replacement	2018	\$120,000
Replace Wiring Throughout Facility	Replace Wiring Throughout Facility	2018	\$100,000
Transformer Switches (Allows Bypass of Switchgear)	Transformer Switches (Allows Bypass of Switchgear)	2018	\$60,000
Oregon Rd	Oregon from Alvord to west Fairway; Oregon from east Fairway to Boeke (910' of 8")	2019	\$157,000
Alvord Blvd from Iowa to Delaware	Alvord from Iowa to Delaware (320' of 8")	2019	\$59,000
On north side of commercial area from Weinbach to Spring	From Weinbach to Spring on north side of shopping center (660' of 12")	2019	\$142,000
Bell and Lemcke Neighborhood	Bell and Lemcke Neighborhood (Marine, Illinois, Indiana, Franklin, Lemcke, Bell, and Hess) (5,920' of 8")	2019	\$1,414,000
Bexley Rd	Bexley east of Oak Hill to dead end (700' of 4"; 660' of 8")	2019	\$232,000
Cardinal Rd	Cardinal west of Stringtown approx 1200' (1,160' of 8")	2019	\$212,000
Charlotte and Russel Sts	Charlotte and Russel (3,510' of 8")	2019	\$638,000
Gayne St	Gayne west of Vanness to dead end (1,420' of 8")	2019	\$242,000
Lake Rd	Lake east of Oak Hill; Wayside, Cottage, North Ct, South Ct (880' of 4"; 10,100' of 8")	2019	\$1,733,000
Newburgh Rd	Newburgh from Lincoln Station to Kingswood (10,020' of 8")	2019	\$1,603,000
Southeast Blvd	Southeast south of Washington approx 200' (180' of 8"). Dead end elimination	2019	\$39,000
Residential area bounded by Vogel, Boeke, Division, and Weinbach	Residential area bounded by Vogel, Boeke, Division, and Weinbach, including Vogel, Boeke, and Weinbach (31,980' of 8")	2019	\$5,274,000
Boeke Rd	Boeke from Lloyd to Washington (4,570' of 8")	2019	\$699,000
Burkhardt and Plaza	Burkhardt and Plaza from Washington to Lincoln (5,290' of 8")	2019	\$834,000
Maryland Ave	Maryland from Harmony to Wessel (3,850' of 8")	2019	\$607,000
Campground Booster Station HVAC and Electrical Improvements	Replace non-working HVAC equipment and aging electrical equipment	2019	\$210,000
Traveling Screen #3 (\$100,000 Rebuild Every 3 Years)	Traveling Screen #3 (\$100,000 Rebuild Every 3 Years)	2019	\$100,000
LS Pump #3 Pump Maintenance	LS Pump #3 Pump Maintenance	2019	\$30,000
LS Pump #6 Pump Maintenance	LS Pump #6 Pump Maintenance	2019	\$30,000
Dredging in front of Intake Structure (Approx. \$100,000/YR.)	Dredging in front of Intake Structure (Approx. \$100,000/YR.)	2019	\$100,000
Coating of Low Service Pump Station Building Interior/Exterior/Bridge	Coating of Low Service Pump Station Building Interior/Exterior/Bridge	2019	\$130,000
Coating of Low Service Pump Station Piping/Equipment	Coating of Low Service Pump Station Piping/Equipment	2019	\$50,000
Misc. Replacement of Piping, Flanges, Bolts/Nuts	Misc. Replacement of Piping, Flanges, Bolts/Nuts in Intake and Low Service PS	2019	\$9,450
HS Pump #6 Pump Maintenance	HS Pump #6 Pump Maintenance	2019	\$30,000
HS Pump #9 Pump Maintenance	HS Pump #9 Pump Maintenance	2019	\$40,000

**TABLE E.1 (continued)**  
**Water Master Plan Compiled Project List**

<i>Project Name</i>	<i>Project Description</i>	<i>Project Year</i>	<i>Total Project Cost</i>
HS Pump #10 Pump Maintenance	HS Pump #10 Pump Maintenance	2019	\$40,000
Coating of High Service Pump Station #2 Piping/Equipment	Coating of High Service Pump Station #2 Piping/Equipment	2019	\$60,000
Allowance for Lead Paint Abatement (HSPS2)	Allowance for Lead Paint Abatement (HSPS2)	2019	\$135,000
HSPS2 Structural Rehab (Walls, Replace Stairs and Platforms, Etc)	HSPS2 Structural Rehab (Walls, Replace Stairs and Platforms, Etc)	2019	\$47,250
Replace Select Piping in HSPS2	Replace Select Piping in HSPS2	2019	\$120,000
MCCs/Switchgears/Transformers Replacement (both stations)	MCCs/Switchgears/Transformers Replacement (both High Service Pump Stations)	2019	\$850,000
36" DIP Between South Plant and North Plant 1.5 MG Clearwell	36" DIP Between South Plant and North Plant 1.5 MG Clearwell	2019	\$375,000
Media Replacement Filters 13-20 (8 filters)	Media Replacement Filters 13-20 (8 filters)	2019	\$133,200
Underdrain Replacement Filters 13-20 HDPE Blocks (8 filters)	Underdrain Replacement Filters 13-20 HDPE Blocks (8 filters)	2019	\$359,200
Allowance for Lead Paint Removal/Abatement	Allowance for Lead Paint Removal/Abatement in Filter Buildings and Pipe Galleries	2019	\$350,000
Filters 1-12 Membrane Filtration Retrofit	Filters 1-12 Membrane Filtration Retrofit	2019	\$2,250,000
Filters 1-12 Building Upper Floor Coating/Rehab.	Filters 1-12 Building Upper Floor Coating/Rehab.	2019	\$10,000
Filters 1-12 Pipe Gallery Demo for Membrane Retrofit/Relocate 1.5 MG Vent	Filters 1-12 Pipe Gallery Demo for Membrane Retrofit/Relocate 1.5 MG Vent	2019	\$50,000
Replacement of Electrical Components	Replacement of Electrical Components in Filter Buildings and Pipe Galleries	2019	\$20,000
Replace Main In/Out Floodwall to Tanks	Replace Main In/Out Floodwall to Tanks of Filter Backwash System	2019	\$600,000
Replace Backup Fill Valve Actuator	Replace Backup Fill Valve Actuator of Filter Backwash System	2019	\$5,000
Sodium Chlorite Demo	Sodium Chlorite Demo	2019	\$50,000
Cured in Place Liner for 36" Outfall #4 Sewer and Below Exis. Filter Bldgs.	Cured in Place Liner for 36" Outfall #4 Sewer and Below Exis. Filter Bldgs.	2019	\$80,000
New 6.0 MG Clearwell and HSP Station #4	New 6.0 MG Clearwell and HSP Station #4	2019	\$6,100,000
Support Piles (Auger Cast up to 75-ft. deep anticipated)	Support Piles (Auger Cast up to 75-ft. deep anticipated) for Clearwell	2019	\$800,000
Circuit Breaker Replacement	Circuit Breaker Replacement	2019	\$420,000
Replace and Upgrade Main Plant Switchgear	Replace and Upgrade Main Plant Switchgear	2019	\$1,000,000
Replace Wiring Throughout Facility	Replace Wiring Throughout Facility	2019	\$100,000
Demo & Replace Boiler Heat System (2 Boilers, 5 Pumps, 36 UHs, Piping)	Demo & Replace Boiler Heat System (2 Boilers, 5 Pumps, 36 UHs, Piping)	2019	\$525,000
Asbestos Insulation Demo Allowance (Steam Piping)	Asbestos Insulation Demo Allowance (Steam Piping)	2019	\$100,000
Tupman Rd	Tupman Rd north of Upper Mt. Vernon (2,080' of 8")	2020	\$360,000
Neighborhood of Hathaway, Pennington, Red Bank, Helfrich, Arlington, Cole, and Petes	Residential area on Hathaway, Pennington, Red Bank, Helfrich, Arlington, Cole, and Petes between Broadway and Pennington (10' of 4"; 7,240' of 8"; 1,500' of 12")	2020	\$1,450,000
Mesker Park - Phase I and Allens Ln - Phase I	Allens from Mesker Park to New Harmony, under SR 66 (4,510' of 8")	2020	\$1,309,000
Grove St	Grove south of Allens Ln (2,580' of 8")	2020	\$3,584,000
7th St and Shanklin	7th from Florida to Shanklin and Shanklin from 7th to Fulton (2,330' of 8")	2020	\$609,000
Neighborhood of Evans Middle School	Residential area and Evans Middle School bounded by Stringtown, Diamond, Kentucky, and Pigeon Creek (820' of 4"; 20,640' of 8"; 370' of 12")	2020	\$4,133,000
Morton Ave and Franklin St	Morton from Division to Franklin and Franklin from Morton to Kentucky (2,850' of 8")	2020	\$938,000
Neighborhood of Madison, Weinbach, Covert, and Rotherwood	Residential area bounded by Madison, Weinbach, Covert, and Rotherwood (4,820' of 8")	2020	\$985,000
Neighborhood of Washington, Vann, Covert, and Boeke	Residential area bounded by Washington, Vann, Covert, and Boeke (340' of 4"; 24,150' of 8")	2020	\$4,760,000
Neighborhood south of Riverside and west of Lodge	Residential area south of Riverside and west of Lodge (460' of 4"; 4,930' of 8")	2020	\$992,000
Schmitt Ln	Schmitt east of Oak Hill to dead end (1,240' of 8")	2020	\$243,000
Ohio under Pigeon Creek	Ohio under Pigeon Creek, then north to Pennsylvania on the east side of the creek (approx 1100) (1,090' of 12")	2020	\$785,000
Cross Pointe Blvd II	Cross Pointe Blvd for approx 3000' south of Oak Grove (2,930' of 12")	2020	\$545,000
Hebron Rd	Hebron approx 260' north of Washington (260' of 12")	2020	\$69,000
Lincoln Booster Station Replacement	Replace aging booster station to meet projected demand growth	2020	\$1,787,000
Traveling Screen #1 (\$100,000 Rebuild Every 3 Years)	Traveling Screen #1 (\$100,000 Rebuild Every 3 Years)	2020	\$100,000
LS Pump #2 Pump Maintenance	LS Pump #2 Pump Maintenance	2020	\$30,000

**TABLE E.1 (continued)**  
**Water Master Plan Compiled Project List**

<i>Project Name</i>	<i>Project Description</i>	<i>Project Year</i>	<i>Total Project Cost</i>
LS Pump #5 Pump Maintenance	LS Pump #5 Pump Maintenance	2020	\$30,000
Dredging in front of Intake Structure (Approx. \$100,000/YR.)	Dredging in front of Intake Structure (Approx. \$100,000/YR.)	2020	\$100,000
Rehabilitation of small building and deep pipe/valve vault	Rehabilitation of small building and deep pipe/valve vault of North Sludge Station / Electrical Building	2020	\$25,000
Replacement of Electrical Components	Replacement of Electrical Components in North Sludge Station / Electrical Building	2020	\$30,000
Rehabilitation of South Sludge Pump Station (Stairs, Hatches, Floc/Sed No. 3 Needs)	Rehabilitation of South Sludge Pump Station (Stairs, Hatches, Floc/Sed No. 3 Needs)	2020	\$340,000
Additional Sump Pump Installation	Additional Sump Pump Installation in South Sludge Pump Station	2020	\$1,350
Media Replacement Filters 13-20 (8 filters)	Media Replacement Filters 13-20 (8 filters)	2020	\$133,200
Underdrain Replacement Filters 13-20 HDPE Blocks (8 filters)	Underdrain Replacement Filters 13-20 HDPE Blocks (8 filters)	2020	\$359,200
Filters 1-12 Membrane Filtration Retrofit	Filters 1-12 Membrane Filtration Retrofit	2020	\$2,250,000
Filters 1-12 Building Upper Floor Coating/Rehab.	Filters 1-12 Building Upper Floor Coating/Rehab.	2020	\$10,000
Filters 1-12 Pipe Gallery Demo for Membrane Retrofit/Relocate 1.5 MG Vent	Filters 1-12 Pipe Gallery Demo for Membrane Retrofit/Relocate 1.5 MG Vent	2020	\$50,000
Filters 1-20 Building Dehumidification Improvements	Filters 1-20 Building Dehumidification Improvements	2020	\$93,750
Filters 29-32 Building Dehumidification Improvements	Filters 29-32 Building Dehumidification Improvements	2020	\$68,750
Filters 29-32 Pipe Gallery Coatings/Stairs/Rehab.	Filters 29-32 Pipe Gallery Coatings/Stairs/Rehab.	2020	\$60,000
Replacement of Electrical Components	Replacement of Electrical Components in Filter Buildings and Pipe Galleries	2020	\$20,000
New 6.0 MG Clearwell and HSP Station #4	New 6.0 MG Clearwell and HSP Station #4	2020	\$6,100,000
Support Piles (Auger Cast up to 75-ft. deep anticipated) for Clearwell	Support Piles (Auger Cast up to 75-ft. deep anticipated) for Clearwell	2020	\$800,000
Circuit Breaker Replacement	Circuit Breaker Replacement	2020	\$420,000
Rehab/Maintain Generators	Rehab/Maintain Generators	2020	\$125,000
Replace Wiring Throughout Facility	Replace Wiring Throughout Facility	2020	\$100,000
Upper Mt Vernon - Phase I and Red Bank	Upper Mt Vernon from Vanness to Red Bank; Red Bank from Upper Mt. Vernon to New Harmony (3,500' of 8"; 10,600' of 16")	2021	\$4,968,000
Reichman Rd Neighborhood	Reichman, Muensterman, Easy, and Hartig south of Wimberg (3,600' of 8")	2021	\$590,000
Lakeview Blvd	Lakeview from Harmony to Golfmoor (760' of 8"; 1,090' of 16")	2021	\$569,000
Harmony - Phase I	Harmony from Mt. Vernon to Maryland (1,320' of 8")	2021	\$295,000
Ohio west of Pigeon Creek	Ohio from Pigeon Creek to St. Joseph and south on Broadway for 900' (3,620' of 12")	2021	\$5,069,000
Park St	Park from Florida to Shanklin (680' of 8"; 580' of 12")	2021	\$360,000
Allens Ln	Allens from Fulton to 1st (2,050' of 16")	2021	\$1,044,000
Senate Ave	Petersburg from Stringtown to Senate, Senate from Campground to dead end, then along southern edge of golf course (3,070' of 8"; 680' of 12"; 5,380' of 24"; 500' of 36")	2021	\$3,877,000
Area bounded by Kentucky, SR 66, and US 41	Residential and commercial area bounded by Kentucky, SR 66, and US 41 (10' of 4"; 13,760' of 8")	2021	\$829,000
Dead end main east of Evans and north from Louisiana	Parking lot east of Evans from Louisiana north to dead end (1,330' of 12")	2021	\$333,000
Division St	Division from Governor to Canal and Canal from Division to US 41 (40' of 8"; 200' of 20"; 5,220' of 30")	2021	\$5,564,000
Washington Ave - Phase I	Washington from Garvin to Lodge (4,090' of 8"; 1,470' of 12")	2021	\$1,268,000
Neighborhood of Covert, Vann, Graham, and Hawthorne	Residential area bounded by Covert, Vann, Graham, and Hawthorne (770' of 4"; 8,900' of 8")	2021	\$1,760,000
Inglefield Rd	Inglefield between Darmstadt and Warner for approx 1300' (1,310' of 12")	2021	\$252,000
Cemetery Rd	Cemetery for approx 1000' south of Baseline (980' of 12")	2021	\$202,000
Covert Rd	Covert from Thompson to Greenfield (1,550' of 8")	2021	\$260,000
Inglefield	Inglefield approx 1500 ft east of Darmstadt (1,580' of 12")	2021	\$308,000
Campground Booster Station Pump Addition	Add additional pump to meet projected demand growth and facilitate future pump replacements	2021	\$168,000
Killian Booster Station Pump Replacement	Replace pumps that have exceeded intended service life	2021	\$685,000
Weinhach Booster Station Structural Repair	Minor repairs to cracking concrete masonry walls	2021	\$95,000
Traveling Screen #2 (\$100,000 Rebuild Every 3 Years)	Traveling Screen #2 (\$100,000 Rebuild Every 3 Years)	2021	\$100,000
LS Pump #1 Pump Maintenance	LS Pump #1 Pump Maintenance	2021	\$30,000



**TABLE E.1 (continued)**  
**Water Master Plan Compiled Project List**

<i>Project Name</i>	<i>Project Description</i>	<i>Project Year</i>	<i>Total Project Cost</i>
LS Pump #4 Pump Maintenance	LS Pump #4 Pump Maintenance	2021	\$30,000
Dredging in front of Intake Structure (Approx. \$100,000/YR.)	Dredging in front of Intake Structure (Approx. \$100,000/YR.)	2021	\$100,000
Replace South Pri. and Sec. Sed. Basin 1 & 2 Equip. (4 tanks)	Replace South Pri. and Sec. Sed. Basin 1 & 2 Equip. (4 tanks)	2021	\$1,490,000
Coat Equipment in all South Pri./Sec. Basins (6 tanks)	Coat Equipment in all South Pri./Sec. Basins (6 tanks)	2021	\$90,000
Replacement of Electrical Components	Replacement of Electrical Components in South Primary / Secondary Sedimentation Basins	2021	\$30,000
Media Replacement Filters 13-20 (8 filters)	Media Replacement Filters 13-20 (8 filters)	2021	\$133,200
Underdrain Replacement Filters 13-20 HDPE Blocks (8 filters)	Underdrain Replacement Filters 13-20 HDPE Blocks (8 filters)	2021	\$359,200
Filters 13-20 Building Upper Floor Coating/Rehab.	Filters 13-20 Building Upper Floor Coating/Rehab.	2021	\$20,000
Filters 13-20 Pipe Gallery Coatings/Rehab/Replace	Filters 13-20 Pipe Gallery Coatings/Rehab/Replace	2021	\$80,000
Filters 21-28 Pipe Gallery Coatings/Rehab.	Filters 21-28 Pipe Gallery Coatings/Rehab.	2021	\$60,000
Filters 33-36 Building Dehumidification Improvements	Filters 33-36 Building Dehumidification Improvements	2021	\$68,750
Replacement of Electrical Components	Replacement of Electrical Components in Filter Buildings and Pipe Galleries	2021	\$20,000
Reline/Rehab Piping from Tanks to Filters	Reline/Rehab Piping from Tanks to Filters in Filter Backwash System	2021	\$400,000
New Waste Stream Treatment and Residuals Handling Facility	New Waste Stream Treatment and Residuals Handling Facility	2021	\$34,300,000
Chemical Grout Injection to Repair Existing 6.5 MG Clearwell Concrete	Chemical Grout Injection to Repair Existing 6.5 MG Clearwell Concrete	2021	\$150,000
Circuit Breaker Replacement	Circuit Breaker Replacement	2021	\$420,000
Replace Wiring Throughout Facility	Replace Wiring Throughout Facility	2021	\$100,000
Big Cynthiana - Phase I	Big Cynthiana from Kasson to Char Mar (3,290' of 8")	2022-2026	\$542,000
Hogue Road - Phase II, Vanness and Red Bank	Red Bank from Upper Mt Vernon to Hogue; Hogue from Red Bank to Vanness; Vanness from Hogue to Upper Mt Vernon (500' of 8"; 5,160' of 12")	2022-2026	\$1,753,000
Speaker Rd, James Ave, Nolan Ave	Speaker from Broadway to Nolan; Nolan and James west from Speaker to dead end (2,800' of 8")	2022-2026	\$160,000
Broadway Ave - Phase II	Broadway from Irvington to Claremont (5,230' of 8"; 4,110' of 12")	2022-2026	\$4,390,000
Lloyd Ex west of Pigeon Creek	Tekoppel from Edgewood to Lloyd and Lloyd from Tekoppel to Wabash (2,500' of 8"; 3,720' of 12"; 5,130' of 20"; 250' of 24")	2022-2026	\$4,794,000
Mount Vernon Rd	Upper Mt Vernon from Vanness to Mt Vernon; Mt Vernon from Upper Mt Vernon to Michigan; Rheinland north from Mt Vernon to dead end (2,580' of 8"; 8,250' of 16")	2022-2026	\$3,779,000
Golfmoor Rd and Schoenfield Ave	Schoenfield east from Harmony to dead end, along Golfmoor to Hess, Hess to Iowa (430' of 8"; 4,990' of 24")	2022-2026	\$2,892,000
Mesker Park - Phase II	Mesker Park from Diamond to Wimberg, plus 700' past Wimberg (2,380' of 8"; 810' of 12")	2022-2026	\$817,000
Maryland Ave and Buchanan Rd	Maryland from St Joseph, under Pigeon Creek, to Fulton; Buchanan north from Maryland to St Joseph (4,870' of 8"; 2,630' of 12")	2022-2026	\$1,097,000
9th Ave, Franklin St, and Michigan St	9th from Ohio to Maryland; Michigan and Franklin from 12th east to dead end (820' of 8"; 3,200' of 12"; 2,220' of 16"; 4,330' of 20")	2022-2026	\$4,567,000
2nd and 3rd Ave	Tennessee from Fulton to 1st; 2nd and 3rd from Indiana to Tennessee (9,570' of 8"; 940' of 12"; 5,000' of 24"; 7,260' of 36")	2022-2026	\$10,632,000
Grove St and Florida St	Grove from Shanklin to Florida and Florida from Grove to 7th (1,160' of 8"; 550' of 12")	2022-2026	\$650,000
Neighborhood of Lloyd, Governor, Walnut, and Martin Luther King Jr	Area bounded by Lloyd, Governor, Walnut, and Martin Luther King Jr (10,170' of 8"; 4,950' of 12"; 1,920' of 16"; 280' of 20"; 4,400' of 30")	2022-2026	\$6,587,000
Morgan Ave - Phase II	Morgan from Heidelhack to Read and Read from Morgan north 900' (1,770' of 8"; 2,010' of 12")	2022-2026	\$654,000
Neighborhood of Buena Vista, 1st, and Pigeon Creek	Residential area bounded by Buena Vista, 1st, and Pigeon Creek (110' of 4"; 25,170' of 8")	2022-2026	\$1,609,000
Neighborhood of 1st, Stringtown, and Mill	Residential area bounded by 1st, Stringtown, and Mill (490' of 4"; 27,090' of 8")	2022-2026	\$4,299,000
Old State - Phase I	Old State from Mt. Ashley south 2600' (2,510' of 12")	2022-2026	\$870,000
Neighborhood of Oak Hill, St. George, and the airport	Residential area bounded by Oak Hill, St. George, and the airport (5,100' of 8"; 5,320' of 16")	2022-2026	\$2,947,000
US 41 and Lynch Rd	US 41 from St. George to Lynch; Lynch from Hitch Peters to Kentucky (4,260' of 8"; 6,220' of 12"; 6,380' of 16")	2022-2026	\$16,675,000
Morgan Ave - Phase III and Residential area	Area bounded by Diamond, Business 41, Morgan, and Stringtown, including Morgan and Stringtown (17,570' of 8"; 6,580' of 12"; 2,950' of 20")	2022-2026	\$8,660,000

**TABLE E.1 (continued)**  
**Water Master Plan Compiled Project List**

Project Name	Project Description	Project Year	Total Project Cost
Columbia - Phase I	Fares from Morgan to Columbia, Columbia from Fares to Governor, Governor from Columbia to Louisiana (3,320' of 8"; 3,970' of 12"; 1,680' of 20")	2022-2026	\$2,918,000
Downtown area on 1st Ave and 2nd Ave	1st and 2nd from Chandler to Riverside; Monroe, Jackson, Taylor, Parrett, Judson, and Culver from Riverside to Madison (12,030' of 8"; 450' of 20")	2022-2026	\$2,749,000
Neighborhood of Riverside, Governor, and Ohio River	Residential area bounded by Riverside, Governor, and Ohio River (5,060' of 8")	2022-2026	\$1,068,000
Neighborhood of Riverside, Bedford, Bayse, and Linwood	Area bounded by Riverside, Bedford, Bayse, and Linwood (7,410' of 8"; 1,430' of 12")	2022-2026	\$1,693,000
Neighborhood of Seale, Gilbert, Bayse, and Kerth	Area bounded by Seale, Gilbert, Bayse, and Kerth; New York from Riverside to Seale (9,450' of 8")	2022-2026	\$1,760,000
Kentucky - Phase I	Kentucky from Covert to Adams (2,320' of 12")	2022-2026	\$632,000
Neighborhood of Lloyd, Boeke, Lincoln, and Weinbach	Residential area bounded by Lloyd, Boeke, Lincoln, and Weinbach (21,480' of 8")	2022-2026	\$3,722,000
Stockwell Rd	Stockwell from Indiana to Morgan (4,460' of 12")	2022-2026	\$1,097,000
Bergdot Rd	Bergdot from O'Hara to Oak Hill (2,030' of 4"; 1,280' of 12")	2022-2026	\$480,000
Green River - Phase I	Green River from Lloyd to Lincoln (2,150' of 16")	2022-2026	\$932,000
Neighborhood of Riverside, Villa, Rheinhardt, and Boeke	Residential area bounded by Riverside, Villa, Rheinhardt, and Boeke, including Villa and Rheinhardt (8,690' of 8")	2022-2026	\$1,720,000
Neighborhood of Newburgh, Fuquay, Covert, and Southfield	Residential area bounded by Newburgh, Fuquay, Covert, and Southfield, including Southfield (340' of 4"; 18,290' of 8")	2022-2026	\$3,060,000
Schmuck Rd	Schmuck from Bayou Creek to Hahns (3,200' of 8")	2022-2026	\$407,000
W Franklin St	West Franklin south of Old Mt Vernon approx 2400' (2,400' of 8")	2022-2026	\$314,000
Broadway Ave	Broadway between Posey County Line and Old Mt Vernon (2,800' of 12")	2022-2026	\$524,000
Hirsh Rd	Hirsch between Green River and Burkhardt; Green River and Burkhardt for approx 600' south of Hirsch (6,630' of 12")	2022-2026	\$1,287,000
Pollack Ave II	Pollack from Calf to Eastland (3,620' of 12")	2022-2026	\$762,000
Rollett Ln	Rollett south of Broadway to dead end (1,520' of 8")	2022-2026	\$268,000
Neighborhood of Westmore, Raintree and Marigold north of Hogue	Westmore, Raintree and Marigold north of Hogue to dead end (2,890' of 8")	2022-2026	\$449,000
Haven, Meadow Lark, Caren, and Magnolia	Haven, Meadow Lark, Caren, and Magnolia west of Red Bank (5,410' of 8")	2022-2026	\$913,000
Robin Hood Dr	Robin Hood south of New Harmony to dead end (740' of 8")	2022-2026	\$257,000
Division St	Division for approx 1500 ft between Vann and Stockwell (1,480' of 16")	2022-2026	\$623,000
Shady Vista	Shady Vista from Lant to Brookside (330' of 8")	2022-2026	\$209,000
New York Ave	New York from Bayse to Riverside (2,120' of 8")	2022-2026	\$339,000
Haven Rd	Haven from Keck to Wedeking (690' of 8")	2022-2026	\$210,000
Willemette Rd	Willemette south of Diamond to dead end (140' of 8")	2022-2026	\$145,000
Elmridge Ave	Elmridge from Oak Hill to Oak Ter (510' of 8")	2022-2026	\$194,000
Rode Rd	Rode from Memory to Oak Hill (1,470' of 8")	2022-2026	\$308,000
Whetstone Ln	Whetstone west from Oak Hill approx 600 ft (620' of 8")	2022-2026	\$204,000
Bellaire Rd	Bellaire from Oak Hill to Weinbach (840' of 8")	2022-2026	\$237,000
Telephone Rd	Telephone for approx 1600' west of dead end at airport (1,570' of 8")	2022-2026	\$319,000
Erskine Rd	Erskine north from Kansas to dead end; SE Browning from Peterburg to Kansas (3,210' of 8")	2022-2026	\$534,000
Campground Booster Station Pump Replacement	Replace pumps that have exceeded intended service life	2022-2026	\$368,000
First Avenue Booster Station Pump Addition	Add additional pump to meet projected demand growth and facilitate future pump replacements	2022-2026	\$165,000
Ward Road Booster Station Replacement	Replace aging booster station to meet projected demand growth	2022-2026	\$1,582,000
Traveling Screen #1 (\$100,000 Rebuild Every 3 Years)	Traveling Screen #1 (\$100,000 Rebuild Every 3 Years)	2022-2026	\$200,000
Traveling Screen #2 (\$100,000 Rebuild Every 3 Years)	Traveling Screen #2 (\$100,000 Rebuild Every 3 Years)	2022-2026	\$100,000
Traveling Screen #3 (\$100,000 Rebuild Every 3 Years)	Traveling Screen #3 (\$100,000 Rebuild Every 3 Years)	2022-2026	\$20,000
LS Pump #1 Pump Maintenance	LS Pump #1 Pump Maintenance	2022-2026	\$30,000
LS Pump #2 Pump Maintenance	LS Pump #2 Pump Maintenance	2022-2026	\$30,000
LS Pump #3 Pump Maintenance	LS Pump #3 Pump Maintenance	2022-2026	\$30,000
LS Pump #4 Pump Maintenance	LS Pump #4 Pump Maintenance	2022-2026	\$30,000

**TABLE E.1 (continued)**  
**Water Master Plan Compiled Project List**

<i>Project Name</i>	<i>Project Description</i>	<i>Project Year</i>	<i>Total Project Cost</i>
LS Pump #5 Pump Maintenance	LS Pump #5 Pump Maintenance	2022-2026	\$30,000
LS Pump #6 Pump Maintenance	LS Pump #6 Pump Maintenance	2022-2026	\$30,000
Dredging in front of Intake Structure (Approx. \$100,000/YR.)	Dredging in front of Intake Structure (Approx. \$100,000/YR.)	2022-2026	\$500,000
Duplex Air Compressor Replacement	Duplex Air Compressor Replacement in Intake and Low Service Pumping	2022-2026	\$8,100
Pneumatic Actuator Rehabilitation	Pneumatic Actuator Rehabilitation in Intake and Low Service Pumping	2022-2026	\$5,400
IIS Pump #4 Pump Maintenance	IIS Pump #4 Pump Maintenance	2022-2026	\$250,000
HS Pump #5 Pump Maintenance	HS Pump #5 Pump Maintenance	2022-2026	\$250,000
HS Pump #8 Pump Maintenance	HS Pump #8 Pump Maintenance	2022-2026	\$250,000
HS Pump #10 Pump Maintenance	HS Pump #10 Pump Maintenance	2022-2026	\$250,000
HS Pump #10 Motor	HS Pump #10 Motor	2022-2026	\$70,000
Coating of High Service Pump Station #3 Piping/Equipment	Coating of High Service Pump Station #3 Piping/Equipment	2022-2026	\$40,000
HVAC System Rehab (Exhaust Fans, Louvers, Dampers, Etc)	HVAC System Rehab (Exhaust Fans, Louvers, Dampers, Etc) in High Service Pump Station	2022-2026	\$81,000
North Settling Basin No. 1 (Costs Includes Replacing Scrapers)	North Settling Basin No. 1 (Costs Includes Replacing Scrapers)	2022-2026	\$300,000
North Settling Basin No. 2 (Costs Includes Replacing Scrapers)	North Settling Basin No. 2 (Costs Includes Replacing Scrapers)	2022-2026	\$300,000
Floc. Unit Replacement	Floc. Unit Replacement	2022-2026	\$360,000
North Basin Variable Speed Rapid Mixer	North Basin Variable Speed Rapid Mixer	2022-2026	\$100,000
Coating of All Tanks/Channel Walls/Floors/Troughs	Coating of All Tanks/Channel Walls/Floors/Troughs in North Flocculation / Sedimentation Basins / Rapid Mix / Sec Sed Basins / Flume	2022-2026	\$1,300,000
Coating of support beams/handrail	Coating of support beams/handrail in North Flocculation / Sedimentation Basins / Rapid Mix / Sec Sed Basins / Flumes	2022-2026	\$20,000
Flumes - Concrete Rehab, Replacement Walkways, and Coating	Flumes - Concrete Rehab, Replacement Walkways, and Coating	2022-2026	\$290,000
Replacement of 30" x 30" Sluice Gates (Floc. Structure)	Replacement of 30" x 30" Sluice Gates (Floc. Structure)	2022-2026	\$150,000
Replacement of 48" x 48" Sluice Gates (Primary Sed Basins)	Replacement of 48" x 48" Sluice Gates (Primary Sed Basins)	2022-2026	\$70,000
Replacement of Slide Gates (Inlets to Sec. Sed. Basins)	Replacement of Slide Gates (Inlets to Sec. Sed. Basins)	2022-2026	\$100,000
Replacement of Motor Control Cente	Replacement of Motor Control Center in North Flocculation / Sedimentation Basins / Rapid Mix / Sec Sed Basins / Flumes	2022-2026	\$150,000
South Pri. and Sec. Sed. Basin Expansion (New 3rd Set)	South Pri. and Sec. Sed. Basin Expansion (New 3rd Set)	2022-2026	\$5,700,000
Media Replacement Filters 21-28 (8 filters)	Media Replacement Filters 21-28 (8 filters)	2022-2026	\$1,322,000
Underdrain Replacement Filters 21-28 HDPE Blocks (8 filters)	Underdrain Replacement Filters 21-28 HDPE Blocks (8 filters)	2022-2026	\$3,564,000
Replace Washwater Pump in 1.5 MG Clearwell	Replace Washwater Pump in 1.5 MG Clearwell	2022-2026	\$60,000
Ammonium Hydroxide	Ammonium Hydroxide	2022-2026	\$50,000
Gaseous Chlorine - Install Chlorinators (EWSU Already Purchased)	Gaseous Chlorine - Install Chlorinators (EWSU Already Purchased)	2022-2026	\$35,000
Flood Pump Maintenance (Two -100 HP Vert. Turbines on VFDs)	Flood Pump Maintenance (Two -100 HP Vert. Turbines on VFDs)	2022-2026	\$30,000
Replacement of Electrical Components	Replacement of Electrical Components	2022-2026	\$20,000
*Sludge Hauling/Management Vehicles	*Sludge Hauling/Management Vehicles	2022-2026	\$400,000
Decommissioning and Removal of Abandoned Equipment	Decommissioning and Removal of Abandoned Equipment	2022-2026	\$1,000,000
Office and Headhouse Improvements	Office and Headhouse Improvements	2022-2026	\$100,000
Lab Expansion and Improvements	Lab Expansion and Improvements	2022-2026	\$200,000
Diesel Storage Tanks for 3-day Supply w/ Conditioning System (Two 5000 Gal Tanks)	Diesel Storage Tanks for 3-day Supply w/ Conditioning System (Two 5000 Gal Tanks)	2022-2026	\$62,500
Demo Old Fuel Tanks, Containment Area, and All Piping	Demo Old Fuel Tanks, Containment Area, and All Piping	2022-2026	\$200,000
Peerless Rd	Upper Mt Vernon from West Wind to Peerless and Peerless from Upper Mt Vernon to Moya (4,020' of 12"; 800' of 16")	2027-2031	\$1,424,000
Marlene Dr	Marlene north from Hogue to dead end (1,230' of 8")	2027-2031	\$219,000
Boehne Camp Rd	Boehne Camp north from Hogue to dead end (2,300' of 8")	2027-2031	\$382,000
Neighborhood of Broadway between Felstead and Hillside	Residential area north of Broadway between Felstead and Hillside (15,080' of 8")	2027-2031	\$3,143,000
Broadway Ave - Phase III	Nurehbern from Lyle to Red Bank. Red Bank fro Nurehbern to Broadway. Broadway from Red Bank to Tekoppel (10,010' of 8"; 2,720' of 12")	2027-2031	\$2,203,000
Neighborhood of Broadway, Tekoppel, and rail yard	Residential area bounded by Broadway, Tekoppel, and rail yard (14,480' of 8")	2027-2031	\$3,217,000

**TABLE E.1 (continued)**  
**Water Master Plan Compiled Project List**

Project Name	Project Description	Project Year	Total Project Cost
Claremont, Bosse, and Craig Aves	Claremont from Bosse to Dreier; Banker from Claremont to Dennison; Craig north of Claremont to dead end; Bosse from Schaefer to Claremont (4,150' of 8"; 3,120' of 12")	2027-2031	\$2,150,000
Neighborhood of Mt Vernon, Maine, Lloyd, and Tekoppel	Residential area bounded by Mt Vernon, Maine, Lloyd, and Tekoppel (460' of 4"; 20,930' of 8"; 1,400' of 12")	2027-2031	\$4,674,000
Neighborhood north of Upper Mt Vernon from Craig to Helfrich	Residential area north of Upper Mt Vernon from Craig to Helfrich; Genesta and Terrace north from Clement to dead end (6,310' of 8")	2027-2031	\$1,219,000
Mesker Park - Phase III	Golfmoor from Sonntag along southern edge of golf course to Mesker Park; Mesker Park from St Joseph to Bement; Bement from Mesker Park to St Joseph (6,490' of 8")	2027-2031	\$1,083,000
St. Joseph Ave - Phase I	St Joseph from Mill to Mohr (9,090' of 12")	2027-2031	\$2,059,000
Neighborhood of Crossgate, Fulton, Mill, and Kratzville	Residential area bounded by Crossgate, Fulton, Mill, and Kratzville, including Crossgate (370' of 4"; 5,110' of 8")	2027-2031	\$1,049,000
Residential area on Idlewild and Allens west of 1st Ave	Idlewild and Allens from Fulton to 1st (6,860' of 8"; 50' of 12"; 2,090' of 16")	2027-2031	\$2,138,000
Neighborhood of Mill, Stringtown, Buena Vista, and 1st	Residential area between Mill, Stringtown, Buena Vista, and 1st (20,780' of 8")	2027-2031	\$4,139,000
Neighborhood of Mt Pleasant, Old State, Evergreen, and Darmstadt	Residential area between Mt Pleasant, Old State, Evergreen, Darmstadt, including Mt Pleasant; Whispering Tree and Wind north of Mt Pleasant (1,820' of 4"; 21,960' of 8")	2027-2031	\$3,775,000
Petersburg Rd and US 41	US 41 from Petersburg to Mt Pleasant; Petersburg from Northfield to approx 1000' east of US 41 (9,060' of 12"; 4,400' of 20"; 9,450' of 36")	2027-2031	\$12,557,000
St George - Phase II	St George from Kentucky to Hitch Petes; Faress from St George north approx 1300' (4,030' of 8"; 7,140' of 24"; 450' of 30")	2027-2031	\$5,968,000
Mill - Phase I	Mill from Weaver to approx 750' west of Stringtown; Weaver from Hesmer to approx 400' north of Mill (3,960' of 8")	2027-2031	\$674,000
Neighborhood of Stringtown and Negley	Residential area bounded by Pigeon Creek, Stringtown, and Negley, excluding Heidelbach and Olmstead which were recently replaced (14,690' of 8"; 80' of 12")	2027-2031	\$3,099,000
Neighborhood of Diamond, Stringtown, Morgan, and Read	Residential area bounded by Diamond, Stringtown, Morgan, and Read, excluding recently replaced Main from Wedeking to Richardt (14,530' of 8"; 110' of 12")	2027-2031	\$3,304,000
Neighborhood of Morgan, Read, Louisiana, and 1st	Area bounded by Morgan, Read, Louisiana, and 1st (6,300' of 8")	2027-2031	\$1,377,000
Neighborhood of 1st, Dresden, and Fulton	Area bounded by Pigeon Creek, 1st, Dresden, and Fulton (4,320' of 8"; 890' of 12"; 900' of 30")	2027-2031	\$1,645,000
Fulton Ave	Fulton from Franklin to Shanklin (4,300' of 20")	2027-2031	\$2,143,000
Franklin Ave and 1st Ave east of Pigeon Creek	Franklin from Pigeon Creek to 5th; Illinois from 7th to 5th (950' of 16"; 2,170' of 20")	2027-2031	\$1,455,000
Neighborhood of Franklin, Main, Division, and 2nd	Area bounded by Franklin, Main, Division, and 2nd, including Division; Harriet from Franklin to Columbia, Columbia from Harriet to Edgar (11,240' of 8"; 1,560' of 12"; 1,000' of 16"; 440' of 24")	2027-2031	\$3,360,000
Neighborhood of 4th, Chandler, 1st, and 5th	Area bounded by 4th, Chandler, 1st, and 5th, including 4th; Liberty from 4th to Governor; Parrett from Chandler to Adams (6,640' of 8"; 1,380' of 16"; 750' of 20"; 4,510' of 24")	2027-2031	\$4,975,000
Virginia Ave and Oak Hill Rd east of US 41	Canal from US 41 to Virginia, Virginia/Oak Hill from Canal to Weinbach, Weinbach from Oak Hill to Morgan (260' of 8"; 6,380' of 30")	2027-2031	\$4,363,000
Neighborhood of Virginia/Oak Hill, Weinbach, Division, and US 41	Residential area bounded by Virginia/Oak Hill, Weinbach, Division, and US 41, excluding Willow (18,880' of 8")	2027-2031	\$2,388,000
Neighborhood of Lincoln, Boeke, Washington, and Weinbach	Residential area bounded by Lincoln, Boeke, Washington, and Weinbach (21,300' of 8")	2027-2031	\$4,760,000
Neighborhood of Covert, Boeke, Pollack, and Weinbach	Residential area bounded by Covert, Boeke, Pollack, and Weinbach (640' of 4"; 21,390' of 8")	2027-2031	\$4,430,000
Neighborhood of Welworth and Roosevelt	Residential area bounded by Pigeon Creek, Welworth, and Roosevelt (220' of 4"; 12,160' of 8")	2027-2031	\$3,104,000
S Boehne Camp Rd	Boehne Camp south of Upper Mt Vernon for approx 950' (950' of 8")	2027-2031	\$134,000
Indiana Ave	Indiana west of Barker for approx 180' (180' of 8")	2027-2031	\$35,000
Seven Hills/Volkman Rd	Seven Hills/Volkman from Cambridge Village to Old Hwy 57 (17,790' of 12")	2027-2031	\$3,324,000
Green River	Green River from Daylight to 57 (1,420' of 12")	2027-2031	\$300,000
Cross Pointe Blvd	Cross Pointe from Indiana to Eagle Creek (930' of 12")	2027-2031	\$767,000
Kern and Laurel	Kern and Laurel north of New Harmony to dead end (1,810' of 8")	2027-2031	\$300,000
Harmony - Phase II	Harmony from Rodenberg to Maryland; Maryland from Harmony to Albert; Albert south of Maryland to dead end (1,430' of 8"; 3,030' of 16")	2027-2031	\$1,442,000
Eine Ave	Main west of Eine, north from Washington to dead end (1,150' of 8")	2027-2031	\$269,000

**TABLE E.1 (continued)**  
**Water Master Plan Compiled Project List**

Project Name	Project Description	Project Year	Total Project Cost
Lincoln Ave - Phase I	Lincoln from Villa to Trinity (1,880' of 8"; 790' of 12"	2027-2031	\$507,000
Carlton Ave	Carlton from Lake to Capitol (640' of 8")	2027-2031	\$205,000
Eichel Rd	Eichel from 7th to 5th; 5th from Eichel to Florida (2,190' of 8")	2027-2031	\$400,000
Meyer Rd	Meyer east of 1st to dead end (590' of 8")	2027-2031	\$200,000
Rosewood St	Rosewood from Weaver to Fall Creek; Walden from Hermann east to dead end (940' of 8")	2027-2031	\$244,000
SR57 from Kansas Rd	57 north from Kansas for approx 1700' (1,730' of 12")	2027-2031	\$943,000
Barker St	Barker from Stinson to Cumberland (1,500' of 8")	2027-2031	\$198,000
Mill St	Mill from Ivy to Norbourne (280' of 8")	2027-2031	\$47,000
Stallings Booster Station Replacement	Replace aging hooster station to meet projected demand growth	2027-2031	\$4,174,000
Campground Reservoir Replacement	Replace 100-year old concrete reservoir	2027-2031	\$14,392,000
Traveling Screen #1 (\$100,000 Rebuild Every 3 Years)	Traveling Screen #1 (\$100,000 Rebuild Every 3 Years)	2027-2031	\$100,000
Traveling Screen #2 (\$100,000 Rebuild Every 3 Years)	Traveling Screen #2 (\$100,000 Rebuild Every 3 Years)	2027-2031	\$200,000
Traveling Screen #3 (\$100,000 Rebuild Every 3 Years)	Traveling Screen #3 (\$100,000 Rebuild Every 3 Years)	2027-2031	\$100,000
LS Pump #1 Pump Maintenance	LS Pump #1 Pump Maintenance	2027-2031	\$30,000
LS Pump #2 Pump Maintenance	LS Pump #2 Pump Maintenance	2027-2031	\$30,000
LS Pump #2 Motor/Drive	LS Pump #2 Motor/Drive	2027-2031	\$140,000
LS Pump #3 Pump Maintenance	LS Pump #3 Pump Maintenance	2027-2031	\$30,000
LS Pump #4 Pump Maintenance	LS Pump #4 Pump Maintenance	2027-2031	\$30,000
LS Pump #4 Motor/Drive	LS Pump #4 Motor/Drive	2027-2031	\$140,000
LS Pump #5 Pump Maintenance	LS Pump #5 Pump Maintenance	2027-2031	\$30,000
LS Pump #5 Motor/Drive	LS Pump #5 Motor/Drive	2027-2031	\$140,000
LS Pump #6 Pump Maintenance	LS Pump #6 Pump Maintenance	2027-2031	\$30,000
Dredging in front of Intake Structure (Approx. \$100,000/YR.)	Dredging in front of Intake Structure (Approx. \$100,000/YR.)	2027-2031	\$500,000
HVAC System Improvements in Intake and Low Service Pumping	HVAC System Improvements in Intake and Low Service Pumping	2027-2031	\$54,000
Media Replacement Filters 13-20 (8 filters)	Media Replacement Filters 13-20 (8 filters)	2027-2031	\$666,000
Media Replacement Filters 29-36 (8 filters)	Media Replacement Filters 29-36 (8 filters)	2027-2031	\$1,350,000
Underdrain Replacement Filters 29-36 IIDPE Blocks (8 filters)	Underdrain Replacement Filters 29-36 IIDPE Blocks (8 filters)	2027-2031	\$3,640,000
Alum (DelPAC 2020)	Alum (DelPAC 2020)	2027-2031	\$270,000
Fluoride	Fluoride	2027-2031	\$230,000
Caustic (Sodium Hydroxide)	Caustic (Sodium Hydroxide)	2027-2031	\$480,000
Carbon (PAC)	Carbon (PAC)	2027-2031	\$360,000
Upgrade SCADA System PCs, Software, and Programming	Upgrade SCADA System PCs, Software, and Programming	2027-2031	\$50,000
Intake and Low Service Roofing	Intake and Low Service Roofing	2027-2031	\$56,250
High Service Pump Station #2 Roofing	High Service Pump Station #2 Roofing	2027-2031	\$40,000
Boonville New Harmony Rd - Phase I and US 41	Boonville New Harmony from Tiharand to US 41 and US 41 from Boonville New Harmony to Radin (3,660' of 16"; 200' of 20"; 4,810' of 24")	2032-2036	\$4,515,000
Old State - Phase II	Old State from Wortman to Brookview (1,630' of 8"; 3,450' of 12")	2032-2036	\$902,000
N 1st Ave to Reservoir	1st from Colonial to Old Post; east into field to Old State, then south on Old State to Feltman (2,070' of 8"; 3,480' of 12"; 20' of 20"; 2,810' of 24"; 9,690' of 30"; 1,270' of 36")	2032-2036	\$10,002,000
Mill Rd and St Joseph Ave - Phase II	St Joseph from St Joseph Industrial Pk to Mill, Mill From St Joseph to approx 1100' past France (4,760' of 8"; 1,960' of 12")	2032-2036	\$1,137,000
Kasson Dr and Big Cynthiana - Phase II	Big Cynthiana from New Harmony to Kasson, Kasson from Big Cynthiana to dead end (7,880' of 8")	2032-2036	\$1,637,000
Wimberg Ave	Wimberg from Harmony to Mesker Park (2,800' of 8")	2032-2036	\$484,000
Neighborhood of Lloyd, Broadway, and Baker, including Baker	Residential and school area bounded by Lloyd, Broadway, and Baker, including Baker; excluding Hillcrest, Edgewood, and Marion, which were recently replaced (13,030' of 8"; 1,290' of 12")	2032-2036	\$2,384,000

**TABLE E.1 (continued)**  
**Water Master Plan Compiled Project List**

<i>Project Name</i>	<i>Project Description</i>	<i>Project Year</i>	<i>Total Project Cost</i>
Neighborhood north of Broadway including Stinson, Arlington, Tieman, and Delmar (3,030' of 8")	Residential area north of Broadway including Stinson, Arlington, Tieman, and Delmar (3,030' of 8")	2032-2036	\$600,000
Neighborhood of Maryland, Fulton, Franklin, and Pigeon Creek	Area bounded by Maryland, Fulton, Franklin, and Pigeon Creek (9,150' of 8"; 1,860' of 12")	2032-2036	\$1,678,000
Neighborhood of Division, 4th, Court, and Fulton	Area bounded by Division, 4th, Court, and Fulton, including Fulton (9,000' of 8"; 1,910' of 12"; 4,930' of 24"; 1,410' of 30")	2032-2036	\$5,244,000
Governor Phase I and Delaware	Delaware from Harriet to Governor, Governor from Delaware to Indiana (3,090' of 16"; 2,030' of 20")	2032-2036	\$2,424,000
Neighborhood of Walnut, Governor, Liberty, and 4th	Area bounded by Walnut, Governor, Liberty, and 4th, including Walnut (11,440' of 8"; 2,620' of 12"; 3,130' of 16")	2032-2036	\$3,282,000
Governor Phase II	Governor from Washington to Canal, Canal from Governor to Lloyd (3,020' of 16"; 3,940' of 24")	2032-2036	\$3,407,000
Riverside outside of WTP	Riverside from Sycamore to Judson; Shawnee, Sunset, Park, and Waterworks south of Riverside (3,030' of 8"; 100' of 12"; 2,400' of 16"; 1,130' of 20"; 260' of 24"; 12,380' of 30"; 300' of 36")	2032-2036	\$10,883,000
Downtown area between Washington, US 41, Riverside, and 2nd	Area bounded by Washington, US 41, Riverside, and 2nd, including Riverside (53,240' of 8"; 7,700' of 12"; 6,660' of 16"; 3,660' of 48")	2032-2036	\$16,828,000
Elliot and Morton Ave	Elliot south of Riverside to dead end; Garvin and Morton from Riverside to Sweetser (3,520' of 8")	2032-2036	\$644,000
Neighborhood of Lincoln, Lodge, Washington, and Kentucky,	Area bounded by Lincoln, Lodge, Washington, and Kentucky, including two mains under US 41 (19,030' of 8")	2032-2036	\$4,335,000
Neighborhood of Lincoln, Weinbach, Washington, and Rotherwood	Area bounded by Lincoln, Weinbach, Washington, and Rotherwood, including Rotherwood, excluding Bayard Park (13,080' of 8"; 50' of 12")	2032-2036	\$2,523,000
Neighborhood of Washington, Boeke, Covert, and Weinbach	Area bounded by Washington, Boeke, Covert, and Weinbach (22,630' of 8")	2032-2036	\$3,894,000
Neighborhood of Lloyd, Vann, Lincoln, and Boeke	Area bounded by Lloyd, Vann, Lincoln, and Boeke (22,830' of 8")	2032-2036	\$4,253,000
Neighborhood of Lincoln, Walnut, Washington, and Boeke	Area bounded by Lincoln, Walnut, Washington, and Boeke, including Washington (30,950' of 8")	2032-2036	\$5,215,000
Washington Ave - Phase II	Washington from Lodge to Dexter (6,970' of 12")	2032-2036	\$1,503,000
Covert Ave - Phase I	Covert from Fairlawn to Vann (3,530' of 8")	2032-2036	\$480,000
Neighborhood of Covert, Hawthorne, Pollack, and Boeke	Area bounded by Covert, Hawthorne, Pollack, and Boeke (15,850' of 8")	2032-2036	\$2,800,000
Martins Ln	Lincoln from Burkhardt to Martins, Martins from Burkhardt to Newburgh; Washington west of Martins to dead end; Adams east of Martins to dead end (8,480' of 8")	2032-2036	\$1,262,000
Neighborhood of Morgan and Weinbach	Area bounded by Pigeon Creek, Morgan, and Weinbach (4,480' of 8")	2032-2036	\$729,000
Kasson Dr	Kasson west of Mesker Park for approx 2300' (2,330' of 8")	2032-2036	\$307,000
Schenck and St Joseph	Schenck for approx 1600' east of St Joseph; St Joseph from Schenk to approx 1550' south of Fleener; Orchard for approx 2450' east of St Joseph (12,540' of 12")	2032-2036	\$2,438,000
Darmstadt Rd	Darmstadt for approx 430' south of Baseline; Baseline between Darmstadt and Princeton; Princeton for approx 800' south of Baseline (2,550' of 12")	2032-2036	\$507,000
Southeast Blvd	From Southeast to Powell (150' of 8")	2032-2036	\$39,000
New Harmony	New Harmony from Woodbridge to Korning (1,390' of 8")	2032-2036	\$212,000
Country Lake Dr	Country Lake from New Harmony to Meadow Circle (550' of 8")	2032-2036	\$107,000
Detroy	Detroy from Buena Vista to approx 300 ft east of US 41 (1,440' of 8")	2032-2036	\$707,000
Neighborhood of Stonegate, Kings Valley, and Woodcrest	Stonegate, Kings Valley, and Woodcrest west of Weaver (2,850' of 8")	2032-2036	\$444,000
Dead end east of Fuquay	Dead end main running east of Fuquay approx 430 ft south of Coventry (240' of 8")	2032-2036	\$59,000
Meade Ave	Meade from Lincoln to Walnut; Lincoln from Meade to Martins (1,760' of 8")	2032-2036	\$254,000
Oak Rd	Oak from Burkhardt to Greenfield; Bonnie View from Lincoln to Oak (1,480' of 8")	2032-2036	\$269,000
Optimist St	Optimist from Bismark to Auburn (3,110' of 8")	2032-2036	\$472,000
Vann Ave	Vann from Graham to Covert; Waggoner from Vann to Joyce; Conlin from Vann to Dalehaven; Diane and Lombard from Conlin to Pollack (6,850' of 8")	2032-2036	\$990,000
Madison	Madison from Henning to Lodge (680' of 8")	2032-2036	\$209,000
Covert Ave - Phase II and Wedge Ave	Wedge from US 41 to Covert; Covert from Wedge to Weinbach (3,920' of 8")	2032-2036	\$613,000
Cass and Ridgway	Cass and Ridgway from Henning to Lodge (1,280' of 8")	2032-2036	\$288,000
Riverside St	Riverside from approx 50 ft west of US 41 to Lodge (1,450' of 12")	2032-2036	\$388,000

**TABLE E.1 (continued)**  
**Water Master Plan Compiled Project List**

<i>Project Name</i>	<i>Project Description</i>	<i>Project Year</i>	<i>Total Project Cost</i>
Taylor Ave	Taylor from Harlan to Henning; Ravenswood from Wedge to Lodge (650' of 8")	2032-2036	\$207,000
Hartin Rd	Hartin west of Stringtown to dead end; Pfeiffer from Stringtown to Hermann (1,100' of 8"; 810' of 20")	2032-2036	\$724,000
Berry St	Berry from Koehler to Old Post (1,380' of 12")	2032-2036	\$379,000
Oak Hill Rd	Oak Hill north from Holiday approx 1060 ft (760' of 8"; 300' of 12")	2032-2036	\$162,000
Kansas Rd	Kansas east from Moffet approx 1300 ft (1,300' of 8")	2032-2036	\$173,000
Traveling Screen #1 (\$100,000 Rebuild Every 3 Years)	Traveling Screen #1 (\$100,000 Rebuild Every 3 Years)	2032-2036	\$200,000
Traveling Screen #2 (\$100,000 Rebuild Every 3 Years)	Traveling Screen #2 (\$100,000 Rebuild Every 3 Years)	2032-2036	\$100,000
Traveling Screen #3 (\$100,000 Rebuild Every 3 Years)	Traveling Screen #3 (\$100,000 Rebuild Every 3 Years)	2032-2036	\$200,000
LS Pump #1 Pump Maintenance	LS Pump #1 Pump Maintenance	2032-2036	\$30,000
LS Pump #2 Pump Maintenance	LS Pump #2 Pump Maintenance	2032-2036	\$30,000
LS Pump #3 Pump Maintenance	LS Pump #3 Pump Maintenance	2032-2036	\$30,000
LS Pump #3 Motor/Drive	LS Pump #3 Motor/Drive	2032-2036	\$140,000
LS Pump #4 Pump Maintenance	LS Pump #4 Pump Maintenance	2032-2036	\$30,000
LS Pump #5 Pump Maintenance	LS Pump #5 Pump Maintenance	2032-2036	\$30,000
LS Pump #6 Pump Maintenance	LS Pump #6 Pump Maintenance	2032-2036	\$30,000
LS Pump #6 Motor/Drive	LS Pump #6 Motor/Drive	2032-2036	\$140,000
Dredging in front of Intake Structure (Approx. \$100,000/YR.)	Dredging in front of Intake Structure (Approx. \$100,000/YR.)	2032-2036	\$500,000
HS Pump #4 Motor/Drive	HS Pump #4 Motor/Drive	2032-2036	\$140,000
HS Pump #5 Motor	HS Pump #5 Motor	2032-2036	\$70,000
HS Pump #6 Pump Maintenance	HS Pump #6 Pump Maintenance	2032-2036	\$250,000
HS Pump #7 Pump Maintenance	HS Pump #7 Pump Maintenance	2032-2036	\$250,000
HS Pump #8 Motor/Drive	HS Pump #8 Motor/Drive	2032-2036	\$250,000
HS Pump #9 Pump Maintenance	HS Pump #9 Pump Maintenance	2032-2036	\$250,000
Media Replacement Filters 21-28 (8 filters)	Media Replacement Filters 21-28 (8 filters)	2032-2036	\$1,322,000
Filters 13-20 Pipe Gallery Coatings/Rehab/Replace	Filters 13-20 Pipe Gallery Coatings/Rehab/Replace	2032-2036	\$20,000
Filters 21-28 Pipe Gallery Coatings/Rehab.	Filters 21-28 Pipe Gallery Coatings/Rehab.	2032-2036	\$40,000
Filters 29-32 Pipe Gallery Coatings/Stairs/Rehab.	Filters 29-32 Pipe Gallery Coatings/Stairs/Rehab.	2032-2036	\$20,000
Filters 33-34 Pipe Gallery Coatings/Rehab.	Filters 33-34 Pipe Gallery Coatings/Rehab.	2032-2036	\$20,000
Filters 35-36 Pipe Gallery Coatings/Rehab.	Filters 35-36 Pipe Gallery Coatings/Rehab.	2032-2036	\$20,000
Chlorine System Safety Equipment Upgrades	Chlorine System Safety Equipment Upgrades	2032-2036	\$200,000
*Sludge Hauling/Management Vehicles	*Sludge Hauling/Management Vehicles	2032-2036	\$400,000
Walnut, Park, and Campbell Rds	Walnut and Park north of Hillsdale to dead end; Campbell and Radio east of US 41 to dead end (10,600' of 8"; 180' of 12")	2037-2046	\$2,129,000
Greenbriar, Meadowview, Bujey, and Sunrise Drs	Greenbriar and Meadowview south of Evergreen; Bujey and Sunrise west from Old State to dead end; Old State from Evergreen to Bob Court (200' of 4"; 7,490' of 8"; 910' of 16")	2037-2046	\$1,688,000
Petersburg Rd and Heinlein Rd	Petersburg from Bussing to Heinlein; Heinlein from Petersburg to Manchester (1,660' of 8"; 2,220' of 12")	2037-2046	\$957,000
Spring Park Dr and Weaver Rd	Spring Park south of Senate to dead end; Weaver south of Senate approx 1500' (2,470' of 8")	2037-2046	\$368,000
Mill - Phase II, Fulton and Heerdink	Fulton from Buena Vista to Mill; Mill from Fulton to Stratford; Heerdink west of 1st to dead end (9,870' of 8")	2037-2046	\$1,530,000
Allens Ln - Phase II, Gibson, Huber, Hobart, Bower, 11th, and Eric	Kratzville from Hobart to Allens; Allens from Kratzville to 11th; Hobart, 6th, Bower, Park, Huber, and Gibson west of Kratzville (8,860' of 8"; 5,440' of 12")	2037-2046	\$3,890,000
Upper Mt Vernon - Phase II	Upper Mt Vernon from Red Bank to Brookside; Meadowbrook and Meadowdale south of Upper Mt Vernon to dead end (2,340' of 8"; 6,160' of 16")	2037-2046	\$2,778,000
Schutte Rd and Peerless Rd	Schutte from Pine Ridge to Lloyd; Peerless from Lloyd to Eichele; Williams and Autumn east of Peerless, Suls west of Peerless, Holly and Welling east of Schutte to dead end, Pine Ridge west of Schutte to dead end (200' of 4"; 18,360' of 8"; 8,350' of 12")	2037-2046	\$5,100,000

**TABLE E.1 (continued)**  
**Water Master Plan Compiled Project List**

<i>Project Name</i>	<i>Project Description</i>	<i>Project Year</i>	<i>Total Project Cost</i>
Selzer Rd	Selzer, Short Selzer, and Ridewood south of Broadway to dead end (7,080' of 8")	2037-2046	\$1,040,000
Tekoppel Ave	Tekoppel from Broadway to Edgewood (260' of 8"; 5,130' of 12")	2037-2046	\$1,018,000
South Barker Ave	Barker from Broadway to B; B, C, Dennison, Egmont, and Floyd east from Barker to dead end (3,810' of 8"; 1,760' of 12")	2037-2046	\$1,093,000
Neighborhood of Maryland, St Joseph, Franklin, and Sonntag	Area bounded by Maryland, St Joseph, Franklin, and Sonntag, including Maryland and Sonntag (10,090' of 8"; 1,300' of 12"; 1,570' of 16"; 750' of 20")	2037-2046	\$3,048,000
Neighborhood of Maryland, 9th, Franklin, and St Joseph	Area bounded by Maryland, 9th, Franklin, and St Joseph (13,600' of 8"; 410' of 20"; 1,130' of 24")	2037-2046	\$3,255,000
Franklin Ave, Illinois, and Indiana west of Pigeon Creek	Franklin, Illinois, and Indiana from St Joseph to 9th; 12th, 10th, and Wabash from Lloyd to Franklin (11,220' of 8"; 110' of 12"; 1,120' of 24")	2037-2046	\$2,459,000
Neighborhood of Fulton and Shanklin	Area bounded by Pigeon Creek, Fulton, and Shanklin; main extending west from Keller under Pigeon Creek to Buchanan (17,760' of 8"; 8,250' of 12"; 210' of 20")	2037-2046	\$5,479,000
Neighborhood of Florida, Fulton, Maryland, and Grove	Area bounded by Florida, Fulton, Maryland, and Grove, including Florida and Grove (9,370' of 8"; 2,060' of 12")	2037-2046	\$1,978,000
Neighborhood of Tennessee, 1st, Indiana, and Fulton	Area bounded by Tennessee, 1st, Indiana, and Fulton, excluding 2nd and 3rd which were recently replaced, Columbia (Project 135), and Franklin (Project 137) (19,970' of 8"; 1,450' of 12"; 3,140' of 16"; 1,370' of 20")	2037-2046	\$5,912,000
S 1st Ave	1st from Franklin to Morgan (4,350' of 8")	2037-2046	\$750,000
Neighborhood of Morgan, Evans, and Columbia	Area bounded by Morgan, Evans, and Columbia, excluding mains replaced in Project 79 (58,350' of 8"; 5,880' of 12"; 30' of 16"; 20' of 20")	2037-2046	\$13,367,000
Columbia - Phase II	Columbia from Fulton to Lafayette (6,040' of 8")	2037-2046	\$952,000
Neighborhood of Columbia, US 41, Franklin, and Oakley	Area bounded by Columbia, US 41, Franklin, and Oakley, including Oakley; Franklin from Canal to Kentucky (45,440' of 8"; 6,960' of 12")	2037-2046	\$8,128,000
Franklin Ave downtown	Franklin from Fulton to Morton (10,370' of 8")	2037-2046	\$1,478,000
Neighborhood of 6th, Walnut, Riverside, and Bord	Area bounded by and including 6th, Walnut, Riverside, and Bord (22,790' of 8"; 6,760' of 12"; 110' of 20"; 50' of 24"; 8,220' of 30")	2037-2046	\$10,468,000
Lincoln Ave - Phase II	Lincoln from Canal to Villa (490' of 8"; 10,640' of 12")	2037-2046	\$2,327,000
Kentucky - Phase II	Kentucky from Adams to Lloyd (5,440' of 12")	2037-2046	\$1,087,000
Neighborhood of Lincoln, Kentucky, Washington, 2nd, and Mulberry	Area bounded by Lincoln, Kentucky, Washington, 2nd, and Mulberry, including Washington (47,830' of 8"; 600' of 12")	2037-2046	\$7,685,000
S New York Ave and S Kerth Ave	New York and Kerth from Lincoln to Sycamore. Sycamore from New York to Kerth (5,000' of 8")	2037-2046	\$937,000
Neighborhood of Lloyd, Weinbach, Lincoln, and US 41	Area bounded by Lloyd, Weinbach, Lincoln, and US 41; Runnymede from Lincoln to Bayard Park (15,530' of 8")	2037-2046	\$2,545,000
Division St	Division from Harlan to Weinbach (1,340' of 8"; 2,900' of 20")	2037-2046	\$1,704,000
Governor Phase IV	Governor from Riverside south to dead end; Riverside from Judson to Elliot (2,700' of 8"; 500' of 12")	2037-2046	\$542,000
Neighborhood of Riverside, Weinbach, I164, and Sunburst	Residential area bounded by Riverside, Weinbach, I164, and Sunburst, including Weinbach and Sunburst (400' of 4"; 22,590' of 8"; 680' of 12")	2037-2046	\$3,997,000
Covert Ave - Phase III and Vann	Washington from Dexter to Vann, Vann from Washington to Covert, Covert from Vann to Burdette (6,510' of 8"; 1,490' of 12"; 530' of 16"; 480' of 36")	2037-2046	\$1,983,000
Green River - Phase II and Washington - Phase III	Green River from Bellemeade to Washington, Washington from Green River to Lombard, Lombard from Washington to Lincoln (890' of 8"; 8,960' of 12")	2037-2046	\$2,045,000
St Marys, Mulberry, and Trinity Dr	St Marys and Trinity from Lincoln to Bellemeade, Mulberry from St Marys to Trinity, Bellemeade from Walnut to Trinity (4,210' of 8")	2037-2046	\$650,000
Neighborhood of Lloyd, Green River, Lincoln, and Congress	Area bounded by Lloyd, Green River, Lincoln, and Congress, including Lincoln and Congress; F and W Blue Ridge Dr (19,410' of 8"; 670' of 12")	2037-2046	\$3,353,000
Neighborhood of Morgan, Boeke, railroad, and golfcourse	Area bounded by Morgan, Boeke, railroad, and golfcourse (7,790' of 8")	2037-2046	\$1,504,000
Stockwell Rd and Negley, Joan, Diamond, Richardt, and Herndon	Stockwell from Theatre to Negley; Negley, Joan, Diamond, Richardt, and Herndon west from Stockwell to dead end (200' of 4"; 9,370' of 8")	2037-2046	\$1,629,000
Morgan Ave - Phase IV	Morgan from Welworth to Stockwell (3,310' of 8"; 2,750' of 12")	2037-2046	\$1,430,000
E Morgan Ave and Old Booneville Hwy	Old Booneville from Green River to Kotter; Wedgewood from Old Booneville to Morgan, and Morgan from Wedgewood to Hoosier (8,930' of 12")	2037-2046	\$1,739,000



**TABLE E.1 (continued)**  
**Water Master Plan Compiled Project List**

<i>Project Name</i>	<i>Project Description</i>	<i>Project Year</i>	<i>Total Project Cost</i>
Pollack Ave	Pollack from Green River to Shoshoni, Shoshoni from Pollack to Beaver (3,450' of 12")	2037-2046	\$708,000
Neighborhood of Lloyd, Kentucky, Lincoln, and Governor	Area bounded by Lloyd, Kentucky, Lincoln, and Governor (26,750' of 8")	2037-2046	\$4,135,000
Business 41	Business 41 from Morgan to Diamond (1,840' of 8"; 2,900' of 12")	2037-2046	\$1,040,000
Stringtown Rd - Phase II	Stringtown from Negley to Cardinal (420' of 8"; 2,300' of 20")	2037-2046	\$1,379,000
McDowell Rd	McDowell between Strueth Hendricks and Greystone, approx 1200' (1,130' of 8")	2037-2046	\$155,000
Eickhoff Rd	Eickhoff for approx 560' south of West Terrace, and West Terrace for approx 600' east of Eickhoff (1,160' of 12")	2037-2046	\$237,000
Delaware Ave	Delaware west of Wahash for approx 320' (320' of 8")	2037-2046	\$62,000
Hillside Dr	Hillside approx 620' north of Orchard for approx 750' (710' of 8")	2037-2046	\$104,000
Wortman Rd	Wortman for approx 1400' east of Oak Trail (1,300' of 8")	2037-2046	\$178,000
Campbell Rd	Campbell for approx 500' east of US 41 (490' of 8")	2037-2046	\$74,000
Woodland Hill	Woodland Hill for approx 600' west of Honeysuckle (660' of 8")	2037-2046	\$85,000
Seib Rd	Seib for approx 420' north of Lameys (400' of 8")	2037-2046	\$57,000
Seib and Broadwing	Seib approx 1100' north of Broadwing for approx 1250' (1,240' of 8")	2037-2046	\$167,000
Championship Dr	Championship for approx 1100' west of Petersburg (1,110' of 8")	2037-2046	\$149,000
Kansas Rd from Green River	Kansas for approx 2540' west of Green River (2,540' of 12")	2037-2046	\$483,000
Virginia Ave	Virginia from Normandy to approx 260' west of Royal (70' of 8"; 1,510' of 12")	2037-2046	\$317,000
Royal Ave	Royal north from Virginia for approx 1000' (1,310' of 12")	2037-2046	\$258,000
Lincolnwood Rd	Lincolnwood approx 300' north of Newburgh (270' of 8")	2037-2046	\$52,000
Polaris Rd	Polaris approx 1700' north of Pollack (1,680' of 8")	2037-2046	\$287,000
Pollack Ave III	Pollack from Huntington Creek Dr to Riverwalk Cir (2,590' of 8")	2037-2046	\$350,000
Elliot Rd	Elliot from Virginia to Iowa (330' of 8")	2037-2046	\$70,000
Haven, Aviation, and Garrison Neighborhood	Haven, Aviation, and Garrison from Kack to Morgan; Maxwell and Enlow from Haven to Aviation (6,250' of 8")	2037-2046	\$1,398,000
St Joseph	St Joseph from Wyoming to Glenview (1,340' of 8"; 1,790' of 12")	2037-2046	\$580,000
Lincoln Ave - Phase III	Lincoln from Winterwood to Martins (2,610' of 8"; 7,260' of 16")	2037-2046	\$3,288,000
Vann Ave	Vann from Lincoln to Lloyd (2,590' of 8")	2037-2046	\$429,000
Eichel Rd	Eichel east of Fares to dead end; Louisiana west of Fares to dead end; Missouri east of Fares to dead end (2,280' of 8"; 740' of 12")	2037-2046	\$620,000
Neighborhood bounded by Christ, Kentucky, Mill, and Weaver	Residential area bounded by Christ, Kentucky, Mill, and Weaver, including Christ and Mill (1,500' of 4"; 8,920' of 8")	2037-2046	\$1,629,000
From Killian Tank to Maryland	From tank on Harmony Way west across field to Maryland; Varner from Maryland to Martin (90' of 8"; 2,150' of 16"; 170' of 20"; 280' of 24")	2037-2046	\$1,227,000
Morgan Ave - Phase V	Morgan from 1st to Read (30' of 8"; 1,930' of 12")	2037-2046	\$697,000
Eastview Rd	Eastview west of Oak Hill (2,050' of 8")	2037-2046	\$572,000
Neighborhood of Gum, Bayard Park, Chandler, Powell, Blackford, and Park Plaze	Residential area along Gum, Bayard Park, Chandler, Powell, Blackford, and Park Plaza west of Martins (5,540' of 8")	2037-2046	\$1,035,000
Alvord Blvd	Alvord from Illinois to Division (890' of 8")	2037-2046	\$194,000
Rodenberg Ave	Rodenberg from Elm west to cul-de-sac (2,730' of 8")	2037-2046	\$474,000
Landbridge Way	Landbridge Way from 1st to Cross Valley (330' of 8")	2037-2046	\$70,000
Stringtown Rd - Phase III	Stringtown from Mill to Christ (90' of 8"; 1,610' of 12")	2037-2046	\$423,000
Morton Ave and Franklin St	From Morton to Franklin through lot on SE corner of Morton-Franklin intersection (1,720' of 8"; 2,510' of 12")	2037-2046	\$707,000
Morgan Ave - Phase VI	Morgan and through parking lot from Heidelbach to Gavin (1,340' of 12")	2037-2046	\$693,000
Rotherwood Ave	Rotherwood from Southeast to Bayard Park (1,180' of 8")	2037-2046	\$210,000
Neighborhood bounded by Morgan, Vogel, Boeke, and Oak Hill	Area bounded by Morgan, Vogel, Boeke, and Oak Hill, including Oak Hill and Boeke (8,700' of 8")	2037-2046	\$1,494,000
Covert Ave - Phase IV	Covert from Weinbach to Fairlawn (1,660' of 8")	2037-2046	\$287,000
Franklin Ave	Franklin east of Boeke to dead end (1,290' of 8")	2037-2046	\$184,000

**TABLE E.1 (continued)**  
**Water Master Plan Compiled Project List**

Project Name	Project Description	Project Year	Total Project Cost
Fernwood Dr	Fernwood west of Stringtown to dead end (700' of 8")	2037-2046	\$163,000
Buchanan Dr	Buchanan from Mesker Park to St Joseph (2,420' of 8")	2037-2046	\$384,000
Dieffenbach	Dieffenbach from Krueger to Koring (260' of 8"; 5,040' of 12")	2037-2046	\$1,092,000
Lynch Rd	Lynch from Maxx to Oak Hill (4,710' of 12")	2037-2046	\$942,000
Neighborhood bounded by Ashwood, Clover, Ridgewood, and Tanglewood	Residential area on Ashwood, Clover, Ridgewood, and Tanglewood (3,010' of 8")	2037-2046	\$540,000
Park east of Vann	Main through park east of Vann from Lincoln to Lloyd (2,630' of 12")	2037-2046	\$815,000
Neighborhood of Evans, Peters, and Denby north of Pfeffer	Evans, Peters, and Denby north of Pfeffer to dead end (1,130' of 8")	2037-2046	\$200,000
Little Creek Dr and Wansford	Little Creek and Wansford from Pfeffer to Kentuck (1,790' of 8")	2037-2046	\$357,000
Neighborhood bounded by Lloyd, Tekoppel, Claremont, and Red Bank	Area bounded by Lloyd, Tekoppel, Claremont, and Red Bank; University north of Lloyd in parking lot; Bosse from Schaffer to Claremont, Detroy and Sorenson west of Busse to dead end (14,320' of 8"; 7,100' of 12")	2037-2046	\$3,854,000
Middle Mt Vernon	Middle Mt Vernon from Korff to Posey County Line; Posey County Line from Middle Mt Vernon to Creamery; Creamery from Posey County Line to Eickhoff (14,860' of 12")	2037-2046	\$2,817,000
Hogue Road - Phase III	Hogue from Peerless to Eickhoff (4,100' of 16")	2037-2046	\$1,574,000
North of Lincoln Ave, under nursing home	Main east of tank, under nursing home, north of Lincoln; Fielding from main to Lincoln (470' of 12"; 450' of 16"; 2,690' of 24")	2037-2046	\$1,764,000
Hitch Petes Dr	Hitch Petes from St George to Weinbach (11,640' of 30")	2037-2046	\$7,768,000
Darmstadt	Darmstadt from Senate to Boonville New Harmony (26,220' of 16")	2037-2046	\$9,748,000
Boonville New Harmony Rd - Phase II	Boonville New Harmony from Tibarand to St Joseph (9,270' of 24")	2037-2046	\$5,063,000
US 41 from Petersburg to Fares	US 41 from Petersburg to Fares; along north side of residential area on Kerth and New York to Kentucky (5,430' of 24")	2037-2046	\$2,983,000
US 41 from 57 to Mt Pleasant	US 41 from 57 to Mount Pleasant; west on Mout Pleasant approx 200 ft (1,800' of 24"; 1,370' of 36")	2037-2046	\$2,822,000
Volkman Rd	Volkman from US 41 to Cambridge Village; Cambridge Village to Rayleigh; Rayleigh north to dead end (7,610' of 16")	2037-2046	\$2,923,000
Old State Rd	Old State from Baseline to Volkman (8,160' of 12")	2037-2046	\$1,530,000
First Avenue Booster Station Pump Replacement	Replace pumps that have exceeded intended service life	2037-2046	\$368,000
Killian Booster Station Replacement	Replace aging booster station to meet projected demand growth	2037-2046	\$4,007,000
Weinbach Booster Station Pump Replacement	Replace pumps that have exceeded intended service life	2037-2046	\$583,000
Northern Pressure Zone Elevated Storage Tank	0.5 MG elevated tank to meet peak hour demand and fire flow requirements for demand growth	2037-2046	\$2,877,000
Traveling Screen #1 (\$100,000 Rebuild Every 3 Years)	Traveling Screen #1 (\$100,000 Rebuild Every 3 Years)	2037-2046	\$300,000
Traveling Screen #2 (\$100,000 Rebuild Every 3 Years)	Traveling Screen #2 (\$100,000 Rebuild Every 3 Years)	2037-2046	\$300,000
Traveling Screen #3 (\$100,000 Rebuild Every 3 Years)	Traveling Screen #3 (\$100,000 Rebuild Every 3 Years)	2037-2046	\$300,000
LS Pump #1 Pump Maintenance	LS Pump #1 Pump Maintenance	2037-2046	\$60,000
LS Pump #1 Motor/Drive	LS Pump #1 Motor/Drive	2037-2046	\$140,000
LS Pump #2 Pump Maintenance	LS Pump #2 Pump Maintenance	2037-2046	\$60,000
LS Pump #3 Pump Maintenance	LS Pump #3 Pump Maintenance	2037-2046	\$60,000
LS Pump #4 Pump Maintenance	LS Pump #4 Pump Maintenance	2037-2046	\$60,000
LS Pump #5 Pump Maintenance	LS Pump #5 Pump Maintenance	2037-2046	\$60,000
LS Pump #6 Pump Maintenance	LS Pump #6 Pump Maintenance	2037-2046	\$60,000
Dredging in front of Intake Structure (Approx. \$100,000/YR.)	Dredging in front of Intake Structure (Approx. \$100,000/YR.)	2037-2046	\$1,000,000
Coating of Low Service Pump Station Building Interior/Exterior/Bridge	Coating of Low Service Pump Station Building Interior/Exterior/Bridge	2037-2046	\$130,000
Coating of Low Service Pump Station Piping/Equipment	Coating of Low Service Pump Station Piping/Equipment	2037-2046	\$50,000
HS Pump #4 Pump Maintenance	HS Pump #4 Pump Maintenance	2037-2046	\$250,000
HS Pump #5 Pump Maintenance	HS Pump #5 Pump Maintenance	2037-2046	\$250,000
HS Pump #6 Motor/Drive	HS Pump #6 Motor/Drive	2037-2046	\$140,000
HS Pump #7 Motor/Drive	HS Pump #7 Motor/Drive	2037-2046	\$140,000
HS Pump #8 Pump Maintenance	HS Pump #8 Pump Maintenance	2037-2046	\$250,000

**TABLE E.1 (continued)**  
**Water Master Plan Compiled Project List**

<i>Project Name</i>	<i>Project Description</i>	<i>Project Year</i>	<i>Total Project Cost</i>
HS Pump #9 Motor/Drive	HS Pump #9 Motor/Drive	2037-2046	\$200,000
HS Pump #10 Pump Maintenance	HS Pump #10 Pump Maintenance	2037-2046	\$250,000
Coating of High Service Pump Station #2 Piping/Equipment	Coating of High Service Pump Station #2 Piping/Equipment	2037-2046	\$30,000
Coating of High Service Pump Station #3 Piping/Equipment	Coating of High Service Pump Station #3 Piping/Equipment	2037-2046	\$20,000
Floc. Unit Replacement	Floc. Unit Replacement	2037-2046	\$360,000
Coat Equipment in all South Pri./Sec. Basins (6 tanks)	Coat Equipment in all South Pri./Sec. Basins (6 tanks)	2037-2046	\$90,000
Media Replacement Filters 13-20 (8 filters)	Media Replacement Filters 13-20 (8 filters)	2037-2046	\$666,000
Media Replacement Filters 21-28 (8 filters)	Media Replacement Filters 21-28 (8 filters)	2037-2046	\$1,322,000
Media Replacement Filters 29-36 (8 filters)	Media Replacement Filters 29-36 (8 filters)	2037-2046	\$1,350,000
Dechlorination System	Dechlorination System	2037-2046	\$45,000
Ammonium Hydroxide	Ammonium Hydroxide	2037-2046	\$50,000
Gaseous Chlorine - Install Chlorinators (EWSU Already Purchased)	Gaseous Chlorine - Install Chlorinators (EWSU Already Purchased)	2037-2046	\$35,000
Flood Pump Maintenance (Two -100 HP Vert. Turbines on VFDs)	Flood Pump Maintenance (Two -100 HP Vert. Turbines on VFDs)	2037-2046	\$30,000
*Sludge Hauling/Management Vehicles	*Sludge Hauling/Management Vehicles	2037-2046	\$400,000
Rehab/Maintain Generators	Rehab/Maintain Generators	2037-2046	\$125,000
Upgrade SCADA System PCs, Software, and Programming	Upgrade SCADA System PCs, Software, and Programming	2037-2046	\$50,000

## **APPENDIX F**

### **Water Mains and Booster Station Project Cost Estimates**

Cause No. 45073

OUCG DR 3-11

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Frey Rd					2017
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	1,910	LF	\$ 57.00	\$ 108,900.00	
8-inch Fittings	1	LS	\$ 700.00	\$ 700.00	
Fire Hydrant Assembly	5	EA	\$ 3,000.00	\$ 15,000.00	
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00	
Service Connection	14	EA	\$ 1,500.00	\$ 21,000.00	
Sub-Total				\$154,300	
General conditions (2% of Construction Costs)	1	LS	\$4,000	\$4,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$5,000	\$5,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$8,000	\$8,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$5,000	\$5,000	
Subtotal				\$176,300	
Contingencies (30% of Construction Costs )	1	LS	\$53,000	\$53,000	
<b>Construction Sub-Total</b>				\$229,300	
<b>Non-Construction Costs (25%)</b>	1	LS	\$58,000	\$58,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$288,000</b>	

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Herndon Ave					2017
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	860	LF	\$ 57.00	\$ 49,100.00	
8-inch Fittings	1	LS	\$ 400.00	\$ 400.00	
Fire Hydrant Assembly	4	EA	\$ 3,000.00	\$ 12,000.00	
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00	
Service Connection	18	EA	\$ 1,500.00	\$ 27,000.00	
Sub-Total				\$94,300	
General conditions (2% of Construction Costs)	1	LS	\$2,000	\$2,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$3,000	\$3,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$5,000	\$5,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$3,000	\$3,000	
Subtotal				\$107,300	
Contingencies (30% of Construction Costs )	1	LS	\$33,000	\$33,000	
<b>Construction Sub-Total</b>				\$140,300	
<b>Non-Construction Costs (25%)</b>	1	LS	\$36,000	\$36,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$177,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Keck Rd						2017
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	2,100	LF	\$ 57.00	\$ 119,700.00		
8-inch Fittings	1	LS	\$ 800.00	\$ 800.00		
Fire Hydrant Assembly	7	EA	\$ 3,000.00	\$ 21,000.00		
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00		
Service Connection	70	EA	\$ 1,500.00	\$ 105,000.00		
Sub-Total				\$255,200		
General conditions (2% of Construction Costs)	1	LS	\$6,000	\$6,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$8,000	\$8,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$13,000	\$13,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$8,000	\$8,000		
Subtotal				\$290,200		
Contingencies (30% of Construction Costs )	1	LS	\$88,000	\$88,000		
<b>Construction Sub-Total</b>				\$378,200		
<b>Non-Construction Costs (25%)</b>	1	LS	\$95,000	\$95,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$474,000</b>		

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.



HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Lodge Rd						2017
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	9,120	LF	\$ 57.00	\$ 519,900.00		
8-inch Fittings	1	LS	\$ 3,300.00	\$ 3,300.00		
Fire Hydrant Assembly	23	EA	\$ 3,000.00	\$ 69,000.00		
8-inch Gate Valve	12	EA	\$ 2,900.00	\$ 34,800.00		
Service Connection	140	EA	\$ 1,500.00	\$ 210,000.00		
Sub-Total				\$837,000		
General conditions (2% of Construction Costs)	1	LS	\$17,000	\$17,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$26,000	\$26,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$42,000	\$42,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$26,000	\$26,000		
Subtotal				\$948,000		
Contingencies (30% of Construction Costs )	1	LS	\$285,000	\$285,000		
<b>Construction Sub-Total</b>				\$1,233,000		
<b>Non-Construction Costs (25%)</b>	1	LS	\$309,000	\$309,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,542,000</b>		

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
New Harmony from Allens Ln						2017
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	2,540	LF	\$ 57.00	\$ 144,800.00		
8-inch Fittings	1	LS	\$ 1,000.00	\$ 1,000.00		
Fire Hydrant Assembly	7	EA	\$ 3,000.00	\$ 21,000.00		
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00		
Service Connection	30	EA	\$ 1,500.00	\$ 45,000.00		
Sub-Total				\$223,400		
General conditions (2% of Construction Costs)	1	LS	\$5,000	\$5,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$7,000	\$7,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$12,000	\$12,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$7,000	\$7,000		
Subtotal				\$254,400		
Contingencies (30% of Construction Costs )	1	LS	\$77,000	\$77,000		
<b>Construction Sub-Total</b>				\$331,400		
<b>Non-Construction Costs (25%)</b>	1	LS	\$83,000	\$83,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$415,000</b>		

**NOTE !** This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Wills Rd						
					2017	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	290	LF	\$ 57.00	\$ 16,600.00		
8-inch Fittings	1	LS	\$ 200.00	\$ 200.00		
Fire Hydrant Assembly	1	EA	\$ 3,000.00	\$ 3,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
Service Connection	6	EA	\$ 1,500.00	\$ 9,000.00		
Sub-Total				\$31,700		
General conditions (2% of Construction Costs)	1	LS	\$1,000	\$1,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$1,000	\$1,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$2,000	\$2,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$1,000	\$1,000		
Subtotal				\$36,700		
Contingencies (30% of Construction Costs )	1	LS	\$12,000	\$12,000		
<b>Construction Sub-Total</b>				\$48,700		
<b>Non-Construction Costs (25%)</b>	1	LS	\$13,000	\$13,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$62,000		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Walcott Rd					2017
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	460	LF	\$ 57.00	\$ 26,300.00	
8-inch Fittings	1	LS	\$ 200.00	\$ 200.00	
Fire Hydrant Assembly	3	EA	\$ 3,000.00	\$ 9,000.00	
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00	
Service Connection	16	EA	\$ 1,500.00	\$ 24,000.00	
Sub-Total				\$62,400	
General conditions (2% of Construction Costs)	1	LS	\$2,000	\$2,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$2,000	\$2,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$4,000	\$4,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$2,000	\$2,000	
Subtotal				\$72,400	
Contingencies (30% of Construction Costs )	1	LS	\$22,000	\$22,000	
<b>Construction Sub-Total</b>				\$94,400	
<b>Non-Construction Costs (25%)</b>	1	LS	\$24,000	\$24,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$119,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Broadway Ave - Phase I						2017
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	12,340	LF	\$ 81.00	\$ 999,600.00		
12-inch Fittings	1	LS	\$ 14,900.00	\$ 14,900.00		
Fire Hydrant Assembly	32	EA	\$ 3,000.00	\$ 96,000.00		
12-inch Gate Valve	16	EA	\$ 6,800.00	\$ 108,800.00		
Service Connection	120	EA	\$ 1,500.00	\$ 180,000.00		
Sub-Total				\$1,399,300		
General conditions (2% of Construction Costs)	1	LS	\$28,000	\$28,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$42,000	\$42,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$70,000	\$70,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$42,000	\$42,000		
Subtotal				\$1,581,300		
Contingencies (30% of Construction Costs )	1	LS	\$475,000	\$475,000		
<b>Construction Sub-Total</b>				\$2,056,300		
<b>Non-Construction Costs (25%)</b>	1	LS	\$515,000	\$515,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,572,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Heidelberg Rd					2017
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
12-inch C900 PVC Water Main Open Cut	6,170	LF	\$ 81.00	\$ 499,800.00	
12-inch DI Jack and Bore	100	LF	\$ 748.00	\$ 74,800.00	
12-inch Fittings	1	LS	\$ 7,500.00	\$ 7,500.00	
Fire Hydrant Assembly	16	EA	\$ 3,000.00	\$ 48,000.00	
12-inch Gate Valve	10	EA	\$ 6,800.00	\$ 68,000.00	
Service Connection	150	EA	\$ 1,500.00	\$ 225,000.00	
Sub-Total				\$923,100	
General conditions (2% of Construction Costs)	1	LS	\$19,000	\$19,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$28,000	\$28,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$47,000	\$47,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$28,000	\$28,000	
Subtotal				\$1,045,100	
Contingencies (30% of Construction Costs)	1	LS	\$314,000	\$314,000	
<b>Construction Sub-Total</b>				\$1,359,100	
<b>Non-Construction Costs (25%)</b>	1	LS	\$340,000	\$340,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,700,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PI-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Hogue Road - Phase I						2017
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
16-inch DI Water Main Open Cut	8,030	LF	\$ 163.00	\$ 1,308,900.00		
16-inch Fittings	1	LS	\$ 30,600.00	\$ 30,600.00		
Fire Hydrant Assembly	21	EA	\$ 3,000.00	\$ 63,000.00		
16-inch Gate Valve	11	EA	\$ 20,000.00	\$ 220,000.00		
Air/Vacuum Relief Valve	5	EA	\$ 5,000.00	\$ 25,000.00		
Service Connection	88	EA	\$ 1,500.00	\$ 132,000.00		
Sub-Total				\$1,779,500		
General conditions (2% of Construction Costs)	1	LS	\$36,000	\$36,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$54,000	\$54,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$89,000	\$89,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$54,000	\$54,000		
Subtotal				\$2,012,500		
Contingencies (30% of Construction Costs )	1	LS	\$604,000	\$604,000		
<b>Construction Sub-Total</b>				\$2,616,500		
<b>Non-Construction Costs (25%)</b>	1	LS	\$655,000	\$655,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,272,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
St George - Phase I					2017
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	3,760	LF	\$ 57.00	\$ 214,400.00	
8-inch Fittings	1	LS	\$ 1,400.00	\$ 1,400.00	
Fire Hydrant Assembly	10	EA	\$ 3,000.00	\$ 30,000.00	
8-inch Gate Valve	5	EA	\$ 2,900.00	\$ 14,500.00	
Service Connection	52	EA	\$ 1,500.00	\$ 78,000.00	
Sub-Total				\$338,300	
General conditions (2% of Construction Costs)	1	LS	\$7,000	\$7,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$11,000	\$11,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$17,000	\$17,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$11,000	\$11,000	
Subtotal				\$384,300	
Contingencies (30% of Construction Costs )	1	LS	\$116,000	\$116,000	
<b>Construction Sub-Total</b>				\$500,300	
<b>Non-Construction Costs (25%)</b>	1	LS	\$126,000	\$126,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$627,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Stringtown Rd - Phase I						
					2017	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
20-inch DI Water Main Open Cut	1,400	LF	\$ 205.00	\$ 287,000.00		
20-inch Fittings	1	LS	\$ 8,200.00	\$ 8,200.00		
Fire Hydrant Assembly	4	EA	\$ 3,000.00	\$ 12,000.00		
20-inch Gate Valve	2	EA	\$ 35,000.00	\$ 70,000.00		
Air/Vacuum Relief Valve	1	EA	\$ 5,000.00	\$ 5,000.00		
Service Connection	35	EA	\$ 1,500.00	\$ 52,500.00		
Sub-Total				\$434,700		
General conditions (2% of Construction Costs)	1	LS	\$9,000	\$9,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$14,000	\$14,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$22,000	\$22,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$14,000	\$14,000		
Subtotal				\$493,700		
Contingencies (30% of Construction Costs )	1	LS	\$149,000	\$149,000		
<b>Construction Sub-Total</b>				\$642,700		
<b>Non-Construction Costs (25%)</b>	1	LS	\$161,000	\$161,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$804,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Weinbach Rd						2017
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	4,980	LF	\$ 57.00	\$ 283,900.00		
12-inch C900 PVC Water Main Open Cut	5,210	LF	\$ 81.00	\$ 422,100.00		
8-inch Fittings	1	LS	\$ 1,800.00	\$ 1,800.00		
12-inch Fittings	1	LS	\$ 6,300.00	\$ 6,300.00		
Fire Hydrant Assembly	26	EA	\$ 3,000.00	\$ 78,000.00		
8-inch Gate Valve	7	EA	\$ 2,900.00	\$ 20,300.00		
12-inch Gate Valve	7	EA	\$ 6,800.00	\$ 47,600.00		
Service Connection	400	EA	\$ 1,500.00	\$ 600,000.00		
Sub-Total				\$1,460,000		
General conditions (2% of Construction Costs)	1	LS	\$30,000	\$30,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$44,000	\$44,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$73,000	\$73,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$44,000	\$44,000		
Subtotal				\$1,651,000		
Contingencies (30% of Construction Costs )	1	LS	\$496,000	\$496,000		
<b>Construction Sub-Total</b>				<b>\$2,147,000</b>		
<b>Non-Construction Costs (25%)</b>	1	LS	\$537,000	\$537,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,684,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Morgan Ave - Phase I						2017
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	1,700	LF	\$ 81.00	\$ 137,700.00		
12-inch Fittings	1	LS	\$ 2,100.00	\$ 2,100.00		
Fire Hydrant Assembly	6	EA	\$ 3,000.00	\$ 18,000.00		
12-inch Gate Valve	3	EA	\$ 6,800.00	\$ 20,400.00		
Service Connection	30	EA	\$ 1,500.00	\$ 45,000.00		
Sub-Total				\$223,200		
General conditions (2% of Construction Costs)	1	LS	\$5,000	\$5,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$7,000	\$7,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$12,000	\$12,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$7,000	\$7,000		
Subtotal				\$254,200		
Contingencies (30% of Construction Costs )	1	LS	\$77,000	\$77,000		
<b>Construction Sub-Total</b>				\$331,200		
<b>Non-Construction Costs (25%)</b>	1	LS	\$83,000	\$83,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$415,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: SAL	DATE:	6/20/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: RCC	DATE:	9/19/2016	
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
<b>Stallings Booster Station Culvert Replacement</b>					<b>2017</b>
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
Demolition	1	LS	\$ 10,000.00	\$ 10,000.00	
4x4 Box Culvert	25	LF	\$ 600.00	\$ 15,000.00	
Asphalt Pavement	50	SY	\$ 40.00	\$ 2,000.00	
Sub-Total				\$27,000	
General conditions (2% of Construction Costs)	1	LS	\$1,000	\$1,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$1,000	\$1,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$2,000	\$2,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$1,000	\$1,000	
Subtotal				\$32,000	
Contingencies (30% of Construction Costs )	1	LS	\$10,000	\$10,000	
<b>Construction Sub-Total</b>				\$42,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$11,000	\$11,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$60,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: SAL	DATE: 6/17/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: RCC	DATE: 9/19/2016		
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
First Avenue Booster Station Cathodic Protection Improvements					2017
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
Cathodic Protection System Replacement	1	LS	\$ 5,000.00	\$ 5,000.00	
Sub-Total				\$5,000	
General conditions (2% of Construction Costs)	1	LS	\$100	\$100	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$200	\$200	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$300	\$300	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$200	\$200	
Subtotal				\$5,800	
Contingencies (30% of Construction Costs )	1	LS	\$2,000	\$2,000	
<b>Construction Sub-Total</b>				\$7,800	
<b>Non-Construction Costs (25%)</b>	1	LS	\$2,000	\$2,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$10,000	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Bayard Park Dr					2018
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	900	LF	\$ 57.00	\$ 51,300.00	
8-inch Fittings	1	LS	\$ 400.00	\$ 400.00	
Fire Hydrant Assembly	3	EA	\$ 3,000.00	\$ 9,000.00	
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00	
Sub-Total				\$66,500	
General conditions (2% of Construction Costs)	1	LS	\$2,000	\$2,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$2,000	\$2,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$4,000	\$4,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$2,000	\$2,000	
Subtotal				\$76,500	
Contingencies (30% of Construction Costs )	1	LS	\$23,000	\$23,000	
<b>Construction Sub-Total</b>				\$99,500	
<b>Non-Construction Costs (25%)</b>	1	LS	\$25,000	\$25,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$125,000	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Bartels Rd						
					2018	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	2,460	LF	\$ 57.00	\$ 140,300.00		
8-inch Fittings	1	LS	\$ 900.00	\$ 900.00		
Fire Hydrant Assembly	8	EA	\$ 3,000.00	\$ 24,000.00		
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00		
Service Connection	30	EA	\$ 1,500.00	\$ 45,000.00		
Sub-Total				\$221,800		
General conditions (2% of Construction Costs)	1	LS	\$5,000	\$5,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$7,000	\$7,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$12,000	\$12,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$7,000	\$7,000		
Subtotal				\$252,800		
Contingencies (30% of Construction Costs )	1	LS	\$76,000	\$76,000		
<b>Construction Sub-Total</b>				\$328,800		
<b>Non-Construction Costs (25%)</b>	1	LS	\$83,000	\$83,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$412,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Bayard Park Dr						2018
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,730	LF	\$ 57.00	\$ 98,700.00		
8-inch Fittings	1	LS	\$ 700.00	\$ 700.00		
Fire Hydrant Assembly	5	EA	\$ 3,000.00	\$ 15,000.00		
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$183,100		
General conditions (2% of Construction Costs)	1	LS	\$4,000	\$4,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$6,000	\$6,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$10,000	\$10,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$6,000	\$6,000		
Subtotal				\$209,100		
Contingencies (30% of Construction Costs )	1	LS	\$63,000	\$63,000		
<b>Construction Sub-Total</b>				\$272,100		
<b>Non-Construction Costs (25%)</b>	1	LS	\$69,000	\$69,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$342,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Bellemeade Rd					2018
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	120	LF	\$ 57.00	\$ 6,900.00	
8-inch Fittings	1	LS	\$ 100.00	\$ 100.00	
Fire Hydrant Assembly	2	EA	\$ 3,000.00	\$ 6,000.00	
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00	
Service Connection	3	EA	\$ 1,500.00	\$ 4,500.00	
Sub-Total				\$20,400	
General conditions (2% of Construction Costs)	1	LS	\$1,000	\$1,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$1,000	\$1,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$2,000	\$2,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$1,000	\$1,000	
Subtotal				\$25,400	
Contingencies (30% of Construction Costs )	1	LS	\$8,000	\$8,000	
<b>Construction Sub-Total</b>				\$33,400	
<b>Non-Construction Costs (25%)</b>	1	LS	\$9,000	\$9,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$43,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Ingle Rd						2018
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	600	LF	\$ 57.00	\$ 34,200.00		
8-inch Fittings	1	LS	\$ 300.00	\$ 300.00		
Fire Hydrant Assembly	2	EA	\$ 3,000.00	\$ 6,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
Service Connection	11	EA	\$ 1,500.00	\$ 16,500.00		
Sub-Total				\$59,900		
General conditions (2% of Construction Costs)	1	LS	\$2,000	\$2,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$2,000	\$2,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$3,000	\$3,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$2,000	\$2,000		
Subtotal				\$68,900		
Contingencies (30% of Construction Costs )	1	LS	\$21,000	\$21,000		
<b>Construction Sub-Total</b>				\$89,900		
<b>Non-Construction Costs (25%)</b>	1	LS	\$23,000	\$23,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$113,000		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM	DATE:	6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
Lant Circle					2018
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	1,010	LF	\$ 57.00	\$ 57,600.00	
8-inch Fittings	1	LS	\$ 400.00	\$ 400.00	
Fire Hydrant Assembly	3	EA	\$ 3,000.00	\$ 9,000.00	
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00	
Service Connection	18	EA	\$ 1,500.00	\$ 27,000.00	
Sub-Total				\$99,800	
General conditions (2% of Construction Costs)	1	LS	\$2,000	\$2,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$3,000	\$3,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$5,000	\$5,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$3,000	\$3,000	
Subtotal				\$112,800	
Contingencies (30% of Construction Costs )	1	LS	\$34,000	\$34,000	
<b>Construction Sub-Total</b>				\$146,800	
<b>Non-Construction Costs (25%)</b>	1	LS	\$37,000	\$37,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$184,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Marshall Rd					2018
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	2,690	LF	\$ 57.00	\$ 153,400.00	
8-inch Fittings	1	LS	\$ 1,000.00	\$ 1,000.00	
Fire Hydrant Assembly	8	EA	\$ 3,000.00	\$ 24,000.00	
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00	
Service Connection	105	EA	\$ 1,500.00	\$ 157,500.00	
Sub-Total				\$347,500	
General conditions (2% of Construction Costs)	1	LS	\$7,000	\$7,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$11,000	\$11,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$18,000	\$18,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$11,000	\$11,000	
Subtotal				\$394,500	
Contingencies (30% of Construction Costs )	1	LS	\$119,000	\$119,000	
<b>Construction Sub-Total</b>				\$513,500	
<b>Non-Construction Costs (25%)</b>	1	LS	\$129,000	\$129,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$643,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Main St					2018
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	330	LF	\$ 57.00	\$ 18,900.00	
8-inch Fittings	1	LS	\$ 200.00	\$ 200.00	
Fire Hydrant Assembly	1	EA	\$ 3,000.00	\$ 3,000.00	
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00	
Service Connection	3	EA	\$ 1,500.00	\$ 4,500.00	
Sub-Total				\$29,500	
General conditions (2% of Construction Costs)	1	LS	\$1,000	\$1,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$1,000	\$1,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$2,000	\$2,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$1,000	\$1,000	
Subtotal				\$34,500	
Contingencies (30% of Construction Costs )	1	LS	\$11,000	\$11,000	
<b>Construction Sub-Total</b>				\$45,500	
<b>Non-Construction Costs (25%)</b>	1	LS	\$12,000	\$12,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$58,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Poplar Grove Neighborhood					2018
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	14,480	LF	\$ 57.00	\$ 825,400.00	
12-inch C900 PVC Water Main Open Cut	350	LF	\$ 81.00	\$ 28,400.00	
8-inch DI Jack and Bore	130	LF	\$ 708.00	\$ 92,100.00	
8-inch Fittings	1	LS	\$ 5,300.00	\$ 5,300.00	
12-inch Fittings	1	LS	\$ 500.00	\$ 500.00	
Fire Hydrant Assembly	39	EA	\$ 3,000.00	\$ 117,000.00	
8-inch Gate Valve	21	EA	\$ 2,900.00	\$ 60,900.00	
12-inch Gate Valve	1	EA	\$ 6,800.00	\$ 6,800.00	
Service Connection	400	EA	\$ 1,500.00	\$ 600,000.00	
Sub-Total				\$1,736,400	
General conditions (2% of Construction Costs)	1	LS	\$35,000	\$35,000	
Bonds & insurance (3% of Construction Costs)	1	LS	\$53,000	\$53,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$87,000	\$87,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$53,000	\$53,000	
Subtotal				\$1,964,400	
Contingencies (30% of Construction Costs )	1	LS	\$590,000	\$590,000	
<b>Construction Sub-Total</b>				\$2,554,400	
<b>Non-Construction Costs (25%)</b>	1	LS	\$639,000	\$639,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,194,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Melody Hill Neighborhood					2018
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	9,260	LF	\$ 57.00	\$ 527,900.00	
8-inch Fittings	1	LS	\$ 3,400.00	\$ 3,400.00	
Fire Hydrant Assembly	25	EA	\$ 3,000.00	\$ 75,000.00	
8-inch Gate Valve	12	EA	\$ 2,900.00	\$ 34,800.00	
Service Connection	212	EA	\$ 1,500.00	\$ 318,000.00	
Sub-Total				\$959,100	
General conditions (2% of Construction Costs)	1	LS	\$20,000	\$20,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$29,000	\$29,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$48,000	\$48,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$29,000	\$29,000	
Subtotal				\$1,085,100	
Contingencies (30% of Construction Costs )	1	LS	\$326,000	\$326,000	
<b>Construction Sub-Total</b>				\$1,411,100	
<b>Non-Construction Costs (25%)</b>	1	LS	\$353,000	\$353,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,765,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Presidents Neighborhood Central					2018
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
4-inch C900 PVC Water Main Open Cut	430	LF	\$ 38.00	\$ 16,400.00	
8-inch C900 PVC Water Main Open Cut	9,800	LF	\$ 57.00	\$ 558,600.00	
4-inch Fittings	1	LS	\$ 100.00	\$ 100.00	
8-inch Fittings	1	LS	\$ 3,600.00	\$ 3,600.00	
Fire Hydrant Assembly	26	EA	\$ 3,000.00	\$ 78,000.00	
8-inch Gate Valve	13	EA	\$ 2,900.00	\$ 37,700.00	
Automatic Flushing Device	2	EA	\$ 5,000.00	\$ 10,000.00	
Service Connection	353	EA	\$ 1,500.00	\$ 529,500.00	
Sub-Total				\$1,233,900	
General conditions (2% of Construction Costs)	1	LS	\$25,000	\$25,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$38,000	\$38,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$62,000	\$62,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$38,000	\$38,000	
Subtotal				\$1,396,900	
Contingencies (30% of Construction Costs)	1	LS	\$420,000	\$420,000	
<b>Construction Sub-Total</b>				\$1,816,900	
<b>Non-Construction Costs (25%)</b>	1	LS	\$455,000	\$455,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,272,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Presidents Neighborhood West						2018
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	5,650	LF	\$ 57.00	\$ 322,100.00		
8-inch Fittings	1	LS	\$ 2,100.00	\$ 2,100.00		
Fire Hydrant Assembly	16	EA	\$ 3,000.00	\$ 48,000.00		
8-inch Gate Valve	8	EA	\$ 2,900.00	\$ 23,200.00		
Service Connection	214	EA	\$ 1,500.00	\$ 321,000.00		
Sub-Total				\$716,400		
General conditions (2% of Construction Costs)	1	LS	\$15,000	\$15,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$22,000	\$22,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$36,000	\$36,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$22,000	\$22,000		
Subtotal				\$811,400		
Contingencies (30% of Construction Costs )	1	LS	\$244,000	\$244,000		
<b>Construction Sub-Total</b>				\$1,055,400		
<b>Non-Construction Costs (25%)</b>	1	LS	\$264,000	\$264,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,320,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM DATE: 8/16/2016				
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL DATE: 9/15/2016				
PROJECT MGR.: JAT		CHECKED BY: DATE:				
Presidents Neighborhood West						2018
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C800 PVC Water Main Open Cut	5,650	LF	\$ 57.00	\$ 322,100.00		
8-inch Fittings	1	LS	\$ 2,100.00	\$ 2,100.00		
Fire Hydrant Assembly	16	EA	\$ 3,000.00	\$ 48,000.00		
8-inch Gate Valve	8	EA	\$ 2,900.00	\$ 23,200.00		
Service Connection	214	EA	\$ 1,500.00	\$ 321,000.00		
Sub-Total				\$716,400		
General conditions (2% of Construction Costs)	1	LS	\$15,000	\$15,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$22,000	\$22,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$36,000	\$36,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$22,000	\$22,000		
Subtotal				\$811,400		
Contingencies (30% of Construction Costs )	1	LS	\$244,000	\$244,000		
<b>Construction Sub-Total</b>				\$1,055,400		
<b>Non-Construction Costs (25%)</b>	1	LS	\$264,000	\$264,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$1,320,000		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Sweetser Rotherwood Area						2018
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	16,540	LF	\$ 57.00	\$ 942,800.00		
8-inch Fittings	1	LS	\$ 6,000.00	\$ 6,000.00		
Fire Hydrant Assembly	43	EA	\$ 3,000.00	\$ 129,000.00		
8-inch Gate Valve	21	EA	\$ 2,900.00	\$ 60,900.00		
Service Connection	350	EA	\$ 1,500.00	\$ 525,000.00		
Sub-Total				\$1,663,700		
General conditions (2% of Construction Costs)	1	LS	\$34,000	\$34,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$50,000	\$50,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$84,000	\$84,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$50,000	\$50,000		
Subtotal				\$1,881,700		
Contingencies (30% of Construction Costs )	1	LS	\$565,000	\$565,000		
<b>Construction Sub-Total</b>				\$2,446,700		
<b>Non-Construction Costs (25%)</b>	1	LS	\$612,000	\$612,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$3,059,000		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Benninghof, Englewood, and Brookside						2018
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	5,170	LF	\$ 57.00	\$ 294,700.00		
8-inch Fittings	1	LS	\$ 1,900.00	\$ 1,900.00		
Fire Hydrant Assembly	14	EA	\$ 3,000.00	\$ 42,000.00		
8-inch Gate Valve	7	EA	\$ 2,900.00	\$ 20,300.00		
Service Connection	80	EA	\$ 1,500.00	\$ 120,000.00		
Sub-Total				\$478,900		
General conditions (2% of Construction Costs)	1	LS	\$10,000	\$10,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$15,000	\$15,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$24,000	\$24,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$15,000	\$15,000		
Subtotal				\$542,900		
Contingencies (30% of Construction Costs )	1	LS	\$163,000	\$163,000		
<b>Construction Sub-Total</b>				\$705,900		
<b>Non-Construction Costs (25%)</b>	1	LS	\$177,000	\$177,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$883,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: SAL	DATE:	6/20/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: RCC	DATE:	9/19/2016	
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
<b>Stallings Booster Station Piping Replacement</b>					<b>2018</b>
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
Temporary Operations During Construction	1	LS	\$ 15,000.00	\$ 15,000.00	
Piping Demolition	1	LS	\$ 20,000.00	\$ 20,000.00	
16-inch DI Piping	100	LF	\$ 200.00	\$ 20,000.00	
12-inch DI Piping	50	LF	\$ 150.00	\$ 7,500.00	
16-inch Butterfly Valves	4	EA	\$ 2,500.00	\$ 10,000.00	
Fittings	1	LS	\$ 15,000.00	\$ 15,000.00	
Coatings	1	LS	\$ 10,000.00	\$ 10,000.00	
Sub-Total				\$97,500	
General conditions (2% of Construction Costs)	1	LS	\$2,000	\$2,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$3,000	\$3,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$5,000	\$5,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$3,000	\$3,000	
Subtotal				\$110,500	
Contingencies (30% of Construction Costs )	1	LS	\$34,000	\$34,000	
<b>Construction Sub-Total</b>				\$144,500	
<b>Non-Construction Costs (25%)</b>	1	LS	\$37,000	\$37,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$190,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Oregon Rd						
					2019	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	910	LF	\$ 57.00	\$ 51,900.00		
8-inch Fittings	1	LS	\$ 400.00	\$ 400.00		
Fire Hydrant Assembly	3	EA	\$ 3,000.00	\$ 9,000.00		
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00		
Service Connection	10	EA	\$ 1,500.00	\$ 15,000.00		
Sub-Total				\$82,100		
General conditions (2% of Construction Costs)	1	LS	\$2,000	\$2,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$3,000	\$3,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$5,000	\$5,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$3,000	\$3,000		
Subtotal				\$95,100		
Contingencies (30% of Construction Costs )	1	LS	\$29,000	\$29,000		
<b>Construction Sub-Total</b>				\$124,100		
<b>Non-Construction Costs (25%)</b>	1	LS	\$32,000	\$32,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$157,000		

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HNTE		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Alvord Blvd from Iowa to Delaware					2019
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	320	LF	\$ 57.00	\$ 18,300.00	
8-inch Fittings	1	LS	\$ 200.00	\$ 200.00	
Fire Hydrant Assembly	1	EA	\$ 3,000.00	\$ 3,000.00	
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00	
Service Connection	4	EA	\$ 1,500.00	\$ 6,000.00	
Sub-Total				\$30,400	
General conditions (2% of Construction Costs)	1	LS	\$1,000	\$1,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$1,000	\$1,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$2,000	\$2,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$1,000	\$1,000	
Subtotal				\$35,400	
Contingencies (30% of Construction Costs)	1	LS	\$11,000	\$11,000	
<b>Construction Sub-Total</b>				\$46,400	
Non-Construction Costs (25%)	1	LS	\$12,000	\$12,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$59,000	

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
On north side of commercial area from Weinbach to Spring						
					2019	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	660	LF	\$ 81.00	\$ 53,500.00		
12-inch Fittings	1	LS	\$ 800.00	\$ 800.00		
Fire Hydrant Assembly	2	EA	\$ 3,000.00	\$ 6,000.00		
12-inch Gate Valve	1	EA	\$ 6,800.00	\$ 6,800.00		
Service Connection	5	EA	\$ 1,500.00	\$ 7,500.00		
Sub-Total				\$74,600		
General conditions (2% of Construction Costs)	1	LS	\$2,000	\$2,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$3,000	\$3,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$4,000	\$4,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$3,000	\$3,000		
Subtotal				\$86,600		
Contingencies (30% of Construction Costs )	1	LS	\$26,000	\$26,000		
<b>Construction Sub-Total</b>				\$112,600		
<b>Non-Construction Costs (25%)</b>	1	LS	\$29,000	\$29,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$142,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO: 66201-PL-001		PREPARED BY: EFM	DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL	DATE: 9/15/2016		
PROJECT MGR: JAT		CHECKED BY:	DATE:		
Bell and Lemcke Neighborhood					2019
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	5,820	LF	\$ 57.00	\$ 331,800.00	
8-inch DI Jack and Bore	100	LF	\$ 708.00	\$ 70,800.00	
8-inch Fittings	1	LS	\$ 2,100.00	\$ 2,100.00	
Fire Hydrant Assembly	16	EA	\$ 3,000.00	\$ 48,000.00	
8-inch Gate Valve	10	EA	\$ 2,900.00	\$ 29,000.00	
Service Connection	190	EA	\$ 1,500.00	\$ 285,000.00	
Sub-Total				\$766,700	
General conditions (2% of Construction Costs)	1	LS	\$16,000	\$16,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$24,000	\$24,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$39,000	\$39,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$24,000	\$24,000	
Subtotal				\$869,700	
Contingencies (30% of Construction Costs )	1	LS	\$261,000	\$261,000	
<b>Construction Sub-Total</b>				<b>\$1,130,700</b>	
<b>Non-Construction Costs (25%)</b>	1	LS	\$283,000	\$283,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,414,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Bexley Rd					2019
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	1,360	LF	\$ 57.00	\$ 77,600.00	
8-inch Fittings	1	LS	\$ 500.00	\$ 500.00	
Fire Hydrant Assembly	4	EA	\$ 3,000.00	\$ 12,000.00	
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00	
Automatic Flushing Device	1	EA	\$ 5,000.00	\$ 5,000.00	
Service Connection	30	EA	\$ 1,500.00	\$ 45,000.00	
Sub-Total				\$145,900	
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$5,000	\$5,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$8,000	\$8,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$5,000	\$5,000	
Subtotal				\$166,900	
Contingencies (30% of Construction Costs )	1	LS	\$51,000	\$51,000	
<b>Construction Sub-Total</b>				\$217,900	
<b>Non-Construction Costs (25%)</b>	1	LS	\$55,000	\$55,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$273,000	

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HNTE		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM	DATE:	6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
Cardinal Rd					2019
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	1,160	LF	\$ 57.00	\$ 66,200.00	
8-inch Fittings	1	LS	\$ 500.00	\$ 500.00	
Fire Hydrant Assembly	3	EA	\$ 3,000.00	\$ 9,000.00	
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00	
Service Connection	21	EA	\$ 1,500.00	\$ 31,500.00	
Sub-Total				\$113,000	
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$6,000	\$6,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000	
Subtotal				\$130,000	
Contingencies (30% of Construction Costs )	1	LS	\$39,000	\$39,000	
<b>Construction Sub-Total</b>				\$169,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$43,000	\$43,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$212,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 8/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Charlotte and Russel Sts						
					2019	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	3,510	LF	\$ 57.00	\$ 200,100.00		
8-inch Fittings	1	LS	\$ 1,300.00	\$ 1,300.00		
Fire Hydrant Assembly	10	EA	\$ 3,000.00	\$ 30,000.00		
8-inch Gate Valve	5	EA	\$ 2,900.00	\$ 14,500.00		
Service Connection	66	EA	\$ 1,500.00	\$ 99,000.00		
Sub-Total				\$344,900		
General conditions (2% of Construction Costs)	1	LS	\$7,000	\$7,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$11,000	\$11,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$18,000	\$18,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$11,000	\$11,000		
Subtotal				\$391,900		
Contingencies (30% of Construction Costs )	1	LS	\$118,000	\$118,000		
<b>Construction Sub-Total</b>				\$509,900		
<b>Non-Construction Costs (25%)</b>	1	LS	\$128,000	\$128,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$638,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Fendrich Neighborhood						
					2019	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	4,340	LF	\$ 57.00	\$ 247,400.00		
8-inch Fittings	1	LS	\$ 1,600.00	\$ 1,600.00		
Fire Hydrant Assembly	11	EA	\$ 3,000.00	\$ 33,000.00		
8-inch Gate Valve	6	EA	\$ 2,900.00	\$ 17,400.00		
Service Connection	119	EA	\$ 1,500.00	\$ 178,500.00		
Sub-Total				\$477,900		
General conditions (2% of Construction Costs)	1	LS	\$10,000	\$10,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$15,000	\$15,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$24,000	\$24,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$15,000	\$15,000		
Subtotal				\$541,900		
Contingencies (30% of Construction Costs )	1	LS	\$163,000	\$163,000		
<b>Construction Sub-Total</b>				\$704,900		
<b>Non-Construction Costs (25%)</b>	1	LS	\$177,000	\$177,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$882,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Gayne St						2019
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,420	LF	\$ 57.00	\$ 81,000.00		
8-inch Fittings	1	LS	\$ 600.00	\$ 600.00		
Fire Hydrant Assembly	5	EA	\$ 3,000.00	\$ 15,000.00		
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00		
Service Connection	18	EA	\$ 1,500.00	\$ 27,000.00		
Sub-Total				\$129,400		
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$7,000	\$7,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Subtotal				\$147,400		
Contingencies (30% of Construction Costs )	1	LS	\$45,000	\$45,000		
<b>Construction Sub-Total</b>				\$192,400		
<b>Non-Construction Costs (25%)</b>	1	LS	\$49,000	\$49,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$242,000		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Lake Rd					2019
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
4-inch C900 PVC Water Main Open Cut	460	LF	\$ 38.00	\$ 17,500.00	
8-inch C900 PVC Water Main Open Cut	10,520	LF	\$ 57.00	\$ 599,700.00	
4-inch Fittings	1	LS	\$ 100.00	\$ 100.00	
8-inch Fittings	1	LS	\$ 3,800.00	\$ 3,800.00	
Fire Hydrant Assembly	27	EA	\$ 3,000.00	\$ 81,000.00	
8-inch Gate Valve	14	EA	\$ 2,900.00	\$ 40,600.00	
Automatic Flushing Device	3	EA	\$ 5,000.00	\$ 15,000.00	
Service Connection	131	EA	\$ 1,500.00	\$ 196,500.00	
Sub-Total				\$954,200	
General conditions (2% of Construction Costs)	1	LS	\$20,000	\$20,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$29,000	\$29,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$48,000	\$48,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$29,000	\$29,000	
Subtotal				\$1,080,200	
Contingencies (30% of Construction Costs )	1	LS	\$325,000	\$325,000	
<b>Construction Sub-Total</b>				\$1,405,200	
<b>Non-Construction Costs (25%)</b>	1	LS	\$352,000	\$352,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,758,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Newburgh Rd						
					2019	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	10,020	LF	\$ 57.00	\$ 571,200.00		
8-inch Fittings	1	LS	\$ 3,700.00	\$ 3,700.00		
Fire Hydrant Assembly	26	EA	\$ 3,000.00	\$ 78,000.00		
8-inch Gate Valve	13	EA	\$ 2,900.00	\$ 37,700.00		
Service Connection	119	EA	\$ 1,500.00	\$ 178,500.00		
Sub-Total				\$869,100		
General conditions (2% of Construction Costs)	1	LS	\$18,000	\$18,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$27,000	\$27,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$44,000	\$44,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$27,000	\$27,000		
Subtotal				\$985,100		
Contingencies (30% of Construction Costs )	1	LS	\$296,000	\$296,000		
<b>Construction Sub-Total</b>				\$1,281,100		
<b>Non-Construction Costs (25%)</b>	1	LS	\$321,000	\$321,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,603,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Southeast Blvd					2019
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	180	LF	\$ 57.00	\$ 10,300.00	
8-inch Fittings	1	LS	\$ 100.00	\$ 100.00	
Fire Hydrant Assembly	1	EA	\$ 3,000.00	\$ 3,000.00	
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00	
Service Connection	2	EA	\$ 1,500.00	\$ 3,000.00	
Sub-Total				\$19,300	
General conditions (2% of Construction Costs)	1	LS	\$1,000	\$1,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$1,000	\$1,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$1,000	\$1,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$1,000	\$1,000	
Subtotal				\$23,300	
Contingencies (30% of Construction Costs )	1	LS	\$7,000	\$7,000	
<b>Construction Sub-Total</b>				\$30,300	
<b>Non-Construction Costs (25%)</b>	1	LS	\$8,000	\$8,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$39,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Residential area bounded by Vogel, Boeke, Division, and Weinbach					2019
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	31,980	LF	\$ 57.00	\$ 1,822,900.00	
8-inch Fittings	1	LS	\$ 11,600.00	\$ 11,600.00	
Fire Hydrant Assembly	81	EA	\$ 3,000.00	\$ 243,000.00	
8-inch Gate Valve	40	EA	\$ 2,900.00	\$ 116,000.00	
Service Connection	450	EA	\$ 1,500.00	\$ 675,000.00	
Sub-Total				\$2,868,500	
General conditions (2% of Construction Costs)	1	LS	\$58,000	\$58,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$87,000	\$87,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$144,000	\$144,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$87,000	\$87,000	
Subtotal				\$3,244,500	
Contingencies (30% of Construction Costs)	1	LS	\$974,000	\$974,000	
<b>Construction Sub-Total</b>				\$4,218,500	
<b>Non-Construction Costs (25%)</b>	1	LS	\$1,055,000	\$1,055,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$5,274,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Boeke Rd						
2019						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	4,570	LF	\$ 57.00	\$ 260,500.00		
8-inch Fittings	1	LS	\$ 1,700.00	\$ 1,700.00		
Fire Hydrant Assembly	13	EA	\$ 3,000.00	\$ 39,000.00		
8-inch Gate Valve	6	EA	\$ 2,900.00	\$ 17,400.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$378,600		
General conditions (2% of Construction Costs)	1	LS	\$8,000	\$8,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$12,000	\$12,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$19,000	\$19,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$12,000	\$12,000		
Subtotal				\$429,600		
Contingencies (30% of Construction Costs )	1	LS	\$129,000	\$129,000		
<b>Construction Sub-Total</b>				\$558,600		
<b>Non-Construction Costs (25%)</b>	1	LS	\$140,000	\$140,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$699,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Burkhardt and Plaza					2019
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	5,290	LF	\$ 57.00	\$ 301,600.00	
8-inch Fittings	1	LS	\$ 2,000.00	\$ 2,000.00	
Fire Hydrant Assembly	15	EA	\$ 3,000.00	\$ 45,000.00	
8-inch Gate Valve	7	EA	\$ 2,900.00	\$ 20,300.00	
Service Connection	55	EA	\$ 1,500.00	\$ 82,500.00	
Sub-Total				\$451,400	
General conditions (2% of Construction Costs)	1	LS	\$10,000	\$10,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$14,000	\$14,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$23,000	\$23,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$14,000	\$14,000	
Subtotal				\$512,400	
Contingencies (30% of Construction Costs )	1	LS	\$154,000	\$154,000	
<b>Construction Sub-Total</b>				\$666,400	
<b>Non-Construction Costs (25%)</b>	1	LS	\$167,000	\$167,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$834,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Maryland Ave						
					2019	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	3,850	LF	\$ 57.00	\$ 219,500.00		
8-inch Fittings	1	LS	\$ 1,400.00	\$ 1,400.00		
Fire Hydrant Assembly	11	EA	\$ 3,000.00	\$ 33,000.00		
8-inch Gate Valve	5	EA	\$ 2,900.00	\$ 14,500.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$328,400		
General conditions (2% of Construction Costs)	1	LS	\$7,000	\$7,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$10,000	\$10,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$17,000	\$17,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$10,000	\$10,000		
Subtotal				\$372,400		
Contingencies (30% of Construction Costs)	1	LS	\$112,000	\$112,000		
<b>Construction Sub-Total</b>				\$484,400		
<b>Non-Construction Costs (25%)</b>	1	LS	\$122,000	\$122,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$607,000		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: SAL	DATE: 6/17/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: RCC	DATE: 9/19/2016		
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
Campground Booster Station HVAC and Electrical Improvements					2019
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
Demolition	1	LS	\$ 10,000.00	\$ 10,000.00	
Motor-Operated Damper	5	EA	\$ 500.00	\$ 2,500.00	
Exhaust Fan	5	EA	\$ 2,500.00	\$ 12,500.00	
Electric Unit Heaters	4	EA	\$ 3,000.00	\$ 12,000.00	
Dehumidifier	1	EA	\$ 20,000.00	\$ 20,000.00	
Motor Control Center Replacement	1	LS	\$ 50,000.00	\$ 50,000.00	
Lighting Replacement	1	LS	\$ 5,000.00	\$ 5,000.00	
Sub-Total				\$112,000	
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$6,000	\$6,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000	
Subtotal				\$129,000	
Contingencies (30% of Construction Costs )	1	LS	\$39,000	\$39,000	
<b>Construction Sub-Total</b>				\$168,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$42,000	\$42,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$210,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Ohio under Pigeon Creek						
					2020	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	1,090	LF	\$ 81.00	\$ 88,300.00		
12-inch DI Jack and Bore	400	LF	\$ 748.00	\$ 299,200.00		
12-inch Fittings	1	LS	\$ 1,400.00	\$ 1,400.00		
Fire Hydrant Assembly	3	EA	\$ 3,000.00	\$ 9,000.00		
12-inch Gate Valve	4	EA	\$ 6,800.00	\$ 27,200.00		
Sub-Total				\$425,100		
General conditions (2% of Construction Costs)	1	LS	\$9,000	\$9,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$13,000	\$13,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$22,000	\$22,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$13,000	\$13,000		
Subtotal				\$482,100		
Contingencies (30% of Construction Costs )	1	LS	\$145,000	\$145,000		
<b>Construction Sub-Total</b>				\$627,100		
<b>Non-Construction Costs (25%)</b>	1	LS	\$157,000	\$157,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$785,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Cross Pointe Blvd II					2020
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
12-inch C900 PVC Water Main Open Cut	2,930	LF	\$ 81.00	\$ 237,400.00	
12-inch Fittings	1	LS	\$ 3,600.00	\$ 3,600.00	
Fire Hydrant Assembly	8	EA	\$ 3,000.00	\$ 24,000.00	
12-inch Gate Valve	4	EA	\$ 6,800.00	\$ 27,200.00	
Service Connection	2	EA	\$ 1,500.00	\$ 3,000.00	
Sub-Total				\$295,200	
General conditions (2% of Construction Costs)	1	LS	\$6,000	\$6,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$9,000	\$9,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$15,000	\$15,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$9,000	\$9,000	
Subtotal				\$334,200	
Contingencies (30% of Construction Costs )	1	LS	\$101,000	\$101,000	
<b>Construction Sub-Total</b>				\$435,200	
<b>Non-Construction Costs (25%)</b>	1	LS	\$109,000	\$109,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$544,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM	DATE:	6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
Hebron Rd					2020
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
12-inch C900 PVC Water Main Open Cut	260	LF	\$ 81.00	\$ 21,100.00	
12-inch Fittings	1	LS	\$ 400.00	\$ 400.00	
Fire Hydrant Assembly	1	EA	\$ 3,000.00	\$ 3,000.00	
12-inch Gate Valve	1	EA	\$ 6,800.00	\$ 6,800.00	
Service Connection	2	EA	\$ 1,500.00	\$ 3,000.00	
Sub-Total				\$34,300	
General conditions (2% of Construction Costs)	1	LS	\$1,000	\$1,000	
Bonds & insurance (3% of Construction Costs)	1	LS	\$2,000	\$2,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$2,000	\$2,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$2,000	\$2,000	
Subtotal				\$41,300	
Contingencies (30% of Construction Costs )	1	LS	\$13,000	\$13,000	
<b>Construction Sub-Total</b>				\$54,300	
<b>Non-Construction Costs (25%)</b>	1	LS	\$14,000	\$14,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$69,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Tupman Rd					2020
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	2,080	LF	\$ 57.00	\$ 118,600.00	
8-inch Fittings	1	LS	\$ 800.00	\$ 800.00	
Fire Hydrant Assembly	7	EA	\$ 3,000.00	\$ 21,000.00	
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00	
Service Connection	30	EA	\$ 1,500.00	\$ 45,000.00	
Sub-Total				\$194,100	
General conditions (2% of Construction Costs)	1	LS	\$4,000	\$4,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$6,000	\$6,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$10,000	\$10,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$6,000	\$6,000	
Subtotal				\$220,100	
Contingencies (30% of Construction Costs)	1	LS	\$67,000	\$67,000	
<b>Construction Sub-Total</b>				\$287,100	
<b>Non-Construction Costs (25%)</b>	1	LS	\$72,000	\$72,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$360,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Hathaway, Pennington, Red Bank, Helfrich, Arlington, Cole, a 2020					
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
4-inch C900 PVC Water Main Open Cut	10	LF	\$ 38.00	\$ 400.00	
8-inch C900 PVC Water Main Open Cut	7,240	LF	\$ 57.00	\$ 412,700.00	
12-inch C900 PVC Water Main Open Cut	1,500	LF	\$ 81.00	\$ 121,500.00	
4-inch Fittings	1	LS	\$ 100.00	\$ 100.00	
8-inch Fittings	1	LS	\$ 2,700.00	\$ 2,700.00	
12-inch Fittings	1	LS	\$ 1,800.00	\$ 1,800.00	
Fire Hydrant Assembly	23	EA	\$ 3,000.00	\$ 69,000.00	
8-inch Gate Valve	10	EA	\$ 2,900.00	\$ 29,000.00	
12-inch Gate Valve	2	EA	\$ 6,800.00	\$ 13,600.00	
Service Connection	91	EA	\$ 1,500.00	\$ 136,500.00	
Sub-Total				\$787,300	
General conditions (2% of Construction Costs)	1	LS	\$16,000	\$16,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$24,000	\$24,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$40,000	\$40,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$24,000	\$24,000	
Subtotal				\$891,300	
Contingencies (30% of Construction Costs )	1	LS	\$268,000	\$268,000	
<b>Construction Sub-Total</b>				\$1,159,300	
<b>Non-Construction Costs (25%)</b>	1	LS	\$290,000	\$290,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,450,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Mesker Park - Phase I and Allens Ln - Phase I					2020
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	4,000	LF	\$ 57.00	\$ 228,000.00	
8-inch DI Jack and Bore	510	LF	\$ 708.00	\$ 361,100.00	
8-inch Fittings	1	LS	\$ 1,500.00	\$ 1,500.00	
Fire Hydrant Assembly	11	EA	\$ 3,000.00	\$ 33,000.00	
8-inch Gate Valve	0	EA	\$ -	\$ -	
8-inch Gate Valve	7	EA	\$ 2,900.00	\$ 20,300.00	
Service Connection	44	EA	\$ 1,500.00	\$ 66,000.00	
Sub-Total				\$709,900	
General conditions (2% of Construction Costs)	1	LS	\$15,000	\$15,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$22,000	\$22,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$36,000	\$36,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$22,000	\$22,000	
Subtotal				\$804,900	
Contingencies (30% of Construction Costs )	1	LS	\$242,000	\$242,000	
<b>Construction Sub-Total</b>				\$1,046,900	
<b>Non-Construction Costs (25%)</b>	1	LS	\$262,000	\$262,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,309,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Grove St					2020
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch DI Jack and Bore	2,580	LF	\$ 708.00	\$ 1,826,700.00	
Fire Hydrant Assembly	1	EA	\$ 3,000.00	\$ 3,000.00	
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00	
Service Connection	76	EA	\$ 1,500.00	\$ 114,000.00	
Sub-Total				\$1,949,500	
General conditions (2% of Construction Costs)	1	LS	\$39,000	\$39,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$59,000	\$59,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$98,000	\$98,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$59,000	\$59,000	
Subtotal				\$2,204,500	
Contingencies (30% of Construction Costs )	1	LS	\$662,000	\$662,000	
<b>Construction Sub-Total</b>				\$2,866,500	
<b>Non-Construction Costs (25%)</b>	1	LS	\$717,000	\$717,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$3,584,000	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
7th St and Shanklin					2020
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	2,130	LF	\$ 57.00	\$ 121,500.00	
8-inch DI Jack and Bore	200	LF	\$ 708.00	\$ 141,600.00	
8-inch Fittings	1	LS	\$ 800.00	\$ 800.00	
Fire Hydrant Assembly	7	EA	\$ 3,000.00	\$ 21,000.00	
8-inch Gate Valve	5	EA	\$ 2,900.00	\$ 14,500.00	
Service Connection	20	EA	\$ 1,500.00	\$ 30,000.00	
Sub-Total				\$329,400	
General conditions (2% of Construction Costs)	1	LS	\$7,000	\$7,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$10,000	\$10,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$17,000	\$17,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$10,000	\$10,000	
Subtotal				\$373,400	
Contingencies (30% of Construction Costs )	1	LS	\$113,000	\$113,000	
<b>Construction Sub-Total</b>				\$486,400	
<b>Non-Construction Costs (25%)</b>	1	LS	\$122,000	\$122,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$609,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Evans Middle School						
					2020	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
4-inch C900 PVC Water Main Open Cut	630	LF	\$ 38.00	\$ 24,000.00		
8-inch C900 PVC Water Main Open Cut	20,830	LF	\$ 57.00	\$ 1,187,400.00		
12-inch C900 PVC Water Main Open Cut	370	LF	\$ 81.00	\$ 30,000.00		
4-inch Fittings	1	LS	\$ 100.00	\$ 100.00		
8-inch Fittings	1	LS	\$ 7,500.00	\$ 7,500.00		
12-inch Fittings	1	LS	\$ 500.00	\$ 500.00		
Fire Hydrant Assembly	54	EA	\$ 3,000.00	\$ 162,000.00		
8-inch Gate Valve	27	EA	\$ 2,900.00	\$ 78,300.00		
12-inch Gate Valve	1	EA	\$ 6,800.00	\$ 6,800.00		
Automatic Flushing Device	5	EA	\$ 5,000.00	\$ 25,000.00		
Service Connection	496	EA	\$ 1,500.00	\$ 744,000.00		
Sub-Total				\$2,265,600		
General conditions (2% of Construction Costs)	1	LS	\$46,000	\$46,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$68,000	\$68,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$114,000	\$114,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$68,000	\$68,000		
Subtotal				\$2,561,600		
Contingencies (30% of Construction Costs )	1	LS	\$769,000	\$769,000		
<b>Construction Sub-Total</b>				\$3,330,600		
<b>Non-Construction Costs (25%)</b>	1	LS	\$833,000	\$833,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$4,164,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Morton Ave and Franklin St					2020
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	2,450	LF	\$ 57.00	\$ 139,700.00	
8-inch DI Jack and Bore	400	LF	\$ 708.00	\$ 283,200.00	
8-inch Fittings	1	LS	\$ 900.00	\$ 900.00	
Fire Hydrant Assembly	7	EA	\$ 3,000.00	\$ 21,000.00	
8-inch Gate Valve	6	EA	\$ 2,900.00	\$ 17,400.00	
Service Connection	30	EA	\$ 1,500.00	\$ 45,000.00	
Sub-Total				\$507,200	
General conditions (2% of Construction Costs)	1	LS	\$11,000	\$11,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$16,000	\$16,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$26,000	\$26,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$16,000	\$16,000	
Subtotal				\$576,200	
Contingencies (30% of Construction Costs )	1	LS	\$173,000	\$173,000	
<b>Construction Sub-Total</b>				\$749,200	
<b>Non-Construction Costs (25%)</b>	1	LS	\$188,000	\$188,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$938,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Madison, Weinbach, Covert, and Rotherwood					2020
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	4,820	LF	\$ 57.00	\$ 274,800.00	
8-inch Fittings	1	LS	\$ 1,800.00	\$ 1,800.00	
Fire Hydrant Assembly	14	EA	\$ 3,000.00	\$ 42,000.00	
8-inch Gate Valve	7	EA	\$ 2,900.00	\$ 20,300.00	
Service Connection	130	EA	\$ 1,500.00	\$ 195,000.00	
Sub-Total				\$533,900	
General conditions (2% of Construction Costs)	1	LS	\$11,000	\$11,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$17,000	\$17,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$27,000	\$27,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$17,000	\$17,000	
Subtotal				\$605,900	
Contingencies (30% of Construction Costs)	1	LS	\$182,000	\$182,000	
<b>Construction Sub-Total</b>				\$787,900	
<b>Non-Construction Costs (25%)</b>	1	LS	\$197,000	\$197,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$985,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/14/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Washington, Vann, Covert, and Boeke					2020
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
4-inch C900 PVC Water Main Open Cut	340	LF	\$ 38.00	\$ 13,000.00	
8-inch C900 PVC Water Main Open Cut	24,150	LF	\$ 57.00	\$ 1,376,600.00	
4-inch Fittings	1	LS	\$ 100.00	\$ 100.00	
8-inch Fittings	1	LS	\$ 8,700.00	\$ 8,700.00	
Fire Hydrant Assembly	62	EA	\$ 3,000.00	\$ 186,000.00	
8-inch Gate Valve	31	EA	\$ 2,900.00	\$ 89,900.00	
Automatic Flushing Device	2	EA	\$ 5,000.00	\$ 10,000.00	
Service Connection	604	EA	\$ 1,500.00	\$ 906,000.00	
Sub-Total				\$2,590,300	
General conditions (2% of Construction Costs)	1	LS	\$52,000	\$52,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$78,000	\$78,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$130,000	\$130,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$78,000	\$78,000	
Subtotal				\$2,928,300	
Contingencies (30% of Construction Costs )	1	LS	\$879,000	\$879,000	
<b>Construction Sub-Total</b>				\$3,807,300	
<b>Non-Construction Costs (25%)</b>	1	LS	\$952,000	\$952,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$4,760,000	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood south of Riverside and west of Lodge					2020
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
4-inch C900 PVC Water Main Open Cut	460	LF	\$ 38.00	\$ 17,500.00	
8-inch C900 PVC Water Main Open Cut	4,930	LF	\$ 57.00	\$ 281,100.00	
4-inch Fittings	1	LS	\$ 100.00	\$ 100.00	
8-inch Fittings	1	LS	\$ 1,800.00	\$ 1,800.00	
Fire Hydrant Assembly	14	EA	\$ 3,000.00	\$ 42,000.00	
8-inch Gate Valve	7	EA	\$ 2,900.00	\$ 20,300.00	
Automatic Flushing Device	2	EA	\$ 5,000.00	\$ 10,000.00	
Service Connection	110	EA	\$ 1,500.00	\$ 165,000.00	
Sub-Total				\$537,800	
General conditions (2% of Construction Costs)	1	LS	\$11,000	\$11,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$17,000	\$17,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$27,000	\$27,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$17,000	\$17,000	
Subtotal				\$609,800	
Contingencies (30% of Construction Costs )	1	LS	\$183,000	\$183,000	
<b>Construction Sub-Total</b>				<b>\$792,800</b>	
<b>Non-Construction Costs (25%)</b>	1	LS	\$199,000	\$199,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$992,000</b>	

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Schmitt Ln					2020
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	1,240	LF	\$ 57.00	\$ 70,700.00	
8-inch Fittings	1	LS	\$ 500.00	\$ 500.00	
Fire Hydrant Assembly	5	EA	\$ 3,000.00	\$ 15,000.00	
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00	
Service Connection	26	EA	\$ 1,500.00	\$ 39,000.00	
Sub-Total				\$131,000	
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$7,000	\$7,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000	
Subtotal				\$149,000	
Contingencies (30% of Construction Costs )	1	LS	\$45,000	\$45,000	
<b>Construction Sub-Total</b>				\$194,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$49,000	\$49,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$243,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: SAL	DATE:	6/30/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: RCC	DATE:	9/19/2016	
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
Lincoln Booster Station Replacement					2020
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
Land Acquisition	1	LS	\$ 20,000.00	\$ 20,000.00	
Site Piping	1	LS	\$ 175,000.00	\$ 175,000.00	
Packaged Pump Station	1	LS	\$ 700,000.00	\$ 700,000.00	
Instrumentation & Controls	1	LS	\$ 25,000.00	\$ 25,000.00	
Electrical	1	LS	\$ 100,000.00	\$ 100,000.00	
Sub-Total				\$1,020,000	
General conditions (2% of Construction Costs)	1	LS	\$21,000	\$21,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$31,000	\$31,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$51,000	\$51,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$31,000	\$31,000	
Subtotal				\$1,154,000	
Contingencies (30% of Construction Costs )	1	LS	\$347,000	\$347,000	
<b>Construction Sub-Total</b>				\$1,501,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$376,000	\$376,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$1,900,000	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 68201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Inglefield Rd						2021
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	1,310	LF	\$ 81.00	\$ 106,200.00		
12-inch Fittings	1	LS	\$ 1,600.00	\$ 1,600.00		
Fire Hydrant Assembly	4	EA	\$ 3,000.00	\$ 12,000.00		
12-inch Gate Valve	2	EA	\$ 6,800.00	\$ 13,600.00		
Sub-Total				\$133,400		
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000		
Bonds & insurance (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$7,000	\$7,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Subtotal				\$153,400		
Contingencies (30% of Construction Costs )	1	LS	\$47,000	\$47,000		
<b>Construction Sub-Total</b>				\$200,400		
<b>Non-Construction Costs (25%)</b>	1	LS	\$51,000	\$51,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$252,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY:		ECM	DATE:	6/16/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:		SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:			DATE:	
Cemetery Rd						2021
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	980	LF	\$ 81.00	\$ 79,400.00		
12-inch Fittings	1	LS	\$ 1,200.00	\$ 1,200.00		
Fire Hydrant Assembly	3	EA	\$ 3,000.00	\$ 9,000.00		
12-inch Gate Valve	2	EA	\$ 6,800.00	\$ 13,600.00		
Service Connection	2	EA	\$ 1,500.00	\$ 3,000.00		
Sub-Total				\$106,200		
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$6,000	\$6,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Subtotal				\$123,200		
Contingencies (30% of Construction Costs)	1	LS	\$37,000	\$37,000		
<b>Construction Sub-Total</b>				\$160,200		
Non-Construction Costs (25%)	1	LS	\$41,000	\$41,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$202,000		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR: JAT		CHECKED BY:		DATE:	
Covert Rd					2021
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	1,550	LF	\$ 57.00	\$ 88,400.00	
8-inch Fittings	1	LS	\$ 600.00	\$ 600.00	
Fire Hydrant Assembly	4	EA	\$ 3,000.00	\$ 12,000.00	
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00	
Service Connection	22	EA	\$ 1,500.00	\$ 33,000.00	
Sub-Total				\$139,800	
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$5,000	\$5,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$7,000	\$7,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$5,000	\$5,000	
Subtotal				\$159,800	
Contingencies (30% of Construction Costs )	1	LS	\$48,000	\$48,000	
<b>Construction Sub-Total</b>				\$207,800	
<b>Non-Construction Costs (25%)</b>	1	LS	\$52,000	\$52,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$260,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Upper Mt Vernon - Phase I and Red Bank					2021
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	3,500	LF	\$ 57.00	\$ 199,500.00	
16-inch DI Water Main Open Cut	10,600	LF	\$ 163.00	\$1,727,800.00	
8-inch Fittings	1	LS	\$ 1,300.00	\$ 1,300.00	
16-inch Fittings	1	LS	\$ 40,300.00	\$ 40,300.00	
Fire Hydrant Assembly	36	EA	\$ 3,000.00	\$ 108,000.00	
8-inch Gate Valve	5	EA	\$ 2,900.00	\$ 14,500.00	
16-inch Gate Valve	14	EA	\$ 20,000.00	\$ 280,000.00	
Air/Vacuum Relief Valve	6	EA	\$ 5,000.00	\$ 30,000.00	
Service Connection	200	EA	\$ 1,500.00	\$ 300,000.00	
Sub-Total				\$2,701,400	
General conditions (2% of Construction Costs)	1	LS	\$55,000	\$55,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$82,000	\$82,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$136,000	\$136,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$82,000	\$82,000	
Subtotal				\$3,056,400	
Contingencies (30% of Construction Costs)	1	LS	\$917,000	\$917,000	
<b>Construction Sub-Total</b>				\$3,973,400	
Non-Construction Costs (25%)	1	LS	\$994,000	\$994,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$4,968,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM	DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL	DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
Reichman Rd Neighborhood					2021
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	3,600	LF	\$ 57.00	\$ 205,200.00	
8-inch Fittings	1	LS	\$ 1,300.00	\$ 1,300.00	
Fire Hydrant Assembly	10	EA	\$ 3,000.00	\$ 30,000.00	
8-inch Gate Valve	5	EA	\$ 2,900.00	\$ 14,500.00	
Service Connection	46	EA	\$ 1,500.00	\$ 69,000.00	
Sub-Total				\$320,000	
General conditions (2% of Construction Costs)	1	LS	\$7,000	\$7,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$10,000	\$10,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$16,000	\$16,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$10,000	\$10,000	
Subtotal				\$363,000	
Contingencies (30% of Construction Costs )	1	LS	\$109,000	\$109,000	
<b>Construction Sub-Total</b>				\$472,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$118,000	\$118,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$590,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Lakeview Blvd					2021
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	760	LF	\$ 57.00	\$ 43,400.00	
16-inch DI Water Main Open Cut	1,090	LF	\$ 163.00	\$ 177,700.00	
8-inch Fittings	1	LS	\$ 300.00	\$ 300.00	
16-inch Fittings	1	LS	\$ 4,200.00	\$ 4,200.00	
Fire Hydrant Assembly	6	EA	\$ 3,000.00	\$ 18,000.00	
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00	
16-inch Gate Valve	2	EA	\$ 20,000.00	\$ 40,000.00	
Air/Vacuum Relief Valve	1	EA	\$ 5,000.00	\$ 5,000.00	
Service Connection	10	EA	\$ 1,500.00	\$ 15,000.00	
Sub-Total				\$306,500	
General conditions (2% of Construction Costs)	1	LS	\$7,000	\$7,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$10,000	\$10,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$16,000	\$16,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$10,000	\$10,000	
Subtotal				\$349,500	
Contingencies (30% of Construction Costs)	1	LS	\$105,000	\$105,000	
<b>Construction Sub-Total</b>				\$454,500	
<b>Non-Construction Costs (25%)</b>	1	LS	\$114,000	\$114,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$569,000	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Harmony - Phase I					2021
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	1,320	LF	\$ 57.00	\$ 75,300.00	
8-inch Fittings	1	LS	\$ 500.00	\$ 500.00	
Fire Hydrant Assembly	4	EA	\$ 3,000.00	\$ 12,000.00	
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00	
Service Connection	43	EA	\$ 1,500.00	\$ 64,500.00	
Sub-Total				\$158,100	
General conditions (2% of Construction Costs)	1	LS	\$4,000	\$4,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$5,000	\$5,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$8,000	\$8,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$5,000	\$5,000	
Subtotal				\$180,100	
Contingencies (30% of Construction Costs )	1	LS	\$55,000	\$55,000	
<b>Construction Sub-Total</b>				\$235,100	
<b>Non-Construction Costs (25%)</b>	1	LS	\$59,000	\$59,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$295,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR: JAT		CHECKED BY:		DATE:	
Ohio west of Pigeon Creek					2021
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
12-inch DI Jack and Bore	3,620	LF	\$ 748.00	\$ 2,707,800.00	
12-inch Gate Valve	2	EA	\$ 6,800.00	\$ 13,600.00	
Service Connection	25	EA	\$ 1,500.00	\$ 37,500.00	
Sub-Total				\$2,758,900	
General conditions (2% of Construction Costs)	1	LS	\$56,000	\$56,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$83,000	\$83,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$138,000	\$138,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$83,000	\$83,000	
Subtotal				\$3,118,900	
Contingencies (30% of Construction Costs )	1	LS	\$936,000	\$936,000	
<b>Construction Sub-Total</b>				\$4,054,900	
<b>Non-Construction Costs (25%)</b>	1	LS	\$1,014,000	\$1,014,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$5,069,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Park St					2021
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	580	LF	\$ 57.00	\$ 33,100.00	
12-inch C900 PVC Water Main Open Cut	580	LF	\$ 81.00	\$ 47,000.00	
8-inch DI Jack and Bore	100	LF	\$ 708.00	\$ 70,800.00	
8-inch Fittings	1	LS	\$ 300.00	\$ 300.00	
12-inch Fittings	1	LS	\$ 700.00	\$ 700.00	
Fire Hydrant Assembly	4	EA	\$ 3,000.00	\$ 12,000.00	
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00	
12-inch Gate Valve	1	EA	\$ 6,800.00	\$ 6,800.00	
Service Connection	10	EA	\$ 1,500.00	\$ 15,000.00	
Sub-Total				\$194,400	
General conditions (2% of Construction Costs)	1	LS	\$4,000	\$4,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$6,000	\$6,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$10,000	\$10,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$6,000	\$6,000	
Subtotal				\$220,400	
Contingencies (30% of Construction Costs)	1	LS	\$67,000	\$67,000	
<b>Construction Sub-Total</b>				\$287,400	
<b>Non-Construction Costs (25%)</b>	1	LS	\$72,000	\$72,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$360,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Allens Ln					2021
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
16-inch DI Water Main Open Cut	2,050	LF	\$ 163.00	\$ 334,200.00	
16-inch Fittings	1	LS	\$ 7,800.00	\$ 7,800.00	
Fire Hydrant Assembly	6	EA	\$ 3,000.00	\$ 18,000.00	
16-inch Gate Valve	3	EA	\$ 20,000.00	\$ 60,000.00	
Air/Vacuum Relief Valve	2	EA	\$ 5,000.00	\$ 10,000.00	
Service Connection	91	EA	\$ 1,500.00	\$ 136,500.00	
Sub-Total				\$566,500	
General conditions (2% of Construction Costs)	1	LS	\$12,000	\$12,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$17,000	\$17,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$29,000	\$29,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$17,000	\$17,000	
Subtotal				\$641,500	
Contingencies (30% of Construction Costs )	1	LS	\$193,000	\$193,000	
<b>Construction Sub-Total</b>				\$834,500	
<b>Non-Construction Costs (25%)</b>	1	LS	\$209,000	\$209,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,044,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Senate Ave						2021
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C800 PVC Water Main Open Cut	1,740	LF	\$ 57.00	\$ 99,200.00		
12-inch C800 PVC Water Main Open Cut	680	LF	\$ 81.00	\$ 55,100.00		
24-inch DI Water Main Open Cut	5,380	LF	\$ 230.00	\$ 1,237,400.00		
36-inch DI Water Main Open Cut	500	LF	\$ 315.00	\$ 157,500.00		
8-inch Fittings	1	LS	\$ 700.00	\$ 700.00		
12-inch Fittings	1	LS	\$ 900.00	\$ 900.00		
24-inch Fittings	1	LS	\$ 42,000.00	\$ 42,000.00		
36-inch Fittings	1	LS	\$ 8,000.00	\$ 8,000.00		
Fire Hydrant Assembly	22	EA	\$ 3,000.00	\$ 66,000.00		
8-inch Gate Valve	3	EA	\$ 2,800.00	\$ 8,700.00		
12-inch Gate Valve	1	EA	\$ 6,800.00	\$ 6,800.00		
24-inch Gate Valve	6	EA	\$ 45,000.00	\$ 270,000.00		
36-inch Gate Valve	1	EA	\$ 65,000.00	\$ 65,000.00		
Air/Vacuum Relief Valve	3	EA	\$ 5,000.00	\$ 15,000.00		
Service Connection	50	EA	\$ 1,500.00	\$ 75,000.00		
Sub-Total				\$2,107,300		
General conditions (2% of Construction Costs)	1	LS	\$43,000	\$43,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$64,000	\$64,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$106,000	\$106,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$64,000	\$64,000		
Subtotal				\$2,384,300		
Contingencies (30% of Construction Costs )	1	LS	\$716,000	\$716,000		
<b>Construction Sub-Total</b>				\$3,100,300		
<b>Non-Construction Costs (25%)</b>	1	LS	\$776,000	\$776,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,877,000</b>		

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.



HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Area bounded by Kentucky, SR 66, and US 41					2021
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
4-inch C900 PVC Water Main Open Cut	10	LF	\$ 38.00	\$ 400.00	
8-inch C900 PVC Water Main Open Cut	1,630	LF	\$ 57.00	\$ 93,000.00	
4-inch Fittings	1	LS	\$ 100.00	\$ 100.00	
8-inch Fittings	1	LS	\$ 600.00	\$ 600.00	
Fire Hydrant Assembly	6	EA	\$ 3,000.00	\$ 18,000.00	
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00	
Automatic Flushing Device	1	EA	\$ 5,000.00	\$ 5,000.00	
Service Connection	216	EA	\$ 1,500.00	\$ 324,000.00	
Sub-Total				\$449,800	
General conditions (2% of Construction Costs)	1	LS	\$9,000	\$9,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$14,000	\$14,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$23,000	\$23,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$14,000	\$14,000	
Subtotal				\$509,800	
Contingencies (30% of Construction Costs )	1	LS	\$153,000	\$153,000	
<b>Construction Sub-Total</b>				\$662,800	
<b>Non-Construction Costs (25%)</b>	1	LS	\$166,000	\$166,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$829,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Dead end main east of Evans and north from Louisiana					2021
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
12-inch C900 PVC Water Main Open Cut	1,330	LF	\$ 81.00	\$ 107,800.00	
12-inch Fittings	1	LS	\$ 1,600.00	\$ 1,600.00	
Fire Hydrant Assembly	4	EA	\$ 3,000.00	\$ 12,000.00	
12-inch Gate Valve	2	EA	\$ 6,800.00	\$ 13,600.00	
Service Connection	29	EA	\$ 1,500.00	\$ 43,500.00	
Sub-Total				\$178,500	
General conditions (2% of Construction Costs)	1	LS	\$4,000	\$4,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$6,000	\$6,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$9,000	\$9,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$6,000	\$6,000	
Subtotal				\$203,500	
Contingencies (30% of Construction Costs )	1	LS	\$62,000	\$62,000	
<b>Construction Sub-Total</b>				\$265,500	
Non-Construction Costs (25%)	1	LS	\$67,000	\$67,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$333,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Division St						
					2021	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	40	LF	\$ 57.00	\$ 2,300.00		
30-inch DI Water Main Open Cut	4,470	LF	\$ 284.00	\$ 1,269,500.00		
20-inch DI Jack and Bore	200	LF	\$ 989.00	\$ 197,800.00		
30-inch DI Jack and Bore	750	LF	\$ 1,248.00	\$ 936,000.00		
8-inch Fittings	1	LS	\$ 100.00	\$ 100.00		
30-inch Fittings	1	LS	\$ 53,700.00	\$ 53,700.00		
Fire Hydrant Assembly	12	EA	\$ 3,000.00	\$ 36,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
20-inch Gate Valve	2	EA	\$ 35,000.00	\$ 70,000.00		
30-inch Gate Valve	7	EA	\$ 55,000.00	\$ 385,000.00		
Air/Vacuum Relief Valve	3	EA	\$ 5,000.00	\$ 15,000.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$3,028,300		
General conditions (2% of Construction Costs)	1	LS	\$61,000	\$61,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$91,000	\$91,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$152,000	\$152,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$91,000	\$91,000		
Subtotal				\$3,423,300		
Contingencies (30% of Construction Costs )	1	LS	\$1,027,000	\$1,027,000		
<b>Construction Sub-Total</b>				\$4,450,300		
<b>Non-Construction Costs (25%)</b>	1	LS	\$1,113,000	\$1,113,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$5,564,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Washington Ave - Phase I					2021
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	4,090	LF	\$ 57.00	\$ 233,200.00	
12-inch C900 PVC Water Main Open Cut	1,470	LF	\$ 81.00	\$ 119,100.00	
8-inch Fittings	1	LS	\$ 1,500.00	\$ 1,500.00	
12-inch Fittings	1	LS	\$ 1,800.00	\$ 1,800.00	
Fire Hydrant Assembly	15	EA	\$ 3,000.00	\$ 45,000.00	
8-inch Gate Valve	6	EA	\$ 2,900.00	\$ 17,400.00	
12-inch Gate Valve	2	EA	\$ 6,800.00	\$ 13,600.00	
Service Connection	171	EA	\$ 1,500.00	\$ 256,500.00	
Sub-Total				\$688,100	
General conditions (2% of Construction Costs)	1	LS	\$14,000	\$14,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$21,000	\$21,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$35,000	\$35,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$21,000	\$21,000	
Subtotal				\$779,100	
Contingencies (30% of Construction Costs )	1	LS	\$234,000	\$234,000	
<b>Construction Sub-Total</b>				\$1,013,100	
<b>Non-Construction Costs (25%)</b>	1	LS	\$254,000	\$254,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$1,268,000	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Covert, Vann, Graham, and Hawthorne					2021
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
4-inch C900 PVC Water Main Open Cut	450	LF	\$ 38.00	\$ 17,100.00	
8-inch C900 PVC Water Main Open Cut	9,220	LF	\$ 57.00	\$ 525,600.00	
4-inch Fittings	1	LS	\$ 100.00	\$ 100.00	
8-inch Fittings	1	LS	\$ 3,400.00	\$ 3,400.00	
Fire Hydrant Assembly	25	EA	\$ 3,000.00	\$ 75,000.00	
8-inch Gate Valve	12	EA	\$ 2,900.00	\$ 34,800.00	
Automatic Flushing Device	2	EA	\$ 5,000.00	\$ 10,000.00	
Service Connection	200	EA	\$ 1,500.00	\$ 300,000.00	
Sub-Total				\$966,000	
General conditions (2% of Construction Costs)	1	LS	\$20,000	\$20,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$29,000	\$29,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$49,000	\$49,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$29,000	\$29,000	
Subtotal				\$1,093,000	
Contingencies (30% of Construction Costs )	1	LS	\$328,000	\$328,000	
<b>Construction Sub-Total</b>				\$1,421,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$356,000	\$356,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,777,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Inglefield						2021
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	1,580	LF	\$ 81.00	\$ 128,000.00		
12-inch Fittings	1	LS	\$ 1,900.00	\$ 1,900.00		
Fire Hydrant Assembly	5	EA	\$ 3,000.00	\$ 15,000.00		
Service Connection	5	EA	\$ 1,500.00	\$ 7,500.00		
Sub-Total				\$166,000		
General conditions (2% of Construction Costs)	1	LS	\$4,000	\$4,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$9,000	\$9,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Subtotal				\$189,000		
Contingencies (30% of Construction Costs )	1	LS	\$57,000	\$57,000		
<b>Construction Sub-Total</b>				\$246,000		
<b>Non-Construction Costs (25%)</b>	1	LS	\$62,000	\$62,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$308,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: SAL	DATE:	6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: RCC	DATE:	9/19/2016	
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
Weinbach Booster Station Structural Repair					2021
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
Miscellaneous Structural Repair	1	LS	\$ 50,000.00	\$ 50,000.00	
Sub-Total				\$50,000	
General conditions (2% of Construction Costs)	1	LS	\$1,000	\$1,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$2,000	\$2,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$3,000	\$3,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$2,000	\$2,000	
Subtotal				\$58,000	
Contingencies (30% of Construction Costs )	1	LS	\$18,000	\$18,000	
<b>Construction Sub-Total</b>				\$76,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$19,000	\$19,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$95,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: SAL	DATE:	6/21/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: RCC	DATE:	9/19/2016	
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
<b>Killian Booster Station Pump Replacement</b>					<b>2021</b>
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
Existing Pump Demolition	4	EA	\$ 15,000.00	\$ 60,000.00	
Horizontal Split Case Pump	4	EA	\$ 60,000.00	\$ 240,000.00	
Miscellaneous Piping Replacement	1	LS	\$ 10,000.00	\$ 10,000.00	
Coatings	1	LS	\$ 10,000.00	\$ 10,000.00	
Instrumentation & Controls	1	LS	\$ 5,000.00	\$ 5,000.00	
Electrical	1	LS	\$ 10,000.00	\$ 10,000.00	
Sub-Total				\$335,000	
General conditions (2% of Construction Costs)	1	LS	\$7,000	\$7,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$11,000	\$11,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$17,000	\$17,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$11,000	\$11,000	
Subtotal				\$381,000	
Contingencies (30% of Construction Costs )	1	LS	\$115,000	\$115,000	
<b>Construction Sub-Total</b>				\$496,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$124,000	\$124,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$620,000	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: SAL	DATE:	6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: RCC	DATE:	9/19/2016	
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
Campground Booster Station Pump Addition					2021
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
Horizontal Split Case Pump	1	EA	\$ 60,000.00	\$ 60,000.00	
Concrete Equipment Pad	1	LS	\$ 5,000.00	\$ 5,000.00	
12-inch Butterfly Valves	2	EA	\$ 2,000.00	\$ 4,000.00	
12-inch Check Valve	1	EA	\$ 3,500.00	\$ 3,500.00	
Air Relief Valve	1	EA	\$ 250.00	\$ 300.00	
12-inch DI Piping	40	LF	\$ 150.00	\$ 6,000.00	
16x12 DI Reducer	1	EA	\$ 1,600.00	\$ 1,600.00	
12x8 DI Reducer	2	EA	\$ 900.00	\$ 1,800.00	
Coatings	1	LS	\$ 10,000.00	\$ 10,000.00	
Instrumentation & Controls	1	LS	\$ 4,000.00	\$ 4,000.00	
Electrical	1	LS	\$ 8,000.00	\$ 8,000.00	
Sub-Total				\$104,200	
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$6,000	\$6,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000	
Subtotal				\$121,200	
Contingencies (30% of Construction Costs )	1	LS	\$37,000	\$37,000	
<b>Construction Sub-Total</b>				\$158,200	
<b>Non-Construction Costs (25%)</b>	1	LS	\$40,000	\$40,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$200,000	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Schmuck Rd						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	3,200	LF	\$ 57.00	\$ 182,400.00		
8-inch Fittings	1	LS	\$ 1,200.00	\$ 1,200.00		
Fire Hydrant Assembly	8	EA	\$ 3,000.00	\$ 24,000.00		
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00		
Sub-Total				\$219,200		
General conditions (2% of Construction Costs)	1	LS	\$5,000	\$5,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$7,000	\$7,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$11,000	\$11,000		
Subtotal				\$249,200		
Contingencies (30% of Construction Costs )	1	LS	\$75,000	\$75,000		
<b>Construction Sub-Total</b>				<b>\$324,200</b>		
<b>Non-Construction Costs (25%)</b>	1	LS	\$82,000	\$82,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$407,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
W Franklin St					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	2,400	LF	\$ 57.00	\$ 136,800.00	
8-inch Fittings	1	LS	\$ 900.00	\$ 900.00	
Fire Hydrant Assembly	6	EA	\$ 3,000.00	\$ 18,000.00	
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00	
Service Connection	2	EA	\$ 1,500.00	\$ 3,000.00	
Sub-Total				\$167,400	
General conditions (2% of Construction Costs)	1	LS	\$4,000	\$4,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$6,000	\$6,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$9,000	\$9,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$6,000	\$6,000	
Subtotal				\$192,400	
Contingencies (30% of Construction Costs )	1	LS	\$58,000	\$58,000	
<b>Construction Sub-Total</b>				\$250,400	
<b>Non-Construction Costs (25%)</b>	1	LS	\$63,000	\$63,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$314,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 86201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Broadway Ave					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
12-inch C900 PVC Water Main Open Cut	2,800	LF	\$ 81.00	\$ 226,800.00	
12-inch Fittings	1	LS	\$ 3,400.00	\$ 3,400.00	
Fire Hydrant Assembly	7	EA	\$ 3,000.00	\$ 21,000.00	
12-inch Gate Valve	4	EA	\$ 6,800.00	\$ 27,200.00	
Service Connection	3	EA	\$ 1,500.00	\$ 4,500.00	
Sub-Total				\$282,900	
General conditions (2% of Construction Costs)	1	LS	\$6,000	\$6,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$9,000	\$9,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$15,000	\$15,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$9,000	\$9,000	
Subtotal				\$321,900	
Contingencies (30% of Construction Costs)	1	LS	\$97,000	\$97,000	
<b>Construction Sub-Total</b>				\$418,900	
Non-Construction Costs (25%)	1	LS	\$105,000	\$105,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$524,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Hirsh Rd						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	6,630	LF	\$ 81.00	\$ 537,100.00		
12-inch Fittings	1	LS	\$ 8,000.00	\$ 8,000.00		
Fire Hydrant Assembly	17	EA	\$ 3,000.00	\$ 51,000.00		
12-inch Gate Valve	9	EA	\$ 6,800.00	\$ 61,200.00		
Service Connection	28	EA	\$ 1,500.00	\$ 42,000.00		
Sub-Total				\$699,300		
General conditions (2% of Construction Costs)	1	LS	\$14,000	\$14,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$21,000	\$21,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$35,000	\$35,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$21,000	\$21,000		
Subtotal				\$790,300		
Contingencies (30% of Construction Costs )	1	LS	\$238,000	\$238,000		
<b>Construction Sub-Total</b>				\$1,028,300		
<b>Non-Construction Costs (25%)</b>	1	LS	\$258,000	\$258,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,287,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Pollack Ave II					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
12-inch C900 PVC Water Main Open Cut	3,620	LF	\$ 81.00	\$ 293,300.00	
12-inch Fittings	1	LS	\$ 4,400.00	\$ 4,400.00	
Fire Hydrant Assembly	10	EA	\$ 3,000.00	\$ 30,000.00	
12-inch Gate Valve	5	EA	\$ 6,800.00	\$ 34,000.00	
Service Connection	33	EA	\$ 1,500.00	\$ 49,500.00	
Sub-Total				\$411,200	
General conditions (2% of Construction Costs)	1	LS	\$9,000	\$9,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$13,000	\$13,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$21,000	\$21,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$13,000	\$13,000	
Subtotal				\$467,200	
Contingencies (30% of Construction Costs )	1	LS	\$141,000	\$141,000	
<b>Construction Sub-Total</b>				\$608,200	
<b>Non-Construction Costs (25%)</b>	1	LS	\$153,000	\$153,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$762,000</b>	

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Big Cynthiana - Phase I						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	3,290	LF	\$ 57.00	\$ 187,600.00		
8-inch Fittings	1	LS	\$ 1,200.00	\$ 1,200.00		
Fire Hydrant Assembly	10	EA	\$ 3,000.00	\$ 30,000.00		
8-inch Gate Valve	5	EA	\$ 2,900.00	\$ 14,500.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$293,300		
General conditions (2% of Construction Costs)	1	LS	\$6,000	\$6,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$9,000	\$9,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$15,000	\$15,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$9,000	\$9,000		
Subtotal				\$332,300		
Contingencies (30% of Construction Costs )	1	LS	\$100,000	\$100,000		
<b>Construction Sub-Total</b>				<b>\$432,300</b>		
<b>Non-Construction Costs (25%)</b>	1	LS	\$109,000	\$109,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$542,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Hogue Road - Phase II, Vanness and Red Bank					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	500	LF	\$ 57.00	\$ 28,500.00	
12-inch C900 PVC Water Main Open Cut	5,160	LF	\$ 81.00	\$ 418,000.00	
12-inch DI Jack and Bore	400	LF	\$ 748.00	\$ 299,200.00	
8-inch Fittings	1	LS	\$ 200.00	\$ 200.00	
12-inch Fittings	1	LS	\$ 6,200.00	\$ 6,200.00	
Fire Hydrant Assembly	15	EA	\$ 3,000.00	\$ 45,000.00	
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00	
12-inch Gate Valve	9	EA	\$ 6,800.00	\$ 61,200.00	
Service Connection	60	EA	\$ 1,500.00	\$ 90,000.00	
Sub-Total				\$951,200	
General conditions (2% of Construction Costs)	1	LS	\$20,000	\$20,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$29,000	\$29,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$48,000	\$48,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$29,000	\$29,000	
Subtotal				\$1,077,200	
Contingencies (30% of Construction Costs )	1	LS	\$324,000	\$324,000	
<b>Construction Sub-Total</b>				\$1,401,200	
<b>Non-Construction Costs (25%)</b>	1	LS	\$351,000	\$351,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,753,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Speaker Rd, James Ave, Nolan Ave						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	270	LF	\$ 57.00	\$ 15,400.00		
8-inch Fittings	1	LS	\$ 100.00	\$ 100.00		
Fire Hydrant Assembly	2	EA	\$ 3,000.00	\$ 6,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$84,400		
General conditions (2% of Construction Costs)	1	LS	\$2,000	\$2,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$3,000	\$3,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$5,000	\$5,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$3,000	\$3,000		
Subtotal				\$97,400		
Contingencies (30% of Construction Costs )	1	LS	\$30,000	\$30,000		
<b>Construction Sub-Total</b>				\$127,400		
<b>Non-Construction Costs (25%)</b>	1	LS	\$32,000	\$32,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$160,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR: JAT		CHECKED BY:		DATE:	
Broadway Ave - Phase II					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	2,080	LF	\$ 57.00	\$ 118,600.00	
12-inch C900 PVC Water Main Open Cut	4,030	LF	\$ 81.00	\$ 326,500.00	
8-inch DI Jack and Bore	470	LF	\$ 708.00	\$ 332,800.00	
12-inch DI Jack and Bore	80	LF	\$ 748.00	\$ 59,900.00	
8-inch Fittings	1	LS	\$ 800.00	\$ 800.00	
12-inch Fittings	1	LS	\$ 4,900.00	\$ 4,900.00	
Fire Hydrant Assembly	17	EA	\$ 3,000.00	\$ 51,000.00	
6-inch Gate Valve	2	EA	\$ 1,800.00	\$ 3,600.00	
8-inch Gate Valve	5	EA	\$ 2,900.00	\$ 14,500.00	
12-inch Gate Valve	8	EA	\$ 6,800.00	\$ 54,400.00	
Service Connection	106	EA	\$ 1,500.00	\$ 159,000.00	
Sub-Total				\$2,388,700	
General conditions (2% of Construction Costs)	1	LS	\$48,000	\$48,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$72,000	\$72,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$120,000	\$120,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$72,000	\$72,000	
Subtotal				\$2,700,700	
Contingencies (30% of Construction Costs )	1	LS	\$811,000	\$811,000	
<b>Construction Sub-Total</b>				\$3,511,700	
Non-Construction Costs (25%)	1	LS	\$878,000	\$878,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$4,390,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Lloyd Ex west of Pigeon Creek					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	2,500	LF	\$ 57.00	\$ 142,500.00	
12-inch C900 PVC Water Main Open Cut	2,990	LF	\$ 81.00	\$ 242,200.00	
20-inch DI Water Main Open Cut	5,130	LF	\$ 205.00	\$ 1,051,700.00	
24-inch DI Water Main Open Cut	250	LF	\$ 230.00	\$ 57,500.00	
12-inch DI Jack and Bore	730	LF	\$ 748.00	\$ 546,100.00	
8-inch Fittings	1	LS	\$ 900.00	\$ 900.00	
12-inch Fittings	1	LS	\$ 3,600.00	\$ 3,600.00	
20-inch Fittings	1	LS	\$ 29,800.00	\$ 29,800.00	
24-inch Fittings	1	LS	\$ 2,000.00	\$ 2,000.00	
Fire Hydrant Assembly	29	EA	\$ 3,000.00	\$ 87,000.00	
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00	
12-inch Gate Valve	6	EA	\$ 6,800.00	\$ 40,800.00	
20-inch Gate Valve	7	EA	\$ 35,000.00	\$ 245,000.00	
24-inch Gate Valve	1	EA	\$ 45,000.00	\$ 45,000.00	
Air/Vacuum Relief Valve	3	EA	\$ 5,000.00	\$ 15,000.00	
Service Connection	58	EA	\$ 1,500.00	\$ 87,000.00	
Sub-Total				\$2,607,700	
General conditions (2% of Construction Costs)	1	LS	\$53,000	\$53,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$79,000	\$79,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$131,000	\$131,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$79,000	\$79,000	
Subtotal				\$2,949,700	
Contingencies (30% of Construction Costs )	1	LS	\$885,000	\$885,000	
<b>Construction Sub-Total</b>				\$3,834,700	
<b>Non-Construction Costs (25%)</b>	1	LS	\$959,000	\$959,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$4,794,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Mount Vernon Rd					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	2,580	LF	\$ 57.00	\$ 147,100.00	
16-inch DI Water Main Open Cut	8,250	LF	\$ 163.00	\$ 1,344,800.00	
8-inch Fittings	1	LS	\$ 1,000.00	\$ 1,000.00	
16-inch Fittings	1	LS	\$ 31,400.00	\$ 31,400.00	
Fire Hydrant Assembly	29	EA	\$ 3,000.00	\$ 87,000.00	
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00	
16-inch Gate Valve	11	EA	\$ 20,000.00	\$ 220,000.00	
Air/Vacuum Relief Valve	5	EA	\$ 5,000.00	\$ 25,000.00	
Service Connection	125	EA	\$ 1,500.00	\$ 187,500.00	
Sub-Total				\$2,055,400	
General conditions (2% of Construction Costs)	1	LS	\$42,000	\$42,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$62,000	\$62,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$103,000	\$103,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$62,000	\$62,000	
Subtotal				\$2,324,400	
Contingencies (30% of Construction Costs )	1	LS	\$698,000	\$698,000	
<b>Construction Sub-Total</b>				\$3,022,400	
<b>Non-Construction Costs (25%)</b>	1	LS	\$756,000	\$756,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,779,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Golfmoor Rd and Schoenfield Ave					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	430	LF	\$ 57.00	\$ 24,600.00	
24-inch DI Water Main Open Cut	4,990	LF	\$ 230.00	\$ 1,147,700.00	
8-inch Fittings	1	LS	\$ 200.00	\$ 200.00	
24-inch Fittings	1	LS	\$ 39,000.00	\$ 39,000.00	
Fire Hydrant Assembly	14	EA	\$ 3,000.00	\$ 42,000.00	
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00	
24-inch Gate Valve	5	EA	\$ 45,000.00	\$ 225,000.00	
Air/Vacuum Relief Valve	3	EA	\$ 5,000.00	\$ 15,000.00	
Service Connection	50	EA	\$ 1,500.00	\$ 75,000.00	
Sub-Total				\$1,571,400	
General conditions (2% of Construction Costs)	1	LS	\$32,000	\$32,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$48,000	\$48,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$79,000	\$79,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$48,000	\$48,000	
Subtotal				\$1,778,400	
Contingencies (30% of Construction Costs )	1	LS	\$534,000	\$534,000	
<b>Construction Sub-Total</b>				\$2,312,400	
<b>Non-Construction Costs (25%)</b>	1	LS	\$579,000	\$579,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,892,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Mesker Park - Phase II					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	670	LF	\$ 57.00	\$ 38,200.00	
12-inch C900 PVC Water Main Open Cut	380	LF	\$ 81.00	\$ 30,800.00	
12-inch DI Jack and Bore	430	LF	\$ 748.00	\$ 321,700.00	
8-inch Fittings	1	LS	\$ 300.00	\$ 300.00	
12-inch Fittings	1	LS	\$ 500.00	\$ 500.00	
Fire Hydrant Assembly	3	EA	\$ 3,000.00	\$ 9,000.00	
12-inch Gate Valve	3	EA	\$ 6,800.00	\$ 20,400.00	
Service Connection	12	EA	\$ 1,500.00	\$ 18,000.00	
Sub-Total				\$441,800	
General conditions (2% of Construction Costs)	1	LS	\$9,000	\$9,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$14,000	\$14,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$23,000	\$23,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$14,000	\$14,000	
Subtotal				\$501,800	
Contingencies (30% of Construction Costs )	1	LS	\$151,000	\$151,000	
<b>Construction Sub-Total</b>				\$652,800	
<b>Non-Construction Costs (25%)</b>	1	LS	\$164,000	\$164,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$817,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Maryland Ave and Buchanan Rd					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	400	LF	\$ 57.00	\$ 22,800.00	
12-inch C900 PVC Water Main Open Cut	2,410	LF	\$ 81.00	\$ 195,300.00	
12-inch DI Jack and Bore	90	LF	\$ 748.00	\$ 67,400.00	
12-inch HDPE Directional Bore	130	LF	\$ 109.00	\$ 14,200.00	
8-inch Fittings	1	LS	\$ 200.00	\$ 200.00	
12-inch Fittings	1	LS	\$ 2,900.00	\$ 2,900.00	
Fire Hydrant Assembly	8	EA	\$ 3,000.00	\$ 24,000.00	
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00	
12-inch Gate Valve	6	EA	\$ 6,800.00	\$ 40,800.00	
Service Connection	150	EA	\$ 1,500.00	\$ 225,000.00	
Sub-Total				\$595,500	
General conditions (2% of Construction Costs)	1	LS	\$12,000	\$12,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$18,000	\$18,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$30,000	\$30,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$18,000	\$18,000	
Subtotal				\$673,500	
Contingencies (30% of Construction Costs )	1	LS	\$203,000	\$203,000	
<b>Construction Sub-Total</b>				\$876,500	
<b>Non-Construction Costs (25%)</b>	1	LS	\$220,000	\$220,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,097,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
9th Ave, Franklin St, and Michigan St					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	820	LF	\$ 57.00	\$ 46,800.00	
12-inch C900 PVC Water Main Open Cut	3,200	LF	\$ 81.00	\$ 259,200.00	
16-inch DI Water Main Open Cut	2,220	LF	\$ 163.00	\$ 361,900.00	
20-inch DI Water Main Open Cut	4,230	LF	\$ 205.00	\$ 867,200.00	
20-inch DI Jack and Bore	100	LF	\$ 989.00	\$ 98,900.00	
8-inch Fittings	1	LS	\$ 300.00	\$ 300.00	
12-inch Fittings	1	LS	\$ 3,900.00	\$ 3,900.00	
16-inch Fittings	1	LS	\$ 8,500.00	\$ 8,500.00	
20-inch Fittings	1	LS	\$ 24,600.00	\$ 24,600.00	
Fire Hydrant Assembly	28	EA	\$ 3,000.00	\$ 84,000.00	
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00	
12-inch Gate Valve	4	EA	\$ 6,800.00	\$ 27,200.00	
16-inch Gate Valve	3	EA	\$ 20,000.00	\$ 60,000.00	
20-inch Gate Valve	8	EA	\$ 35,000.00	\$ 280,000.00	
Air/Vacuum Relief Valve	4	EA	\$ 5,000.00	\$ 20,000.00	
Service Connection	224	EA	\$ 1,500.00	\$ 336,000.00	
Sub-Total				\$2,484,300	
General conditions (2% of Construction Costs)	1	LS	\$50,000	\$50,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$75,000	\$75,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$125,000	\$125,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$75,000	\$75,000	
Subtotal				\$2,809,300	
Contingencies (30% of Construction Costs )	1	LS	\$843,000	\$843,000	
<b>Construction Sub-Total</b>				\$3,652,300	
Non-Construction Costs (25%)	1	LS	\$914,000	\$914,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$4,567,000	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
2nd and 3rd Ave						
2022-2026						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	3,670	LF	\$ 57.00	\$ 209,200.00		
12-inch C900 PVC Water Main Open Cut	940	LF	\$ 81.00	\$ 76,200.00		
24-inch DI Water Main Open Cut	5,000	LF	\$ 230.00	\$ 1,150,000.00		
36-inch DI Water Main Open Cut	7,160	LF	\$ 315.00	\$ 2,255,400.00		
36-inch DI Jack and Bore	100	LF	\$ 1,265.00	\$ 126,500.00		
8-inch Fittings	1	LS	\$ 1,400.00	\$ 1,400.00		
12-inch Fittings	1	LS	\$ 1,200.00	\$ 1,200.00		
24-inch Fittings	1	LS	\$ 39,000.00	\$ 39,000.00		
36-inch Fittings	1	LS	\$ 114,600.00	\$ 114,600.00		
Fire Hydrant Assembly	42	EA	\$ 3,000.00	\$ 126,000.00		
8-inch Gate Valve	5	EA	\$ 2,900.00	\$ 14,500.00		
12-inch Gate Valve	2	EA	\$ 6,800.00	\$ 13,600.00		
24-inch Gate Valve	5	EA	\$ 45,000.00	\$ 225,000.00		
36-inch Gate Valve	10	EA	\$ 65,000.00	\$ 650,000.00		
Air/Vacuum Relief Valve	7	EA	\$ 5,000.00	\$ 35,000.00		
Service Connection	500	EA	\$ 1,500.00	\$ 750,000.00		
Sub-Total				\$5,787,600		
General conditions (2% of Construction Costs)	1	LS	\$116,000	\$116,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$174,000	\$174,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$290,000	\$290,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$174,000	\$174,000		
Subtotal				\$6,541,600		
Contingencies (30% of Construction Costs )	1	LS	\$1,963,000	\$1,963,000		
<b>Construction Sub-Total</b>				\$8,504,600		
<b>Non-Construction Costs (25%)</b>	1	LS	\$2,127,000	\$2,127,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$10,632,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Grove St and Florida St					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	1,000	LF	\$ 57.00	\$ 57,000.00	
12-inch C900 PVC Water Main Open Cut	550	LF	\$ 81.00	\$ 44,600.00	
8-inch DI Jack and Bore	160	LF	\$ 708.00	\$ 113,300.00	
8-inch Fittings	1	LS	\$ 400.00	\$ 400.00	
12-inch Fittings	1	LS	\$ 700.00	\$ 700.00	
Fire Hydrant Assembly	4	EA	\$ 3,000.00	\$ 12,000.00	
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00	
12-inch Gate Valve	1	EA	\$ 6,800.00	\$ 6,800.00	
Service Connection	70	EA	\$ 1,500.00	\$ 105,000.00	
Sub-Total				\$351,400	
General conditions (2% of Construction Costs)	1	LS	\$8,000	\$8,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$11,000	\$11,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$18,000	\$18,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$11,000	\$11,000	
Subtotal				\$399,400	
Contingencies (30% of Construction Costs )	1	LS	\$120,000	\$120,000	
<b>Construction Sub-Total</b>				\$519,400	
<b>Non-Construction Costs (25%)</b>	1	LS	\$130,000	\$130,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$650,000	

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Lloyd, Governor, Walnut, and Martin Luther King Jr					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	3,220	LF	\$ 57.00	\$ 183,600.00	
12-inch C900 PVC Water Main Open Cut	4,950	LF	\$ 81.00	\$ 401,000.00	
16-inch DI Water Main Open Cut	1,920	LF	\$ 163.00	\$ 313,000.00	
20-inch DI Water Main Open Cut	280	LF	\$ 205.00	\$ 57,400.00	
30-inch DI Water Main Open Cut	4,400	LF	\$ 284.00	\$ 1,249,600.00	
8-inch DI Jack and Bore	400	LF	\$ 708.00	\$ 283,200.00	
12-inch DI Jack and Bore	290	LF	\$ 748.00	\$ 217,000.00	
8-inch Fittings	1	LS	\$ 1,200.00	\$ 1,200.00	
12-inch Fittings	1	LS	\$ 6,000.00	\$ 6,000.00	
16-inch Fittings	1	LS	\$ 7,300.00	\$ 7,300.00	
20-inch Fittings	1	LS	\$ 1,700.00	\$ 1,700.00	
30-inch Fittings	1	LS	\$ 52,800.00	\$ 52,800.00	
Fire Hydrant Assembly	38	EA	\$ 3,000.00	\$ 114,000.00	
8-inch Gate Valve	7	EA	\$ 2,900.00	\$ 20,300.00	
12-inch Gate Valve	9	EA	\$ 6,800.00	\$ 61,200.00	
16-inch Gate Valve	3	EA	\$ 20,000.00	\$ 60,000.00	
20-inch Gate Valve	1	EA	\$ 35,000.00	\$ 35,000.00	
30-inch Gate Valve	5	EA	\$ 55,000.00	\$ 275,000.00	
Air/Vacuum Relief Valve	4	EA	\$ 5,000.00	\$ 20,000.00	
Service Connection	150	EA	\$ 1,500.00	\$ 225,000.00	
Sub-Total				\$3,584,300	
General conditions (2% of Construction Costs)	1	LS	\$72,000	\$72,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$108,000	\$108,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$180,000	\$180,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$108,000	\$108,000	
Subtotal				\$4,052,300	
Contingencies (30% of Construction Costs )	1	LS	\$1,216,000	\$1,216,000	
<b>Construction Sub-Total</b>				\$5,268,300	
<b>Non-Construction Costs (25%)</b>	1	LS	\$1,318,000	\$1,318,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$6,587,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Morgan Ave - Phase II					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	860	LF	\$ 57.00	\$ 49,100.00	
12-inch C900 PVC Water Main Open Cut	2,010	LF	\$ 81.00	\$ 162,900.00	
8-inch Fittings	1	LS	\$ 400.00	\$ 400.00	
12-inch Fittings	1	LS	\$ 2,500.00	\$ 2,500.00	
Fire Hydrant Assembly	9	EA	\$ 3,000.00	\$ 27,000.00	
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00	
12-inch Gate Valve	3	EA	\$ 6,800.00	\$ 20,400.00	
Service Connection	57	EA	\$ 1,500.00	\$ 85,500.00	
Sub-Total				\$353,600	
General conditions (2% of Construction Costs)	1	LS	\$8,000	\$8,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$11,000	\$11,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$18,000	\$18,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$11,000	\$11,000	
Subtotal				\$401,600	
Contingencies (30% of Construction Costs )	1	LS	\$121,000	\$121,000	
<b>Construction Sub-Total</b>				\$522,600	
<b>Non-Construction Costs (25%)</b>	1	LS	\$131,000	\$131,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$654,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Buena Vista, 1st, and Pigeon Creek					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
4-inch C900 PVC Water Main Open Cut	110	LF	\$ 38.00	\$ 4,200.00	
8-inch C900 PVC Water Main Open Cut	3,040	LF	\$ 57.00	\$ 173,300.00	
4-inch Fittings	1	LS	\$ 100.00	\$ 100.00	
8-inch Fittings	1	LS	\$ 1,100.00	\$ 1,100.00	
Fire Hydrant Assembly	8	EA	\$ 3,000.00	\$ 24,000.00	
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00	
Automatic Flushing Device	2	EA	\$ 5,000.00	\$ 10,000.00	
Service Connection	433	EA	\$ 1,500.00	\$ 649,500.00	
Sub-Total				\$873,800	
General conditions (2% of Construction Costs)	1	LS	\$18,000	\$18,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$27,000	\$27,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$44,000	\$44,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$27,000	\$27,000	
Subtotal				\$989,800	
Contingencies (30% of Construction Costs )	1	LS	\$297,000	\$297,000	
<b>Construction Sub-Total</b>				\$1,286,800	
Non-Construction Costs (25%)	1	LS	\$322,000	\$322,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$1,609,000	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR: JAT		CHECKED BY:		DATE:	
Neighborhood of 1st, Stringtown, and Mill					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
4-inch C900 PVC Water Main Open Cut	490	LF	\$ 38.00	\$ 18,700.00	
8-inch C900 PVC Water Main Open Cut	27,090	LF	\$ 57.00	\$ 1,544,200.00	
4-inch Fittings	1	LS	\$ 100.00	\$ 100.00	
8-inch Fittings	1	LS	\$ 9,800.00	\$ 9,800.00	
Fire Hydrant Assembly	69	EA	\$ 3,000.00	\$ 207,000.00	
8-inch Gate Valve	34	EA	\$ 2,900.00	\$ 98,600.00	
Automatic Flushing Device	2	EA	\$ 5,000.00	\$ 10,000.00	
Service Connection	300	EA	\$ 1,500.00	\$ 450,000.00	
Sub-Total				\$2,338,400	
General conditions (2% of Construction Costs)	1	LS	\$47,000	\$47,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$71,000	\$71,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$117,000	\$117,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$71,000	\$71,000	
Subtotal				\$2,644,400	
Contingencies (30% of Construction Costs )	1	LS	\$794,000	\$794,000	
<b>Construction Sub-Total</b>				\$3,438,400	
<b>Non-Construction Costs (25%)</b>	1	LS	\$860,000	\$860,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$4,299,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Old State - Phase I						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	2,230	LF	\$ 81.00	\$ 180,700.00		
12-inch DI Jack and Bore	280	LF	\$ 748.00	\$ 209,500.00		
12-inch Fittings	1	LS	\$ 2,700.00	\$ 2,700.00		
Fire Hydrant Assembly	6	EA	\$ 3,000.00	\$ 18,000.00		
12-inch Gate Valve	5	EA	\$ 6,800.00	\$ 34,000.00		
Service Connection	17	EA	\$ 1,500.00	\$ 25,500.00		
Sub-Total				\$470,400		
General conditions (2% of Construction Costs)	1	LS	\$10,000	\$10,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$15,000	\$15,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$24,000	\$24,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$15,000	\$15,000		
Subtotal				\$534,400		
Contingencies (30% of Construction Costs )	1	LS	\$161,000	\$161,000		
<b>Construction Sub-Total</b>				\$695,400		
<b>Non-Construction Costs (25%)</b>	1	LS	\$174,000	\$174,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$870,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Oak Hill, St. George, and the airport					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	3,440	LF	\$ 57.00	\$ 196,100.00	
16-inch DI Water Main Open Cut	5,320	LF	\$ 163.00	\$ 867,200.00	
8-inch Fittings	1	LS	\$ 1,300.00	\$ 1,300.00	
16-inch Fittings	1	LS	\$ 20,300.00	\$ 20,300.00	
Fire Hydrant Assembly	23	EA	\$ 3,000.00	\$ 69,000.00	
8-inch Gate Valve	5	EA	\$ 2,900.00	\$ 14,500.00	
16-inch Gate Valve	7	EA	\$ 20,000.00	\$ 140,000.00	
Service Connection	185	EA	\$ 1,500.00	\$ 277,500.00	
Sub-Total				\$1,600,900	
General conditions (2% of Construction Costs)	1	LS	\$33,000	\$33,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$49,000	\$49,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$81,000	\$81,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$49,000	\$49,000	
Subtotal				\$1,812,900	
Contingencies (30% of Construction Costs)	1	LS	\$544,000	\$544,000	
<b>Construction Sub-Total</b>				\$2,356,900	
<b>Non-Construction Costs (25%)</b>	1	LS	\$590,000	\$590,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,947,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
US 41 and Lynch Rd						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	1,990	LF	\$ 81.00	\$ 161,200.00		
16-inch DI Water Main Open Cut	1,880	LF	\$ 163.00	\$ 306,500.00		
8-inch DI Jack and Bore	2,520	LF	\$ 708.00	\$ 1,784,200.00		
12-inch DI Jack and Bore	4,230	LF	\$ 748.00	\$ 3,164,100.00		
16-inch DI Jack and Bore	4,500	LF	\$ 765.00	\$ 3,442,500.00		
12-inch Fittings	1	LS	\$ 2,400.00	\$ 2,400.00		
16-inch Fittings	1	LS	\$ 7,200.00	\$ 7,200.00		
Fire Hydrant Assembly	10	EA	\$ 3,000.00	\$ 30,000.00		
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00		
12-inch Gate Valve	5	EA	\$ 6,800.00	\$ 34,000.00		
16-inch Gate Valve	5	EA	\$ 20,000.00	\$ 100,000.00		
Air/Vacuum Relief Valve	1	EA	\$ 5,000.00	\$ 5,000.00		
Service Connection	24	EA	\$ 1,500.00	\$ 36,000.00		
Sub-Total				\$9,078,900		
General conditions (2% of Construction Costs)	1	LS	\$182,000	\$182,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$273,000	\$273,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$454,000	\$454,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$273,000	\$273,000		
Subtotal				\$10,260,900		
Contingencies (30% of Construction Costs )	1	LS	\$3,079,000	\$3,079,000		
<b>Construction Sub-Total</b>				<b>\$13,339,900</b>		
Non-Construction Costs (25%)	1	LS	\$3,335,000	\$3,335,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$16,675,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Morgan Ave - Phase III and Residential area					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	8,170	LF	\$ 57.00	\$ 465,700.00	
12-inch C900 PVC Water Main Open Cut	4,700	LF	\$ 81.00	\$ 380,700.00	
20-inch DI Water Main Open Cut	2,950	LF	\$ 205.00	\$ 604,800.00	
8-inch DI Jack and Bore	280	LF	\$ 708.00	\$ 198,300.00	
12-inch DI Jack and Bore	1,880	LF	\$ 748.00	\$ 1,406,300.00	
8-inch Fittings	1	LS	\$ 3,000.00	\$ 3,000.00	
12-inch Fittings	1	LS	\$ 5,700.00	\$ 5,700.00	
20-inch Fittings	1	LS	\$ 17,200.00	\$ 17,200.00	
Fire Hydrant Assembly	41	EA	\$ 3,000.00	\$ 123,000.00	
6-inch Gate Valve	2	EA	\$ 1,800.00	\$ 3,600.00	
8-inch Gate Valve	13	EA	\$ 2,900.00	\$ 37,700.00	
12-inch Gate Valve	8	EA	\$ 6,800.00	\$ 54,400.00	
20-inch Gate Valve	4	EA	\$ 35,000.00	\$ 140,000.00	
Air/Vacuum Relief Valve	2	EA	\$ 5,000.00	\$ 10,000.00	
Service Connection	290	EA	\$ 1,500.00	\$ 435,000.00	
Sub-Total				\$4,713,400	
General conditions (2% of Construction Costs)	1	LS	\$95,000	\$95,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$142,000	\$142,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$236,000	\$236,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$142,000	\$142,000	
Subtotal				\$5,328,400	
Contingencies (30% of Construction Costs )	1	LS	\$1,599,000	\$1,599,000	
<b>Construction Sub-Total</b>				<b>\$6,927,400</b>	
<b>Non-Construction Costs (25%)</b>	1	LS	\$1,732,000	\$1,732,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$8,660,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Columbia - Phase I						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	3,320	LF	\$ 57.00	\$ 189,300.00		
12-inch C900 PVC Water Main Open Cut	3,970	LF	\$ 81.00	\$ 321,600.00		
20-inch DI Water Main Open Cut	1,680	LF	\$ 205.00	\$ 344,400.00		
6-inch DI Jack and Bore	130	LF	\$ 690.00	\$ 89,700.00		
8-inch Fittings	1	LS	\$ 1,200.00	\$ 1,200.00		
12-inch Fittings	1	LS	\$ 4,800.00	\$ 4,800.00		
20-inch Fittings	1	LS	\$ 9,800.00	\$ 9,800.00		
Fire Hydrant Assembly	24	EA	\$ 3,000.00	\$ 72,000.00		
6-inch Gate Valve	2	EA	\$ 1,800.00	\$ 3,600.00		
8-inch Gate Valve	5	EA	\$ 2,900.00	\$ 14,500.00		
12-inch Gate Valve	5	EA	\$ 6,800.00	\$ 34,000.00		
20-inch Gate Valve	3	EA	\$ 35,000.00	\$ 105,000.00		
Air/Vacuum Relief Valve	1	EA	\$ 5,000.00	\$ 5,000.00		
Service Connection	261	EA	\$ 1,500.00	\$ 391,500.00		
Sub-Total				\$1,586,400		
General conditions (2% of Construction Costs)	1	LS	\$32,000	\$32,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$48,000	\$48,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$80,000	\$80,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$48,000	\$48,000		
Subtotal				\$1,794,400		
Contingencies (30% of Construction Costs)	1	LS	\$539,000	\$539,000		
<b>Construction Sub-Total</b>				\$2,333,400		
Non-Construction Costs (25%)	1	LS	\$584,000	\$584,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$2,918,000		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Downtown area on 1st Ave and 2nd Ave					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	12,030	LF	\$ 57.00	\$ 685,800.00	
20-inch DI Water Main Open Cut	450	LF	\$ 205.00	\$ 92,300.00	
8-inch Fittings	1	LS	\$ 4,400.00	\$ 4,400.00	
20-inch Fittings	1	LS	\$ 2,700.00	\$ 2,700.00	
Fire Hydrant Assembly	33	EA	\$ 3,000.00	\$ 99,000.00	
8-inch Gate Valve	16	EA	\$ 2,900.00	\$ 46,400.00	
20-inch Gate Valve	1	EA	\$ 35,000.00	\$ 35,000.00	
Air/Vacuum Relief Valve	1	EA	\$ 5,000.00	\$ 5,000.00	
Service Connection	350	EA	\$ 1,500.00	\$ 525,000.00	
Sub-Total				\$1,495,600	
General conditions (2% of Construction Costs)	1	LS	\$30,000	\$30,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$45,000	\$45,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$75,000	\$75,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$45,000	\$45,000	
Subtotal				\$1,690,600	
Contingencies (30% of Construction Costs )	1	LS	\$508,000	\$508,000	
<b>Construction Sub-Total</b>				\$2,198,600	
<b>Non-Construction Costs (25%)</b>	1	LS	\$550,000	\$550,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$2,749,000	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Riverside, Governor, and Ohio River						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	5,060	LF	\$ 57.00	\$ 288,500.00		
8-inch Fittings	1	LS	\$ 1,900.00	\$ 1,900.00		
Fire Hydrant Assembly	14	EA	\$ 3,000.00	\$ 42,000.00		
8-inch Gate Valve	7	EA	\$ 2,900.00	\$ 20,300.00		
Service Connection	151	EA	\$ 1,500.00	\$ 226,500.00		
Sub-Total				\$579,200		
General conditions (2% of Construction Costs)	1	LS	\$12,000	\$12,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$18,000	\$18,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$29,000	\$29,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$18,000	\$18,000		
Subtotal:				\$656,200		
Contingencies (30% of Construction Costs )	1	LS	\$197,000	\$197,000		
<b>Construction Sub-Total</b>				<b>\$853,200</b>		
<b>Non-Construction Costs (25%)</b>	1	LS	\$214,000	\$214,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,068,000</b>		

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Riverside, Bedford, Bayse, and Linwood						
2022-2026						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	7,410	LF	\$ 57.00	\$ 422,400.00		
12-inch C900 PVC Water Main Open Cut	1,430	LF	\$ 81.00	\$ 115,900.00		
8-inch Fittings	1	LS	\$ 2,700.00	\$ 2,700.00		
12-inch Fittings	1	LS	\$ 1,800.00	\$ 1,800.00		
Fire Hydrant Assembly	24	EA	\$ 3,000.00	\$ 72,000.00		
8-inch Gate Valve	10	EA	\$ 2,900.00	\$ 29,000.00		
12-inch Gate Valve	2	EA	\$ 6,800.00	\$ 13,600.00		
Service Connection	175	EA	\$ 1,500.00	\$ 262,500.00		
Sub-Total				\$919,900		
General conditions (2% of Construction Costs)	1	LS	\$19,000	\$19,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$28,000	\$28,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$46,000	\$46,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$28,000	\$28,000		
Subtotal				\$1,040,900		
Contingencies (30% of Construction Costs )	1	LS	\$313,000	\$313,000		
<b>Construction Sub-Total</b>				\$1,353,900		
<b>Non-Construction Costs (25%)</b>	1	LS	\$339,000	\$339,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,693,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Seale, Gilbert, Bayse, and Kerth						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	9,450	LF	\$ 57.00	\$ 538,700.00		
8-inch Fittings	1	LS	\$ 3,500.00	\$ 3,500.00		
Fire Hydrant Assembly	25	EA	\$ 3,000.00	\$ 75,000.00		
8-inch Gate Valve	12	EA	\$ 2,900.00	\$ 34,800.00		
Service Connection	203	EA	\$ 1,500.00	\$ 304,500.00		
Sub-Total				\$956,500		
General conditions (2% of Construction Costs)	1	LS	\$20,000	\$20,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$29,000	\$29,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$48,000	\$48,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$29,000	\$29,000		
Subtotal				\$1,082,500		
Contingencies (30% of Construction Costs)	1	LS	\$325,000	\$325,000		
<b>Construction Sub-Total</b>				\$1,407,500		
<b>Non-Construction Costs (25%)</b>	1	LS	\$352,000	\$352,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,760,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Kentucky - Phase I						
2022-2026						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	2,320	LF	\$ 81.00	\$ 188,000.00		
12-inch Fittings	1	LS	\$ 2,800.00	\$ 2,800.00		
Fire Hydrant Assembly	6	EA	\$ 3,000.00	\$ 18,000.00		
12-inch Gate Valve	3	EA	\$ 6,800.00	\$ 20,400.00		
Service Connection	74	EA	\$ 1,500.00	\$ 111,000.00		
Sub-Total				\$340,200		
General conditions (2% of Construction Costs)	1	LS	\$7,000	\$7,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$11,000	\$11,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$18,000	\$18,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$11,000	\$11,000		
Subtotal				\$387,200		
Contingencies (30% of Construction Costs )	1	LS	\$117,000	\$117,000		
<b>Construction Sub-Total</b>				\$504,200		
<b>Non-Construction Costs (25%)</b>	1	LS	\$127,000	\$127,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$632,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Lloyd, Boeke, Lincoln, and Weinbach						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	21,480	LF	\$ 57.00	\$ 1,224,400.00		
8-inch Fittings	1	LS	\$ 7,800.00	\$ 7,800.00		
Fire Hydrant Assembly	55	EA	\$ 3,000.00	\$ 165,000.00		
8-inch Gate Valve	27	EA	\$ 2,900.00	\$ 78,300.00		
Service Connection	366	EA	\$ 1,500.00	\$ 549,000.00		
Sub-Total				\$2,024,500		
General conditions (2% of Construction Costs)	1	LS	\$41,000	\$41,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$61,000	\$61,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$102,000	\$102,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$61,000	\$61,000		
Subtotal				\$2,289,500		
Contingencies (30% of Construction Costs )	1	LS	\$687,000	\$687,000		
<b>Construction Sub-Total</b>				\$2,976,500		
<b>Non-Construction Costs (25%)</b>	1	LS	\$745,000	\$745,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,722,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Stockwell Rd					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
12-inch C900 PVC Water Main Open Cut	4,310	LF	\$ 81.00	\$ 349,200.00	
12-inch DI Jack and Bore	150	LF	\$ 748.00	\$ 112,200.00	
12-inch Fittings	1	LS	\$ 5,200.00	\$ 5,200.00	
Fire Hydrant Assembly	11	EA	\$ 3,000.00	\$ 33,000.00	
12-inch Gate Valve	8	EA	\$ 6,800.00	\$ 54,400.00	
Service Connection	28	EA	\$ 1,500.00	\$ 42,000.00	
Sub-Total				\$596,000	
General conditions (2% of Construction Costs)	1	LS	\$12,000	\$12,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$18,000	\$18,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$30,000	\$30,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$18,000	\$18,000	
Subtotal				\$674,000	
Contingencies (30% of Construction Costs )	1	LS	\$203,000	\$203,000	
<b>Construction Sub-Total</b>				<b>\$877,000</b>	
<b>Non-Construction Costs (25%)</b>	1	LS	\$220,000	\$220,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,097,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Bergdot Rd						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	3,310	LF	\$ 81.00	\$ 268,200.00		
12-inch Fittings	1	LS	\$ 4,000.00	\$ 4,000.00		
Fire Hydrant Assembly	10	EA	\$ 3,000.00	\$ 30,000.00		
12-inch Gate Valve	5	EA	\$ 6,800.00	\$ 34,000.00		
Service Connection	32	EA	\$ 1,500.00	\$ 48,000.00		
Sub-Total				\$384,200		
General conditions (2% of Construction Costs)	1	LS	\$8,000	\$8,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$12,000	\$12,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$20,000	\$20,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$12,000	\$12,000		
Subtotal				\$436,200		
Contingencies (30% of Construction Costs )	1	LS	\$131,000	\$131,000		
<b>Construction Sub-Total</b>				\$567,200		
<b>Non-Construction Costs (25%)</b>	1	LS	\$142,000	\$142,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$710,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Green River - Phase I						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
16-inch DI Water Main Open Cut	2,150	LF	\$ 163.00	\$ 350,500.00		
16-inch Fittings	1	LS	\$ 8,200.00	\$ 8,200.00		
Fire Hydrant Assembly	6	EA	\$ 3,000.00	\$ 18,000.00		
16-inch Gate Valve	3	EA	\$ 20,000.00	\$ 60,000.00		
Air/Vacuum Relief Valve	2	EA	\$ 5,000.00	\$ 10,000.00		
Automatic Flushing Device		EA	\$ -	\$ -		
Service Connection	38	EA	\$ 1,500.00	\$ 57,000.00		
Sub-Total				\$503,700		
General conditions (2% of Construction Costs)	1	LS	\$11,000	\$11,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$16,000	\$16,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$26,000	\$26,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$16,000	\$16,000		
Subtotal				\$572,700		
Contingencies (30% of Construction Costs )	1	LS	\$172,000	\$172,000		
<b>Construction Sub-Total</b>				\$744,700		
<b>Non-Construction Costs (25%)</b>	1	LS	\$187,000	\$187,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$932,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Riverside, Villa, Rheinhardt, and Boeke					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	8,690	LF	\$ 57.00	\$ 495,400.00	
8-inch Fittings	1	LS	\$ 3,200.00	\$ 3,200.00	
Fire Hydrant Assembly	22	EA	\$ 3,000.00	\$ 66,000.00	
8-inch Gate Valve	11	EA	\$ 2,900.00	\$ 31,900.00	
Service Connection	225	EA	\$ 1,500.00	\$ 337,500.00	
Sub-Total				\$934,000	
General conditions (2% of Construction Costs)	1	LS	\$19,000	\$19,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$29,000	\$29,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$47,000	\$47,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$29,000	\$29,000	
Subtotal				\$1,058,000	
Contingencies (30% of Construction Costs )	1	LS	\$318,000	\$318,000	
<b>Construction Sub-Total</b>				\$1,376,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$344,000	\$344,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,720,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Newburgh, Fuquay, Covert, and Southfield						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
4-inch C900 PVC Water Main Open Cut	340	LF	\$ 38.00	\$ 13,000.00		
8-inch C900 PVC Water Main Open Cut	18,290	LF	\$ 57.00	\$ 1,042,600.00		
4-inch Fittings	1	LS	\$ 100.00	\$ 100.00		
8-inch Fittings	1	LS	\$ 6,600.00	\$ 6,600.00		
Fire Hydrant Assembly	47	EA	\$ 3,000.00	\$ 141,000.00		
8-inch Gate Valve	23	EA	\$ 2,900.00	\$ 66,700.00		
Automatic Flushing Device	1	EA	\$ 5,000.00	\$ 5,000.00		
Service Connection	260	EA	\$ 1,500.00	\$ 390,000.00		
Sub-Total				\$1,665,000		
General conditions (2% of Construction Costs)	1	LS	\$34,000	\$34,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$50,000	\$50,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$84,000	\$84,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$50,000	\$50,000		
Subtotal				\$1,883,000		
Contingencies (30% of Construction Costs )	1	LS	\$565,000	\$565,000		
<b>Construction Sub-Total</b>				\$2,448,000		
<b>Non-Construction Costs (25%)</b>	1	LS	\$612,000	\$612,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$3,060,000		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Rollett Ln					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	1,520	LF	\$ 57.00	\$ 86,700.00	
8-inch Fittings	1	LS	\$ 600.00	\$ 600.00	
Fire Hydrant Assembly	4	EA	\$ 3,000.00	\$ 12,000.00	
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00	
Service Connection	25	EA	\$ 1,500.00	\$ 37,500.00	
Sub-Total				\$142,600	
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$5,000	\$5,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$8,000	\$8,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$5,000	\$5,000	
Subtotal				\$163,600	
Contingencies (30% of Construction Costs )	1	LS	\$50,000	\$50,000	
<b>Construction Sub-Total</b>				\$213,600	
<b>Non-Construction Costs (25%)</b>	1	LS	\$54,000	\$54,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$268,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM DATE: 6/20/2016				
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL DATE: 9/15/2016				
PROJECT MGR.: JAT		CHECKED BY: DATE:				
Neighborhood of Westmore, Raintree and Marigold north of Hogue						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	2,890	LF	\$ 57.00	\$ 164,800.00		
8-inch Fittings	1	LS	\$ 1,100.00	\$ 1,100.00		
Fire Hydrant Assembly	9	EA	\$ 3,000.00	\$ 27,000.00		
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00		
Service Connection	25	EA	\$ 1,500.00	\$ 37,500.00		
Sub-Total				\$242,000		
General conditions (2% of Construction Costs)	1	LS	\$5,000	\$5,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$8,000	\$8,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$13,000	\$13,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$8,000	\$8,000		
Subtotal				\$276,000		
Contingencies (30% of Construction Costs )	1	LS	\$83,000	\$83,000		
<b>Construction Sub-Total</b>				<b>\$359,000</b>		
<b>Non-Construction Costs (25%)</b>	1	LS	\$90,000	\$90,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$449,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Haven, Meadow Lark, Caren, and Magnolia						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	5,410	LF	\$ 57.00	\$ 308,400.00		
8-inch Fittings	1	LS	\$ 2,000.00	\$ 2,000.00		
Fire Hydrant Assembly	15	EA	\$ 3,000.00	\$ 45,000.00		
8-inch Gate Valve	7	EA	\$ 2,900.00	\$ 20,300.00		
Service Connection	80	EA	\$ 1,500.00	\$ 120,000.00		
Sub-Total				\$495,700		
General conditions (2% of Construction Costs)	1	LS	\$10,000	\$10,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$15,000	\$15,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$25,000	\$25,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$15,000	\$15,000		
Subtotal				\$560,700		
Contingencies (30% of Construction Costs )	1	LS	\$169,000	\$169,000		
<b>Construction Sub-Total</b>				\$729,700		
<b>Non-Construction Costs (25%)</b>	1	LS	\$183,000	\$183,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$913,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM DATE: 6/20/2016				
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL DATE: 9/15/2016				
PROJECT MGR.: JAT		CHECKED BY: DATE:				
Robin Hood Dr						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	740	LF	\$ 57.00	\$ 42,200.00		
8-inch Fittings	1	LS	\$ 300.00	\$ 300.00		
Fire Hydrant Assembly	3	EA	\$ 3,000.00	\$ 9,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
Air/Vacuum Relief Valve	0	EA	\$ -	\$ -		
Automatic Flushing Device		EA	\$ -	\$ -		
Service Connection	55	EA	\$ 1,500.00	\$ 82,500.00		
Sub-Total				\$136,900		
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$7,000	\$7,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Subtotal				\$156,900		
Contingencies (30% of Construction Costs )	1	LS	\$48,000	\$48,000		
<b>Construction Sub-Total</b>				\$204,900		
<b>Non-Construction Costs (25%)</b>	1	LS	\$52,000	\$52,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$257,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Division St						
2022-2026						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
16-inch DI Water Main Open Cut	1,480	LF	\$ 163.00	\$ 241,300.00		
16-inch Fittings	1	LS	\$ 5,700.00	\$ 5,700.00		
Fire Hydrant Assembly	5	EA	\$ 3,000.00	\$ 15,000.00		
16-inch Gate Valve	2	EA	\$ 20,000.00	\$ 40,000.00		
Air/Vacuum Relief Valve	1	EA	\$ 5,000.00	\$ 5,000.00		
Service Connection	20	EA	\$ 1,500.00	\$ 30,000.00		
Sub-Total				\$337,000		
General conditions (2% of Construction Costs)	1	LS	\$7,000	\$7,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$11,000	\$11,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$17,000	\$17,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$11,000	\$11,000		
Subtotal				\$383,000		
Contingencies (30% of Construction Costs )	1	LS	\$115,000	\$115,000		
<b>Construction Sub-Total</b>				<b>\$498,000</b>		
<b>Non-Construction Costs (25%)</b>	1	LS	\$125,000	\$125,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$623,000</b>		

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Shady Vista						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	330	LF	\$ 57.00	\$ 18,900.00		
Fire Hydrant Assembly	2	EA	\$ 3,000.00	\$ 6,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
Service Connection	55	EA	\$ 1,500.00	\$ 82,500.00		
Sub-Total				\$110,500		
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$6,000	\$6,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Subtotal				\$127,500		
Contingencies (30% of Construction Costs )	1	LS	\$39,000	\$39,000		
<b>Construction Sub-Total</b>				\$166,500		
<b>Non-Construction Costs (25%)</b>	1	LS	\$42,000	\$42,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$208,500</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
New York Ave						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	2,120	LF	\$ 57.00	\$ 120,900.00		
8-inch Fittings	1	LS	\$ 800.00	\$ 800.00		
Fire Hydrant Assembly	7	EA	\$ 3,000.00	\$ 21,000.00		
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00		
Service Connection	20	EA	\$ 1,500.00	\$ 30,000.00		
Sub-Total				\$181,400		
General conditions (2% of Construction Costs)	1	LS	\$4,000	\$4,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$6,000	\$6,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$10,000	\$10,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$6,000	\$6,000		
Subtotal				\$207,400		
Contingencies (30% of Construction Costs )	1	LS	\$63,000	\$63,000		
<b>Construction Sub-Total</b>				\$270,400		
<b>Non-Construction Costs (25%)</b>	1	LS	\$68,000	\$68,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$339,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Haven Rd						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	690	LF	\$ 57.00	\$ 39,400.00		
8-inch Fittings	1	LS	\$ 300.00	\$ 300.00		
Fire Hydrant Assembly	3	EA	\$ 3,000.00	\$ 9,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$111,600		
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$6,000	\$6,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Subtotal				\$128,600		
Contingencies (30% of Construction Costs )	1	LS	\$39,000	\$39,000		
<b>Construction Sub-Total</b>				\$167,600		
<b>Non-Construction Costs (25%)</b>	1	LS	\$42,000	\$42,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$210,000		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Willemette Rd						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	140	LF	\$ 57.00	\$ 8,000.00		
8-inch Fittings	1	LS	\$ 100.00	\$ 100.00		
Fire Hydrant Assembly	2	EA	\$ 3,000.00	\$ 6,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$77,000		
General conditions (2% of Construction Costs)	1	LS	\$2,000	\$2,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$3,000	\$3,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$4,000	\$4,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$3,000	\$3,000		
Subtotal				\$89,000		
Contingencies (30% of Construction Costs )	1	LS	\$27,000	\$27,000		
<b>Construction Sub-Total</b>				\$116,000		
<b>Non-Construction Costs (25%)</b>	1	LS	\$29,000	\$29,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$145,000		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Elmridge Ave					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	510	LF	\$ 57.00	\$ 29,100.00	
8-inch Fittings	1	LS	\$ 200.00	\$ 200.00	
Fire Hydrant Assembly	3	EA	\$ 3,000.00	\$ 9,000.00	
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00	
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00	
Sub-Total				\$101,200	
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$6,000	\$6,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000	
Subtotal				\$118,200	
Contingencies (30% of Construction Costs )	1	LS	\$36,000	\$36,000	
<b>Construction Sub-Total</b>				\$154,200	
<b>Non-Construction Costs (25%)</b>	1	LS	\$39,000	\$39,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$194,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Rode Rd						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,470	LF	\$ 57.00	\$ 83,800.00		
8-inch Fittings	1	LS	\$ 600.00	\$ 600.00		
Fire Hydrant Assembly	5	EA	\$ 3,000.00	\$ 15,000.00		
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$165,200		
General conditions (2% of Construction Costs)	1	LS	\$4,000	\$4,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$9,000	\$9,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Subtotal				\$188,200		
Contingencies (30% of Construction Costs )	1	LS	\$57,000	\$57,000		
<b>Construction Sub-Total</b>				\$245,200		
<b>Non-Construction Costs (25%)</b>	1	LS	\$62,000	\$62,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$308,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Whetstone Ln					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	620	LF	\$ 57.00	\$ 35,400.00	
8-inch Fittings	1	LS	\$ 300.00	\$ 300.00	
Fire Hydrant Assembly	3	EA	\$ 3,000.00	\$ 9,000.00	
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00	
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00	
Sub-Total				\$107,600	
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$6,000	\$6,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000	
Subtotal				\$124,600	
Contingencies (30% of Construction Costs )	1	LS	\$38,000	\$38,000	
<b>Construction Sub-Total</b>				\$162,600	
<b>Non-Construction Costs (25%)</b>	1	LS	\$41,000	\$41,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$204,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Bellaire Rd						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	840	LF	\$ 57.00	\$ 47,900.00		
8-inch Fittings	1	LS	\$ 400.00	\$ 400.00		
Fire Hydrant Assembly	4	EA	\$ 3,000.00	\$ 12,000.00		
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$126,100		
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000		
Bonds & insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$7,000	\$7,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Subtotal				\$144,100		
Contingencies (30% of Construction Costs )	1	LS	\$44,000	\$44,000		
<b>Construction Sub-Total</b>				\$188,100		
<b>Non-Construction Costs (25%)</b>	1	LS	\$48,000	\$48,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$237,000		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Telephone Rd					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	1,570	LF	\$ 57.00	\$ 89,500.00	
8-inch Fittings	1	LS	\$ 600.00	\$ 600.00	
Fire Hydrant Assembly	5	EA	\$ 3,000.00	\$ 15,000.00	
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00	
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00	
Sub-Total				\$170,900	
General conditions (2% of Construction Costs)	1	LS	\$4,000	\$4,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$6,000	\$6,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$9,000	\$9,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$6,000	\$6,000	
Subtotal				\$195,900	
Contingencies (30% of Construction Costs )	1	LS	\$59,000	\$59,000	
<b>Construction Sub-Total</b>				\$254,900	
<b>Non-Construction Costs (25%)</b>	1	LS	\$64,000	\$64,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$319,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Erksine Rd						2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	3,210	LF	\$ 57.00	\$ 183,000.00		
8-inch Fittings	1	LS	\$ 1,200.00	\$ 1,200.00		
Fire Hydrant Assembly	10	EA	\$ 3,000.00	\$ 30,000.00		
8-inch Gate Valve	5	EA	\$ 2,900.00	\$ 14,500.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$298,700		
General conditions (2% of Construction Costs)	1	LS	\$6,000	\$6,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$9,000	\$9,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$15,000	\$15,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$9,000	\$9,000		
Subtotal				\$327,700		
Contingencies (30% of Construction Costs )	1	LS	\$99,000	\$99,000		
<b>Construction Sub-Total</b>				\$426,700		
<b>Non-Construction Costs (25%)</b>	1	LS	\$107,000	\$107,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$534,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: SAL	DATE:	6/17/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: RCC	DATE:	9/19/2016	
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
<b>First Avenue Booster Station Pump Addition</b>					<b>2022-2026</b>
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
Horizontal Split Case Pump	1	EA	\$ 60,000.00	\$ 60,000.00	
12-inch Butterfly Valves (Existing)	0	EA	\$ -	\$ -	
12-inch Check Valve (Existing)	0	EA	\$ -	\$ -	
12-inch DI Piping	10	LF	\$ 150.00	\$ 1,500.00	
16x12 DI Reducer	1	EA	\$ 1,600.00	\$ 1,600.00	
Coatings	1	LS	\$ 5,000.00	\$ 5,000.00	
Instrumentation & Controls	1	LS	\$ 4,000.00	\$ 4,000.00	
Electrical	1	LS	\$ 8,000.00	\$ 8,000.00	
Sub-Total				\$80,100	
General conditions (2% of Construction Costs)	1	LS	\$2,000	\$2,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$3,000	\$3,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$5,000	\$5,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$3,000	\$3,000	
Subtotal				\$93,100	
Contingencies (30% of Construction Costs )	1	LS	\$28,000	\$28,000	
<b>Construction Sub-Total</b>				\$121,100	
<b>Non-Construction Costs (25%)</b>	1	LS	\$31,000	\$31,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$160,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: SAL	DATE:	6/30/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: RCC	DATE:	9/19/2016	
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
Ward Road Booster Station Replacement					2022-2026
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
Site Piping	1	LS	\$ 120,000.00	\$ 120,000.00	
Packaged Pump Station	1	LS	\$ 700,000.00	\$ 700,000.00	
Instrumentation & Controls	1	LS	\$ 10,000.00	\$ 10,000.00	
Electrical	1	LS	\$ 30,000.00	\$ 30,000.00	
Sub-Total				\$860,000	
General conditions (2% of Construction Costs)	1	LS	\$18,000	\$18,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$26,000	\$26,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$43,000	\$43,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$26,000	\$26,000	
Subtotal				\$973,000	
Contingencies (30% of Construction Costs )	1	LS	\$292,000	\$292,000	
<b>Construction Sub-Total</b>				\$1,265,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$317,000	\$317,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$1,600,000	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: SAL	DATE:	6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: RCC	DATE:	9/19/2016	
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
<b>Campground Booster Station Pump Replacement</b>					<b>2022-2026</b>
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
Existing Pump Demolition	2	EA	\$ 25,000.00	\$ 50,000.00	
Horizontal Split Case Pump	2	EA	\$ 60,000.00	\$ 120,000.00	
Miscellaneous Piping Replacement	1	LS	\$ 10,000.00	\$ 10,000.00	
Coatings	1	LS	\$ 5,000.00	\$ 5,000.00	
Instrumentation & Controls	1	LS	\$ 5,000.00	\$ 5,000.00	
Electrical	1	LS	\$ 10,000.00	\$ 10,000.00	
Sub-Total				\$200,000	
General conditions (2% of Construction Costs)	1	LS	\$4,000	\$4,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$6,000	\$6,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$10,000	\$10,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$6,000	\$6,000	
Subtotal				\$226,000	
Contingencies (30% of Construction Costs )	1	LS	\$68,000	\$68,000	
<b>Construction Sub-Total</b>				\$294,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$74,000	\$74,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$370,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
S Boehne Camp Rd						2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	950	LF	\$ 57.00	\$ 54,200.00		
8-inch Fittings	1	LS	\$ 400.00	\$ 400.00		
Fire Hydrant Assembly	3	EA	\$ 3,000.00	\$ 9,000.00		
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00		
Sub-Total				\$69,400		
General conditions (2% of Construction Costs)	1	LS	\$2,000	\$2,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$3,000	\$3,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$4,000	\$4,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$3,000	\$3,000		
Subtotal				\$81,400		
Contingencies (30% of Construction Costs)	1	LS	\$25,000	\$25,000		
<b>Construction Sub-Total</b>				<b>\$106,400</b>		
Non-Construction Costs (25%)	1	LS	\$27,000	\$27,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$134,000</b>		

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Indiana Ave					2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	180	LF	\$ 57.00	\$ 10,300.00	
8-inch Fittings	1	LS	\$ 100.00	\$ 100.00	
Fire Hydrant Assembly	1	EA	\$ 3,000.00	\$ 3,000.00	
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00	
Sub-Total				\$16,300	
General conditions (2% of Construction Costs)	1	LS	\$1,000	\$1,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$1,000	\$1,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$1,000	\$1,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$1,000	\$1,000	
Subtotal				\$20,300	
Contingencies (30% of Construction Costs )	1	LS	\$7,000	\$7,000	
<b>Construction Sub-Total</b>				\$27,300	
<b>Non-Construction Costs (25%)</b>	1	LS	\$7,000	\$7,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$35,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Seven Hills / Volkman Rd					2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
12-inch C900 PVC Water Main Open Cut	17,790	LF	\$ 81.00	\$ 1,441,000.00	
12-inch Fittings	1	LS	\$ 21,400.00	\$ 21,400.00	
Fire Hydrant Assembly	45	EA	\$ 3,000.00	\$ 135,000.00	
12-inch Gate Valve	23	EA	\$ 6,800.00	\$ 156,400.00	
Service Connection	35	EA	\$ 1,500.00	\$ 52,500.00	
Sub-Total				\$1,806,300	
General conditions (2% of Construction Costs)	1	LS	\$37,000	\$37,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$55,000	\$55,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$91,000	\$91,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$55,000	\$55,000	
Subtotal				\$2,044,300	
Contingencies (30% of Construction Costs )	1	LS	\$614,000	\$614,000	
<b>Construction Sub-Total</b>				\$2,658,300	
<b>Non-Construction Costs (25%)</b>	1	LS	\$665,000	\$665,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,324,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Barker St						2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,500	LF	\$ 57.00	\$ 85,500.00		
8-inch Fittings	1	LS	\$ 600.00	\$ 600.00		
Fire Hydrant Assembly	4	EA	\$ 3,000.00	\$ 12,000.00		
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00		
Sub-Total				\$103,900		
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$6,000	\$6,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Subtotal				\$120,900		
Contingencies (30% of Construction Costs )	1	LS	\$37,000	\$37,000		
<b>Construction Sub-Total</b>				\$157,900		
<b>Non-Construction Costs (25%)</b>	1	LS	\$40,000	\$40,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$198,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Mill St						2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	280	LF	\$ 57.00	\$ 16,000.00		
8-inch Fittings	1	LS	\$ 200.00	\$ 200.00		
Fire Hydrant Assembly	1	EA	\$ 3,000.00	\$ 3,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
Sub-Total				\$22,100		
General conditions (2% of Construction Costs)	1	LS	\$1,000	\$1,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$1,000	\$1,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$2,000	\$2,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$1,000	\$1,000		
Subtotal				\$27,100		
Contingencies (30% of Construction Costs )	1	LS	\$9,000	\$9,000		
<b>Construction Sub-Total</b>				\$36,100		
<b>Non-Construction Costs (25%)</b>	1	LS	\$10,000	\$10,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$47,000		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Peerless Rd					2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
12-inch C900 PVC Water Main Open Cut	4,020	LF	\$ 81.00	\$ 325,700.00	
16-inch DI Water Main Open Cut	800	LF	\$ 163.00	\$ 130,400.00	
12-inch DI Jack and Bore	200	LF	\$ 748.00	\$ 149,600.00	
12-inch Fittings	1	LS	\$ 4,900.00	\$ 4,900.00	
16-inch Fittings	1	LS	\$ 3,100.00	\$ 3,100.00	
Fire Hydrant Assembly	13	EA	\$ 3,000.00	\$ 39,000.00	
12-inch Gate Valve	8	EA	\$ 6,800.00	\$ 54,400.00	
16-inch Gate Valve	1	EA	\$ 20,000.00	\$ 20,000.00	
Air/Vacuum Relief Valve	1	EA	\$ 5,000.00	\$ 5,000.00	
Service Connection	27	EA	\$ 1,500.00	\$ 40,500.00	
Sub-Total				\$772,600	
General conditions (2% of Construction Costs)	1	LS	\$16,000	\$16,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$24,000	\$24,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$39,000	\$39,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$24,000	\$24,000	
Subtotal				\$875,600	
Contingencies (30% of Construction Costs )	1	LS	\$263,000	\$263,000	
<b>Construction Sub-Total</b>				\$1,138,600	
Non-Construction Costs (25%)	1	LS	\$285,000	\$285,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,424,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY:		ECM	DATE:	6/15/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:		SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:			DATE:	
Marlene Dr						2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,230	LF	\$ 57.00	\$ 70,200.00		
8-inch Fittings	1	LS	\$ 500.00	\$ 500.00		
Fire Hydrant Assembly	5	EA	\$ 3,000.00	\$ 15,000.00		
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00		
Service Connection	17	EA	\$ 1,500.00	\$ 25,500.00		
Sub-Total				\$117,000		
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$6,000	\$6,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Subtotal				\$134,000		
Contingencies (30% of Construction Costs )	1	LS	\$41,000	\$41,000		
<b>Construction Sub-Total</b>				\$175,000		
<b>Non-Construction Costs (25%)</b>	1	LS	\$44,000	\$44,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$219,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Boehne Camp Rd						
					2027-2031	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	2,300	LF	\$ 57.00	\$ 131,100.00		
8-inch Fittings	1	LS	\$ 900.00	\$ 900.00		
Fire Hydrant Assembly	7	EA	\$ 3,000.00	\$ 21,000.00		
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00		
Service Connection	28	EA	\$ 1,500.00	\$ 42,000.00		
Sub-Total				\$203,700		
General conditions (2% of Construction Costs)	1	LS	\$5,000	\$5,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$7,000	\$7,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$11,000	\$11,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$7,000	\$7,000		
Subtotal				\$233,700		
Contingencies (30% of Construction Costs )	1	LS	\$71,000	\$71,000		
<b>Construction Sub-Total</b>				\$304,700		
<b>Non-Construction Costs (25%)</b>	1	LS	\$77,000	\$77,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$382,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Broadway between Felstead and Hillside						
2027-2031						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	10,440	LF	\$ 57.00	\$ 595,100.00		
12-inch C900 PVC Water Main Open Cut	6,910	LF	\$ 81.00	\$ 559,800.00		
8-inch Fittings	1	LS	\$ 3,800.00	\$ 3,800.00		
12-inch Fittings	1	LS	\$ 8,300.00	\$ 8,300.00		
Fire Hydrant Assembly	44	EA	\$ 3,000.00	\$ 132,000.00		
8-inch Gate Valve	14	EA	\$ 2,900.00	\$ 40,600.00		
12-inch Gate Valve	9	EA	\$ 6,800.00	\$ 61,200.00		
Service Connection	205	EA	\$ 1,500.00	\$ 307,500.00		
Sub-Total				\$1,708,300		
General conditions (2% of Construction Costs)	1	LS	\$35,000	\$35,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$52,000	\$52,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$86,000	\$86,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$52,000	\$52,000		
Subtotal				\$1,933,300		
Contingencies (30% of Construction Costs )	1	LS	\$580,000	\$580,000		
<b>Construction Sub-Total</b>				\$2,513,300		
<b>Non-Construction Costs (25%)</b>	1	LS	\$629,000	\$629,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,143,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Broadway Ave - Phase III						2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	10,010	LF	\$ 57.00	\$ 570,600.00		
12-inch C900 PVC Water Main Open Cut	2,720	LF	\$ 81.00	\$ 220,400.00		
8-inch Fittings	1	LS	\$ 3,700.00	\$ 3,700.00		
12-inch Fittings	1	LS	\$ 3,300.00	\$ 3,300.00		
Fire Hydrant Assembly	32	EA	\$ 3,000.00	\$ 96,000.00		
8-inch Gate Valve	13	EA	\$ 2,900.00	\$ 37,700.00		
12-inch Gate Valve	4	EA	\$ 6,800.00	\$ 27,200.00		
Service Connection	160	EA	\$ 1,500.00	\$ 240,000.00		
Sub-Total				\$1,198,900		
General conditions (2% of Construction Costs)	1	LS	\$24,000	\$24,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$36,000	\$36,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$60,000	\$60,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$36,000	\$36,000		
Subtotal				\$1,354,900		
Contingencies (30% of Construction Costs )	1	LS	\$407,000	\$407,000		
<b>Construction Sub-Total</b>				\$1,761,900		
<b>Non-Construction Costs (25%)</b>	1	LS	\$441,000	\$441,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,203,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Broadway, Tekoppel, and rail yard						
					2027-2031	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	14,480	LF	\$ 57.00	\$ 825,400.00		
8-inch Fittings	1	LS	\$ 5,300.00	\$ 5,300.00		
Fire Hydrant Assembly	38	EA	\$ 3,000.00	\$ 114,000.00		
8-inch Gate Valve	19	EA	\$ 2,900.00	\$ 55,100.00		
Service Connection	500	EA	\$ 1,500.00	\$ 750,000.00		
Sub-Total	450			\$1,749,800		
General conditions (2% of Construction Costs)	1	LS	\$35,000	\$35,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$53,000	\$53,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$88,000	\$88,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$53,000	\$53,000		
Subtotal				\$1,978,800		
Contingencies (30% of Construction Costs )	1	LS	\$594,000	\$594,000		
<b>Construction Sub-Total</b>				\$2,572,800		
<b>Non-Construction Costs (25%)</b>	1	LS	\$644,000	\$644,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,217,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Claremont, Bosse, and Craig Aves						2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	3,850	LF	\$ 57.00	\$ 219,500.00		
12-inch C900 PVC Water Main Open Cut	2,920	LF	\$ 81.00	\$ 236,600.00		
8-inch DI Jack and Bore	200	LF	\$ 708.00	\$ 141,600.00		
12-inch DI Jack and Bore	200	LF	\$ 748.00	\$ 149,600.00		
8-inch Fittings	1	LS	\$ 1,400.00	\$ 1,400.00		
12-inch Fittings	1	LS	\$ 3,600.00	\$ 3,600.00		
Fire Hydrant Assembly	18	EA	\$ 3,000.00	\$ 54,000.00		
8-inch Gate Valve	7	EA	\$ 2,900.00	\$ 20,300.00		
12-inch Gate Valve	6	EA	\$ 6,800.00	\$ 40,800.00		
Service Connection	200	EA	\$ 1,500.00	\$ 300,000.00		
Sub-Total				\$1,167,400		
General conditions (2% of Construction Costs)	1	LS	\$24,000	\$24,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$36,000	\$36,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$59,000	\$59,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$36,000	\$36,000		
Subtotal				\$1,322,400		
Contingencies (30% of Construction Costs )	1	LS	\$397,000	\$397,000		
<b>Construction Sub-Total</b>				\$1,719,400		
<b>Non-Construction Costs (25%)</b>	1	LS	\$430,000	\$430,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$2,150,000		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Mt Vernon, Maine, Lloyd, and Tekoppel					2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
4-inch C900 PVC Water Main Open Cut	460	LF	\$ 38.00	\$ 17,500.00	
8-inch C900 PVC Water Main Open Cut	20,930	LF	\$ 57.00	\$ 1,193,100.00	
12-inch C900 PVC Water Main Open Cut	1,400	LF	\$ 81.00	\$ 113,400.00	
4-inch Fittings	1	LS	\$ 100.00	\$ 100.00	
8-inch Fittings	1	LS	\$ 7,600.00	\$ 7,600.00	
12-inch Fittings	1	LS	\$ 1,700.00	\$ 1,700.00	
16-inch Fittings	1	LS	\$ 400.00	\$ 400.00	
Fire Hydrant Assembly	57	EA	\$ 3,000.00	\$ 171,000.00	
8-inch Gate Valve	27	EA	\$ 2,900.00	\$ 78,300.00	
12-inch Gate Valve	2	EA	\$ 6,800.00	\$ 13,600.00	
16-inch Gate Valve	1	EA	\$ 20,000.00	\$ 20,000.00	
Air/Vacuum Relief Valve	1	EA	\$ 5,000.00	\$ 5,000.00	
Automatic Flushing Device	1	EA	\$ 5,000.00	\$ 5,000.00	
Service Connection	600	EA	\$ 1,500.00	\$ 900,000.00	
Sub-Total				\$2,543,000	
General conditions (2% of Construction Costs)	1	LS	\$51,000	\$51,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$77,000	\$77,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$128,000	\$128,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$77,000	\$77,000	
Subtotal				\$2,876,000	
Contingencies (30% of Construction Costs )	1	LS	\$863,000	\$863,000	
<b>Construction Sub-Total</b>				<b>\$3,739,000</b>	
<b>Non-Construction Costs (25%)</b>	1	LS	\$935,000	\$935,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$4,674,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001	PREPARED BY: ECM	DATE: 6/15/2016			
PROJECT NAME: EWSU WATER MASTER PLAN	CHECKED BY: SAL	DATE: 9/15/2016			
PROJECT MGR.: JAT	CHECKED BY:	DATE:			
Neighborhood north of Upper Mt Vernon from Craig to Helfrich					2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	6,310	LF	\$ 57.00	\$ 359,700.00	
8-inch Fittings	1	LS	\$ 2,300.00	\$ 2,300.00	
Fire Hydrant Assembly	17	EA	\$ 3,000.00	\$ 51,000.00	
8-inch Gate Valve	8	EA	\$ 2,900.00	\$ 23,200.00	
Service Connection	150	EA	\$ 1,500.00	\$ 225,000.00	
Sub-Total				\$661,200	
General conditions (2% of Construction Costs)	1	LS	\$14,000	\$14,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$20,000	\$20,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$34,000	\$34,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$20,000	\$20,000	
Subtotal				\$749,200	
Contingencies (30% of Construction Costs)	1	LS	\$225,000	\$225,000	
<b>Construction Sub-Total</b>				<b>\$974,200</b>	
Non-Construction Costs (25%)	1	LS	\$244,000	\$244,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,219,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Mesker Park - Phase III						
					2027-2031	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	6,490	LF	\$ 57.00	\$ 370,000.00		
8-inch Fittings	1	LS	\$ 2,400.00	\$ 2,400.00		
Fire Hydrant Assembly	17	EA	\$ 3,000.00	\$ 51,000.00		
8-inch Gate Valve	9	EA	\$ 2,900.00	\$ 26,100.00		
Service Connection	92	EA	\$ 1,500.00	\$ 138,000.00		
Sub-Total				\$587,500		
General conditions (2% of Construction Costs)	1	LS	\$12,000	\$12,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$18,000	\$18,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$30,000	\$30,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$18,000	\$18,000		
Subtotal				\$665,500		
Contingencies (30% of Construction Costs )	1	LS	\$200,000	\$200,000		
<b>Construction Sub-Total</b>				\$865,500		
<b>Non-Construction Costs (25%)</b>	1	LS	\$217,000	\$217,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,083,000</b>		

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
St. Joseph Ave - Phase I						2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	8,890	LF	\$ 81.00	\$ 720,100.00		
12-inch DI Jack and Bore	200	LF	\$ 748.00	\$ 149,600.00		
12-inch Fittings	1	LS	\$ 10,700.00	\$ 10,700.00		
Fire Hydrant Assembly	24	EA	\$ 3,000.00	\$ 72,000.00		
12-inch Gate Valve	14	EA	\$ 6,800.00	\$ 95,200.00		
Service Connection	48	EA	\$ 1,500.00	\$ 72,000.00		
Sub-Total				\$1,119,600		
General conditions (2% of Construction Costs)	1	LS	\$23,000	\$23,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$34,000	\$34,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$56,000	\$56,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$34,000	\$34,000		
Subtotal				\$1,266,600		
Contingencies (30% of Construction Costs )	1	LS	\$380,000	\$380,000		
<b>Construction Sub-Total</b>				\$1,646,600		
<b>Non-Construction Costs (25%)</b>	1	LS	\$412,000	\$412,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,059,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Crossgate, Fulton, Mill, and Kratzville						
					2027-2031	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
4-inch C900 PVC Water Main Open Cut	370	LF	\$ 38.00	\$ 14,100.00		
8-inch C900 PVC Water Main Open Cut	5,110	LF	\$ 57.00	\$ 291,300.00		
4-inch Fittings	1	LS	\$ 100.00	\$ 100.00		
8-inch Fittings	1	LS	\$ 1,900.00	\$ 1,900.00		
Fire Hydrant Assembly	13	EA	\$ 3,000.00	\$ 39,000.00		
8-inch Gate Valve	7	EA	\$ 2,900.00	\$ 20,300.00		
Automatic Flushing Device	3	EA	\$ 5,000.00	\$ 15,000.00		
Service Connection	124	EA	\$ 1,500.00	\$ 186,000.00		
Sub-Total				\$567,700		
General conditions (2% of Construction Costs)	1	LS	\$12,000	\$12,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$18,000	\$18,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$29,000	\$29,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$18,000	\$18,000		
Subtotal				\$644,700		
Contingencies (30% of Construction Costs )	1	LS	\$194,000	\$194,000		
<b>Construction Sub-Total</b>				\$838,700		
<b>Non-Construction Costs (25%)</b>	1	LS	\$210,000	\$210,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$1,049,000		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/21/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Residential area on Idlewild and Allens west of 1st Ave					2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	6,860	LF	\$ 57.00	\$ 391,100.00	
12-inch C900 PVC Water Main Open Cut	50	LF	\$ 81.00	\$ 4,100.00	
16-inch DI Water Main Open Cut	2,090	LF	\$ 163.00	\$ 340,700.00	
8-inch Fittings	1	LS	\$ 2,500.00	\$ 2,500.00	
12-inch Fittings	1	LS	\$ 100.00	\$ 100.00	
16-inch Fittings	1	LS	\$ 8,000.00	\$ 8,000.00	
Fire Hydrant Assembly	24	EA	\$ 3,000.00	\$ 72,000.00	
8-inch Gate Valve	9	EA	\$ 2,900.00	\$ 26,100.00	
12-inch Gate Valve	1	EA	\$ 6,800.00	\$ 6,800.00	
16-inch Gate Valve	3	EA	\$ 20,000.00	\$ 60,000.00	
Air/Vacuum Relief Valve	2	EA	\$ 5,000.00	\$ 10,000.00	
Service Connection	160	EA	\$ 1,500.00	\$ 240,000.00	
Sub-Total				\$1,161,400	
General conditions (2% of Construction Costs)	1	LS	\$24,000	\$24,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$35,000	\$35,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$59,000	\$59,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$35,000	\$35,000	
Subtotal				\$1,314,400	
Contingencies (30% of Construction Costs)	1	LS	\$395,000	\$395,000	
<b>Construction Sub-Total</b>				\$1,709,400	
<b>Non-Construction Costs (25%)</b>	1	LS	\$428,000	\$428,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$2,138,000	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Mill, Stringtown, Buena Vista, and 1st						
2027-2031						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	20,780	LF	\$ 57.00	\$ 1,184,500.00		
8-inch Fittings	1	LS	\$ 7,500.00	\$ 7,500.00		
Fire Hydrant Assembly	53	EA	\$ 3,000.00	\$ 159,000.00		
8-inch Gate Valve	26	EA	\$ 2,900.00	\$ 75,400.00		
Service Connection	550	EA	\$ 1,500.00	\$ 825,000.00		
Sub-Total				\$2,251,400		
General conditions (2% of Construction Costs)	1	LS	\$46,000	\$46,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$68,000	\$68,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$113,000	\$113,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$68,000	\$68,000		
Subtotal				\$2,546,400		
Contingencies (30% of Construction Costs )	1	LS	\$764,000	\$764,000		
<b>Construction Sub-Total</b>				<b>\$3,310,400</b>		
<b>Non-Construction Costs (25%)</b>	1	LS	\$828,000	\$828,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$4,138,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Mt Pleasant, Old State, Evergreen, and Darmstadt					2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
4-inch C900 PVC Water Main Open Cut	1,820	LF	\$ 38.00	\$ 69,200.00	
8-inch C900 PVC Water Main Open Cut	21,960	LF	\$ 57.00	\$ 1,251,800.00	
4-inch Fittings	1	LS	\$ 300.00	\$ 300.00	
8-inch Fittings	1	LS	\$ 8,000.00	\$ 8,000.00	
Fire Hydrant Assembly	58	EA	\$ 3,000.00	\$ 168,000.00	
8-inch Gate Valve	28	EA	\$ 2,900.00	\$ 81,200.00	
Automatic Flushing Device	2	EA	\$ 5,000.00	\$ 10,000.00	
Service Connection	310	EA	\$ 1,500.00	\$ 465,000.00	
Sub-Total				\$2,053,500	
General conditions (2% of Construction Costs)	1	LS	\$42,000	\$42,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$62,000	\$62,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$103,000	\$103,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$62,000	\$62,000	
Subtotal				\$2,322,500	
Contingencies (30% of Construction Costs )	1	LS	\$697,000	\$697,000	
<b>Construction Sub-Total</b>				\$3,019,500	
<b>Non-Construction Costs (25%)</b>	1	LS	\$755,000	\$755,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,775,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001	PREPARED BY: ECM	DATE: 6/20/2016			
PROJECT NAME: EWSU WATER MASTER PLAN	CHECKED BY: SAL	DATE: 9/15/2016			
PROJECT MGR.: JAT	CHECKED BY:	DATE:			
Petersburg Rd and US 41					2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
12-inch C900 PVC Water Main Open Cut	8,860	LF	\$ 81.00	\$ 717,700.00	
24-inch DI Water Main Open Cut	4,150	LF	\$ 230.00	\$ 954,500.00	
36-inch DI Water Main Open Cut	9,250	LF	\$ 315.00	\$ 2,913,800.00	
12-inch DI Jack and Bore	200	LF	\$ 748.00	\$ 149,600.00	
24-inch DI Jack and Bore	250	LF	\$ 1,007.00	\$ 251,800.00	
36-inch DI Jack and Bore	200	LF	\$ 1,265.00	\$ 253,000.00	
12-inch Fittings	1	LS	\$ 10,700.00	\$ 10,700.00	
24-inch Fittings	1	LS	\$ 32,400.00	\$ 32,400.00	
36-inch Fittings	1	LS	\$ 148,000.00	\$ 148,000.00	
Fire Hydrant Assembly	56	EA	\$ 3,000.00	\$ 168,000.00	
12-inch Gate Valve	14	EA	\$ 6,800.00	\$ 95,200.00	
24-inch Gate Valve	7	EA	\$ 45,000.00	\$ 315,000.00	
36-inch Gate Valve	12	EA	\$ 65,000.00	\$ 780,000.00	
Air/Vacuum Relief Valve	7	EA	\$ 5,000.00	\$ 35,000.00	
Service Connection	7	EA	\$ 1,500.00	\$ 10,500.00	
Sub-Total				\$6,835,200	
General conditions (2% of Construction Costs)	1	LS	\$137,000	\$137,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$206,000	\$206,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$342,000	\$342,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$206,000	\$206,000	
Subtotal				\$7,726,200	
Contingencies (30% of Construction Costs )	1	LS	\$2,318,000	\$2,318,000	
<b>Construction Sub-Total</b>				<b>\$10,044,200</b>	
<b>Non-Construction Costs (25%)</b>	1	LS	\$2,512,000	\$2,512,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$12,557,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
St George - Phase II					2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	2,830	LF	\$ 57.00	\$ 161,400.00	
24-inch DI Water Main Open Cut	7,140	LF	\$ 230.00	\$ 1,642,200.00	
30-inch DI Water Main Open Cut	450	LF	\$ 284.00	\$ 127,800.00	
24-inch DI Jack and Bore	550	LF	\$ 1,007.00	\$ 553,900.00	
8-inch Fittings	1	LS	\$ 1,100.00	\$ 1,100.00	
24-inch Fittings	1	LS	\$ 55,700.00	\$ 55,700.00	
30-inch Fittings	1	LS	\$ 5,400.00	\$ 5,400.00	
Fire Hydrant Assembly	27	EA	\$ 3,000.00	\$ 81,000.00	
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00	
24-inch Gate Valve	10	EA	\$ 45,000.00	\$ 450,000.00	
30-inch Gate Valve	1	EA	\$ 55,000.00	\$ 55,000.00	
Air/Vacuum Relief Valve	4	EA	\$ 5,000.00	\$ 20,000.00	
Service Connection	55	EA	\$ 1,500.00	\$ 82,500.00	
Sub-Total				\$3,247,600	
General conditions (2% of Construction Costs)	1	LS	\$65,000	\$65,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$98,000	\$98,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$163,000	\$163,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$98,000	\$98,000	
Subtotal				\$3,671,600	
Contingencies (30% of Construction Costs )	1	LS	\$1,102,000	\$1,102,000	
<b>Construction Sub-Total</b>				\$4,773,600	
<b>Non-Construction Costs (25%)</b>	1	LS	\$1,194,000	\$1,194,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$5,968,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Mill - Phase I						
					2027-2031	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	3,960	LF	\$ 57.00	\$ 225,800.00		
8-inch Fittings	1	LS	\$ 1,500.00	\$ 1,500.00		
Fire Hydrant Assembly	11	EA	\$ 3,000.00	\$ 33,000.00		
8-inch Gate Valve	5	EA	\$ 2,800.00	\$ 14,500.00		
Service Connection	60	EA	\$ 1,500.00	\$ 90,000.00		
Sub-Total				\$364,800		
General conditions (2% of Construction Costs)	1	LS	\$8,000	\$8,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$11,000	\$11,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$19,000	\$19,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$11,000	\$11,000		
Subtotal				\$413,800		
Contingencies (30% of Construction Costs )	1	LS	\$125,000	\$125,000		
<b>Construction Sub-Total</b>				\$538,800		
<b>Non-Construction Costs (25%)</b>	1	LS	\$135,000	\$135,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$674,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Stringtown and Negley					2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	14,690	LF	\$ 57.00	\$ 837,400.00	
12-inch C900 PVC Water Main Open Cut	80	LF	\$ 81.00	\$ 6,500.00	
8-inch Fittings	1	LS	\$ 5,300.00	\$ 5,300.00	
12-inch Fittings	1	LS	\$ 100.00	\$ 100.00	
Fire Hydrant Assembly	38	EA	\$ 3,000.00	\$ 114,000.00	
8-inch Gate Valve	19	EA	\$ 2,900.00	\$ 55,100.00	
12-inch Gate Valve	1	EA	\$ 6,800.00	\$ 6,800.00	
Service Connection	440	EA	\$ 1,500.00	\$ 660,000.00	
Sub-Total				\$1,685,200	
General conditions (2% of Construction Costs)	1	LS	\$34,000	\$34,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$51,000	\$51,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$85,000	\$85,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$51,000	\$51,000	
Subtotal				\$1,906,200	
Contingencies (30% of Construction Costs )	1	LS	\$572,000	\$572,000	
<b>Construction Sub-Total</b>				\$2,478,200	
<b>Non-Construction Costs (25%)</b>	1	LS	\$620,000	\$620,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,099,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 86201-PL-001		PREPARED BY: ECM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Diamond, Stringtown, Morgan, and Read						
2027-2031						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	14,530	LF	\$ 57.00	\$ 828,300.00		
12-inch C900 PVC Water Main Open Cut	110	LF	\$ 81.00	\$ 9,000.00		
8-inch Fittings	1	LS	\$ 5,300.00	\$ 5,300.00		
12-inch Fittings	1	LS	\$ 200.00	\$ 200.00		
Fire Hydrant Assembly	38	EA	\$ 3,000.00	\$ 114,000.00		
8-inch Gate Valve	19	EA	\$ 2,900.00	\$ 55,100.00		
12-inch Gate Valve	1	EA	\$ 6,800.00	\$ 6,800.00		
Service Connection	520	EA	\$ 1,500.00	\$ 780,000.00		
Sub-Total				\$1,798,700		
General conditions (2% of Construction Costs)	1	LS	\$36,000	\$36,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$54,000	\$54,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$90,000	\$90,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$54,000	\$54,000		
Subtotal				\$2,032,700		
Contingencies (30% of Construction Costs )	1	LS	\$610,000	\$610,000		
<b>Construction Sub-Total</b>				\$2,642,700		
<b>Non-Construction Costs (25%)</b>	1	LS	\$661,000	\$661,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,304,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Morgan, Read, Louisiana, and 1st						
2027-2031						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	6,300	LF	\$ 57.00	\$ 359,100.00		
8-inch Fittings	1	LS	\$ 2,300.00	\$ 2,300.00		
Fire Hydrant Assembly	16	EA	\$ 3,000.00	\$ 48,000.00		
8-inch Gate Valve	6	EA	\$ 2,900.00	\$ 23,200.00		
Service Connection	210	EA	\$ 1,500.00	\$ 315,000.00		
Sub-Total				\$747,600		
General conditions (2% of Construction Costs)	1	LS	\$15,000	\$15,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$23,000	\$23,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$38,000	\$38,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$23,000	\$23,000		
Subtotal				\$846,600		
Contingencies (30% of Construction Costs )	1	LS	\$254,000	\$254,000		
<b>Construction Sub-Total</b>				\$1,100,600		
<b>Non-Construction Costs (25%)</b>	1	LS	\$276,000	\$276,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,377,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of 1st, Dresden, and Fulton					2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	4,320	LF	\$ 57.00	\$ 246,300.00	
12-inch C900 PVC Water Main Open Cut	890	LF	\$ 81.00	\$ 72,100.00	
30-inch DI Water Main Open Cut	900	LF	\$ 284.00	\$ 255,600.00	
8-inch Fittings	1	LS	\$ 1,600.00	\$ 1,600.00	
12-inch Fittings	1	LS	\$ 1,100.00	\$ 1,100.00	
30-inch Fittings	1	LS	\$ 10,800.00	\$ 10,800.00	
Fire Hydrant Assembly	17	EA	\$ 3,000.00	\$ 51,000.00	
8-inch Gate Valve	6	EA	\$ 2,900.00	\$ 17,400.00	
12-inch Gate Valve	2	EA	\$ 6,800.00	\$ 13,600.00	
30-inch Gate Valve	1	EA	\$ 55,000.00	\$ 55,000.00	
Service Connection	110	EA	\$ 1,500.00	\$ 165,000.00	
Sub-Total				\$894,500	
General conditions (2% of Construction Costs)	1	LS	\$18,000	\$18,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$27,000	\$27,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$45,000	\$45,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$27,000	\$27,000	
Subtotal				\$1,011,500	
Contingencies (30% of Construction Costs )	1	LS	\$304,000	\$304,000	
<b>Construction Sub-Total</b>				\$1,315,500	
Non-Construction Costs (25%)	1	LS	\$329,000	\$329,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$1,645,000	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Fulton Ave						2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
20-inch DI Water Main Open Cut	4,300	LF	\$ 205.00	\$ 881,500.00		
20-inch Fittings	1	LS	\$ 25,000.00	\$ 25,000.00		
Fire Hydrant Assembly	11	EA	\$ 3,000.00	\$ 33,000.00		
20-inch Gate Valve	6	EA	\$ 35,000.00	\$ 210,000.00		
Air/Vacuum Relief Valve	3	EA	\$ 5,000.00	\$ 15,000.00		
Sub-Total				\$1,164,500		
General conditions (2% of Construction Costs)	1	LS	\$24,000	\$24,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$35,000	\$35,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$59,000	\$59,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$35,000	\$35,000		
Subtotal				\$1,317,500		
Contingencies (30% of Construction Costs )	1	LS	\$396,000	\$396,000		
<b>Construction Sub-Total</b>				\$1,713,500		
<b>Non-Construction Costs (25%)</b>	1	LS	\$429,000	\$429,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,143,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Franklin Ave and 1st Ave east of Pigeon Creek						
2027-2031						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
16-inch DI Water Main Open Cut	950	LF	\$ 163.00	\$ 154,900.00		
20-inch DI Water Main Open Cut	1,670	LF	\$ 205.00	\$ 342,400.00		
20-inch HDPE Directional Bore	500	LF	\$ 159.00	\$ 79,500.00		
16-inch Fittings	1	LS	\$ 3,700.00	\$ 3,700.00		
20-inch Fittings	1	LS	\$ 9,700.00	\$ 9,700.00		
Fire Hydrant Assembly	7	EA	\$ 3,000.00	\$ 21,000.00		
16-inch Gate Valve	2	EA	\$ 20,000.00	\$ 40,000.00		
20-inch Gate Valve	3	EA	\$ 35,000.00	\$ 105,000.00		
Air/Vacuum Relief Valve	2	EA	\$ 5,000.00	\$ 10,000.00		
Service Connection	16	EA	\$ 1,500.00	\$ 24,000.00		
Sub-Total				\$790,200		
General conditions (2% of Construction Costs)	1	LS	\$16,000	\$16,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$24,000	\$24,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$40,000	\$40,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$24,000	\$24,000		
Subtotal				\$694,200		
Contingencies (30% of Construction Costs )	1	LS	\$269,000	\$269,000		
<b>Construction Sub-Total</b>				\$1,163,200		
<b>Non-Construction Costs (25%)</b>	1	LS	\$291,000	\$291,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,455,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Franklin, Main, Division, and 2nd					2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	11,240	LF	\$ 57.00	\$ 640,700.00	
12-inch C900 PVC Water Main Open Cut	1,560	LF	\$ 81.00	\$ 126,400.00	
16-inch DI Water Main Open Cut	1,000	LF	\$ 163.00	\$ 163,000.00	
24-inch DI Water Main Open Cut	440	LF	\$ 230.00	\$ 101,200.00	
8-inch Fittings	1	LS	\$ 4,100.00	\$ 4,100.00	
12-inch Fittings	1	LS	\$ 1,900.00	\$ 1,900.00	
16-inch Fittings	1	LS	\$ 3,800.00	\$ 3,800.00	
24-inch Fittings	1	LS	\$ 3,500.00	\$ 3,500.00	
Fire Hydrant Assembly	37	EA	\$ 3,000.00	\$ 111,000.00	
8-inch Gate Valve	15	EA	\$ 2,900.00	\$ 43,500.00	
12-inch Gate Valve	2	EA	\$ 6,800.00	\$ 13,600.00	
16-inch Gate Valve	2	EA	\$ 20,000.00	\$ 40,000.00	
24-inch Gate Valve	1	EA	\$ 45,000.00	\$ 45,000.00	
Air/Vacuum Relief Valve	1	EA	\$ 5,000.00	\$ 5,000.00	
Service Connection	350	EA	\$ 1,500.00	\$ 525,000.00	
Sub-Total				\$1,827,700	
General conditions (2% of Construction Costs)	1	LS	\$37,000	\$37,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$55,000	\$55,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$92,000	\$92,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$55,000	\$55,000	
Subtotal				\$2,066,700	
Contingencies (30% of Construction Costs )	1	LS	\$621,000	\$621,000	
<b>Construction Sub-Total</b>				\$2,687,700	
<b>Non-Construction Costs (25%)</b>	1	LS	\$672,000	\$672,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,360,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of 4th, Chandler, 1st, and 5th					2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	6,640	LF	\$ 57.00	\$ 378,500.00	
16-inch DI Water Main Open Cut	1,380	LF	\$ 163.00	\$ 225,000.00	
20-inch DI Water Main Open Cut	750	LF	\$ 205.00	\$ 153,800.00	
24-inch DI Water Main Open Cut	4,510	LF	\$ 230.00	\$ 1,037,300.00	
8-inch Fittings	1	LS	\$ 2,400.00	\$ 2,400.00	
16-inch Fittings	1	LS	\$ 5,300.00	\$ 5,300.00	
20-inch Fittings	1	LS	\$ 4,400.00	\$ 4,400.00	
24-inch Fittings	1	LS	\$ 35,200.00	\$ 35,200.00	
Fire Hydrant Assembly	35	EA	\$ 3,000.00	\$ 105,000.00	
8-inch Gate Valve	9	EA	\$ 2,900.00	\$ 26,100.00	
16-inch Gate Valve	2	EA	\$ 20,000.00	\$ 40,000.00	
20-inch Gate Valve	1	EA	\$ 35,000.00	\$ 35,000.00	
24-inch Gate Valve	5	EA	\$ 45,000.00	\$ 225,000.00	
Air/Vacuum Relief Valve	4	EA	\$ 5,000.00	\$ 20,000.00	
Service Connection	275	EA	\$ 1,500.00	\$ 412,500.00	
Sub-Total				\$2,705,500	
General conditions (2% of Construction Costs)	1	LS	\$55,000	\$55,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$82,000	\$82,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$136,000	\$136,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$82,000	\$82,000	
Subtotal				\$3,060,500	
Contingencies (30% of Construction Costs )	1	LS	\$919,000	\$919,000	
<b>Construction Sub-Total</b>				<b>\$3,979,500</b>	
<b>Non-Construction Costs (25%)</b>	1	LS	\$995,000	\$995,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$4,975,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Virginia Ave and Oak Hill Rd east of US 41					2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	260	LF	\$ 57.00	\$ 14,900.00	
30-inch DI Water Main Open Cut	6,380	LF	\$ 284.00	\$ 1,812,000.00	
8-inch Fittings	1	LS	\$ 100.00	\$ 100.00	
30-inch Fittings	1	LS	\$ 76,600.00	\$ 76,600.00	
Fire Hydrant Assembly	18	EA	\$ 3,000.00	\$ 54,000.00	
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00	
30-inch Gate Valve	7	EA	\$ 55,000.00	\$ 385,000.00	
Air/Vacuum Relief Valve	4	EA	\$ 5,000.00	\$ 20,000.00	
Service Connection	5	EA	\$ 1,500.00	\$ 7,500.00	
Sub-Total				\$2,373,000	
General conditions (2% of Construction Costs)	1	LS	\$48,000	\$48,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$72,000	\$72,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$119,000	\$119,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$72,000	\$72,000	
Subtotal				\$2,684,000	
Contingencies (30% of Construction Costs )	1	LS	\$806,000	\$806,000	
<b>Construction Sub-Total</b>				\$3,490,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$873,000	\$873,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$4,363,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Virginia/Oak Hill, Weinbach, Division, and US 41					2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	18,880	LF	\$ 57.00	\$ 1,076,200.00	
8-inch Fittings	1	LS	\$ 6,800.00	\$ 6,800.00	
Fire Hydrant Assembly	49	EA	\$ 3,000.00	\$ 147,000.00	
8-inch Gate Valve	24	EA	\$ 2,900.00	\$ 69,600.00	
Service Connection		EA	\$ -	\$ -	
Sub-Total	600			\$1,299,600	
General conditions (2% of Construction Costs)	1	LS	\$26,000	\$26,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$39,000	\$39,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$65,000	\$65,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$39,000	\$39,000	
Subtotal				\$1,468,600	
Contingencies (30% of Construction Costs )	1	LS	\$441,000	\$441,000	
<b>Construction Sub-Total</b>				\$1,909,600	
<b>Non-Construction Costs (25%)</b>	1	LS	\$478,000	\$478,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,388,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Lincoln, Boeke, Washington, and Weinbach					2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	21,300	LF	\$ 57.00	\$ 1,214,100.00	
8-inch Fittings	1	LS	\$ 7,700.00	\$ 7,700.00	
Fire Hydrant Assembly	55	EA	\$ 3,000.00	\$ 165,000.00	
8-inch Gate Valve	27	EA	\$ 2,900.00	\$ 78,300.00	
Service Connection	750	EA	\$ 1,500.00	\$ 1,125,000.00	
Sub-Total				\$2,590,100	
General conditions (2% of Construction Costs)	1	LS	\$52,000	\$52,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$78,000	\$78,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$130,000	\$130,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$78,000	\$78,000	
Subtotal				\$2,928,100	
Contingencies (30% of Construction Costs )	1	LS	\$879,000	\$879,000	
<b>Construction Sub-Total</b>				\$3,807,100	
<b>Non-Construction Costs (25%)</b>	1	LS	\$952,000	\$952,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$4,760,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Covert, Boeke, Pollack, and Weinbach						
2027-2031						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
4-inch C900 PVC Water Main Open Cut	640	LF	\$ 38.00	\$ 24,400.00		
8-inch C900 PVC Water Main Open Cut	21,390	LF	\$ 57.00	\$ 1,219,300.00		
4-inch Fittings	1	LS	\$ 100.00	\$ 100.00		
8-inch Fittings	1	LS	\$ 7,800.00	\$ 7,800.00		
Fire Hydrant Assembly	55	EA	\$ 3,000.00	\$ 165,000.00		
8-inch Gate Valve	27	EA	\$ 2,900.00	\$ 78,300.00		
Automatic Flushing Device	3	EA	\$ 5,000.00	\$ 15,000.00		
Service Connection	600	EA	\$ 1,500.00	\$ 900,000.00		
Sub-Total				\$2,409,900		
General conditions (2% of Construction Costs)	1	LS	\$49,000	\$49,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$73,000	\$73,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$121,000	\$121,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$73,000	\$73,000		
Subtotal				\$2,725,900		
Contingencies (30% of Construction Costs )	1	LS	\$818,000	\$818,000		
<b>Construction Sub-Total</b>				\$3,543,900		
<b>Non-Construction Costs (25%)</b>	1	LS	\$886,000	\$886,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$4,430,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Welworth and Roosevelt						
					2027-2031	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
4-inch C900 PVC Water Main Open Cut	220	LF	\$ 38.00	\$ 8,400.00		
8-inch C900 PVC Water Main Open Cut	12,160	LF	\$ 57.00	\$ 693,200.00		
6-inch DI Jack and Bore	640	LF	\$ 690.00	\$ 441,600.00		
4-inch Fittings	1	LS	\$ 100.00	\$ 100.00		
8-inch Fittings	1	LS	\$ 4,400.00	\$ 4,400.00		
Fire Hydrant Assembly	32	EA	\$ 3,000.00	\$ 96,000.00		
8-inch Gate Valve	16	EA	\$ 2,900.00	\$ 46,400.00		
Automatic Flushing Device	1	EA	\$ 5,000.00	\$ 5,000.00		
Service Connection	260	EA	\$ 1,500.00	\$ 390,000.00		
Sub-Total				\$1,688,700		
General conditions (2% of Construction Costs)	1	LS	\$34,000	\$34,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$51,000	\$51,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$85,000	\$85,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$51,000	\$51,000		
Subtotal				\$1,909,700		
Contingencies (30% of Construction Costs )	1	LS	\$573,000	\$573,000		
<b>Construction Sub-Total</b>				\$2,482,700		
<b>Non-Construction Costs (25%)</b>	1	LS	\$621,000	\$621,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,104,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Green River						2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	1,420	LF	\$ 81.00	\$ 115,100.00		
12-inch Fittings	1	LS	\$ 1,800.00	\$ 1,800.00		
Fire Hydrant Assembly	5	EA	\$ 3,000.00	\$ 15,000.00		
Service Connection	10	EA	\$ 1,500.00	\$ 15,000.00		
Sub-Total				\$160,500		
General conditions (2% of Construction Costs)	1	LS	\$4,000	\$4,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$9,000	\$9,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Subtotal				\$183,500		
Contingencies (30% of Construction Costs )	1	LS	\$56,000	\$56,000		
<b>Construction Sub-Total</b>				\$239,500		
<b>Non-Construction Costs (25%)</b>	1	LS	\$60,000	\$60,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$300,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Cross Pointe Blvd						
2027-2031						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	530	LF	\$ 81.00	\$ 43,000.00		
12-inch DI Jack and Bore	400	LF	\$ 748.00	\$ 299,200.00		
12-inch Fittings	1	LS	\$ 700.00	\$ 700.00		
Fire Hydrant Assembly	3	EA	\$ 3,000.00	\$ 9,000.00		
12-inch Gate Valve	3	EA	\$ 6,800.00	\$ 20,400.00		
Service Connection	28	EA	\$ 1,500.00	\$ 42,000.00		
Sub-Total				\$414,300		
General conditions (2% of Construction Costs)	1	LS	\$9,000	\$9,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$13,000	\$13,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$21,000	\$21,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$13,000	\$13,000		
Subtotal				\$470,300		
Contingencies (30% of Construction Costs )	1	LS	\$142,000	\$142,000		
<b>Construction Sub-Total</b>				\$612,300		
<b>Non-Construction Costs (25%)</b>	1	LS	\$154,000	\$154,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$767,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Kern and Laurel						
2027-2031						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,810	LF	\$ 57.00	\$ 103,200.00		
8-inch Fittings	1	LS	\$ 700.00	\$ 700.00		
Fire Hydrant Assembly	6	EA	\$ 3,000.00	\$ 18,000.00		
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00		
Air/Vacuum Relief Valve	0	EA	\$ -	\$ -		
Automatic Flushing Device		EA	\$ -	\$ -		
Service Connection	20	EA	\$ 1,500.00	\$ 30,000.00		
Sub-Total				\$160,600		
General conditions (2% of Construction Costs)	1	LS	\$4,000	\$4,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$9,000	\$9,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Subtotal				\$183,600		
Contingencies (30% of Construction Costs )	1	LS	\$56,000	\$56,000		
<b>Construction Sub-Total</b>				<b>\$239,600</b>		
Non-Construction Costs (25%)	1	LS	\$60,000	\$60,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$300,000</b>		

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Harmony - Phase II					2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	1,430	LF	\$ 57.00	\$ 81,600.00	
16-inch DI Water Main Open Cut	3,030	LF	\$ 163.00	\$ 493,900.00	
8-inch Fittings	1	LS	\$ 600.00	\$ 600.00	
16-inch Fittings	1	LS	\$ 11,600.00	\$ 11,600.00	
Fire Hydrant Assembly	13	EA	\$ 3,000.00	\$ 39,000.00	
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00	
16-inch Gate Valve	4	EA	\$ 20,000.00	\$ 80,000.00	
Air/Vacuum Relief Valve	2	EA	\$ 5,000.00	\$ 10,000.00	
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00	
Sub-Total				\$782,500	
General conditions (2% of Construction Costs)	1	LS	\$16,000	\$16,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$24,000	\$24,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$40,000	\$40,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$24,000	\$24,000	
Subtotal				\$886,500	
Contingencies (30% of Construction Costs)	1	LS	\$266,000	\$266,000	
<b>Construction Sub-Total</b>				\$1,152,500	
Non-Construction Costs (25%)	1	LS	\$289,000	\$289,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,442,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Eine Ave						2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,150	LF	\$ 57.00	\$ 65,600.00		
8-inch Fittings	1	LS	\$ 500.00	\$ 500.00		
Fire Hydrant Assembly	4	EA	\$ 3,000.00	\$ 12,000.00		
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$143,900		
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$8,000	\$8,000		
Clean Up & Site Restoration (5% of Construction Costs)	1	LS	\$5,000	\$5,000		
Subtotal				\$164,900		
Contingencies (30% of Construction Costs )	1	LS	\$50,000	\$50,000		
<b>Construction Sub-Total</b>				\$214,900		
<b>Non-Construction Costs (25%)</b>	1	LS	\$54,000	\$54,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$269,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Lincoln Ave - Phase I					2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	1,880	LF	\$ 57.00	\$ 107,200.00	
12-inch C900 PVC Water Main Open Cut	790	LF	\$ 81.00	\$ 64,000.00	
8-inch Fittings	1	LS	\$ 700.00	\$ 700.00	
12-inch Fittings	1	LS	\$ 1,000.00	\$ 1,000.00	
Fire Hydrant Assembly	8	EA	\$ 3,000.00	\$ 24,000.00	
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00	
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00	
Sub-Total				\$272,400	
General conditions (2% of Construction Costs)	1	LS	\$6,000	\$6,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$9,000	\$9,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$14,000	\$14,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$9,000	\$9,000	
Subtotal				\$310,400	
Contingencies (30% of Construction Costs )	1	LS	\$94,000	\$94,000	
<b>Construction Sub-Total</b>				\$404,400	
<b>Non-Construction Costs (25%)</b>	1	LS	\$102,000	\$102,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$507,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Carlton Ave						2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	640	LF	\$ 57.00	\$ 36,500.00		
8-inch Fittings	1	LS	\$ 300.00	\$ 300.00		
Fire Hydrant Assembly	3	EA	\$ 3,000.00	\$ 9,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$108,700		
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$6,000	\$6,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Subtotal				\$125,700		
Contingencies (30% of Construction Costs )	1	LS	\$38,000	\$38,000		
<b>Construction Sub-Total</b>				\$163,700		
<b>Non-Construction Costs (25%)</b>	1	LS	\$41,000	\$41,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$205,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: FCM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Eichel Rd						
2027-2031						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	2,190	LF	\$ 57.00	\$ 124,900.00		
8-inch Fittings	1	LS	\$ 800.00	\$ 800.00		
Fire Hydrant Assembly	7	EA	\$ 3,000.00	\$ 21,000.00		
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$215,400		
General conditions (2% of Construction Costs)	1	LS	\$5,000	\$5,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$7,000	\$7,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$11,000	\$11,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$7,000	\$7,000		
Subtotal				\$245,400		
Contingencies (30% of Construction Costs )	1	LS	\$74,000	\$74,000		
<b>Construction Sub-Total</b>				\$319,400		
<b>Non-Construction Costs (25%)</b>	1	LS	\$80,000	\$80,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$400,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Meyer Rd						2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	590	LF	\$ 57.00	\$ 33,700.00		
8-inch Fittings	1	LS	\$ 300.00	\$ 300.00		
Fire Hydrant Assembly	3	EA	\$ 3,000.00	\$ 9,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$105,900		
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$6,000	\$6,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Subtotal				\$122,900		
Contingencies (30% of Construction Costs )	1	LS	\$37,000	\$37,000		
<b>Construction Sub-Total</b>				\$159,900		
<b>Non-Construction Costs (25%)</b>	1	LS	\$40,000	\$40,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$200,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Rosewood St						2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	940	LF	\$ 57.00	\$ 53,600.00		
8-inch Fittings	1	LS	\$ 400.00	\$ 400.00		
Fire Hydrant Assembly	4	EA	\$ 3,000.00	\$ 12,000.00		
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$131,800		
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$7,000	\$7,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Subtotal				\$149,800		
Contingencies (30% of Construction Costs )	1	LS	\$45,000	\$45,000		
<b>Construction Sub-Total</b>				\$194,800		
<b>Non-Construction Costs (25%)</b>	1	LS	\$49,000	\$49,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$244,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
SR57 from Kansas Rd						2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	1,330	LF	\$ 81.00	\$ 107,800.00		
12-inch DI Jack and Bore	400	LF	\$ 748.00	\$ 299,200.00		
12-inch Fittings	1	LS	\$ 1,600.00	\$ 1,600.00		
Fire Hydrant Assembly	5	EA	\$ 3,000.00	\$ 15,000.00		
12-inch Gate Valve	4	EA	\$ 6,800.00	\$ 27,200.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$510,800		
General conditions (2% of Construction Costs)	1	LS	\$11,000	\$11,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$16,000	\$16,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$26,000	\$26,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$16,000	\$16,000		
Subtotal				\$579,800		
Contingencies (30% of Construction Costs )	1	LS	\$174,000	\$174,000		
<b>Construction Sub-Total</b>				\$753,800		
<b>Non-Construction Costs (25%)</b>	1	LS	\$189,000	\$189,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$943,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: SAL	DATE:	6/20/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: RCC	DATE:	9/19/2016	
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
<b>Campground Reservoir Replacement</b>					<b>2027-2031</b>
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
Site Piping	1	LS	\$ 300,000.00	\$ 300,000.00	
Site Work	1	LS	\$ 100,000.00	\$ 100,000.00	
Prestressed Concrete Storage Tank	2	EA	\$ 3,800,000.00	\$ 7,600,000.00	
Coatings	1	LS	\$ 60,000.00	\$ 60,000.00	
Instrumentation & Controls	1	LS	\$ 100,000.00	\$ 100,000.00	
Electrical	1	LS	\$ 200,000.00	\$ 200,000.00	
Sub-Total				\$8,360,000	
General conditions (2% of Construction Costs)	1	LS	\$168,000	\$168,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$251,000	\$251,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$418,000	\$418,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$251,000	\$251,000	
Subtotal				\$9,448,000	
Contingencies (30% of Construction Costs )	1	LS	\$2,835,000	\$2,835,000	
<b>Construction Sub-Total</b>				\$12,283,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$3,071,000	\$3,071,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$15,400,000	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO: 66201-PL-001		PREPARED BY: SAL	DATE:	6/30/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: RCC	DATE:	9/19/2016	
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
Stallings Booster Station Replacement					2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
Land Acquisition	1	LS	\$ 20,000.00	\$ 20,000.00	
Site Piping	1	LS	\$ 175,000.00	\$ 175,000.00	
Packaged Pump Station	1	LS	\$ 2,000,000.00	\$ 2,000,000.00	
Instrumentation & Controls	1	LS	\$ 25,000.00	\$ 25,000.00	
Electrical	1	LS	\$ 100,000.00	\$ 100,000.00	
Sub-Total				\$2,320,000	
General conditions (2% of Construction Costs)	1	LS	\$47,000	\$47,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$70,000	\$70,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$116,000	\$116,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$70,000	\$70,000	
Subtotal				\$2,623,000	
Contingencies (30% of Construction Costs )	1	LS	\$787,000	\$787,000	
<b>Construction Sub-Total</b>				\$3,410,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$853,000	\$853,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$4,300,000	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Kasson Dr						
					2032-2036	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	2,330	LF	\$ 57.00	\$ 132,900.00		
8-inch Fittings	1	LS	\$ 900.00	\$ 900.00		
Fire Hydrant Assembly	6	EA	\$ 3,000.00	\$ 18,000.00		
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00		
Service Connection	3	EA	\$ 1,500.00	\$ 4,500.00		
Sub-Total				\$165,000		
General conditions (2% of Construction Costs)	1	LS	\$4,000	\$4,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$9,000	\$9,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Subtotal				\$188,000		
Contingencies (30% of Construction Costs )	1	LS	\$57,000	\$57,000		
<b>Construction Sub-Total</b>				\$245,000		
<b>Non-Construction Costs (25%)</b>	1	LS	\$62,000	\$62,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$307,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Schench and St Joseph					2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
12-inch C900 PVC Water Main Open Cut	12,540	LF	\$ 81.00	\$ 1,015,800.00	
12-inch Fittings	1	LS	\$ 15,100.00	\$ 15,100.00	
Fire Hydrant Assembly	32	EA	\$ 3,000.00	\$ 96,000.00	
12-inch Gate Valve	16	EA	\$ 6,800.00	\$ 108,800.00	
Service Connection	60	EA	\$ 1,500.00	\$ 90,000.00	
Sub-Total				\$1,325,700	
General conditions (2% of Construction Costs)	1	LS	\$27,000	\$27,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$40,000	\$40,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$67,000	\$67,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$40,000	\$40,000	
Subtotal				\$1,499,700	
Contingencies (30% of Construction Costs )	1	LS	\$450,000	\$450,000	
<b>Construction Sub-Total</b>				\$1,949,700	
<b>Non-Construction Costs (25%)</b>	1	LS	\$488,000	\$488,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,438,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Darmstadt Rd						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	2,550	LF	\$ 81.00	\$ 206,600.00		
12-inch Fittings	1	LS	\$ 3,100.00	\$ 3,100.00		
Fire Hydrant Assembly	7	EA	\$ 3,000.00	\$ 21,000.00		
12-inch Gate Valve	4	EA	\$ 6,800.00	\$ 27,200.00		
Service Connection	10	EA	\$ 1,500.00	\$ 15,000.00		
Sub-Total				\$272,900		
General conditions (2% of Construction Costs)	1	LS	\$6,000	\$6,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$9,000	\$9,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$14,000	\$14,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$9,000	\$9,000		
Subtotal				\$310,900		
Contingencies (30% of Construction Costs )	1	LS	\$94,000	\$94,000		
<b>Construction Sub-Total</b>				\$404,900		
<b>Non-Construction Costs (25%)</b>	1	LS	\$102,000	\$102,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$507,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM DATE: 6/16/2016				
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL DATE: 9/15/2016				
PROJECT MGR.: JAT		CHECKED BY: DATE:				
Southeast Blvd						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	150	LF	\$ 57.00	\$ 8,600.00		
8-inch Fittings	1	LS	\$ 100.00	\$ 100.00		
Fire Hydrant Assembly	1	EA	\$ 3,000.00	\$ 3,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
Service Connection	3	EA	\$ 1,500.00	\$ 4,500.00		
Sub-Total				\$19,100		
General conditions (2% of Construction Costs)	1	LS	\$1,000	\$1,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$1,000	\$1,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$1,000	\$1,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$1,000	\$1,000		
Subtotal				\$23,100		
Contingencies (30% of Construction Costs )	1	LS	\$7,000	\$7,000		
<b>Construction Sub-Total</b>				\$30,100		
<b>Non-Construction Costs (25%)</b>	1	LS	\$8,000	\$8,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$38,000</b>		

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We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Oak Hill Rd						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	760	LF	\$ 57.00	\$ 43,400.00		
12-inch HDPE Directional Bore	300	LF	\$ 109.00	\$ 32,700.00		
8-inch Fittings	1	LS	\$ 300.00	\$ 300.00		
Fire Hydrant Assembly	2	EA	\$ 3,000.00	\$ 6,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
Sub-Total				\$85,300		
General conditions (2% of Construction Costs)	1	LS	\$2,000	\$2,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$3,000	\$3,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$5,000	\$5,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$3,000	\$3,000		
Subtotal				\$98,300		
Contingencies (30% of Construction Costs )	1	LS	\$30,000	\$30,000		
<b>Construction Sub-Total</b>				\$128,300		
<b>Non-Construction Costs (25%)</b>	1	LS	\$33,000	\$33,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$162,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Kansas Rd						
2032-2036						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,300	LF	\$ 57.00	\$ 74,100.00		
8-inch Fittings	1	LS	\$ 500.00	\$ 500.00		
Fire Hydrant Assembly	4	EA	\$ 3,000.00	\$ 12,000.00		
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00		
Sub-Total				\$92,400		
General conditions (2% of Construction Costs)	1	LS	\$2,000	\$2,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$3,000	\$3,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$5,000	\$5,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$3,000	\$3,000		
Subtotal				\$105,400		
Contingencies (30% of Construction Costs )	1	LS	\$32,000	\$32,000		
<b>Construction Sub-Total</b>				\$137,400		
<b>Non-Construction Costs (25%)</b>	1	LS	\$35,000	\$35,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$173,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001	PREPARED BY: ECM	DATE: 6/20/2016			
PROJECT NAME: EWSU WATER MASTER PLAN	CHECKED BY: SAL	DATE: 9/15/2016			
PROJECT MGR.: JAT	CHECKED BY:	DATE:			
Boonville New Harmony Rd - Phase I and US 41					2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
16-inch DI Water Main Open Cut	3,660	LF	\$ 163.00	\$ 596,600.00	
24-inch DI Water Main Open Cut	4,810	LF	\$ 230.00	\$ 1,106,300.00	
20-inch DI Jack and Bore	200	LF	\$ 989.00	\$ 197,800.00	
16-inch Fittings	1	LS	\$ 14,000.00	\$ 14,000.00	
24-inch Fittings	1	LS	\$ 37,600.00	\$ 37,600.00	
Fire Hydrant Assembly	22	EA	\$ 3,000.00	\$ 66,000.00	
16-inch Gate Valve	5	EA	\$ 20,000.00	\$ 100,000.00	
20-inch Gate Valve	2	EA	\$ 35,000.00	\$ 70,000.00	
24-inch Gate Valve	5	EA	\$ 45,000.00	\$ 225,000.00	
Air/Vacuum Relief Valve	5	EA	\$ 5,000.00	\$ 25,000.00	
Automatic Flushing Device		EA	\$ -	\$ -	
Service Connection	12	EA	\$ 1,500.00	\$ 18,000.00	
Sub-Total				\$2,456,300	
General conditions (2% of Construction Costs)	1	LS	\$50,000	\$50,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$74,000	\$74,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$123,000	\$123,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$74,000	\$74,000	
Subtotal				\$2,777,300	
Contingencies (30% of Construction Costs )	1	LS	\$834,000	\$834,000	
<b>Construction Sub-Total</b>				\$3,611,300	
<b>Non-Construction Costs (25%)</b>	1	LS	\$903,000	\$903,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$4,515,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Old State - Phase II						
					2032-2036	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,630	LF	\$ 57.00	\$ 93,000.00		
12-inch C900 PVC Water Main Open Cut	3,450	LF	\$ 81.00	\$ 279,500.00		
8-inch Fittings	1	LS	\$ 600.00	\$ 600.00		
12-inch Fittings	1	LS	\$ 4,200.00	\$ 4,200.00		
Fire Hydrant Assembly	13	EA	\$ 3,000.00	\$ 39,000.00		
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00		
12-inch Gate Valve	5	EA	\$ 6,800.00	\$ 34,000.00		
Service Connection	20	EA	\$ 1,500.00	\$ 30,000.00		
Sub-Total				\$489,000		
General conditions (2% of Construction Costs)	1	LS	\$10,000	\$10,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$15,000	\$15,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$25,000	\$25,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$15,000	\$15,000		
Subtotal				\$554,000		
Contingencies (30% of Construction Costs )	1	LS	\$167,000	\$167,000		
<b>Construction Sub-Total</b>				\$721,000		
<b>Non-Construction Costs (25%)</b>	1	LS	\$181,000	\$181,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$902,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/20/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
N 1st Ave to Reservoir					2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	2,070	LF	\$ 57.00	\$ 118,000.00	
12-inch C900 PVC Water Main Open Cut	3,480	LF	\$ 81.00	\$ 281,900.00	
20-inch DI Water Main Open Cut	20	LF	\$ 205.00	\$ 4,100.00	
24-inch DI Water Main Open Cut	2,810	LF	\$ 230.00	\$ 646,300.00	
30-inch DI Water Main Open Cut	9,690	LF	\$ 284.00	\$ 2,752,000.00	
36-inch DI Water Main Open Cut	1,270	LF	\$ 315.00	\$ 400,100.00	
8-inch Fittings	1	LS	\$ 800.00	\$ 800.00	
12-inch Fittings	1	LS	\$ 4,200.00	\$ 4,200.00	
20-inch Fittings	1	LS	\$ 200.00	\$ 200.00	
24-inch Fittings	1	LS	\$ 22,000.00	\$ 22,000.00	
30-inch Fittings	1	LS	\$ 116,300.00	\$ 116,300.00	
36-inch Fittings	1	LS	\$ 20,400.00	\$ 20,400.00	
Fire Hydrant Assembly	50	EA	\$ 3,000.00	\$ 150,000.00	
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00	
12-inch Gate Valve	5	EA	\$ 6,800.00	\$ 34,000.00	
20-inch Gate Valve	1	EA	\$ 35,000.00	\$ 35,000.00	
24-inch Gate Valve	3	EA	\$ 45,000.00	\$ 135,000.00	
30-inch Gate Valve	10	EA	\$ 55,000.00	\$ 550,000.00	
36-inch Gate Valve	2	EA	\$ 65,000.00	\$ 130,000.00	
Air/Vacuum Relief Valve	7	EA	\$ 5,000.00	\$ 35,000.00	
Sub-Total				\$5,444,000	
General conditions (2% of Construction Costs)	1	LS	\$109,000	\$109,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$164,000	\$164,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$273,000	\$273,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$164,000	\$164,000	
Subtotal				\$6,154,000	
Contingencies (30% of Construction Costs )	1	LS	\$1,847,000	\$1,847,000	
<b>Construction Sub-Total</b>				<b>\$8,001,000</b>	
Non-Construction Costs (25%)	1	LS	\$2,001,000	\$2,001,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$10,002,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Mill Rd and St Joseph Ave - Phase II						
					2032-2036	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	4,760	LF	\$ 57.00	\$ 271,400.00		
12-inch C900 PVC Water Main Open Cut	1,960	LF	\$ 81.00	\$ 158,800.00		
8-inch Fittings	1	LS	\$ 1,800.00	\$ 1,800.00		
12-inch Fittings	1	LS	\$ 2,400.00	\$ 2,400.00		
Fire Hydrant Assembly	18	EA	\$ 3,000.00	\$ 54,000.00		
8-inch Gate Valve	6	EA	\$ 2,900.00	\$ 17,400.00		
12-inch Gate Valve	3	EA	\$ 6,800.00	\$ 20,400.00		
Service Connection	60	EA	\$ 1,500.00	\$ 90,000.00		
Sub-Total				\$616,200		
General conditions (2% of Construction Costs)	1	LS	\$13,000	\$13,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$19,000	\$19,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$31,000	\$31,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$19,000	\$19,000		
Subtotal				\$698,200		
Contingencies (30% of Construction Costs )	1	LS	\$210,000	\$210,000		
<b>Construction Sub-Total</b>				<b>\$908,200</b>		
<b>Non-Construction Costs (25%)</b>	1	LS	\$228,000	\$228,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,137,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Kasson Dr and Big Cynthiana - Phase II						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	7,880	LF	\$ 57.00	\$ 449,200.00		
16-inch DI Jack and Bore	340	LF	\$ 765.00	\$ 260,100.00		
8-inch Fittings	1	LS	\$ 2,900.00	\$ 2,900.00		
Fire Hydrant Assembly	21	EA	\$ 3,000.00	\$ 63,000.00		
8-inch Gate Valve	10	EA	\$ 2,900.00	\$ 29,000.00		
16-inch Gate Valve	2	EA	\$ 20,000.00	\$ 40,000.00		
Service Connection	30	EA	\$ 1,500.00	\$ 45,000.00		
Sub-Total				\$889,200		
General conditions (2% of Construction Costs)	1	LS	\$18,000	\$18,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$27,000	\$27,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$45,000	\$45,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$27,000	\$27,000		
Subtotal				\$1,006,200		
Contingencies (30% of Construction Costs )	1	LS	\$302,000	\$302,000		
<b>Construction Sub-Total</b>				\$1,308,200		
<b>Non-Construction Costs (25%)</b>	1	LS	\$328,000	\$328,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,637,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Wimberg Ave					2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	2,800	LF	\$ 57.00	\$ 159,600.00	
8-inch Fittings	1	LS	\$ 1,100.00	\$ 1,100.00	
Fire Hydrant Assembly	7	EA	\$ 3,000.00	\$ 21,000.00	
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00	
Service Connection	45	EA	\$ 1,500.00	\$ 67,500.00	
Sub-Total				\$260,800	
General conditions (2% of Construction Costs)	1	LS	\$6,000	\$6,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$8,000	\$8,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$14,000	\$14,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$8,000	\$8,000	
Subtotal				\$296,800	
Contingencies (30% of Construction Costs )	1	LS	\$90,000	\$90,000	
<b>Construction Sub-Total</b>				\$386,800	
<b>Non-Construction Costs (25%)</b>	1	LS	\$97,000	\$97,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$484,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Lloyd, Broadway, and Baker, including Baker					2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	13,030	LF	\$ 57.00	\$ 742,800.00	
12-inch C900 PVC Water Main Open Cut	1,290	LF	\$ 81.00	\$ 104,500.00	
8-inch Fittings	1	LS	\$ 4,700.00	\$ 4,700.00	
12-inch Fittings	1	LS	\$ 1,600.00	\$ 1,600.00	
Fire Hydrant Assembly	37	EA	\$ 3,000.00	\$ 111,000.00	
8-inch Gate Valve	17	EA	\$ 2,900.00	\$ 49,300.00	
12-inch Gate Valve	2	EA	\$ 6,800.00	\$ 13,600.00	
Service Connection	180	EA	\$ 1,500.00	\$ 270,000.00	
Sub-Total				\$1,297,500	
General conditions (2% of Construction Costs)	1	LS	\$26,000	\$26,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$39,000	\$39,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$65,000	\$65,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$39,000	\$39,000	
Subtotal				\$1,466,500	
Contingencies (30% of Construction Costs )	1	LS	\$440,000	\$440,000	
<b>Construction Sub-Total</b>				\$1,906,500	
<b>Non-Construction Costs (25%)</b>	1	LS	\$477,000	\$477,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,384,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood north of Broadway including Stinson, Arlington, Tieman, and Delmar (3,0						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	3,030	LF	\$ 57.00	\$ 172,800.00		
8-inch Fittings	1	LS	\$ 1,100.00	\$ 1,100.00		
Fire Hydrant Assembly	9	EA	\$ 3,000.00	\$ 27,000.00		
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00		
Service Connection	75	EA	\$ 1,500.00	\$ 112,500.00		
Sub-Total				\$325,000		
General conditions (2% of Construction Costs)	1	LS	\$7,000	\$7,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$10,000	\$10,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$17,000	\$17,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$10,000	\$10,000		
Subtotal				\$369,000		
Contingencies (30% of Construction Costs )	1	LS	\$111,000	\$111,000		
<b>Construction Sub-Total</b>				\$480,000		
<b>Non-Construction Costs (25%)</b>	1	LS	\$120,000	\$120,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$600,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Maryland, Fulton, Franklin, and Pigeon Creek					2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	9,150	LF	\$ 57.00	\$ 521,600.00	
12-inch C900 PVC Water Main Open Cut	1,860	LF	\$ 81.00	\$ 150,700.00	
8-inch Fittings	1	LS	\$ 3,300.00	\$ 3,300.00	
12-inch Fittings	1	LS	\$ 2,300.00	\$ 2,300.00	
Fire Hydrant Assembly	29	EA	\$ 3,000.00	\$ 87,000.00	
8-inch Gate Valve	12	EA	\$ 2,900.00	\$ 34,800.00	
12-inch Gate Valve	3	EA	\$ 6,800.00	\$ 20,400.00	
Service Connection	60	EA	\$ 1,500.00	\$ 90,000.00	
Sub-Total				\$910,100	
General conditions (2% of Construction Costs)	1	LS	\$19,000	\$19,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$28,000	\$28,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$46,000	\$46,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$28,000	\$28,000	
Subtotal				\$1,031,100	
Contingencies (30% of Construction Costs )	1	LS	\$310,000	\$310,000	
<b>Construction Sub-Total</b>				\$1,341,100	
<b>Non-Construction Costs (25%)</b>	1	LS	\$336,000	\$336,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,678,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Division, 4th, Court, and Fulton					2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	9,000	LF	\$ 57.00	\$ 513,000.00	
12-inch C900 PVC Water Main Open Cut	1,910	LF	\$ 81.00	\$ 154,800.00	
24-inch DI Water Main Open Cut	4,930	LF	\$ 230.00	\$ 1,133,900.00	
30-inch DI Water Main Open Cut	1,410	LF	\$ 284.00	\$ 400,500.00	
8-inch Fittings	1	LS	\$ 3,300.00	\$ 3,300.00	
12-inch Fittings	1	LS	\$ 2,300.00	\$ 2,300.00	
24-inch Fittings	1	LS	\$ 38,500.00	\$ 38,500.00	
30-inch Fittings	1	LS	\$ 17,000.00	\$ 17,000.00	
Fire Hydrant Assembly	45	EA	\$ 3,000.00	\$ 135,000.00	
8-inch Gate Valve	12	EA	\$ 2,900.00	\$ 34,800.00	
12-inch Gate Valve	3	EA	\$ 6,800.00	\$ 20,400.00	
24-inch Gate Valve	5	EA	\$ 45,000.00	\$ 225,000.00	
30-inch Gate Valve	2	EA	\$ 55,000.00	\$ 110,000.00	
Air/Vacuum Relief Valve	4	EA	\$ 5,000.00	\$ 20,000.00	
Service Connection	30	EA	\$ 1,500.00	\$ 45,000.00	
Sub-Total				\$2,853,500	
General conditions (2% of Construction Costs)	1	LS	\$58,000	\$58,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$86,000	\$86,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$143,000	\$143,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$86,000	\$86,000	
Subtotal				\$3,226,500	
Contingencies (30% of Construction Costs )	1	LS	\$968,000	\$968,000	
<b>Construction Sub-Total</b>				<b>\$4,194,500</b>	
<b>Non-Construction Costs (25%)</b>	1	LS	\$1,049,000	\$1,049,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$5,244,000</b>	

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We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/20/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Governor Phase I and Delaware						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
16-inch DI Water Main Open Cut	3,090	LF	\$ 163.00	\$ 503,700.00		
20-inch DI Water Main Open Cut	2,030	LF	\$ 205.00	\$ 416,200.00		
16-inch Fittings	1	LS	\$ 11,800.00	\$ 11,800.00		
20-inch Fittings	1	LS	\$ 11,800.00	\$ 11,800.00		
Fire Hydrant Assembly	13	EA	\$ 3,000.00	\$ 39,000.00		
16-inch Gate Valve	4	EA	\$ 20,000.00	\$ 80,000.00		
20-inch Gate Valve	3	EA	\$ 35,000.00	\$ 105,000.00		
Air/Vacuum Relief Valve	3	EA	\$ 5,000.00	\$ 15,000.00		
Service Connection	90	EA	\$ 1,500.00	\$ 135,000.00		
Sub-Total				\$1,317,500		
General conditions (2% of Construction Costs)	1	LS	\$27,000	\$27,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$40,000	\$40,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$66,000	\$66,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$40,000	\$40,000		
Subtotal				\$1,490,500		
Contingencies (30% of Construction Costs )	1	LS	\$448,000	\$448,000		
<b>Construction Sub-Total</b>				\$1,938,500		
<b>Non-Construction Costs (25%)</b>	1	LS	\$485,000	\$485,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,424,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Walnut, Governor, Liberty, and 4th						
					2032-2036	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	11,440	LF	\$ 57.00	\$ 652,100.00		
12-inch C900 PVC Water Main Open Cut	2,620	LF	\$ 81.00	\$ 212,300.00		
16-inch DI Water Main Open Cut	3,130	LF	\$ 163.00	\$ 510,200.00		
8-inch Fittings	1	LS	\$ 4,200.00	\$ 4,200.00		
12-inch Fittings	1	LS	\$ 3,200.00	\$ 3,200.00		
16-inch Fittings	1	LS	\$ 11,900.00	\$ 11,900.00		
Fire Hydrant Assembly	44	EA	\$ 3,000.00	\$ 132,000.00		
8-inch Gate Valve	15	EA	\$ 2,900.00	\$ 43,500.00		
12-inch Gate Valve	4	EA	\$ 6,800.00	\$ 27,200.00		
16-inch Gate Valve	4	EA	\$ 20,000.00	\$ 80,000.00		
Air/Vacuum Relief Valve	2	EA	\$ 5,000.00	\$ 10,000.00		
Service Connection	65	EA	\$ 1,500.00	\$ 97,500.00		
Sub-Total				\$ 1,784,100		
General conditions (2% of Construction Costs)	1	LS	\$36,000	\$36,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$54,000	\$54,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$90,000	\$90,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$54,000	\$54,000		
Subtotal				\$2,018,100		
Contingencies (30% of Construction Costs )	1	LS	\$606,000	\$606,000		
<b>Construction Sub-Total</b>				\$2,624,100		
<b>Non-Construction Costs (25%)</b>	1	LS	\$657,000	\$657,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$3,282,000		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Governor Phase II						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
16-inch DI Water Main Open Cut	3,020	LF	\$ 163.00	\$ 492,300.00		
24-inch DI Water Main Open Cut	3,940	LF	\$ 230.00	\$ 906,200.00		
16-inch Fittings	1	LS	\$ 11,500.00	\$ 11,500.00		
24-inch Fittings	1	LS	\$ 30,800.00	\$ 30,800.00		
Fire Hydrant Assembly	19	EA	\$ 3,000.00	\$ 57,000.00		
16-inch Gate Valve	4	EA	\$ 20,000.00	\$ 80,000.00		
24-inch Gate Valve	4	EA	\$ 45,000.00	\$ 180,000.00		
Air/Vacuum Relief Valve	4	EA	\$ 5,000.00	\$ 20,000.00		
Service Connection	50	EA	\$ 1,500.00	\$ 75,000.00		
Sub-Total				\$1,852,800		
General conditions (2% of Construction Costs)	1	LS	\$38,000	\$38,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$56,000	\$56,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$93,000	\$93,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$56,000	\$56,000		
Subtotal				\$2,095,800		
Contingencies (30% of Construction Costs )	1	LS	\$629,000	\$629,000		
<b>Construction Sub-Total</b>				\$2,724,800		
<b>Non-Construction Costs (25%)</b>	1	LS	\$682,000	\$682,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,407,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Riverside outside of WTP					2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	3,030	LF	\$ 57.00	\$ 172,800.00	
12-inch C900 PVC Water Main Open Cut	100	LF	\$ 81.00	\$ 8,100.00	
16-inch DI Water Main Open Cut	2,400	LF	\$ 163.00	\$ 391,200.00	
20-inch DI Water Main Open Cut	1,130	LF	\$ 205.00	\$ 231,700.00	
24-inch DI Water Main Open Cut	260	LF	\$ 230.00	\$ 59,800.00	
30-inch DI Water Main Open Cut	12,380	LF	\$ 284.00	\$ 3,516,000.00	
36-inch DI Water Main Open Cut	300	LF	\$ 315.00	\$ 94,500.00	
8-inch Fittings	1	LS	\$ 1,100.00	\$ 1,100.00	
12-inch Fittings	1	LS	\$ 200.00	\$ 200.00	
16-inch Fittings	1	LS	\$ 9,200.00	\$ 9,200.00	
20-inch Fittings	1	LS	\$ 6,600.00	\$ 6,600.00	
24-inch Fittings	1	LS	\$ 2,100.00	\$ 2,100.00	
30-inch Fittings	1	LS	\$ 148,600.00	\$ 148,600.00	
36-inch Fittings	1	LS	\$ 4,800.00	\$ 4,800.00	
Fire Hydrant Assembly	49	EA	\$ 3,000.00	\$ 147,000.00	
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00	
12-inch Gate Valve	1	EA	\$ 6,800.00	\$ 6,800.00	
16-inch Gate Valve	3	EA	\$ 20,000.00	\$ 60,000.00	
20-inch Gate Valve	2	EA	\$ 35,000.00	\$ 70,000.00	
24-inch Gate Valve	1	EA	\$ 45,000.00	\$ 45,000.00	
30-inch Gate Valve	13	EA	\$ 55,000.00	\$ 715,000.00	
36-inch Gate Valve	1	EA	\$ 65,000.00	\$ 65,000.00	
Air/Vacuum Relief Valve	9	EA	\$ 5,000.00	\$ 45,000.00	
Service Connection	75	EA	\$ 1,500.00	\$ 112,500.00	
Sub-Total				\$5,924,600	
General conditions (2% of Construction Costs)	1	LS	\$119,000	\$119,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$178,000	\$178,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$297,000	\$297,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$178,000	\$178,000	
Subtotal				\$6,696,600	
Contingencies (30% of Construction Costs)	1	LS	\$2,009,000	\$2,009,000	
<b>Construction Sub-Total</b>				\$8,705,600	
<b>Non-Construction Costs (25%)</b>	1	LS	\$2,177,000	\$2,177,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$10,883,000	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Downtown area between Washington, US 41, Riverside, and 2nd					2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	52,990	LF	\$ 57.00	\$ 3,020,500.00	
12-inch C900 PVC Water Main Open Cut	7,700	LF	\$ 81.00	\$ 623,700.00	
16-inch DI Water Main Open Cut	6,660	LF	\$ 163.00	\$ 1,085,600.00	
48-inch DI Water Main Open Cut	3,660	LF	\$ 458.00	\$ 1,676,300.00	
8-inch DI Jack and Bore	250	LF	\$ 708.00	\$ 177,000.00	
8-inch Fittings	1	LS	\$ 19,100.00	\$ 19,100.00	
12-inch Fittings	1	LS	\$ 9,300.00	\$ 9,300.00	
16-inch Fittings	1	LS	\$ 25,400.00	\$ 25,400.00	
48-inch Fittings	1	LS	\$ 87,900.00	\$ 87,900.00	
Fire Hydrant Assembly	178	EA	\$ 3,000.00	\$ 534,000.00	
8-inch Gate Valve	69	EA	\$ 2,900.00	\$ 200,100.00	
12-inch Gate Valve	10	EA	\$ 6,800.00	\$ 68,000.00	
16-inch Gate Valve	9	EA	\$ 20,000.00	\$ 180,000.00	
Air/Vacuum Relief Valve	6	EA	\$ 5,000.00	\$ 30,000.00	
Service Connection	950	EA	\$ 1,500.00	\$ 1,425,000.00	
Sub-Total				\$9,161,900	
General conditions (2% of Construction Costs)	1	LS	\$184,000	\$184,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$275,000	\$275,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$459,000	\$459,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$275,000	\$275,000	
Subtotal				\$10,354,900	
Contingencies (30% of Construction Costs )	1	LS	\$3,107,000	\$3,107,000	
<b>Construction Sub-Total</b>				\$13,461,900	
<b>Non-Construction Costs (25%)</b>	1	LS	\$3,366,000	\$3,366,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$16,828,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/15/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Elliot and Morton Ave						
					2032-2036	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	3,520	LF	\$ 57.00	\$ 200,700.00		
8-inch Fittings	1	LS	\$ 1,300.00	\$ 1,300.00		
Fire Hydrant Assembly	9	EA	\$ 3,000.00	\$ 27,000.00		
8-inch Gate Valve	5	EA	\$ 2,900.00	\$ 14,500.00		
Service Connection	70	EA	\$ 1,500.00	\$ 105,000.00		
Sub-Total				\$348,500		
General conditions (2% of Construction Costs)	1	LS	\$7,000	\$7,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$11,000	\$11,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$18,000	\$18,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$11,000	\$11,000		
Subtotal				\$395,500		
Contingencies (30% of Construction Costs)	1	LS	\$119,000	\$119,000		
<b>Construction Sub-Total</b>				\$514,500		
<b>Non-Construction Costs (25%)</b>	1	LS	\$129,000	\$129,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$644,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/15/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR: JAT		CHECKED BY:		DATE:	
Neighborhood of Lincoln, Lodge, Washington, and Kentucky,					2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	18,630	LF	\$ 57.00	\$ 1,062,000.00	
8-inch DI Jack and Bore	200	LF	\$ 708.00	\$ 141,600.00	
8-inch Fittings	1	LS	\$ 6,800.00	\$ 6,800.00	
Fire Hydrant Assembly	48	EA	\$ 3,000.00	\$ 144,000.00	
8-inch Gate Valve	2	EA	\$ 1,800.00	\$ 3,600.00	
8-inch Gate Valve	26	EA	\$ 2,900.00	\$ 75,400.00	
Service Connection	525	EA	\$ 1,500.00	\$ 787,500.00	
Sub-Total				\$2,358,900	
General conditions (2% of Construction Costs)	1	LS	\$48,000	\$48,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$71,000	\$71,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$118,000	\$118,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$71,000	\$71,000	
Subtotal				\$2,666,900	
Contingencies (30% of Construction Costs )	1	LS	\$801,000	\$801,000	
<b>Construction Sub-Total</b>				\$3,467,900	
<b>Non-Construction Costs (25%)</b>	1	LS	\$867,000	\$867,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$4,335,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Lincoln, Weinbach, Washington, and Rotherwood						
					2032-2036	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	13,080	LF	\$ 57.00	\$ 745,600.00		
12-inch C900 PVC Water Main Open Cut	50	LF	\$ 81.00	\$ 4,100.00		
8-inch Fittings	1	LS	\$ 4,800.00	\$ 4,800.00		
12-inch Fittings	1	LS	\$ 100.00	\$ 100.00		
Fire Hydrant Assembly	34	EA	\$ 3,000.00	\$ 102,000.00		
8-inch Gate Valve	17	EA	\$ 2,900.00	\$ 49,300.00		
12-inch Gate Valve	1	EA	\$ 6,800.00	\$ 6,800.00		
Service Connection	305	EA	\$ 1,500.00	\$ 457,500.00		
Sub-Total				\$1,370,200		
General conditions (2% of Construction Costs)	1	LS	\$28,000	\$28,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$42,000	\$42,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$69,000	\$69,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$42,000	\$42,000		
Subtotal				\$1,551,200		
Contingencies (30% of Construction Costs )	1	LS	\$466,000	\$466,000		
<b>Construction Sub-Total</b>				\$2,017,200		
<b>Non-Construction Costs (25%)</b>	1	LS	\$505,000	\$505,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,523,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001	PREPARED BY: ECM	DATE: 6/16/2016			
PROJECT NAME: EWSU WATER MASTER PLAN	CHECKED BY: SAL	DATE: 9/15/2016			
PROJECT MGR: JAT	CHECKED BY:	DATE:			
Neighborhood of Washington, Boeke, Covert, and Weinbach					2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	22,630	LF	\$ 57.00	\$ 1,290,000.00	
8-inch Fittings	1	LS	\$ 8,200.00	\$ 8,200.00	
Fire Hydrant Assembly	58	EA	\$ 3,000.00	\$ 174,000.00	
8-inch Gate Valve	29	EA	\$ 2,900.00	\$ 84,100.00	
Service Connection	375	EA	\$ 1,500.00	\$ 562,500.00	
Sub-Total				\$2,118,800	
General conditions (2% of Construction Costs)	1	LS	\$43,000	\$43,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$64,000	\$64,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$106,000	\$106,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$64,000	\$64,000	
Subtotal				\$2,395,800	
Contingencies (30% of Construction Costs )	1	LS	\$719,000	\$719,000	
<b>Construction Sub-Total</b>				\$3,114,800	
<b>Non-Construction Costs (25%)</b>	1	LS	\$779,000	\$779,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,894,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Lloyd, Vann, Lincoln, and Boeke					2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	22,830	LF	\$ 57.00	\$ 1,301,400.00	
8-inch Fittings	1	LS	\$ 8,300.00	\$ 8,300.00	
Fire Hydrant Assembly	59	EA	\$ 3,000.00	\$ 177,000.00	
8-inch Gate Valve	29	EA	\$ 2,900.00	\$ 84,100.00	
Service Connection	495	EA	\$ 1,500.00	\$ 742,500.00	
Sub-Total				\$2,313,300	
General conditions (2% of Construction Costs)	1	LS	\$47,000	\$47,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$70,000	\$70,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$116,000	\$116,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$70,000	\$70,000	
Subtotal				\$2,616,300	
Contingencies (30% of Construction Costs )	1	LS	\$785,000	\$785,000	
<b>Construction Sub-Total</b>				\$3,401,300	
<b>Non-Construction Costs (25%)</b>	1	LS	\$851,000	\$851,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$4,253,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Lincoln, Walnut, Washington, and Boeke					2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	30,950	LF	\$ 57.00	\$ 1,764,200.00	
8-inch Fittings	1	LS	\$ 11,200.00	\$ 11,200.00	
Fire Hydrant Assembly	79	EA	\$ 3,000.00	\$ 237,000.00	
8-inch Gate Valve	39	EA	\$ 2,900.00	\$ 113,100.00	
Service Connection	475	EA	\$ 1,500.00	\$ 712,500.00	
Sub-Total				\$2,838,000	
General conditions (2% of Construction Costs)	1	LS	\$57,000	\$57,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$86,000	\$86,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$142,000	\$142,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$86,000	\$86,000	
Subtotal				\$3,209,000	
Contingencies (30% of Construction Costs )	1	LS	\$963,000	\$963,000	
<b>Construction Sub-Total</b>				\$4,172,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$1,043,000	\$1,043,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$5,215,000	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Washington Ave - Phase II						
					2032-2036	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	6,970	LF	\$ 81.00	\$ 564,600.00		
12-inch Fittings	1	LS	\$ 8,400.00	\$ 8,400.00		
Fire Hydrant Assembly	18	EA	\$ 3,000.00	\$ 54,000.00		
12-inch Gate Valve	9	EA	\$ 6,800.00	\$ 61,200.00		
Service Connection	85	EA	\$ 1,500.00	\$ 127,500.00		
Sub-Total				\$815,700		
General conditions (2% of Construction Costs)	1	LS	\$17,000	\$17,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$25,000	\$25,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$41,000	\$41,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$25,000	\$25,000		
Subtotal				\$923,700		
Contingencies (30% of Construction Costs )	1	LS	\$278,000	\$278,000		
<b>Construction Sub-Total</b>				\$1,201,700		
<b>Non-Construction Costs (25%)</b>	1	LS	\$301,000	\$301,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,503,000</b>		

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Covert Ave - Phase I						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	3,530	LF	\$ 57.00	\$ 201,300.00		
8-inch Fittings	1	LS	\$ 1,300.00	\$ 1,300.00		
Fire Hydrant Assembly	9	EA	\$ 3,000.00	\$ 27,000.00		
8-inch Gate Valve	5	EA	\$ 2,900.00	\$ 14,500.00		
Service Connection	10	EA	\$ 1,500.00	\$ 15,000.00		
Sub-Total				\$259,100		
General conditions (2% of Construction Costs)	1	LS	\$6,000	\$6,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$8,000	\$8,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$13,000	\$13,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$8,000	\$8,000		
Subtotal				\$294,100		
Contingencies (30% of Construction Costs )	1	LS	\$89,000	\$89,000		
<b>Construction Sub-Total</b>				\$383,100		
<b>Non-Construction Costs (25%)</b>	1	LS	\$96,000	\$96,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$480,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Covert, Hawthorne, Pollack, and Boeke						
2032-2036						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	15,850	LF	\$ 57.00	\$ 903,500.00		
8-inch Fittings	1	LS	\$ 5,800.00	\$ 5,800.00		
Fire Hydrant Assembly	40	EA	\$ 3,000.00	\$ 120,000.00		
8-inch Gate Valve	20	EA	\$ 2,900.00	\$ 58,000.00		
Service Connection	290	EA	\$ 1,500.00	\$ 435,000.00		
Sub-Total				\$1,522,300		
General conditions (2% of Construction Costs)	1	LS	\$31,000	\$31,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$46,000	\$46,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$77,000	\$77,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$46,000	\$46,000		
Subtotal				\$1,722,300		
Contingencies (30% of Construction Costs )	1	LS	\$517,000	\$517,000		
<b>Construction Sub-Total</b>				\$2,239,300		
<b>Non-Construction Costs (25%)</b>	1	LS	\$560,000	\$560,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,800,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 68201-PL-001		PREPARED BY:	ECM	DATE:	8/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Martins Ln						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	8,480	LF	\$ 57.00	\$ 483,400.00		
8-inch Fittings	1	LS	\$ 3,100.00	\$ 3,100.00		
Fire Hydrant Assembly	23	EA	\$ 3,000.00	\$ 69,000.00		
8-inch Gate Valve	11	EA	\$ 2,900.00	\$ 31,900.00		
Service Connection	65	EA	\$ 1,500.00	\$ 97,500.00		
Sub-Total				\$684,900		
General conditions (2% of Construction Costs)	1	LS	\$14,000	\$14,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$21,000	\$21,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$35,000	\$35,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$21,000	\$21,000		
Subtotal				\$775,900		
Contingencies (30% of Construction Costs)	1	LS	\$233,000	\$233,000		
<b>Construction Sub-Total</b>				\$1,008,900		
Non-Construction Costs (25%)	1	LS	\$253,000	\$253,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$1,262,000		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Morgan and Weinbach						
					2032-2036	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	4,480	LF	\$ 57.00	\$ 255,400.00		
8-inch Fittings	1	LS	\$ 1,700.00	\$ 1,700.00		
Fire Hydrant Assembly	13	EA	\$ 3,000.00	\$ 39,000.00		
8-inch Gate Valve	6	EA	\$ 2,900.00	\$ 17,400.00		
Service Connection	55	EA	\$ 1,500.00	\$ 82,500.00		
Sub-Total				\$396,000		
General conditions (2% of Construction Costs)	1	LS	\$8,000	\$8,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$12,000	\$12,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$20,000	\$20,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$12,000	\$12,000		
Subtotal				\$448,000		
Contingencies (30% of Construction Costs )	1	LS	\$135,000	\$135,000		
<b>Construction Sub-Total</b>				\$583,000		
<b>Non-Construction Costs (25%)</b>	1	LS	\$146,000	\$146,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$729,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
New Harmony						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,390	LF	\$ 57.00	\$ 79,300.00		
8-inch Fittings	1	LS	\$ 600.00	\$ 600.00		
Fire Hydrant Assembly	5	EA	\$ 3,000.00	\$ 15,000.00		
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00		
Service Connection	8	EA	\$ 1,500.00	\$ 12,000.00		
Sub-Total				\$112,700		
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$6,000	\$6,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Subtotal				\$129,700		
Contingencies (30% of Construction Costs )	1	LS	\$39,000	\$39,000		
<b>Construction Sub-Total</b>				\$168,700		
<b>Non-Construction Costs (25%)</b>	1	LS	\$43,000	\$43,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$212,000		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Country Lake Dr						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	550	LF	\$ 57.00	\$ 31,400.00		
8-inch Fittings	1	LS	\$ 200.00	\$ 200.00		
Fire Hydrant Assembly	3	EA	\$ 3,000.00	\$ 9,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
Service Connection	8	EA	\$ 1,500.00	\$ 12,000.00		
Sub-Total				\$55,500		
General conditions (2% of Construction Costs)	1	LS	\$2,000	\$2,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$2,000	\$2,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$3,000	\$3,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$2,000	\$2,000		
Subtotal				\$64,500		
Contingencies (30% of Construction Costs )	1	LS	\$20,000	\$20,000		
<b>Construction Sub-Total</b>				\$84,500		
<b>Non-Construction Costs (25%)</b>	1	LS	\$22,000	\$22,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$107,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Detroy						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,040	LF	\$ 57.00	\$ 59,300.00		
8-inch DI Jack and Bore	400	LF	\$ 708.00	\$ 283,200.00		
8-inch Fittings	1	LS	\$ 400.00	\$ 400.00		
Fire Hydrant Assembly	4	EA	\$ 3,000.00	\$ 12,000.00		
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00		
Service Connection	10	EA	\$ 1,500.00	\$ 15,000.00		
Sub-Total				\$381,500		
General conditions (2% of Construction Costs)	1	LS	\$8,000	\$8,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$12,000	\$12,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$20,000	\$20,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$12,000	\$12,000		
Subtotal				\$433,500		
Contingencies (30% of Construction Costs )	1	LS	\$131,000	\$131,000		
<b>Construction Sub-Total</b>				\$564,500		
<b>Non-Construction Costs (25%)</b>	1	LS	\$142,000	\$142,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$707,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Stonegate, Kings Valley, and Woodcrest						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	2,850	LF	\$ 57.00	\$ 162,500.00		
8-inch Fittings	1	LS	\$ 1,100.00	\$ 1,100.00		
Fire Hydrant Assembly	9	EA	\$ 3,000.00	\$ 27,000.00		
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00		
Service Connection	25	EA	\$ 1,500.00	\$ 37,500.00		
Sub-Total				\$239,700		
General conditions (2% of Construction Costs)	1	LS	\$5,000	\$5,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$8,000	\$8,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$12,000	\$12,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$8,000	\$8,000		
Subtotal				\$272,700		
Contingencies (30% of Construction Costs )	1	LS	\$82,000	\$82,000		
<b>Construction Sub-Total</b>				\$354,700		
<b>Non-Construction Costs (25%)</b>	1	LS	\$89,000	\$89,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$444,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Dead end east of Fuquay					2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	240	LF	\$ 57.00	\$ 13,700.00	
8-inch Fittings	1	LS	\$ 100.00	\$ 100.00	
Fire Hydrant Assembly	2	EA	\$ 3,000.00	\$ 6,000.00	
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00	
Service Connection	5	EA	\$ 1,500.00	\$ 7,500.00	
Sub-Total				\$30,200	
General conditions (2% of Construction Costs)	1	LS	\$1,000	\$1,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$1,000	\$1,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$2,000	\$2,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$1,000	\$1,000	
Subtotal				\$35,200	
Contingencies (30% of Construction Costs )	1	LS	\$11,000	\$11,000	
<b>Construction Sub-Total</b>				\$46,200	
<b>Non-Construction Costs (25%)</b>	1	LS	\$12,000	\$12,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$59,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Meade Ave						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,760	LF	\$ 57.00	\$ 100,400.00		
8-inch Fittings	1	LS	\$ 700.00	\$ 700.00		
Fire Hydrant Assembly	6	EA	\$ 3,000.00	\$ 18,000.00		
Service Connection	5	EA	\$ 1,500.00	\$ 7,500.00		
Sub-Total				\$135,300		
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000		
Bonds & insurance (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$7,000	\$7,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Subtotal				\$155,300		
Contingencies (30% of Construction Costs )	1	LS	\$47,000	\$47,000		
<b>Construction Sub-Total</b>				\$202,300		
<b>Non-Construction Costs (26%)</b>	1	LS	\$51,000	\$51,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$254,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Oak Rd						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,480	LF	\$ 57.00	\$ 84,400.00		
8-inch Fittings	1	LS	\$ 600.00	\$ 600.00		
Fire Hydrant Assembly	5	EA	\$ 3,000.00	\$ 15,000.00		
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00		
Service Connection	25	EA	\$ 1,500.00	\$ 37,500.00		
Sub-Total				\$143,300		
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$8,000	\$8,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Subtotal				\$164,300		
Contingencies (30% of Construction Costs )	1	LS	\$50,000	\$50,000		
<b>Construction Sub-Total</b>				\$214,300		
<b>Non-Construction Costs (25%)</b>	1	LS	\$54,000	\$54,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$269,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Optimist St						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	3,110	LF	\$ 57.00	\$ 177,300.00		
8-inch Fittings	1	LS	\$ 1,200.00	\$ 1,200.00		
Fire Hydrant Assembly	9	EA	\$ 3,000.00	\$ 27,000.00		
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00		
Service Connection	25	EA	\$ 1,500.00	\$ 37,500.00		
Sub-Total				\$254,600		
General conditions (2% of Construction Costs)	1	LS	\$6,000	\$6,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$8,000	\$8,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$13,000	\$13,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$8,000	\$8,000		
Subtotal				\$289,600		
Contingencies (30% of Construction Costs )	1	LS	\$87,000	\$87,000		
<b>Construction Sub-Total</b>				\$376,600		
<b>Non-Construction Costs (25%)</b>	1	LS	\$95,000	\$95,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$472,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 5/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Vann Ave						
					2032-2036	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	6,850	LF	\$ 57.00	\$ 390,500.00		
16-inch DI Water Main Open Cut		LF	\$ -	\$ -		
8-inch Fittings	1	LS	\$ 2,500.00	\$ 2,500.00		
16-inch Fittings	0	LS	\$ -	\$ -		
Fire Hydrant Assembly	19	EA	\$ 3,000.00	\$ 57,000.00		
8-inch Gate Valve	9	EA	\$ 2,900.00	\$ 26,100.00		
16-inch Gate Valve	0	EA	\$ -	\$ -		
Air/Vacuum Relief Valve	0	EA	\$ -	\$ -		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$536,100		
General conditions (2% of Construction Costs)	1	LS	\$11,000	\$11,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$17,000	\$17,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$27,000	\$27,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$17,000	\$17,000		
Subtotal				\$608,100		
Contingencies (30% of Construction Costs )	1	LS	\$183,000	\$183,000		
<b>Construction Sub-Total</b>				\$791,100		
Non-Construction Costs (25%)	1	LS	\$198,000	\$198,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$990,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Madison						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	680	LF	\$ 57.00	\$ 38,800.00		
Fire Hydrant Assembly	3	EA	\$ 3,000.00	\$ 9,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$111,000		
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$6,000	\$6,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Subtotal				\$128,000		
Contingencies (30% of Construction Costs )	1	LS	\$39,000	\$39,000		
<b>Construction Sub-Total</b>				\$167,000		
<b>Non-Construction Costs (25%)</b>	1	LS	\$42,000	\$42,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$209,000		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Covert Ave - Phase II and Wedge Ave					2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	3,920	LF	\$ 57.00	\$ 223,500.00	
8-inch Fittings	1	LS	\$ 1,500.00	\$ 1,500.00	
Fire Hydrant Assembly	11	EA	\$ 3,000.00	\$ 33,000.00	
8-inch Gate Valve	5	EA	\$ 2,900.00	\$ 14,500.00	
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00	
Sub-Total				\$332,500	
General conditions (2% of Construction Costs)	1	LS	\$7,000	\$7,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$10,000	\$10,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$17,000	\$17,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$10,000	\$10,000	
Subtotal				\$376,500	
Contingencies (30% of Construction Costs )	1	LS	\$113,000	\$113,000	
<b>Construction Sub-Total</b>				<b>\$489,500</b>	
<b>Non-Construction Costs (25%)</b>	1	LS	\$123,000	\$123,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$613,000</b>	

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We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Cass and Ridgway						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,280	LF	\$ 57.00	\$ 73,000.00		
Fire Hydrant Assembly	5	EA	\$ 3,000.00	\$ 15,000.00		
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$154,300		
General conditions (2% of Construction Costs)	1	LS	\$4,000	\$4,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$8,000	\$8,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Subtotal				\$176,300		
Contingencies (30% of Construction Costs )	1	LS	\$53,000	\$53,000		
<b>Construction Sub-Total</b>				\$229,300		
<b>Non-Construction Costs (25%)</b>	1	LS	\$58,000	\$58,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$288,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Riverside St					2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
12-inch C900 PVC Water Main Open Cut	1,450	LF	\$ 81.00	\$ 117,500.00	
12-inch Fittings	1	LS	\$ 1,800.00	\$ 1,800.00	
Fire Hydrant Assembly	5	EA	\$ 3,000.00	\$ 15,000.00	
12-inch Gate Valve	2	EA	\$ 6,800.00	\$ 13,600.00	
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00	
Sub-Total				\$207,900	
General conditions (2% of Construction Costs)	1	LS	\$5,000	\$5,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$7,000	\$7,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$11,000	\$11,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$7,000	\$7,000	
Subtotal				\$237,900	
Contingencies (30% of Construction Costs )	1	LS	\$72,000	\$72,000	
<b>Construction Sub-Total</b>				\$309,900	
<b>Non-Construction Costs (25%)</b>	1	LS	\$78,000	\$78,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$388,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Taylor Ave						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	650	LF	\$ 57.00	\$ 37,100.00		
8-inch Fittings	1	LS	\$ 300.00	\$ 300.00		
Fire Hydrant Assembly	3	EA	\$ 3,000.00	\$ 9,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$109,300		
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$6,000	\$6,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Subtotal				\$126,300		
Contingencies (30% of Construction Costs )	1	LS	\$38,000	\$38,000		
<b>Construction Sub-Total</b>				\$164,300		
<b>Non-Construction Costs (25%)</b>	1	LS	\$42,000	\$42,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$207,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Hartin Rd						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,100	LF	\$ 57.00	\$ 62,700.00		
20-inch DI Water Main Open Cut	810	LF	\$ 205.00	\$ 166,100.00		
8-inch Fittings	1	LS	\$ 400.00	\$ 400.00		
20-inch Fittings	1	LS	\$ 4,700.00	\$ 4,700.00		
Fire Hydrant Assembly	6	EA	\$ 3,000.00	\$ 18,000.00		
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00		
Air/Vacuum Relief Valve	1	EA	\$ 5,000.00	\$ 5,000.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$392,700		
General conditions (2% of Construction Costs)	1	LS	\$8,000	\$8,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$12,000	\$12,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$20,000	\$20,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$12,000	\$12,000		
Subtotal				\$444,700		
Contingencies (30% of Construction Costs )	1	LS	\$134,000	\$134,000		
<b>Construction Sub-Total</b>				\$578,700		
<b>Non-Construction Costs (25%)</b>	1	LS	\$145,000	\$145,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$724,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Berry St						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	1,380	LF	\$ 81.00	\$ 111,800.00		
12-inch Fittings	1	LS	\$ 1,700.00	\$ 1,700.00		
Fire Hydrant Assembly	5	EA	\$ 3,000.00	\$ 15,000.00		
12-inch Gate Valve	2	EA	\$ 6,800.00	\$ 13,600.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$202,100		
General conditions (2% of Construction Costs)	1	LS	\$5,000	\$5,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$7,000	\$7,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$11,000	\$11,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$7,000	\$7,000		
Subtotal				\$232,100		
Contingencies (30% of Construction Costs )	1	LS	\$70,000	\$70,000		
<b>Construction Sub-Total</b>				\$302,100		
<b>Non-Construction Costs (25%)</b>	1	LS	\$76,000	\$76,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$378,100		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Kasson Dr						
					2032-2036	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	2,330	LF	\$ 57.00	\$ 132,900.00		
8-inch Fittings	1	LS	\$ 900.00	\$ 900.00		
Fire Hydrant Assembly	6	EA	\$ 3,000.00	\$ 18,000.00		
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00		
Service Connection	3	EA	\$ 1,500.00	\$ 4,500.00		
Sub-Total				\$165,000		
General conditions (2% of Construction Costs)	1	LS	\$4,000	\$4,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$9,000	\$9,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Subtotal				\$188,000		
Contingencies (30% of Construction Costs )	1	LS	\$57,000	\$57,000		
<b>Construction Sub-Total</b>				\$245,000		
<b>Non-Construction Costs (25%)</b>	1	LS	\$62,000	\$62,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$307,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Schench and St Joseph					2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
12-inch C900 PVC Water Main Open Cut	12,540	LF	\$ 81.00	\$ 1,015,800.00	
12-inch Fittings	1	LS	\$ 15,100.00	\$ 15,100.00	
Fire Hydrant Assembly	32	EA	\$ 3,000.00	\$ 96,000.00	
12-inch Gate Valve	16	EA	\$ 6,800.00	\$ 108,800.00	
Service Connection	60	EA	\$ 1,500.00	\$ 90,000.00	
Sub-Total				\$1,325,700	
General conditions (2% of Construction Costs)	1	LS	\$27,000	\$27,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$40,000	\$40,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$67,000	\$67,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$40,000	\$40,000	
Subtotal				\$1,499,700	
Contingencies (30% of Construction Costs )	1	LS	\$450,000	\$450,000	
<b>Construction Sub-Total</b>				\$1,949,700	
<b>Non-Construction Costs (25%)</b>	1	LS	\$488,000	\$488,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,438,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Darmstadt Rd						2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	2,550	LF	\$ 81.00	\$ 206,600.00		
12-inch Fittings	1	LS	\$ 3,100.00	\$ 3,100.00		
Fire Hydrant Assembly	7	EA	\$ 3,000.00	\$ 21,000.00		
12-inch Gate Valve	4	EA	\$ 6,800.00	\$ 27,200.00		
Service Connection	10	EA	\$ 1,500.00	\$ 15,000.00		
Sub-Total				\$272,900		
General conditions (2% of Construction Costs)	1	LS	\$6,000	\$6,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$9,000	\$9,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$14,000	\$14,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$9,000	\$9,000		
Subtotal				\$310,900		
Contingencies (30% of Construction Costs)	1	LS	\$94,000	\$94,000		
<b>Construction Sub-Total</b>				\$404,900		
<b>Non-Construction Costs (25%)</b>	1	LS	\$102,000	\$102,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$507,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Southeast Blvd						
2032-2036						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	150	LF	\$ 57.00	\$ 8,600.00		
8-inch Fittings	1	LS	\$ 100.00	\$ 100.00		
Fire Hydrant Assembly	1	EA	\$ 3,000.00	\$ 3,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
Service Connection	3	EA	\$ 1,500.00	\$ 4,500.00		
Sub-Total				\$19,100		
General conditions (2% of Construction Costs)	1	LS	\$1,000	\$1,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$1,000	\$1,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$1,000	\$1,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$1,000	\$1,000		
Subtotal				\$23,100		
Contingencies (30% of Construction Costs )	1	LS	\$7,000	\$7,000		
<b>Construction Sub-Total</b>				\$30,100		
<b>Non-Construction Costs (25%)</b>	1	LS	\$8,000	\$8,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$39,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Oak Hill Rd					2032-	
					2036	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	760	LF	\$ 57.00	\$ 43,400.00		
12-inch HDPE Directional Bore	300	LF	\$ 109.00	\$ 32,700.00		
8-inch Fittings	1	LS	\$ 300.00	\$ 300.00		
Fire Hydrant Assembly	2	EA	\$ 3,000.00	\$ 6,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
Sub-Total				\$85,300		
General conditions (2% of Construction Costs)	1	LS	\$2,000	\$2,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$3,000	\$3,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$5,000	\$5,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$3,000	\$3,000		
Subtotal				\$98,300		
Contingencies (30% of Construction Costs )	1	LS	\$30,000	\$30,000		
<b>Construction Sub-Total</b>				\$128,300		
<b>Non-Construction Costs (25%)</b>	1	LS	\$33,000	\$33,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$162,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Kansas Rd					2032-2036
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	1,300	LF	\$ 57.00	\$ 74,100.00	
8-inch Fittings	1	LS	\$ 500.00	\$ 500.00	
Fire Hydrant Assembly	4	EA	\$ 3,000.00	\$ 12,000.00	
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00	
Sub-Total				\$92,400	
General conditions (2% of Construction Costs)	1	LS	\$2,000	\$2,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$3,000	\$3,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$5,000	\$5,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$3,000	\$3,000	
Subtotal				\$105,400	
Contingencies (30% of Construction Costs )	1	LS	\$32,000	\$32,000	
<b>Construction Sub-Total</b>				\$137,400	
<b>Non-Construction Costs (25%)</b>	1	LS	\$35,000	\$35,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$173,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Walnut, Park, and Campbell Rds					2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	10,600	LF	\$ 57.00	\$ 604,200.00	
12-inch C900 PVC Water Main Open Cut	180	LF	\$ 81.00	\$ 14,600.00	
12-inch DI Jack and Bore	400	LF	\$ 748.00	\$ 299,200.00	
8-inch Fittings	1	LS	\$ 3,900.00	\$ 3,900.00	
12-inch Fittings	1	LS	\$ 300.00	\$ 300.00	
Fire Hydrant Assembly	28	EA	\$ 3,000.00	\$ 84,000.00	
8-inch Gate Valve	14	EA	\$ 2,900.00	\$ 40,600.00	
12-inch Gate Valve	3	EA	\$ 6,800.00	\$ 20,400.00	
Service Connection	60	EA	\$ 1,500.00	\$ 90,000.00	
Sub-Total				\$1,157,200	
General conditions (2% of Construction Costs)	1	LS	\$24,000	\$24,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$35,000	\$35,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$58,000	\$58,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$35,000	\$35,000	
Subtotal				\$1,309,200	
Contingencies (30% of Construction Costs )	1	LS	\$393,000	\$393,000	
<b>Construction Sub-Total</b>				\$1,702,200	
<b>Non-Construction Costs (25%)</b>	1	LS	\$426,000	\$426,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,129,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Greenbriar, Meadowview, Bujey, and Sunrise Drs						
					2037-2046	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
4-inch C900 PVC Water Main Open Cut	200	LF	\$ 38.00	\$ 7,600.00		
8-inch C900 PVC Water Main Open Cut	7,490	LF	\$ 57.00	\$ 427,000.00		
16-inch DI Water Main Open Cut	910	LF	\$ 163.00	\$ 148,400.00		
4-inch Fittings	1	LS	\$ 100.00	\$ 100.00		
8-inch Fittings	1	LS	\$ 2,700.00	\$ 2,700.00		
16-inch Fittings	1	LS	\$ 3,500.00	\$ 3,500.00		
Fire Hydrant Assembly	22	EA	\$ 3,000.00	\$ 66,000.00		
8-inch Gate Valve	10	EA	\$ 2,900.00	\$ 29,000.00		
16-inch Gate Valve	2	EA	\$ 20,000.00	\$ 40,000.00		
Air/Vacuum Relief Valve	1	EA	\$ 5,000.00	\$ 5,000.00		
Service Connection	125	EA	\$ 1,500.00	\$ 187,500.00		
Sub-Total				\$916,800		
General conditions (2% of Construction Costs)	1	LS	\$19,000	\$19,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$28,000	\$28,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$46,000	\$46,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$28,000	\$28,000		
Subtotal				\$1,037,800		
Contingencies (30% of Construction Costs )	1	LS	\$312,000	\$312,000		
<b>Construction Sub-Total</b>				\$1,349,800		
<b>Non-Construction Costs (25%)</b>	1	LS	\$338,000	\$338,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,688,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Petersburg Rd and Heinlein Rd						
					2037-2046	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,660	LF	\$ 57.00	\$ 94,700.00		
12-inch C900 PVC Water Main Open Cut	2,220	LF	\$ 81.00	\$ 179,900.00		
12-inch DI Jack and Bore	200	LF	\$ 748.00	\$ 149,600.00		
8-inch Fittings	1	LS	\$ 600.00	\$ 600.00		
12-inch Fittings	1	LS	\$ 2,700.00	\$ 2,700.00		
Fire Hydrant Assembly	10	EA	\$ 3,000.00	\$ 30,000.00		
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00		
12-inch Gate Valve	5	EA	\$ 6,800.00	\$ 34,000.00		
Service Connection	12	EA	\$ 1,500.00	\$ 18,000.00		
Sub-Total				\$518,200		
General conditions (2% of Construction Costs)	1	LS	\$11,000	\$11,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$16,000	\$16,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$26,000	\$26,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$16,000	\$16,000		
Subtotal				\$587,200		
Contingencies (30% of Construction Costs )	1	LS	\$177,000	\$177,000		
<b>Construction Sub-Total</b>				\$764,200		
<b>Non-Construction Costs (25%)</b>	1	LS	\$192,000	\$192,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$957,000</b>		

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Spring Park Dr and Weaver Rd						
					2037-2046	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	2,470	LF	\$ 57.00	\$ 140,800.00		
8-inch Fittings	1	LS	\$ 900.00	\$ 900.00		
Fire Hydrant Assembly	8	EA	\$ 3,000.00	\$ 24,000.00		
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00		
Service Connection	15	EA	\$ 1,500.00	\$ 22,500.00		
Sub-Total				\$199,800		
General conditions (2% of Construction Costs)	1	LS	\$4,000	\$4,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$6,000	\$6,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$10,000	\$10,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$6,000	\$6,000		
Subtotal				\$225,800		
Contingencies (30% of Construction Costs )	1	LS	\$68,000	\$68,000		
<b>Construction Sub-Total</b>				\$293,800		
<b>Non-Construction Costs (25%)</b>	1	LS	\$74,000	\$74,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$368,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Mill - Phase II, Fulton and Heerdink						
					2037-2046	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	9,870	LF	\$ 57.00	\$ 562,600.00		
8-inch Fittings	1	LS	\$ 3,600.00	\$ 3,600.00		
Fire Hydrant Assembly	26	EA	\$ 3,000.00	\$ 78,000.00		
8-inch Gate Valve	13	EA	\$ 2,900.00	\$ 37,700.00		
Service Connection	100	EA	\$ 1,500.00	\$ 150,000.00		
Sub-Total				\$831,900		
General conditions (2% of Construction Costs)	1	LS	\$17,000	\$17,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$25,000	\$25,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$42,000	\$42,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$25,000	\$25,000		
Subtotal				\$940,900		
Contingencies (30% of Construction Costs )	1	LS	\$283,000	\$283,000		
<b>Construction Sub-Total</b>				\$1,223,900		
<b>Non-Construction Costs (25%)</b>	1	LS	\$306,000	\$306,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,530,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Allens Ln - Phase II, Gibson, Huber, Hobart, Bower, 11th, and Eric						
2037-2046						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	8,860	LF	\$ 57.00	\$ 505,100.00		
16-inch DI Water Main Open Cut	5,240	LF	\$ 163.00	\$ 854,200.00		
16-inch DI Jack and Bore	200	LF	\$ 765.00	\$ 153,000.00		
8-inch Fittings	1	LS	\$ 3,200.00	\$ 3,200.00		
16-inch Fittings	1	LS	\$ 20,000.00	\$ 20,000.00		
Fire Hydrant Assembly	37	EA	\$ 3,000.00	\$ 111,000.00		
8-inch Gate Valve	12	EA	\$ 2,900.00	\$ 34,800.00		
16-inch Gate Valve	9	EA	\$ 20,000.00	\$ 180,000.00		
Air/Vacuum Relief Valve	3	EA	\$ 5,000.00	\$ 15,000.00		
Service Connection	160	EA	\$ 1,500.00	\$ 240,000.00		
Sub-Total				\$2,116,300		
General conditions (2% of Construction Costs)	1	LS	\$43,000	\$43,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$64,000	\$64,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$106,000	\$106,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$64,000	\$64,000		
Subtotal				\$2,393,300		
Contingencies (30% of Construction Costs )	1	LS	\$718,000	\$718,000		
<b>Construction Sub-Total</b>				\$3,111,300		
<b>Non-Construction Costs (25%)</b>	1	LS	\$778,000	\$778,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,890,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Upper Mt Vernon - Phase II					2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	2,340	LF	\$ 57.00	\$ 133,400.00	
16-inch DI Water Main Open Cut	6,160	LF	\$ 163.00	\$ 1,004,100.00	
8-inch Fittings	1	LS	\$ 900.00	\$ 900.00	
16-inch Fittings	1	LS	\$ 23,500.00	\$ 23,500.00	
Fire Hydrant Assembly	23	EA	\$ 3,000.00	\$ 69,000.00	
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00	
16-inch Gate Valve	8	EA	\$ 20,000.00	\$ 160,000.00	
Air/Vacuum Relief Valve	4	EA	\$ 5,000.00	\$ 20,000.00	
Service Connection	60	EA	\$ 1,500.00	\$ 90,000.00	
Sub-Total				\$1,509,600	
General conditions (2% of Construction Costs)	1	LS	\$31,000	\$31,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$46,000	\$46,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$76,000	\$76,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$46,000	\$46,000	
Subtotal				\$1,708,600	
Contingencies (30% of Construction Costs )	1	LS	\$513,000	\$513,000	
<b>Construction Sub-Total</b>				\$2,221,600	
<b>Non-Construction Costs (25%)</b>	1	LS	\$556,000	\$556,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,778,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Schutte Rd and Peerless Rd						
					2037-2046	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
4-inch C900 PVC Water Main Open Cut	200	LF	\$ 38.00	\$ 7,600.00		
8-inch C900 PVC Water Main Open Cut	17,350	LF	\$ 57.00	\$ 989,000.00		
12-inch C900 PVC Water Main Open Cut	8,050	LF	\$ 81.00	\$ 652,100.00		
16-inch DI Water Main Open Cut	710	LF	\$ 163.00	\$ 115,800.00		
8-inch DI Jack and Bore	300	LF	\$ 708.00	\$ 212,400.00		
12-inch DI Jack and Bore	300	LF	\$ 748.00	\$ 224,400.00		
4-inch Fittings	1	LS	\$ 100.00	\$ 100.00		
8-inch Fittings	1	LS	\$ 6,300.00	\$ 6,300.00		
12-inch Fittings	1	LS	\$ 9,700.00	\$ 9,700.00		
16-inch Fittings	1	LS	\$ 2,700.00	\$ 2,700.00		
Fire Hydrant Assembly	67	EA	\$ 3,000.00	\$ 201,000.00		
8-inch Gate Valve	24	EA	\$ 2,900.00	\$ 69,600.00		
12-inch Gate Valve	13	EA	\$ 6,800.00	\$ 88,400.00		
16-inch Gate Valve	1	EA	\$ 20,000.00	\$ 20,000.00		
Air/Vacuum Relief Valve	1	EA	\$ 5,000.00	\$ 5,000.00		
Automatic Flushing Device	1	EA	\$ 5,000.00	\$ 5,000.00		
Service Connection	110	EA	\$ 1,500.00	\$ 165,000.00		
Sub-Total				\$2,774,100		
General conditions (2% of Construction Costs)	1	LS	\$56,000	\$56,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$84,000	\$84,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$139,000	\$139,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$84,000	\$84,000		
Subtotal				\$3,137,100		
Contingencies (30% of Construction Costs)	1	LS	\$942,000	\$942,000		
<b>Construction Sub-Total</b>				<b>\$4,079,100</b>		
<b>Non-Construction Costs (25%)</b>	1	LS	\$1,020,000	\$1,020,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$5,100,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Selzer Rd						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	7,080	LF	\$ 57.00	\$ 403,600.00		
8-inch Fittings	1	LS	\$ 2,600.00	\$ 2,600.00		
Fire Hydrant Assembly	19	EA	\$ 3,000.00	\$ 57,000.00		
8-inch Gate Valve	9	EA	\$ 2,900.00	\$ 26,100.00		
Service Connection	50	EA	\$ 1,500.00	\$ 75,000.00		
Sub-Total				\$564,300		
General conditions (2% of Construction Costs)	1	LS	\$12,000	\$12,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$17,000	\$17,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$29,000	\$29,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$17,000	\$17,000		
Subtotal				\$639,300		
Contingencies (30% of Construction Costs )	1	LS	\$192,000	\$192,000		
<b>Construction Sub-Total</b>				\$831,300		
<b>Non-Construction Costs (25%)</b>	1	LS	\$208,000	\$208,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,040,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Tekoppel Ave						
2037-2046						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	260	LF	\$ 57.00	\$ 14,900.00		
12-inch C900 PVC Water Main Open Cut	5,130	LF	\$ 81.00	\$ 415,600.00		
8-inch Fittings	1	LS	\$ 100.00	\$ 100.00		
12-inch Fittings	1	LS	\$ 6,200.00	\$ 6,200.00		
Fire Hydrant Assembly	14	EA	\$ 3,000.00	\$ 42,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
12-inch Gate Valve	7	EA	\$ 6,800.00	\$ 47,600.00		
Service Connection	15	EA	\$ 1,500.00	\$ 22,500.00		
Sub-Total				\$551,800		
General conditions (2% of Construction Costs)	1	LS	\$12,000	\$12,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$17,000	\$17,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$28,000	\$28,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$17,000	\$17,000		
Subtotal				\$625,800		
Contingencies (30% of Construction Costs )	1	LS	\$188,000	\$188,000		
<b>Construction Sub-Total</b>				\$813,800		
<b>Non-Construction Costs (25%)</b>	1	LS	\$204,000	\$204,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,018,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
South Barker Ave						
2037-2046						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	3,810	LF	\$ 57.00	\$ 217,200.00		
12-inch C900 PVC Water Main Open Cut	1,760	LF	\$ 81.00	\$ 142,600.00		
8-inch Fittings	1	LS	\$ 1,400.00	\$ 1,400.00		
12-inch Fittings	1	LS	\$ 2,200.00	\$ 2,200.00		
Fire Hydrant Assembly	15	EA	\$ 3,000.00	\$ 45,000.00		
8-inch Gate Valve	5	EA	\$ 2,900.00	\$ 14,500.00		
12-inch Gate Valve	3	EA	\$ 6,800.00	\$ 20,400.00		
Service Connection	100	EA	\$ 1,500.00	\$ 150,000.00		
Sub-Total				\$593,300		
General conditions (2% of Construction Costs)	1	LS	\$12,000	\$12,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$18,000	\$18,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$30,000	\$30,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$18,000	\$18,000		
Subtotal				\$671,300		
Contingencies (30% of Construction Costs )	1	LS	\$202,000	\$202,000		
<b>Construction Sub-Total</b>				\$873,300		
<b>Non-Construction Costs (25%)</b>	1	LS	\$219,000	\$219,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,093,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 68201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Maryland, St Joseph, Franklin, and Sonntag						
					2037-2046	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	10,090	LF	\$ 57.00	\$ 575,200.00		
12-inch C900 PVC Water Main Open Cut	1,300	LF	\$ 81.00	\$ 105,300.00		
16-inch DI Water Main Open Cut	1,570	LF	\$ 163.00	\$ 256,000.00		
20-inch DI Water Main Open Cut	750	LF	\$ 205.00	\$ 153,800.00		
8-inch Fittings	1	LS	\$ 3,700.00	\$ 3,700.00		
12-inch Fittings	1	LS	\$ 1,600.00	\$ 1,600.00		
16-inch Fittings	1	LS	\$ 6,000.00	\$ 6,000.00		
20-inch Fittings	1	LS	\$ 4,400.00	\$ 4,400.00		
Fire Hydrant Assembly	36	EA	\$ 3,000.00	\$ 108,000.00		
8-inch Gate Valve	13	EA	\$ 2,900.00	\$ 37,700.00		
12-inch Gate Valve	2	EA	\$ 6,800.00	\$ 13,600.00		
16-inch Gate Valve	2	EA	\$ 20,000.00	\$ 40,000.00		
20-inch Gate Valve	1	EA	\$ 35,000.00	\$ 35,000.00		
Air/Vacuum Relief Valve	2	EA	\$ 5,000.00	\$ 10,000.00		
Service Connection	205	EA	\$ 1,500.00	\$ 307,500.00		
Sub-Total				\$1,657,800		
General conditions (2% of Construction Costs)	1	LS	\$34,000	\$34,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$50,000	\$50,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$83,000	\$83,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$50,000	\$50,000		
Subtotal				\$1,874,800		
Contingencies (30% of Construction Costs)	1	LS	\$563,000	\$563,000		
<b>Construction Sub-Total</b>				\$2,437,800		
<b>Non-Construction Costs (25%)</b>	1	LS	\$610,000	\$610,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,048,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Maryland, 9th, Franklin, and St Jospeh						
2037-2046						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	13,600	LF	\$ 57.00	\$ 775,200.00		
20-inch DI Water Main Open Cut	410	LF	\$ 205.00	\$ 84,100.00		
24-inch DI Water Main Open Cut	1,130	LF	\$ 230.00	\$ 259,900.00		
8-inch Fittings	1	LS	\$ 4,900.00	\$ 4,900.00		
20-inch Fittings	1	LS	\$ 2,400.00	\$ 2,400.00		
24-inch Fittings	1	LS	\$ 8,900.00	\$ 8,900.00		
Fire Hydrant Assembly	39	EA	\$ 3,000.00	\$ 117,000.00		
8-inch Gate Valve	17	EA	\$ 2,900.00	\$ 49,300.00		
20-inch Gate Valve	1	EA	\$ 35,000.00	\$ 35,000.00		
24-inch Gate Valve	2	EA	\$ 45,000.00	\$ 90,000.00		
Air/Vacuum Relief Valve	1	EA	\$ 5,000.00	\$ 5,000.00		
Service Connection	225	EA	\$ 1,500.00	\$ 337,500.00		
Sub-Total				\$1,769,200		
General conditions (2% of Construction Costs)	1	LS	\$36,000	\$36,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$54,000	\$54,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$89,000	\$89,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$54,000	\$54,000		
Subtotal				\$2,002,200		
Contingencies (30% of Construction Costs )	1	LS	\$601,000	\$601,000		
<b>Construction Sub-Total</b>				\$2,603,200		
<b>Non-Construction Costs (25%)</b>	1	LS	\$651,000	\$651,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,255,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Franklin Ave, Illinois, and Indiana west of Pigeon Creek					2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	11,220	LF	\$ 57.00	\$ 639,600.00	
12-inch C900 PVC Water Main Open Cut	110	LF	\$ 81.00	\$ 9,000.00	
24-inch DI Water Main Open Cut	1,120	LF	\$ 230.00	\$ 257,600.00	
8-inch Fittings	1	LS	\$ 4,100.00	\$ 4,100.00	
12-inch Fittings	1	LS	\$ 200.00	\$ 200.00	
24-inch Fittings	1	LS	\$ 8,800.00	\$ 8,800.00	
Fire Hydrant Assembly	33	EA	\$ 3,000.00	\$ 99,000.00	
8-inch Gate Valve	15	EA	\$ 2,900.00	\$ 43,500.00	
12-inch Gate Valve	1	EA	\$ 6,800.00	\$ 6,800.00	
24-inch Gate Valve	2	EA	\$ 45,000.00	\$ 90,000.00	
Service Connection	115	EA	\$ 1,500.00	\$ 172,500.00	
Sub-Total				\$1,336,100	
General conditions (2% of Construction Costs)	1	LS	\$27,000	\$27,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$41,000	\$41,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$67,000	\$67,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$41,000	\$41,000	
Subtotal				\$1,512,100	
Contingencies (30% of Construction Costs )	1	LS	\$454,000	\$454,000	
<b>Construction Sub-Total</b>				\$1,966,100	
<b>Non-Construction Costs (25%)</b>	1	LS	\$492,000	\$492,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,459,000</b>	

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry. We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Fulton and Shanklin					2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	17,760	LF	\$ 57.00	\$ 1,012,400.00	
12-inch C900 PVC Water Main Open Cut	7,550	LF	\$ 81.00	\$ 611,600.00	
20-inch DI Water Main Open Cut	210	LF	\$ 205.00	\$ 43,100.00	
12-inch DI Jack and Bore	700	LF	\$ 748.00	\$ 523,600.00	
8-inch Fittings	1	LS	\$ 6,400.00	\$ 6,400.00	
12-inch Fittings	1	LS	\$ 9,100.00	\$ 9,100.00	
20-inch Fittings	1	LS	\$ 1,300.00	\$ 1,300.00	
Fire Hydrant Assembly	65	EA	\$ 3,000.00	\$ 195,000.00	
8-inch Gate Valve	23	EA	\$ 2,900.00	\$ 66,700.00	
12-inch Gate Valve	12	EA	\$ 6,800.00	\$ 81,600.00	
20-inch Gate Valve	1	EA	\$ 35,000.00	\$ 35,000.00	
Air/Vacuum Relief Valve	1	EA	\$ 5,000.00	\$ 5,000.00	
Service Connection	260	EA	\$ 1,500.00	\$ 390,000.00	
Sub-Total				\$2,980,800	
General conditions (2% of Construction Costs)	1	LS	\$90,000	\$90,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$90,000	\$90,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$150,000	\$150,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$90,000	\$90,000	
Subtotal				\$3,370,800	
Contingencies (30% of Construction Costs )	1	LS	\$1,012,000	\$1,012,000	
<b>Construction Sub-Total</b>				\$4,382,800	
<b>Non-Construction Costs (25%)</b>	1	LS	\$1,096,000	\$1,096,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$5,479,000</b>	

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HNTE		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/21/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Tennessee, 1st, Indiana, and Fulton					2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	19,970	LF	\$ 57.00	\$ 1,138,300.00	
12-inch C900 PVC Water Main Open Cut	1,450	LF	\$ 81.00	\$ 117,500.00	
16-inch DI Water Main Open Cut	3,140	LF	\$ 163.00	\$ 511,900.00	
20-inch DI Water Main Open Cut	1,370	LF	\$ 205.00	\$ 280,900.00	
8-inch Fittings	1	LS	\$ 7,200.00	\$ 7,200.00	
12-inch Fittings	1	LS	\$ 1,800.00	\$ 1,800.00	
16-inch Fittings	1	LS	\$ 12,000.00	\$ 12,000.00	
20-inch Fittings	1	LS	\$ 8,000.00	\$ 8,000.00	
Fire Hydrant Assembly	66	EA	\$ 3,000.00	\$ 198,000.00	
8-inch Gate Valve	25	EA	\$ 2,900.00	\$ 72,500.00	
12-inch Gate Valve	2	EA	\$ 6,800.00	\$ 13,600.00	
16-inch Gate Valve	4	EA	\$ 20,000.00	\$ 80,000.00	
20-inch Gate Valve	2	EA	\$ 35,000.00	\$ 70,000.00	
Air/Vacuum Relief Valve	3	EA	\$ 5,000.00	\$ 15,000.00	
Service Connection	460	EA	\$ 1,500.00	\$ 690,000.00	
Sub-Total				\$3,216,700	
General conditions (2% of Construction Costs)	1	LS	\$65,000	\$65,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$97,000	\$97,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$161,000	\$161,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$97,000	\$97,000	
Subtotal				\$3,636,700	
Contingencies (30% of Construction Costs )	1	LS	\$1,092,000	\$1,092,000	
<b>Construction Sub-Total</b>				\$4,728,700	
<b>Non-Construction Costs (25%)</b>	1	LS	\$1,183,000	\$1,183,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$5,912,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Florida, Fulton, Maryland, and Grove						
					2037-2046	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	9,370	LF	\$ 57.00	\$ 534,100.00		
12-inch C900 PVC Water Main Open Cut	2,060	LF	\$ 81.00	\$ 166,900.00		
8-inch Fittings	1	LS	\$ 3,400.00	\$ 3,400.00		
12-inch Fittings	1	LS	\$ 2,500.00	\$ 2,500.00		
Fire Hydrant Assembly	29	EA	\$ 3,000.00	\$ 87,000.00		
8-inch Gate Valve	12	EA	\$ 2,900.00	\$ 34,800.00		
12-inch Gate Valve	3	EA	\$ 6,800.00	\$ 20,400.00		
Service Connection	150	EA	\$ 1,500.00	\$ 225,000.00		
Sub-Total				\$1,074,100		
General conditions (2% of Construction Costs)	1	LS	\$22,000	\$22,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$33,000	\$33,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$54,000	\$54,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$33,000	\$33,000		
Subtotal				\$1,216,100		
Contingencies (30% of Construction Costs )	1	LS	\$365,000	\$365,000		
<b>Construction Sub-Total</b>				\$1,581,100		
<b>Non-Construction Costs (25%)</b>	1	LS	\$396,000	\$396,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$1,978,000		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
S 1st Ave						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	4,350	LF	\$ 57.00	\$ 248,000.00		
8-inch Fittings	1	LS	\$ 1,600.00	\$ 1,600.00		
Fire Hydrant Assembly	11	EA	\$ 3,000.00	\$ 33,000.00		
8-inch Gate Valve	6	EA	\$ 2,900.00	\$ 17,400.00		
Service Connection	70	EA	\$ 1,500.00	\$ 105,000.00		
Sub-Total				\$405,000		
General conditions (2% of Construction Costs)	1	LS	\$9,000	\$9,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$13,000	\$13,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$21,000	\$21,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$13,000	\$13,000		
Subtotal				\$461,000		
Contingencies (30% of Construction Costs )	1	LS	\$139,000	\$139,000		
<b>Construction Sub-Total</b>				\$600,000		
<b>Non-Construction Costs (25%)</b>	1	LS	\$150,000	\$150,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$750,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/21/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Morgan, Evans, and Columbia					2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	58,350	LF	\$ 57.00	\$ 3,326,000.00	
12-inch C900 PVC Water Main Open Cut	5,880	LF	\$ 81.00	\$ 476,300.00	
16-inch DI Water Main Open Cut	30	LF	\$ 163.00	\$ 4,900.00	
20-inch DI Water Main Open Cut	20	LF	\$ 205.00	\$ 4,100.00	
8-inch Fittings	1	LS	\$ 21,100.00	\$ 21,100.00	
12-inch Fittings	1	LS	\$ 7,100.00	\$ 7,100.00	
16-inch Fittings	1	LS	\$ 200.00	\$ 200.00	
20-inch Fittings	1	LS	\$ 200.00	\$ 200.00	
Fire Hydrant Assembly	162	EA	\$ 3,000.00	\$ 486,000.00	
8-inch Gate Valve	73	EA	\$ 2,900.00	\$ 211,700.00	
12-inch Gate Valve	8	EA	\$ 6,800.00	\$ 54,400.00	
16-inch Gate Valve	1	EA	\$ 20,000.00	\$ 20,000.00	
20-inch Gate Valve	1	EA	\$ 35,000.00	\$ 35,000.00	
Air/Vacuum Relief Valve	1	EA	\$ 5,000.00	\$ 5,000.00	
Service Connection	1,750	EA	\$ 1,500.00	\$ 2,625,000.00	
Sub-Total				\$7,277,000	
General conditions (2% of Construction Costs)	1	LS	\$146,000	\$146,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$219,000	\$219,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$364,000	\$364,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$219,000	\$219,000	
Subtotal				\$8,225,000	
Contingencies (30% of Construction Costs )	1	LS	\$2,468,000	\$2,468,000	
<b>Construction Sub-Total</b>				\$10,693,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$2,674,000	\$2,674,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$13,367,000	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Columbia - Phase II						
					2037-2046	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	6,040	LF	\$ 57.00	\$ 344,300.00		
8-inch Fittings	1	LS	\$ 2,200.00	\$ 2,200.00		
Fire Hydrant Assembly	16	EA	\$ 3,000.00	\$ 48,000.00		
8-inch Gate Valve	8	EA	\$ 2,900.00	\$ 23,200.00		
Service Connection	65	EA	\$ 1,500.00	\$ 97,500.00		
Sub-Total				\$515,200		
General conditions (2% of Construction Costs)	1	LS	\$11,000	\$11,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$16,000	\$16,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$26,000	\$26,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$16,000	\$16,000		
Subtotal				\$584,200		
Contingencies (30% of Construction Costs )	1	LS	\$176,000	\$176,000		
<b>Construction Sub-Total</b>				\$760,200		
<b>Non-Construction Costs (25%)</b>	1	LS	\$191,000	\$191,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$952,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001	PREPARED BY:	ECM	DATE:	6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN	CHECKED BY:	SAL	DATE:	9/15/2016		
PROJECT MGR.: JAT	CHECKED BY:		DATE:			
Neighborhood of Columbia, US 41, Franklin, and Oakley					2037-2046	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	45,440	LF	\$ 57.00	\$ 2,590,100.00		
12-inch C900 PVC Water Main Open Cut	6,960	LF	\$ 81.00	\$ 563,800.00		
8-inch Fittings	1	LS	\$ 16,400.00	\$ 16,400.00		
12-inch Fittings	1	LS	\$ 8,400.00	\$ 8,400.00		
Fire Hydrant Assembly	132	EA	\$ 3,000.00	\$ 396,000.00		
8-inch Gate Valve	57	EA	\$ 2,900.00	\$ 165,300.00		
12-inch Gate Valve	9	EA	\$ 6,800.00	\$ 61,200.00		
Service Connection	415	EA	\$ 1,500.00	\$ 622,500.00		
Sub-Total				\$4,423,700		
General conditions (2% of Construction Costs)	1	LS	\$89,000	\$89,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$133,000	\$133,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$222,000	\$222,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$133,000	\$133,000		
Subtotal				\$5,000,700		
Contingencies (30% of Construction Costs )	1	LS	\$1,501,000	\$1,501,000		
<b>Construction Sub-Total</b>				\$6,501,700		
<b>Non-Construction Costs (25%)</b>	1	LS	\$1,626,000	\$1,626,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$8,128,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Franklin Ave downtown						
					2037-2046	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	10,370	LF	\$ 57.00	\$ 591,100.00		
8-inch Fittings	1	LS	\$ 3,800.00	\$ 3,800.00		
Fire Hydrant Assembly	26	EA	\$ 3,000.00	\$ 78,000.00		
8-inch Gate Valve	13	EA	\$ 2,900.00	\$ 37,700.00		
Service Connection	60	EA	\$ 1,500.00	\$ 90,000.00		
Sub-Total				\$800,600		
General conditions (2% of Construction Costs)	1	LS	\$17,000	\$17,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$25,000	\$25,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$41,000	\$41,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$25,000	\$25,000		
Subtotal				\$908,600		
Contingencies (30% of Construction Costs )	1	LS	\$273,000	\$273,000		
<b>Construction Sub-Total</b>				\$1,181,600		
<b>Non-Construction Costs (25%)</b>	1	LS	\$296,000	\$296,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,478,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001	PREPARED BY: ECM	DATE: 6/16/2016			
PROJECT NAME: EWSU WATER MASTER PLAN	CHECKED BY: SAL	DATE: 9/15/2016			
PROJECT MGR.: JAT	CHECKED BY:	DATE:			
Neighborhood of 6th, Walnut, Riverside, and Bord					2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	22,790	LF	\$ 57.00	\$ 1,299,100.00	
12-inch C900 PVC Water Main Open Cut	6,760	LF	\$ 81.00	\$ 547,600.00	
20-inch DI Water Main Open Cut	110	LF	\$ 205.00	\$ 22,600.00	
24-inch DI Water Main Open Cut	50	LF	\$ 230.00	\$ 11,500.00	
30-inch DI Water Main Open Cut	8,220	LF	\$ 284.00	\$ 2,334,500.00	
8-inch Fittings	1	LS	\$ 8,300.00	\$ 8,300.00	
12-inch Fittings	1	LS	\$ 8,200.00	\$ 8,200.00	
20-inch Fittings	1	LS	\$ 700.00	\$ 700.00	
24-inch Fittings	1	LS	\$ 400.00	\$ 400.00	
30-inch Fittings	1	LS	\$ 98,700.00	\$ 98,700.00	
Fire Hydrant Assembly	95	EA	\$ 3,000.00	\$ 285,000.00	
8-inch Gate Valve	29	EA	\$ 2,900.00	\$ 84,100.00	
12-inch Gate Valve	9	EA	\$ 6,800.00	\$ 61,200.00	
20-inch Gate Valve	1	EA	\$ 35,000.00	\$ 35,000.00	
24-inch Gate Valve	1	EA	\$ 45,000.00	\$ 45,000.00	
30-inch Gate Valve	9	EA	\$ 55,000.00	\$ 495,000.00	
Air/Vacuum Relief Valve	5	EA	\$ 5,000.00	\$ 25,000.00	
Service Connection	225	EA	\$ 1,500.00	\$ 337,500.00	
Sub-Total				\$5,699,400	
General conditions (2% of Construction Costs)	1	LS	\$114,000	\$114,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$171,000	\$171,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$285,000	\$285,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$171,000	\$171,000	
Subtotal				\$6,440,400	
Contingencies (30% of Construction Costs )	1	LS	\$1,933,000	\$1,933,000	
<b>Construction Sub-Total</b>				<b>\$8,373,400</b>	
<b>Non-Construction Costs (25%)</b>	1	LS	\$2,094,000	\$2,094,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$10,468,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Lincoln Ave - Phase II					2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	490	LF	\$ 57.00	\$ 28,000.00	
12-inch C900 PVC Water Main Open Cut	10,640	LF	\$ 81.00	\$ 861,900.00	
8-inch Fittings	1	LS	\$ 200.00	\$ 200.00	
12-inch Fittings	1	LS	\$ 12,800.00	\$ 12,800.00	
Fire Hydrant Assembly	28	EA	\$ 3,000.00	\$ 84,000.00	
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00	
12-inch Gate Valve	14	EA	\$ 6,800.00	\$ 95,200.00	
Service Connection	120	EA	\$ 1,500.00	\$ 180,000.00	
Sub-Total				\$1,265,000	
General conditions (2% of Construction Costs)	1	LS	\$26,000	\$26,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$38,000	\$38,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$64,000	\$64,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$38,000	\$38,000	
Subtotal				\$1,431,000	
Contingencies (30% of Construction Costs )	1	LS	\$430,000	\$430,000	
<b>Construction Sub-Total</b>				<b>\$1,861,000</b>	
<b>Non-Construction Costs (25%)</b>	1	LS	\$466,000	\$466,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,327,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Kentucky - Phase II					2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
12-inch C900 PVC Water Main Open Cut	5,440	LF	\$ 81.00	\$ 440,700.00	
12-inch Fittings	1	LS	\$ 6,600.00	\$ 6,600.00	
Fire Hydrant Assembly	14	EA	\$ 3,000.00	\$ 42,000.00	
12-inch Gate Valve	7	EA	\$ 6,800.00	\$ 47,600.00	
Service Connection	35	EA	\$ 1,500.00	\$ 52,500.00	
Sub-Total				\$589,400	
General conditions (2% of Construction Costs)	1	LS	\$12,000	\$12,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$18,000	\$18,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$30,000	\$30,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$18,000	\$18,000	
Subtotal				\$667,400	
Contingencies (30% of Construction Costs )	1	LS	\$201,000	\$201,000	
<b>Construction Sub-Total</b>				\$868,400	
<b>Non-Construction Costs (25%)</b>	1	LS	\$218,000	\$218,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,087,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Lincoln, Kentucky, Washington, 2nd, and Mulberry					2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	47,830	LF	\$ 57.00	\$ 2,726,400.00	
12-inch C900 PVC Water Main Open Cut	600	LF	\$ 81.00	\$ 48,600.00	
8-inch Fittings	1	LS	\$ 17,300.00	\$ 17,300.00	
12-inch Fittings	1	LS	\$ 800.00	\$ 800.00	
Fire Hydrant Assembly	123	EA	\$ 3,000.00	\$ 369,000.00	
8-inch Gate Valve	60	EA	\$ 2,900.00	\$ 174,000.00	
12-inch Gate Valve	1	EA	\$ 6,800.00	\$ 6,800.00	
Service Connection	560	EA	\$ 1,500.00	\$ 840,000.00	
Sub-Total				\$4,182,900	
General conditions (2% of Construction Costs)	1	LS	\$84,000	\$84,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$126,000	\$126,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$210,000	\$210,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$126,000	\$126,000	
Subtotal				\$4,728,900	
Contingencies (30% of Construction Costs )	1	LS	\$1,419,000	\$1,419,000	
<b>Construction Sub-Total</b>				\$6,147,900	
<b>Non-Construction Costs (25%)</b>	1	LS	\$1,537,000	\$1,537,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$7,685,000</b>	

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
S New York Ave and S Kerth Ave						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	5,000	LF	\$ 57.00	\$ 285,000.00		
8-inch Fittings	1	LS	\$ 1,800.00	\$ 1,800.00		
Fire Hydrant Assembly	14	EA	\$ 3,000.00	\$ 42,000.00		
8-inch Gate Valve	7	EA	\$ 2,900.00	\$ 20,300.00		
Service Connection	105	EA	\$ 1,500.00	\$ 157,500.00		
Sub-Total				\$506,600		
General conditions (2% of Construction Costs)	1	LS	\$11,000	\$11,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$16,000	\$16,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$26,000	\$26,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$16,000	\$16,000		
Subtotal				\$575,600		
Contingencies (30% of Construction Costs)	1	LS	\$173,000	\$173,000		
<b>Construction Sub-Total</b>				\$748,600		
<b>Non-Construction Costs (25%)</b>	1	LS	\$188,000	\$188,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$937,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Lloyd, Weinbach, Lincoln, and US 41						
					2037-2046	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	15,530	LF	\$ 57.00	\$ 885,300.00		
8-inch Fittings	1	LS	\$ 5,600.00	\$ 5,600.00		
Fire Hydrant Assembly	40	EA	\$ 3,000.00	\$ 120,000.00		
8-inch Gate Valve	20	EA	\$ 2,900.00	\$ 58,000.00		
Service Connection	210	EA	\$ 1,500.00	\$ 315,000.00		
Sub-Total				\$1,383,900		
General conditions (2% of Construction Costs)	1	LS	\$28,000	\$28,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$42,000	\$42,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$70,000	\$70,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$42,000	\$42,000		
Subtotal				\$1,565,900		
Contingencies (30% of Construction Costs )	1	LS	\$470,000	\$470,000		
<b>Construction Sub-Total</b>				\$2,035,900		
<b>Non-Construction Costs (25%)</b>	1	LS	\$509,000	\$509,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,545,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Division St						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,340	LF	\$ 57.00	\$ 76,400.00		
20-inch DI Water Main Open Cut	2,900	LF	\$ 205.00	\$ 594,500.00		
8-inch Fittings	1	LS	\$ 500.00	\$ 500.00		
20-inch Fittings	1	LS	\$ 16,900.00	\$ 16,900.00		
Fire Hydrant Assembly	12	EA	\$ 3,000.00	\$ 36,000.00		
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00		
20-inch Gate Valve	4	EA	\$ 35,000.00	\$ 140,000.00		
Air/Vacuum Relief Valve	2	EA	\$ 5,000.00	\$ 10,000.00		
Service Connection	30	EA	\$ 1,500.00	\$ 45,000.00		
Sub-Total				\$925,100		
General conditions (2% of Construction Costs)	1	LS	\$19,000	\$19,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$28,000	\$28,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$47,000	\$47,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$28,000	\$28,000		
Subtotal				\$1,047,100		
Contingencies (30% of Construction Costs)	1	LS	\$315,000	\$315,000		
<b>Construction Sub-Total</b>				\$1,362,100		
<b>Non-Construction Costs (25%)</b>	1	LS	\$341,000	\$341,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$1,704,000		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Governor Phase IV						
2037-2046						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	2,700	LF	\$ 57.00	\$ 153,900.00		
12-inch C900 PVC Water Main Open Cut	500	LF	\$ 81.00	\$ 40,500.00		
8-inch Fittings	1	LS	\$ 1,000.00	\$ 1,000.00		
12-inch Fittings	1	LS	\$ 600.00	\$ 600.00		
Fire Hydrant Assembly	9	EA	\$ 3,000.00	\$ 27,000.00		
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00		
12-inch Gate Valve	1	EA	\$ 6,800.00	\$ 6,800.00		
Service Connection	35	EA	\$ 1,500.00	\$ 52,500.00		
Sub-Total				\$293,900		
General conditions (2% of Construction Costs)	1	LS	\$6,000	\$6,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$9,000	\$9,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$15,000	\$15,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$9,000	\$9,000		
Subtotal				\$332,900		
Contingencies (30% of Construction Costs)	1	LS	\$100,000	\$100,000		
<b>Construction Sub-Total</b>				\$432,900		
<b>Non-Construction Costs (25%)</b>	1	LS	\$109,000	\$109,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$542,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Riverside, Weinbach, I164, and Sunburst					2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
4-inch C900 PVC Water Main Open Cut	400	LF	\$ 38.00	\$ 15,200.00	
8-inch C900 PVC Water Main Open Cut	22,590	LF	\$ 57.00	\$ 1,287,700.00	
12-inch C900 PVC Water Main Open Cut	680	LF	\$ 81.00	\$ 55,100.00	
4-inch Fittings	1	LS	\$ 100.00	\$ 100.00	
8-inch Fittings	1	LS	\$ 8,200.00	\$ 8,200.00	
12-inch Fittings	1	LS	\$ 900.00	\$ 900.00	
Fire Hydrant Assembly	60	EA	\$ 3,000.00	\$ 180,000.00	
8-inch Gate Valve	29	EA	\$ 2,900.00	\$ 84,100.00	
12-inch Gate Valve	1	EA	\$ 6,800.00	\$ 6,800.00	
Automatic Flushing Device	2	EA	\$ 5,000.00	\$ 10,000.00	
Service Connection	350	EA	\$ 1,500.00	\$ 525,000.00	
Sub-Total				\$2,173,100	
General conditions (2% of Construction Costs)	1	LS	\$44,000	\$44,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$66,000	\$66,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$109,000	\$109,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$66,000	\$66,000	
Subtotal				\$2,458,100	
Contingencies (30% of Construction Costs )	1	LS	\$738,000	\$738,000	
<b>Construction Sub-Total</b>				\$3,196,100	
<b>Non-Construction Costs (25%)</b>	1	LS	\$800,000	\$800,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,997,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Covert Ave - Phase III and Vann						
					2037-2046	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	6,510	LF	\$ 57.00	\$ 371,100.00		
12-inch C900 PVC Water Main Open Cut	1,480	LF	\$ 81.00	\$ 120,700.00		
16-inch DI Water Main Open Cut	530	LF	\$ 163.00	\$ 86,400.00		
36-inch DI Water Main Open Cut	480	LF	\$ 315.00	\$ 151,200.00		
8-inch Fittings	1	LS	\$ 2,400.00	\$ 2,400.00		
12-inch Fittings	1	LS	\$ 1,800.00	\$ 1,800.00		
16-inch Fittings	1	LS	\$ 2,100.00	\$ 2,100.00		
36-inch Fittings	1	LS	\$ 7,700.00	\$ 7,700.00		
Fire Hydrant Assembly	23	EA	\$ 3,000.00	\$ 69,000.00		
8-inch Gate Valve	9	EA	\$ 2,900.00	\$ 26,100.00		
12-inch Gate Valve	2	EA	\$ 6,800.00	\$ 13,600.00		
16-inch Gate Valve	1	EA	\$ 20,000.00	\$ 20,000.00		
36-inch Gate Valve	1	EA	\$ 65,000.00	\$ 65,000.00		
Air/Vacuum Relief Valve	1	EA	\$ 5,000.00	\$ 5,000.00		
Service Connection	90	EA	\$ 1,500.00	\$ 135,000.00		
Sub-Total				\$1,077,100		
General conditions (2% of Construction Costs)	1	LS	\$22,000	\$22,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$33,000	\$33,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$54,000	\$54,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$33,000	\$33,000		
Subtotal				\$1,219,100		
Contingencies (30% of Construction Costs )	1	LS	\$366,000	\$366,000		
<b>Construction Sub-Total</b>				\$1,585,100		
<b>Non-Construction Costs (25%)</b>	1	LS	\$397,000	\$397,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$1,983,000		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Green River - Phase II and Washington - Phase III						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	890	LF	\$ 57.00	\$ 50,800.00		
12-inch C900 PVC Water Main Open Cut	8,960	LF	\$ 81.00	\$ 725,800.00		
8-inch Fittings	1	LS	\$ 400.00	\$ 400.00		
12-inch Fittings	1	LS	\$ 10,800.00	\$ 10,800.00		
Fire Hydrant Assembly	26	EA	\$ 3,000.00	\$ 78,000.00		
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00		
12-inch Gate Valve	12	EA	\$ 6,800.00	\$ 81,600.00		
Service Connection	105	EA	\$ 1,500.00	\$ 157,500.00		
Sub-Total				\$1,110,700		
General conditions (2% of Construction Costs)	1	LS	\$23,000	\$23,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$34,000	\$34,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$56,000	\$56,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$34,000	\$34,000		
Subtotal				\$1,257,700		
Contingencies (30% of Construction Costs )	1	LS	\$378,000	\$378,000		
<b>Construction Sub-Total</b>				\$1,635,700		
<b>Non-Construction Costs (25%)</b>	1	LS	\$409,000	\$409,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,045,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
St Marys, Mulberry, and Trinity Dr						
2037-2046						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	4,210	LF	\$ 57.00	\$ 240,000.00		
8-inch Fittings	1	LS	\$ 1,600.00	\$ 1,600.00		
Fire Hydrant Assembly	11	EA	\$ 3,000.00	\$ 33,000.00		
8-inch Gate Valve	6	EA	\$ 2,900.00	\$ 17,400.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$352,000		
General conditions (2% of Construction Costs)	1	LS	\$8,000	\$8,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$11,000	\$11,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$18,000	\$18,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$11,000	\$11,000		
Subtotal				\$400,000		
Contingencies (30% of Construction Costs )	1	LS	\$120,000	\$120,000		
<b>Construction Sub-Total</b>				\$520,000		
<b>Non-Construction Costs (25%)</b>	1	LS	\$130,000	\$130,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$650,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Neighborhood of Lloyd, Green River, Lincoln, and Congress					2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	19,410	LF	\$ 57.00	\$ 1,106,400.00	
12-inch C900 PVC Water Main Open Cut	670	LF	\$ 81.00	\$ 54,300.00	
8-inch Fittings	1	LS	\$ 7,000.00	\$ 7,000.00	
12-inch Fittings	1	LS	\$ 900.00	\$ 900.00	
Fire Hydrant Assembly	52	EA	\$ 3,000.00	\$ 156,000.00	
8-inch Gate Valve	25	EA	\$ 2,900.00	\$ 72,500.00	
12-inch Gate Valve	1	EA	\$ 6,800.00	\$ 6,800.00	
Service Connection	280	EA	\$ 1,500.00	\$ 420,000.00	
Sub-Total				\$1,823,900	
General conditions (2% of Construction Costs)	1	LS	\$37,000	\$37,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$55,000	\$55,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$92,000	\$92,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$55,000	\$55,000	
Subtotal				\$2,062,900	
Contingencies (30% of Construction Costs )	1	LS	\$619,000	\$619,000	
<b>Construction Sub-Total</b>				\$2,681,900	
<b>Non-Construction Costs (25%)</b>	1	LS	\$671,000	\$671,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,353,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Morgan, Boeke, railroad, and golfcourse						
					2037-	
					2046	
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	7,790	LF	\$ 57.00	\$ 444,100.00		
8-inch Fittings	1	LS	\$ 2,900.00	\$ 2,900.00		
Fire Hydrant Assembly	21	EA	\$ 3,000.00	\$ 63,000.00		
8-inch Gate Valve	10	EA	\$ 2,900.00	\$ 29,000.00		
Service Connection	185	EA	\$ 1,500.00	\$ 277,500.00		
Sub-Total				\$816,500		
General conditions (2% of Construction Costs)	1	LS	\$17,000	\$17,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$25,000	\$25,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$41,000	\$41,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$25,000	\$25,000		
Subtotal				\$924,500		
Contingencies (30% of Construction Costs )	1	LS	\$278,000	\$278,000		
<b>Construction Sub-Total</b>				\$1,202,500		
<b>Non-Construction Costs (25%)</b>	1	LS	\$301,000	\$301,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,504,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Stockwell Rd and Negley, Joan, Diamond, Richardt, and Herndon					2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
4-inch C900 PVC Water Main Open Cut	200	LF	\$ 38.00	\$ 7,600.00	
8-inch C900 PVC Water Main Open Cut	9,370	LF	\$ 57.00	\$ 534,100.00	
4-inch Fittings	1	LS	\$ 100.00	\$ 100.00	
8-inch Fittings	1	LS	\$ 3,400.00	\$ 3,400.00	
Fire Hydrant Assembly	25	EA	\$ 3,000.00	\$ 75,000.00	
8-inch Gate Valve	12	EA	\$ 2,900.00	\$ 34,800.00	
Automatic Flushing Device	1	EA	\$ 5,000.00	\$ 5,000.00	
Service Connection	150	EA	\$ 1,500.00	\$ 225,000.00	
Sub-Total				\$885,000	
General conditions (2% of Construction Costs)	1	LS	\$18,000	\$18,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$27,000	\$27,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$45,000	\$45,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$27,000	\$27,000	
Subtotal				\$1,002,000	
Contingencies (30% of Construction Costs )	1	LS	\$301,000	\$301,000	
<b>Construction Sub-Total</b>				\$1,303,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$326,000	\$326,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,629,000</b>	

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Morgan Ave - Phase IV					2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	3,210	LF	\$ 57.00	\$ 183,000.00	
12-inch C900 PVC Water Main Open Cut	2,650	LF	\$ 81.00	\$ 214,700.00	
8-inch DI Jack and Bore	100	LF	\$ 708.00	\$ 70,800.00	
12-inch DI Jack and Bore	100	LF	\$ 748.00	\$ 74,800.00	
8-inch Fittings	1	LS	\$ 1,200.00	\$ 1,200.00	
12-inch Fittings	1	LS	\$ 3,200.00	\$ 3,200.00	
Fire Hydrant Assembly	16	EA	\$ 3,000.00	\$ 48,000.00	
8-inch Gate Valve	7	EA	\$ 2,900.00	\$ 20,300.00	
12-inch Gate Valve	6	EA	\$ 6,800.00	\$ 40,800.00	
Service Connection	80	EA	\$ 1,500.00	\$ 120,000.00	
Sub-Total				\$776,800	
General conditions (2% of Construction Costs)	1	LS	\$16,000	\$16,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$24,000	\$24,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$39,000	\$39,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$24,000	\$24,000	
Subtotal				\$879,800	
Contingencies (30% of Construction Costs)	1	LS	\$264,000	\$264,000	
<b>Construction Sub-Total</b>				\$1,143,800	
Non-Construction Costs (25%)	1	LS	\$286,000	\$286,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$1,430,000	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
E Morgan Ave and Old Boonville Hwy						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	8,930	LF	\$ 81.00	\$ 723,400.00		
12-inch Fittings	1	LS	\$ 10,800.00	\$ 10,800.00		
Fire Hydrant Assembly	23	EA	\$ 3,000.00	\$ 69,000.00		
12-inch Gate Valve	12	EA	\$ 6,800.00	\$ 81,600.00		
Service Connection	40	EA	\$ 1,500.00	\$ 60,000.00		
Sub-Total				\$944,800		
General conditions (2% of Construction Costs)	1	LS	\$19,000	\$19,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$29,000	\$29,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$48,000	\$48,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$29,000	\$29,000		
Subtotal				\$1,069,800		
Contingencies (30% of Construction Costs)	1	LS	\$321,000	\$321,000		
<b>Construction Sub-Total</b>				\$1,390,800		
<b>Non-Construction Costs (25%)</b>	1	LS	\$348,000	\$348,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$1,739,000		

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Pollack Ave						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	3,450	LF	\$ 81.00	\$ 279,500.00		
12-inch Fittings	1	LS	\$ 4,200.00	\$ 4,200.00		
Fire Hydrant Assembly	9	EA	\$ 3,000.00	\$ 27,000.00		
12-inch Gate Valve	5	EA	\$ 6,800.00	\$ 34,000.00		
Service Connection	25	EA	\$ 1,500.00	\$ 37,500.00		
Sub-Total				\$382,200		
General conditions (2% of Construction Costs)	1	LS	\$8,000	\$8,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$12,000	\$12,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$20,000	\$20,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$12,000	\$12,000		
Subtotal				\$434,200		
Contingencies (30% of Construction Costs )	1	LS	\$131,000	\$131,000		
<b>Construction Sub-Total</b>				\$565,200		
<b>Non-Construction Costs (25%)</b>	1	LS	\$142,000	\$142,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$708,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY:	ECM	DATE:	6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY:	SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Lloyd, Kentucky, Lincoln, and Governor						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	25,680	LF	\$ 57.00	\$ 1,463,800.00		
12-inch C900 PVC Water Main Open Cut	1,070	LF	\$ 81.00	\$ 86,700.00		
8-inch Fittings	1	LS	\$ 9,300.00	\$ 9,300.00		
12-inch Fittings	1	LS	\$ 1,300.00	\$ 1,300.00		
Fire Hydrant Assembly	68	EA	\$ 3,000.00	\$ 204,000.00		
8-inch Gate Valve	33	EA	\$ 2,900.00	\$ 95,700.00		
12-inch Gate Valve	2	EA	\$ 6,800.00	\$ 13,600.00		
Service Connection	250	EA	\$ 1,500.00	\$ 375,000.00		
Sub-Total				\$2,249,400		
General conditions (2% of Construction Costs)	1	LS	\$45,000	\$45,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$68,000	\$68,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$113,000	\$113,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$68,000	\$68,000		
Subtotal				\$2,543,400		
Contingencies (30% of Construction Costs )	1	LS	\$764,000	\$764,000		
<b>Construction Sub-Total</b>				\$3,307,400		
<b>Non-Construction Costs (25%)</b>	1	LS	\$827,000	\$827,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$4,135,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Business 41					2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	1,840	LF	\$ 57.00	\$ 104,900.00	
12-inch C900 PVC Water Main Open Cut	2,900	LF	\$ 81.00	\$ 234,900.00	
12-inch DI Jack and Bore	130	LF	\$ 748.00	\$ 97,300.00	
8-inch Fittings	1	LS	\$ 700.00	\$ 700.00	
12-inch Fittings	1	LS	\$ 3,500.00	\$ 3,500.00	
Fire Hydrant Assembly	12	EA	\$ 3,000.00	\$ 36,000.00	
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00	
12-inch Gate Valve	6	EA	\$ 6,800.00	\$ 40,800.00	
Service Connection	25	EA	\$ 1,500.00	\$ 37,500.00	
Sub-Total				\$564,300	
General conditions (2% of Construction Costs)	1	LS	\$12,000	\$12,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$17,000	\$17,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$29,000	\$29,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$17,000	\$17,000	
Subtotal				\$639,300	
Contingencies (30% of Construction Costs )	1	LS	\$192,000	\$192,000	
<b>Construction Sub-Total</b>				\$831,300	
<b>Non-Construction Costs (25%)</b>	1	LS	\$208,000	\$208,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,040,000</b>	

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HNFB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM	DATE:	6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL	DATE:	9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
Stringtown Rd - Phase II					2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	420	LF	\$ 57.00	\$ 24,000.00	
20-inch DI Water Main Open Cut	2,300	LF	\$ 205.00	\$ 471,500.00	
8-inch Fittings	1	LS	\$ 200.00	\$ 200.00	
20-inch Fittings	1	LS	\$ 13,400.00	\$ 13,400.00	
Fire Hydrant Assembly	8	EA	\$ 3,000.00	\$ 24,000.00	
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00	
20-inch Gate Valve	3	EA	\$ 35,000.00	\$ 105,000.00	
Air/Vacuum Relief Valve	2	EA	\$ 5,000.00	\$ 10,000.00	
Service Connection	65	EA	\$ 1,500.00	\$ 97,500.00	
Sub-Total				\$748,500	
General conditions (2% of Construction Costs)	1	LS	\$15,000	\$15,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$23,000	\$23,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$38,000	\$38,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$23,000	\$23,000	
Subtotal				\$847,500	
Contingencies (30% of Construction Costs )	1	LS	\$255,000	\$255,000	
<b>Construction Sub-Total</b>				\$1,102,500	
<b>Non-Construction Costs (25%)</b>	1	LS	\$276,000	\$276,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,379,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Haven, Aviation, and Garrison Neighborhood						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	6.160	LF	\$ 57.00	\$ 351,200.00		
8-inch DI Jack and Bore	90	LF	\$ 708.00	\$ 63,800.00		
8-inch Fittings	1	LS	\$ 2,300.00	\$ 2,300.00		
Fire Hydrant Assembly	17	EA	\$ 3,000.00	\$ 51,000.00		
8-inch Gate Valve	10	EA	\$ 2,900.00	\$ 29,000.00		
Service Connection	175	EA	\$ 1,500.00	\$ 262,500.00		
Sub-Total				\$759,800		
General conditions (2% of Construction Costs)	1	LS	\$16,000	\$16,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$23,000	\$23,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$38,000	\$38,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$23,000	\$23,000		
Subtotal				\$859,800		
Contingencies (30% of Construction Costs)	1	LS	\$258,000	\$258,000		
<b>Construction Sub-Total</b>				\$1,117,800		
<b>Non-Construction Costs (25%)</b>	1	LS	\$280,000	\$280,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,398,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
St Joseph						
2037-2046						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,340	LF	\$ 57.00	\$ 76,400.00		
12-inch C900 PVC Water Main Open Cut	1,790	LF	\$ 81.00	\$ 145,000.00		
8-inch Fittings	1	LS	\$ 500.00	\$ 500.00		
12-inch Fittings	1	LS	\$ 2,200.00	\$ 2,200.00		
Fire Hydrant Assembly	8	EA	\$ 3,000.00	\$ 24,000.00		
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00		
12-inch Gate Valve	3	EA	\$ 6,800.00	\$ 20,400.00		
Service Connection	26	EA	\$ 1,500.00	\$ 39,000.00		
Sub-Total				\$313,300		
General conditions (2% of Construction Costs)	1	LS	\$7,000	\$7,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$10,000	\$10,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$16,000	\$16,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$10,000	\$10,000		
Subtotal				\$356,300		
Contingencies (30% of Construction Costs )	1	LS	\$107,000	\$107,000		
<b>Construction Sub-Total</b>				\$463,300		
<b>Non-Construction Costs (25%)</b>	1	LS	\$116,000	\$116,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$580,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Lincoln Ave - Phase III						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	2,610	LF	\$ 57.00	\$ 148,800.00		
16-inch DI Water Main Open Cut	7,260	LF	\$ 163.00	\$ 1,183,400.00		
8-inch Fittings	1	LS	\$ 1,000.00	\$ 1,000.00		
16-inch Fittings	1	LS	\$ 27,600.00	\$ 27,600.00		
Fire Hydrant Assembly	25	EA	\$ 3,000.00	\$ 75,000.00		
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00		
16-inch Gate Valve	10	EA	\$ 20,000.00	\$ 200,000.00		
Air/Vacuum Relief Valve	4	EA	\$ 5,000.00	\$ 20,000.00		
Service Connection	81	EA	\$ 1,500.00	\$ 121,500.00		
Sub-Total				\$1,788,900		
General conditions (2% of Construction Costs)	1	LS	\$36,000	\$36,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$54,000	\$54,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$90,000	\$90,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$54,000	\$54,000		
Subtotal				\$2,022,900		
Contingencies (30% of Construction Costs )	1	LS	\$607,000	\$607,000		
<b>Construction Sub-Total</b>				\$2,629,900		
<b>Non-Construction Costs (25%)</b>	1	LS	\$658,000	\$658,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,288,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Vann Ave						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	2,590	LF	\$ 57.00	\$ 147,700.00		
8-inch Fittings	1	LS	\$ 1,000.00	\$ 1,000.00		
Fire Hydrant Assembly	8	EA	\$ 3,000.00	\$ 24,000.00		
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00		
Service Connection	32	EA	\$ 1,500.00	\$ 48,000.00		
Sub-Total				\$232,300		
General conditions (2% of Construction Costs)	1	LS	\$5,000	\$5,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$7,000	\$7,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$12,000	\$12,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$7,000	\$7,000		
Subtotal				\$263,300		
Contingencies (30% of Construction Costs )	1	LS	\$79,000	\$79,000		
<b>Construction Sub-Total</b>				\$342,300		
<b>Non-Construction Costs (25%)</b>	1	LS	\$86,000	\$86,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$429,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Eichel Rd						
2037-2046						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	2,280	LF	\$ 57.00	\$ 130,000.00		
12-inch C900 PVC Water Main Open Cut	740	LF	\$ 81.00	\$ 60,000.00		
8-inch Fittings	1	LS	\$ 900.00	\$ 900.00		
12-inch Fittings	1	LS	\$ 900.00	\$ 900.00		
Fire Hydrant Assembly	9	EA	\$ 3,000.00	\$ 27,000.00		
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00		
12-inch Gate Valve	1	EA	\$ 6,800.00	\$ 6,800.00		
Service Connection	67	EA	\$ 1,500.00	\$ 100,500.00		
Sub-Total				\$334,800		
General conditions (2% of Construction Costs)	1	LS	\$7,000	\$7,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$11,000	\$11,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$17,000	\$17,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$11,000	\$11,000		
Subtotal				\$380,800		
Contingencies (30% of Construction Costs )	1	LS	\$115,000	\$115,000		
<b>Construction Sub-Total</b>				\$495,800		
<b>Non-Construction Costs (25%)</b>	1	LS	\$124,000	\$124,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$620,000		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood bounded by Christ, Kentucky, Mill, and Weaver						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
4-inch C900 PVC Water Main Open Cut	970	LF	\$ 38.00	\$ 36,900.00		
8-inch C900 PVC Water Main Open Cut	9,450	LF	\$ 57.00	\$ 538,700.00		
4-inch Fittings	1	LS	\$ 200.00	\$ 200.00		
8-inch Fittings	1	LS	\$ 3,500.00	\$ 3,500.00		
Fire Hydrant Assembly	25	EA	\$ 3,000.00	\$ 75,000.00		
8-inch Gate Valve	12	EA	\$ 2,900.00	\$ 34,800.00		
Automatic Flushing Device	4	EA	\$ 5,000.00	\$ 20,000.00		
Service Connection	126	EA	\$ 1,500.00	\$ 189,000.00		
Sub-Total				\$998,100		
General conditions (2% of Construction Costs)	1	LS	\$18,000	\$18,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$27,000	\$27,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$45,000	\$45,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$27,000	\$27,000		
Subtotal				\$1,015,100		
Contingencies (30% of Construction Costs )	1	LS	\$305,000	\$305,000		
<b>Construction Sub-Total</b>				\$1,320,100		
<b>Non-Construction Costs (25%)</b>	1	LS	\$331,000	\$331,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,652,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
From Killian Tank to Maryland						
2037-2046						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	90	LF	\$ 57.00	\$ 5,200.00		
16-inch DI Water Main Open Cut	2,150	LF	\$ 163.00	\$ 350,500.00		
20-inch DI Water Main Open Cut	170	LF	\$ 205.00	\$ 34,900.00		
24-inch DI Water Main Open Cut	280	LF	\$ 230.00	\$ 64,400.00		
8-inch Fittings	1	LS	\$ 100.00	\$ 100.00		
16-inch Fittings	1	LS	\$ 8,200.00	\$ 8,200.00		
20-inch Fittings	1	LS	\$ 1,000.00	\$ 1,000.00		
24-inch Fittings	1	LS	\$ 2,200.00	\$ 2,200.00		
Fire Hydrant Assembly	8	EA	\$ 3,000.00	\$ 24,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
16-inch Gate Valve	3	EA	\$ 20,000.00	\$ 60,000.00		
20-inch Gate Valve	1	EA	\$ 35,000.00	\$ 35,000.00		
24-inch Gate Valve	1	EA	\$ 45,000.00	\$ 45,000.00		
Air/Vacuum Relief Valve	2	EA	\$ 5,000.00	\$ 10,000.00		
Service Connection	15	EA	\$ 1,500.00	\$ 22,500.00		
Sub-Total				\$665,900		
General conditions (2% of Construction Costs)	1	LS	\$14,000	\$14,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$20,000	\$20,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$34,000	\$34,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$20,000	\$20,000		
Subtotal				\$753,900		
Contingencies (30% of Construction Costs )	1	LS	\$227,000	\$227,000		
<b>Construction Sub-Total</b>				\$980,900		
Non-Construction Costs (25%)	1	LS	\$246,000	\$246,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$1,227,000		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Morgan Ave - Phase V						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	20	LF	\$ 57.00	\$ 1,200.00		
12-inch C900 PVC Water Main Open Cut	1,730	LF	\$ 81.00	\$ 140,200.00		
8-inch DI Jack and Bore		LF	\$ -	\$ -		
12-inch DI Jack and Bore	200	LF	\$ 748.00	\$ 149,600.00		
8-inch Fittings	1	LS	\$ 100.00	\$ 100.00		
12-inch Fittings	1	LS	\$ 2,100.00	\$ 2,100.00		
Fire Hydrant Assembly	6	EA	\$ 3,000.00	\$ 18,000.00		
6-inch Gate Valve	2	EA	\$ 1,800.00	\$ 3,600.00		
12-inch Gate Valve	5	EA	\$ 6,800.00	\$ 34,000.00		
Service Connection	12	EA	\$ 1,500.00	\$ 18,000.00		
Sub-Total				\$376,600		
General conditions (2% of Construction Costs)	1	LS	\$8,000	\$8,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$12,000	\$12,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$19,000	\$19,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$12,000	\$12,000		
Subtotal				\$427,600		
Contingencies (30% of Construction Costs )	1	LS	\$129,000	\$129,000		
<b>Construction Sub-Total</b>				\$556,600		
<b>Non-Construction Costs (25%)</b>	1	LS	\$140,000	\$140,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$697,000		

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Eastview Rd						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,850	LF	\$ 57.00	\$ 105,500.00		
8-inch DI Jack and Bore	200	LF	\$ 708.00	\$ 141,600.00		
8-inch Fittings	1	LS	\$ 700.00	\$ 700.00		
Fire Hydrant Assembly	6	EA	\$ 3,000.00	\$ 18,000.00		
8-inch Gate Valve	5	EA	\$ 2,900.00	\$ 14,500.00		
Service Connection	18	EA	\$ 1,500.00	\$ 27,000.00		
Sub-Total				\$307,300		
General conditions (2% of Construction Costs)	1	LS	\$7,000	\$7,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$10,000	\$10,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$16,000	\$16,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$10,000	\$10,000		
Subtotal				\$350,300		
Contingencies (30% of Construction Costs )	1	LS	\$106,000	\$106,000		
<b>Construction Sub-Total</b>				<b>\$456,300</b>		
<b>Non-Construction Costs (25%)</b>	1	LS	\$115,000	\$115,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$572,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood of Gum, Bayard Park, Chandler, Powell, Blackford, and Park Plaze						
2037-2046						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	5,540	LF	\$ 57.00	\$ 315,800.00		
8-inch Fittings	1	LS	\$ 2,000.00	\$ 2,000.00		
Fire Hydrant Assembly	15	EA	\$ 3,000.00	\$ 45,000.00		
8-inch Gate Valve	7	EA	\$ 2,900.00	\$ 20,300.00		
Service Connection	119	EA	\$ 1,500.00	\$ 178,500.00		
Sub-Total				\$561,600		
General conditions (2% of Construction Costs)	1	LS	\$12,000	\$12,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$17,000	\$17,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$29,000	\$29,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$17,000	\$17,000		
Subtotal				\$636,600		
Contingencies (30% of Construction Costs )	1	LS	\$191,000	\$191,000		
<b>Construction Sub-Total</b>				\$827,600		
<b>Non-Construction Costs (25%)</b>	1	LS	\$207,000	\$207,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,035,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Alvord Blvd						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	890	LF	\$ 57.00	\$ 50,800.00		
8-inch Fittings	1	LS	\$ 400.00	\$ 400.00		
Fire Hydrant Assembly	4	EA	\$ 3,000.00	\$ 12,000.00		
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00		
Service Connection	22	EA	\$ 1,500.00	\$ 33,000.00		
Sub-Total				\$102,000		
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$6,000	\$6,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Subtotal				\$119,000		
Contingencies (30% of Construction Costs )	1	LS	\$36,000	\$36,000		
<b>Construction Sub-Total</b>				\$155,000		
<b>Non-Construction Costs (25%)</b>	1	LS	\$39,000	\$39,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$194,000		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Rodenberg Ave						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	2,730	LF	\$ 57.00	\$ 155,700.00		
8-inch Fittings	1	LS	\$ 1,000.00	\$ 1,000.00		
Fire Hydrant Assembly	8	EA	\$ 3,000.00	\$ 24,000.00		
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00		
Service Connection	42	EA	\$ 1,500.00	\$ 63,000.00		
Sub-Total				\$255,300		
General conditions (2% of Construction Costs)	1	LS	\$6,000	\$6,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$8,000	\$8,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$13,000	\$13,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$8,000	\$8,000		
Subtotal				\$290,300		
Contingencies (30% of Construction Costs )	1	LS	\$88,000	\$88,000		
<b>Construction Sub-Total</b>				\$378,300		
<b>Non-Construction Costs (25%)</b>	1	LS	\$95,000	\$95,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$474,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Landbridge Way						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	330	LF	\$ 57.00	\$ 18,900.00		
8-inch Fittings	1	LS	\$ 200.00	\$ 200.00		
Fire Hydrant Assembly	2	EA	\$ 3,000.00	\$ 6,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
Service Connection	5	EA	\$ 1,500.00	\$ 7,500.00		
Sub-Total				\$35,500		
General conditions (2% of Construction Costs)	1	LS	\$1,000	\$1,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$2,000	\$2,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$2,000	\$2,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$2,000	\$2,000		
Subtotal				\$42,500		
Contingencies (30% of Construction Costs )	1	LS	\$13,000	\$13,000		
<b>Construction Sub-Total</b>				\$55,500		
<b>Non-Construction Costs (25%)</b>	1	LS	\$14,000	\$14,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$70,000		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM DATE: 6/16/2016				
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL DATE: 9/15/2016				
PROJECT MGR.: JAT		CHECKED BY: DATE:				
Stringtown Rd - Phase III						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	90	LF	\$ 57.00	\$ 5,200.00		
12-inch C900 PVC Water Main Open Cut	1,610	LF	\$ 81.00	\$ 130,500.00		
8-inch Fittings	1	LS	\$ 100.00	\$ 100.00		
12-inch Fittings	1	LS	\$ 2,000.00	\$ 2,000.00		
Fire Hydrant Assembly	6	EA	\$ 3,000.00	\$ 18,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
12-inch Gate Valve	3	EA	\$ 6,800.00	\$ 20,400.00		
Service Connection	33	EA	\$ 1,500.00	\$ 49,500.00		
Sub-Total				\$228,600		
General conditions (2% of Construction Costs)	1	LS	\$5,000	\$5,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$7,000	\$7,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$12,000	\$12,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$7,000	\$7,000		
Subtotal				\$259,600		
Contingencies (30% of Construction Costs )	1	LS	\$78,000	\$78,000		
<b>Construction Sub-Total</b>				\$337,600		
<b>Non-Construction Costs (25%)</b>	1	LS	\$85,000	\$85,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$423,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/21/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Morton Ave and Franklin St						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,720	LF	\$ 57.00	\$ 98,100.00		
12-inch C900 PVC Water Main Open Cut	2,510	LF	\$ 81.00	\$ 203,400.00		
8-inch Fittings	1	LS	\$ 700.00	\$ 700.00		
12-inch Fittings	1	LS	\$ 3,100.00	\$ 3,100.00		
Fire Hydrant Assembly	11	EA	\$ 3,000.00	\$ 33,000.00		
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00		
12-inch Gate Valve	4	EA	\$ 6,800.00	\$ 27,200.00		
Service Connection	5	EA	\$ 1,500.00	\$ 7,500.00		
Sub-Total				\$381,700		
General conditions (2% of Construction Costs)	1	LS	\$8,000	\$8,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$12,000	\$12,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$20,000	\$20,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$12,000	\$12,000		
Subtotal				\$433,700		
Contingencies (30% of Construction Costs)	1	LS	\$131,000	\$131,000		
<b>Construction Sub-Total</b>				\$564,700		
Non-Construction Costs (25%)	1	LS	\$142,000	\$142,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$707,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Morgan Ave - Phase VI						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	1,040	LF	\$ 81.00	\$ 84,300.00		
12-inch DI Jack and Bore	300	LF	\$ 748.00	\$ 224,400.00		
12-inch Fittings	1	LS	\$ 1,300.00	\$ 1,300.00		
Fire Hydrant Assembly	4	EA	\$ 3,000.00	\$ 12,000.00		
12-inch Gate Valve	4	EA	\$ 6,800.00	\$ 27,200.00		
Service Connection	17	EA	\$ 1,500.00	\$ 25,500.00		
Sub-Total				\$374,700		
General conditions (2% of Construction Costs)	1	LS	\$8,000	\$8,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$12,000	\$12,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$19,000	\$19,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$12,000	\$12,000		
Subtotal				\$425,700		
Contingencies (30% of Construction Costs )	1	LS	\$128,000	\$128,000		
<b>Construction Sub-Total</b>				\$553,700		
<b>Non-Construction Costs (25%)</b>	1	LS	\$139,000	\$139,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$693,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Rotherwood Ave						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,180	LF	\$ 57.00	\$ 67,300.00		
8-inch Fittings	1	LS	\$ 500.00	\$ 500.00		
Fire Hydrant Assembly	3	EA	\$ 3,000.00	\$ 9,000.00		
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00		
Service Connection	19	EA	\$ 1,500.00	\$ 28,500.00		
Sub-Total				\$111,100		
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$6,000	\$6,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000		
Subtotal				\$128,100		
Contingencies (30% of Construction Costs )	1	LS	\$39,000	\$39,000		
<b>Construction Sub-Total</b>				\$167,100		
<b>Non-Construction Costs (25%)</b>	1	LS	\$42,000	\$42,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$210,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood bounded by Morgan, Vogel, Boeke, and Oak Hill						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	8,630	LF	\$ 57.00	\$ 492,000.00		
8-inch DI Jack and Bore	70	LF	\$ 708.00	\$ 49,600.00		
8-inch Fittings	1	LS	\$ 3,200.00	\$ 3,200.00		
Fire Hydrant Assembly	23	EA	\$ 3,000.00	\$ 69,000.00		
8-inch Gate Valve	13	EA	\$ 2,900.00	\$ 37,700.00		
Service Connection	106	EA	\$ 1,500.00	\$ 159,000.00		
Sub-Total				\$810,500		
General conditions (2% of Construction Costs)	1	LS	\$17,000	\$17,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$25,000	\$25,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$41,000	\$41,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$25,000	\$25,000		
Subtotal				\$918,500		
Contingencies (30% of Construction Costs )	1	LS	\$276,000	\$276,000		
<b>Construction Sub-Total</b>				\$1,194,500		
<b>Non-Construction Costs (25%)</b>	1	LS	\$299,000	\$299,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,494,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Covert Ave - Phase IV						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,660	LF	\$ 57.00	\$ 94,700.00		
8-inch Fittings	1	LS	\$ 600.00	\$ 600.00		
Fire Hydrant Assembly	5	EA	\$ 3,000.00	\$ 15,000.00		
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00		
Service Connection	23	EA	\$ 1,500.00	\$ 34,500.00		
Sub-Total				\$153,500		
General conditions (2% of Construction Costs)	1	LS	\$4,000	\$4,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$8,000	\$8,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$5,000	\$5,000		
Subtotal				\$175,500		
Contingencies (30% of Construction Costs )	1	LS	\$53,000	\$53,000		
<b>Construction Sub-Total</b>				\$228,500		
<b>Non-Construction Costs (25%)</b>	1	LS	\$58,000	\$58,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$287,000		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
Franklin Ave					2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	1,290	LF	\$ 57.00	\$ 73,600.00	
8-inch Fittings	1	LS	\$ 500.00	\$ 500.00	
Fire Hydrant Assembly	5	EA	\$ 3,000.00	\$ 15,000.00	
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00	
Service Connection	3	EA	\$ 1,500.00	\$ 4,500.00	
Sub-Total				\$99,400	
General conditions (2% of Construction Costs)	1	LS	\$2,000	\$2,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$3,000	\$3,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$5,000	\$5,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$3,000	\$3,000	
Subtotal				\$112,400	
Contingencies (30% of Construction Costs )	1	LS	\$34,000	\$34,000	
<b>Construction Sub-Total</b>				\$146,400	
<b>Non-Construction Costs (25%)</b>	1	LS	\$37,000	\$37,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$184,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Fernwood Dr						
2037-2046						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	700	LF	\$ 57.00	\$ 39,900.00		
8-inch Fittings	1	LS	\$ 300.00	\$ 300.00		
Fire Hydrant Assembly	3	EA	\$ 3,000.00	\$ 9,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
Service Connection	23	EA	\$ 1,500.00	\$ 34,500.00		
Sub-Total				\$86,600		
General conditions (2% of Construction Costs)	1	LS	\$2,000	\$2,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$3,000	\$3,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$5,000	\$5,000		
Clean Up & Site Restoration (5% of Construction Costs)	1	LS	\$3,000	\$3,000		
Subtotal				\$99,600		
Contingencies (30% of Construction Costs )	1	LS	\$30,000	\$30,000		
<b>Construction Sub-Total</b>				\$129,600		
<b>Non-Construction Costs (25%)</b>	1	LS	\$33,000	\$33,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$163,000		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Buchanan Dr						
2037-2046						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	2,420	LF	\$ 57.00	\$ 138,000.00		
8-inch Fittings	1	LS	\$ 900.00	\$ 900.00		
Fire Hydrant Assembly	7	EA	\$ 3,000.00	\$ 21,000.00		
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00		
Service Connection	23	EA	\$ 1,500.00	\$ 34,500.00		
Sub-Total				\$206,000		
General conditions (2% of Construction Costs)	1	LS	\$5,000	\$5,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$7,000	\$7,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$11,000	\$11,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$7,000	\$7,000		
Subtotal				\$236,000		
Contingencies (30% of Construction Costs )	1	LS	\$71,000	\$71,000		
<b>Construction Sub-Total</b>				\$307,000		
<b>Non-Construction Costs (25%)</b>	1	LS	\$77,000	\$77,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$384,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Dieffenbach						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	260	LF	\$ 57.00	\$ 14,900.00		
12-inch C900 PVC Water Main Open Cut	5,040	LF	\$ 81.00	\$ 408,300.00		
8-inch Fittings	1	LS	\$ 100.00	\$ 100.00		
12-inch Fittings	1	LS	\$ 6,100.00	\$ 6,100.00		
Fire Hydrant Assembly	15	EA	\$ 3,000.00	\$ 45,000.00		
8-inch Gate Valve	1	EA	\$ 2,900.00	\$ 2,900.00		
12-inch Gate Valve	7	EA	\$ 6,800.00	\$ 47,600.00		
Service Connection	45	EA	\$ 1,500.00	\$ 67,500.00		
Sub-Total				\$592,400		
General conditions (2% of Construction Costs)	1	LS	\$12,000	\$12,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$18,000	\$18,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$30,000	\$30,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$18,000	\$18,000		
Subtotal				\$670,400		
Contingencies (30% of Construction Costs )	1	LS	\$202,000	\$202,000		
<b>Construction Sub-Total</b>				\$872,400		
<b>Non-Construction Costs (25%)</b>	1	LS	\$219,000	\$219,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,092,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Lynch Rd						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	4,710	LF	\$ 81.00	\$ 381,600.00		
12-inch Fittings	1	LS	\$ 5,700.00	\$ 5,700.00		
Fire Hydrant Assembly	13	EA	\$ 3,000.00	\$ 39,000.00		
12-inch Gate Valve	6	EA	\$ 6,800.00	\$ 40,800.00		
Service Connection	28	EA	\$ 1,500.00	\$ 42,000.00		
Sub-Total				\$509,100		
General conditions (2% of Construction Costs)	1	LS	\$11,000	\$11,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$16,000	\$16,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$26,000	\$26,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$16,000	\$16,000		
Subtotal				\$578,100		
Contingencies (30% of Construction Costs )	1	LS	\$174,000	\$174,000		
<b>Construction Sub-Total</b>				\$752,100		
<b>Non-Construction Costs (25%)</b>	1	LS	\$189,000	\$189,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$942,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood bounded by Ashwood, Clover, Ridgewood, and Tanglewood						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	3,010	LF	\$ 57.00	\$ 171,600.00		
8-inch Fittings	1	LS	\$ 1,100.00	\$ 1,100.00		
Fire Hydrant Assembly	9	EA	\$ 3,000.00	\$ 27,000.00		
8-inch Gate Valve	4	EA	\$ 2,900.00	\$ 11,600.00		
Service Connection	54	EA	\$ 1,500.00	\$ 81,000.00		
Sub-Total				\$292,300		
General conditions (2% of Construction Costs)	1	LS	\$6,000	\$6,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$9,000	\$9,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$15,000	\$15,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$9,000	\$9,000		
Subtotal				\$331,300		
Contingencies (30% of Construction Costs )	1	LS	\$100,000	\$100,000		
<b>Construction Sub-Total</b>				\$431,300		
<b>Non-Construction Costs (25%)</b>	1	LS	\$108,000	\$108,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$540,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Park east of Vann						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	2,380	LF	\$ 81.00	\$ 192,800.00		
12-inch DI Jack and Bore	250	LF	\$ 748.00	\$ 187,000.00		
12-inch Fittings	1	LS	\$ 2,900.00	\$ 2,900.00		
Fire Hydrant Assembly	6	EA	\$ 3,000.00	\$ 18,000.00		
12-inch Gate Valve	5	EA	\$ 6,800.00	\$ 34,000.00		
Service Connection	4	EA	\$ 1,500.00	\$ 6,000.00		
Sub-Total				\$440,700		
General conditions (2% of Construction Costs)	1	LS	\$9,000	\$9,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$14,000	\$14,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$23,000	\$23,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$14,000	\$14,000		
Subtotal				\$500,700		
Contingencies (30% of Construction Costs)	1	LS	\$151,000	\$151,000		
<b>Construction Sub-Total</b>				\$651,700		
<b>Non-Construction Costs (25%)</b>	1	LS	\$163,000	\$163,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$815,000</b>		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR: JAT		CHECKED BY:		DATE:	
Neighborhood of Evans, Peters, and Denby north of Pfeffer					2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
8-inch C900 PVC Water Main Open Cut	1,130	LF	\$ 57.00	\$ 64,500.00	
8-inch Fittings	1	LS	\$ 500.00	\$ 500.00	
Fire Hydrant Assembly	4	EA	\$ 3,000.00	\$ 12,000.00	
8-inch Gate Valve	2	EA	\$ 2,900.00	\$ 5,800.00	
Service Connection	15	EA	\$ 1,500.00	\$ 22,500.00	
Sub-Total				\$105,300	
General conditions (2% of Construction Costs)	1	LS	\$3,000	\$3,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$4,000	\$4,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$6,000	\$6,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$4,000	\$4,000	
Subtotal				\$122,300	
Contingencies (30% of Construction Costs )	1	LS	\$37,000	\$37,000	
<b>Construction Sub-Total</b>				\$159,300	
<b>Non-Construction Costs (25%)</b>	1	LS	\$40,000	\$40,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$200,000</b>	

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM DATE: 6/16/2016				
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL DATE: 9/15/2016				
PROJECT MGR.: JAT		CHECKED BY: DATE:				
Little Creek Dr and Wansford						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	1,790	LF	\$ 57.00	\$ 102,100.00		
8-inch Fittings	1	LS	\$ 700.00	\$ 700.00		
Fire Hydrant Assembly	6	EA	\$ 3,000.00	\$ 18,000.00		
8-inch Gate Valve	3	EA	\$ 2,900.00	\$ 8,700.00		
Service Connection	42	EA	\$ 1,500.00	\$ 63,000.00		
Sub-Total				\$192,500		
General conditions (2% of Construction Costs)	1	LS	\$4,000	\$4,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$6,000	\$6,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$10,000	\$10,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$6,000	\$6,000		
Subtotal				\$218,500		
Contingencies (30% of Construction Costs )	1	LS	\$66,000	\$66,000		
<b>Construction Sub-Total</b>				\$284,500		
<b>Non-Construction Costs (25%)</b>	1	LS	\$72,000	\$72,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$357,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: EFM		DATE: 6/16/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Neighborhood bounded by Lloyd, Tekoppel, Claremont, and Red Bank						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
8-inch C900 PVC Water Main Open Cut	14,320	LF	\$ 57.00	\$ 816,300.00		
12-inch C900 PVC Water Main Open Cut	6,950	LF	\$ 81.00	\$ 563,000.00		
12-inch DI Jack and Bore	150	LF	\$ 748.00	\$ 112,200.00		
8-inch Fittings	1	LS	\$ 5,200.00	\$ 5,200.00		
12-inch Fittings	1	LS	\$ 8,400.00	\$ 8,400.00		
Fire Hydrant Assembly	55	EA	\$ 3,000.00	\$ 165,000.00		
8-inch Gate Valve	18	EA	\$ 2,900.00	\$ 52,200.00		
12-inch Gate Valve	11	EA	\$ 6,800.00	\$ 74,800.00		
Service Connection	200	EA	\$ 1,500.00	\$ 300,000.00		
Sub-Total				\$2,097,100		
General conditions (2% of Construction Costs)	1	LS	\$42,000	\$42,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$63,000	\$63,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$105,000	\$105,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$63,000	\$63,000		
Subtotal				\$2,370,100		
Contingencies (30% of Construction Costs )	1	LS	\$712,000	\$712,000		
<b>Construction Sub-Total</b>				\$3,082,100		
<b>Non-Construction Costs (25%)</b>	1	LS	\$771,000	\$771,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$3,854,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Hogue Road - Phase III						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
16-inch DI Water Main Open Cut	4,100	LF	\$ 163.00	\$ 668,300.00		
16-inch Fittings	1	LS	\$ 15,600.00	\$ 15,600.00		
Fire Hydrant Assembly	12	EA	\$ 3,000.00	\$ 36,000.00		
16-inch Gate Valve	6	EA	\$ 20,000.00	\$ 120,000.00		
Air/Vacuum Relief Valve	3	EA	\$ 5,000.00	\$ 15,000.00		
Sub-Total				\$854,900		
General conditions (2% of Construction Costs)	1	LS	\$18,000	\$18,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$26,000	\$26,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$43,000	\$43,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$26,000	\$26,000		
Subtotal				\$967,900		
Contingencies (30% of Construction Costs )	1	LS	\$291,000	\$291,000		
<b>Construction Sub-Total</b>				\$1,258,900		
<b>Non-Construction Costs (25%)</b>	1	LS	\$315,000	\$315,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,574,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
North of Lincoln Ave, under nursing home						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
12-inch C900 PVC Water Main Open Cut	470	LF	\$ 81.00	\$ 38,100.00		
16-inch DI Water Main Open Cut	450	LF	\$ 163.00	\$ 73,400.00		
24-inch DI Water Main Open Cut	2,690	LF	\$ 230.00	\$ 618,700.00		
12-inch Fittings	1	LS	\$ 600.00	\$ 600.00		
16-inch Fittings	1	LS	\$ 1,800.00	\$ 1,800.00		
24-inch Fittings	1	LS	\$ 21,000.00	\$ 21,000.00		
Fire Hydrant Assembly	11	EA	\$ 3,000.00	\$ 33,000.00		
12-inch Gate Valve	1	EA	\$ 6,800.00	\$ 6,800.00		
16-inch Gate Valve	1	EA	\$ 20,000.00	\$ 20,000.00		
24-inch Gate Valve	3	EA	\$ 45,000.00	\$ 135,000.00		
Air/Vacuum Relief Valve	2	EA	\$ 5,000.00	\$ 10,000.00		
Sub-Total				\$958,400		
General conditions (2% of Construction Costs)	1	LS	\$20,000	\$20,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$29,000	\$29,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$48,000	\$48,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$29,000	\$29,000		
Subtotal				\$1,084,400		
Contingencies (30% of Construction Costs )	1	LS	\$326,000	\$326,000		
<b>Construction Sub-Total</b>				\$1,410,400		
<b>Non-Construction Costs (25%)</b>	1	LS	\$353,000	\$353,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,764,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Hitch Petes Dr						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
30-inch DI Water Main Open Cut	11,640	LF	\$ 284.00	\$ 3,305,800.00		
30-inch Fittings	1	LS	\$ 139,700.00	\$ 139,700.00		
Fire Hydrant Assembly	31	EA	\$ 3,000.00	\$ 93,000.00		
30-inch Gate Valve	12	EA	\$ 55,000.00	\$ 660,000.00		
Air/Vacuum Relief Valve	6	EA	\$ 5,000.00	\$ 30,000.00		
Sub-Total				\$4,228,500		
General conditions (2% of Construction Costs)	1	LS	\$85,000	\$85,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$127,000	\$127,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$212,000	\$212,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$127,000	\$127,000		
Subtotal				\$4,779,500		
Contingencies (30% of Construction Costs )	1	LS	\$1,434,000	\$1,434,000		
<b>Construction Sub-Total</b>				\$6,213,500		
<b>Non-Construction Costs (25%)</b>	1	LS	\$1,554,000	\$1,554,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$7,768,000		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Darmstadt						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
16-inch DI Water Main Open Cut	26,220	LF	\$ 163.00	\$ 4,273,900.00		
16-inch Fittings	1	LS	\$ 99,700.00	\$ 99,700.00		
Fire Hydrant Assembly	67	EA	\$ 3,000.00	\$ 201,000.00		
16-inch Gate Valve	33	EA	\$ 20,000.00	\$ 660,000.00		
Air/Vacuum Relief Valve	14	EA	\$ 5,000.00	\$ 70,000.00		
Sub-Total				\$5,304,600		
General conditions (2% of Construction Costs)	1	LS	\$107,000	\$107,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$160,000	\$160,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$266,000	\$266,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$160,000	\$160,000		
Subtotal				\$5,997,600		
Contingencies (30% of Construction Costs )	1	LS	\$1,800,000	\$1,800,000		
<b>Construction Sub-Total</b>				\$7,797,600		
<b>Non-Construction Costs (25%)</b>	1	LS	\$1,950,000	\$1,950,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$9,748,000		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Boonville New Harmony Rd - Phase II						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
24-inch DI Water Main Open Cut	9,270	LF	\$ 230.00	\$ 2,132,100.00		
24-inch Fittings	1	LS	\$ 72,400.00	\$ 72,400.00		
Fire Hydrant Assembly	25	EA	\$ 3,000.00	\$ 75,000.00		
24-inch Gate Valve	10	EA	\$ 45,000.00	\$ 450,000.00		
Air/Vacuum Relief Valve	5	EA	\$ 5,000.00	\$ 25,000.00		
Sub-Total				\$2,754,500		
General conditions (2% of Construction Costs)	1	LS	\$56,000	\$56,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$83,000	\$83,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$138,000	\$138,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$83,000	\$83,000		
Subtotal				\$3,114,500		
Contingencies (30% of Construction Costs )	1	LS	\$935,000	\$935,000		
<b>Construction Sub-Total</b>				\$4,049,500		
<b>Non-Construction Costs (25%)</b>	1	LS	\$1,013,000	\$1,013,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$5,063,000</b>		

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HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
US 41 from Petersburg to Fares						
2037-2046						
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
24-inch DI Water Main Open Cut	5,430	LF	\$ 230.00	\$ 1,248,900.00		
24-inch Fittings	1	LS	\$ 42,400.00	\$ 42,400.00		
Fire Hydrant Assembly	15	EA	\$ 3,000.00	\$ 45,000.00		
24-inch Gate Valve	6	EA	\$ 45,000.00	\$ 270,000.00		
Air/Vacuum Relief Valve	3	EA	\$ 5,000.00	\$ 15,000.00		
Sub-Total				\$1,621,300		
General conditions (2% of Construction Costs)	1	LS	\$33,000	\$33,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$49,000	\$49,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$82,000	\$82,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$49,000	\$49,000		
Subtotal				\$1,834,300		
Contingencies (30% of Construction Costs )	1	LS	\$551,000	\$551,000		
<b>Construction Sub-Total</b>				\$2,385,300		
<b>Non-Construction Costs (25%)</b>	1	LS	\$597,000	\$597,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$2,983,000		

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HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016	
PROJECT MGR.: JAT		CHECKED BY:		DATE:	
US 41 from 57 to Mt Pleasant					2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
24-inch DI Water Main Open Cut	1,400	LF	\$ 230.00	\$ 322,000.00	
36-inch DI Water Main Open Cut	1,370	LF	\$ 315.00	\$ 431,600.00	
24-inch DI Jack and Bore	400	LF	\$ 1,007.00	\$ 402,800.00	
24-inch Fittings	1	LS	\$ 11,000.00	\$ 11,000.00	
36-inch Fittings	1	LS	\$ 22,000.00	\$ 22,000.00	
Fire Hydrant Assembly	8	EA	\$ 3,000.00	\$ 24,000.00	
24-inch Gate Valve	4	EA	\$ 45,000.00	\$ 180,000.00	
36-inch Gate Valve	2	EA	\$ 65,000.00	\$ 130,000.00	
Air/Vacuum Relief Valve	2	EA	\$ 5,000.00	\$ 10,000.00	
Sub-Total				\$1,533,400	
General conditions (2% of Construction Costs)	1	LS	\$31,000	\$31,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$47,000	\$47,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$77,000	\$77,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$47,000	\$47,000	
Subtotal				\$1,735,400	
Contingencies (30% of Construction Costs )	1	LS	\$521,000	\$521,000	
<b>Construction Sub-Total</b>				\$2,256,400	
<b>Non-Construction Costs (25%)</b>	1	LS	\$565,000	\$565,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,822,000</b>	

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE				
PROJECT NO.: 66201-PL-001		PREPARED BY: ECM		DATE: 6/20/2016		
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: SAL		DATE: 9/15/2016		
PROJECT MGR.: JAT		CHECKED BY:		DATE:		
Volkman Rd						2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS	
<b>Construction Costs</b>						
16-inch DI Water Main Open Cut	7,610	LF	\$ 163.00	\$ 1,240,500.00		
16-inch Fittings	1	LS	\$ 29,000.00	\$ 29,000.00		
Fire Hydrant Assembly	21	EA	\$ 3,000.00	\$ 63,000.00		
16-inch Gate Valve	10	EA	\$ 20,000.00	\$ 200,000.00		
Air/Vacuum Relief Valve	4	EA	\$ 5,000.00	\$ 20,000.00		
Service Connection	25	EA	\$ 1,500.00	\$ 37,500.00		
Sub-Total				\$1,590,000		
General conditions (2% of Construction Costs)	1	LS	\$32,000	\$32,000		
Bonds & Insurance (3% of Construction Costs)	1	LS	\$48,000	\$48,000		
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$80,000	\$80,000		
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$48,000	\$48,000		
Subtotal				\$1,798,000		
Contingencies (30% of Construction Costs )	1	LS	\$540,000	\$540,000		
<b>Construction Sub-Total</b>				<b>\$2,338,000</b>		
<b>Non-Construction Costs (25%)</b>	1	LS	\$585,000	\$585,000		
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$2,923,000</b>		

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: SAL	DATE:	6/16/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: RCC	DATE:	9/19/2016	
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
First Avenue Booster Station Pump Replacement					2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
Existing Pump Demolition	2	EA	\$ 25,000.00	\$ 50,000.00	
Horizontal Split Case Pump	2	EA	\$ 60,000.00	\$ 120,000.00	
Miscellaneous Piping Replacement	1	LS	\$ 10,000.00	\$ 10,000.00	
Coatings	1	LS	\$ 5,000.00	\$ 5,000.00	
Instrumentation & Controls	1	LS	\$ 5,000.00	\$ 5,000.00	
Electrical	1	LS	\$ 10,000.00	\$ 10,000.00	
Sub-Total				\$200,000	
General conditions (2% of Construction Costs)	1	LS	\$4,000	\$4,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$6,000	\$6,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$10,000	\$10,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$6,000	\$6,000	
Subtotal				\$226,000	
Contingencies (30% of Construction Costs )	1	LS	\$68,000	\$68,000	
<b>Construction Sub-Total</b>				\$294,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$74,000	\$74,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$370,000	

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.



HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: SAL	DATE:	6/17/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: RCC	DATE:	9/19/2016	
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
Weinbach Booster Station Pump Replacement					2037-2046
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
Existing Pump Demolition	2	EA	\$ 40,000.00	\$ 80,000.00	
Vertical Turbine Pump	2	EA	\$ 100,000.00	\$ 200,000.00	
Miscellaneous Piping Replacement	1	LS	\$ 10,000.00	\$ 10,000.00	
Coatings	1	LS	\$ 10,000.00	\$ 10,000.00	
Instrumentation & Controls	1	LS	\$ 5,000.00	\$ 5,000.00	
Electrical	1	LS	\$ 10,000.00	\$ 10,000.00	
Sub-Total				\$315,000	
General conditions (2% of Construction Costs)	1	LS	\$7,000	\$7,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$10,000	\$10,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$16,000	\$16,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$10,000	\$10,000	
Subtotal				\$358,000	
Contingencies (30% of Construction Costs )	1	LS	\$108,000	\$108,000	
<b>Construction Sub-Total</b>				\$466,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$117,000	\$117,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$590,000	

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We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: SAL	DATE:	6/20/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: RCC	DATE:	9/19/2016	
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
Campground Reservoir Replacement					2027-2031
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
Site Piping	1	LS	\$ 300,000.00	\$ 300,000.00	
Site Work	1	LS	\$ 100,000.00	\$ 100,000.00	
Prestressed Concrete Storage Tank	2	EA	\$ 3,800,000.00	\$ 7,600,000.00	
Coatings	1	LS	\$ 60,000.00	\$ 60,000.00	
Instrumentation & Controls	1	LS	\$ 100,000.00	\$ 100,000.00	
Electrical	1	LS	\$ 200,000.00	\$ 200,000.00	
Sub-Total				\$8,360,000	
General conditions (2% of Construction Costs)	1	LS	\$168,000	\$168,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$251,000	\$251,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$418,000	\$418,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$251,000	\$251,000	
Subtotal				\$9,448,000	
Contingencies (30% of Construction Costs )	1	LS	\$2,835,000	\$2,835,000	
<b>Construction Sub-Total</b>				\$12,283,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$3,071,000	\$3,071,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				\$15,400,000	

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.

HNTB		PROJECT COST ESTIMATE			
PROJECT NO.: 66201-PL-001		PREPARED BY: SAL	DATE:	6/30/2016	
PROJECT NAME: EWSU WATER MASTER PLAN		CHECKED BY: RCC	DATE:	9/19/2016	
PROJECT MGR.: JAT		CHECKED BY:	DATE:		
<b>Killian Booster Station Replacement</b>					<b>2037-2046</b>
ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	REMARKS
<b>Construction Costs</b>					
Site Piping	1	LS	\$ 140,000.00	\$ 140,000.00	
Packaged Pump Station	1	LS	\$ 2,000,000.00	\$ 2,000,000.00	
Instrumentation & Controls	1	LS	\$ 10,000.00	\$ 10,000.00	
Electrical	1	LS	\$ 30,000.00	\$ 30,000.00	
Sub-Total				\$2,180,000	
General conditions (2% of Construction Costs)	1	LS	\$44,000	\$44,000	
Bonds & Insurance (3% of Construction Costs)	1	LS	\$66,000	\$66,000	
Mobilization / Demobilization (5% of Construction Costs)	1	LS	\$109,000	\$109,000	
Clean Up & Site Restoration (3% of Construction Costs)	1	LS	\$66,000	\$66,000	
Subtotal				\$2,465,000	
Contingencies (30% of Construction Costs )	1	LS	\$740,000	\$740,000	
<b>Construction Sub-Total</b>				\$3,205,000	
<b>Non-Construction Costs (25%)</b>	1	LS	\$802,000	\$802,000	
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$4,100,000</b>	

NOTE ! This estimate represents our judgment as professionals familiar with the construction industry.  
We cannot and do not guarantee that bids will not vary from this estimate.



# WATER MAIN REPLACEMENT SCOPING REPORTS

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## 2022 WATER RATE CASE



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December 2020  
Last Revision February 2021

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# WATER MAIN REPLACEMENT SCOPING REPORTS

## 1. Introduction

The Evansville Water & Sewer Utility (EWSU) retained HNTB Corporation to prioritize Refresh Evansville water main replacement projects for the 2022 Water Rate Case. HNTB Corporation was also requested to prioritize booster station improvement projects for the 2022 Water Rate Case. Proposed booster station projects are included in a separate report. Additionally, a separate water treatment plant rehabilitation/replacement evaluation is being completed by others for inclusion in the 2022 Water Rate Case.

### 1.1. Project Prioritization

HNTB updated the water main replacement scoring system utilized during the 2016 EWSU Water Master Plan and again for the 2019 Water Rate Case to determine the highest priority portions of the distribution system for replacement. The updated scoring system uses eight criteria to score each water main segment depicted in EWSU's geographic information system (GIS). Each criterion is broken down into a variable number of categories and each category was given a score ranging from one to five. The criteria along with the categories are described below and shown in **Table 1**. Each criterion was also given a weight, ranging from five to twenty in increments of five, depending on how important the criterion was for prioritizing replacement. The category scores and criteria weights were reviewed and updated with input from EWSU Engineering Services and Operations staff. The total weighted score for each water main segment was used to develop and prioritize replacement projects with the highest rated water main segments having a higher priority for replacement. The theoretical maximum score is 500 and a minimum score of 100.

All water mains in the distribution system were rated based on the following criteria:

- Historical Rate of Failure – the work orders for main failures from historic data and CityWorks data for the past 10 years was used to count the number of breaks for each main segment. The number of breaks were then normalized per 100 lineal feet of main.
- Expected Service Life Remaining – mains were ranked based upon their anticipated remaining service life per guidance from the American Water Works Association (AWWA) and the pipe age as shown in GIS.
- Operating Pressure – the hydraulic model results were used to assign an approximate operating pressure (in pounds per square inch (psi)) to each main segment.
- Soil Corrosivity – National Resources Conservation Service (NRCS) US Department of Agriculture soil survey data for expected risk for corrosion of steel was used to approximate the soil corrosivity. The corrosion risk rating from NRCS is based on the moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The premise being that more corrosive soils are more likely to damage mains, fittings, valves, hydrant branches, etc.
- Location – the physical location of the water mains was considered. For example, mains were scored differently depending on the type of road or highway under which it is installed, or if the main is located under a railroad or Pigeon Creek or another stream. If a main met the requirements of multiple location options, the higher scoring location option was used in ranking the main.



- Projected Demand Shortfall – the system demand shortfall if a main segment was out of service based on hydraulic model results.
- Available Fire Flow – categorized based upon the fire flow theoretically available based on hydraulic model results.
- Pipe Material – the water main’s material of construction.

ModelBuilder in ArcMap was used to assign the weighted scores to each segment of water main. GIS data from EWSU containing the existing water mains and attributes such as install date, material, and length was utilized along with data containing water main breaks, soil corrosion, pressure, demand shortfall, fire flow and location information.

Python was used to code the model to group this data into each category from the eight criteria, assign the appropriate score and then weight that score. For example, the model would sort through the material data and if the material was asbestos concrete, it would assign that pipe a score of 5, steel a score of 4, copper a score of 1, and so on for the rest of the materials. It would then multiply those scores by the material weight of 10 to get the weighted score. This was repeated for each category in each criterion for every segment. Once every criterion for every segment had a weighted score, the total score was calculated. Based on these scores, the water main segments that scored the highest were prioritized and grouped into logical capital projects adhering to typical EWSU project boundaries and sizes. Projects were created accounting for items such as replacing transmission lines independent of distribution lines, project lineal footages of ~1,500 feet or more, and best practices for setting up future projects.

**Table 1. Water Main Replacement Rating Criteria**

<i>Criteria</i>	<i>Categories for Scoring</i>	<i>Category Score</i>	<i>Criteria Weight</i>
<i>Likelihood of Failure Criteria</i>			
Historical Rate of Failure (breaks per 100 lineal feet)	>5	5	20
	3-5	4	
	1-2	2	
	<1	1	
Expected Service Life Remaining	<0	5	15
	0-5	4	
	5-10	3	
	10-20	2	
	>20	1	
Operating Pressure	>100 psi	5	10
	85-100 psi	4	
	70-85	3	
	55-70 psi	2	
	<55 psi	1	
Soil Corrosivity	High	5	5
	Moderate	3	
	Low	1	

<i>Criteria</i>	<i>Categories for Scoring</i>	<i>Category Score</i>	<i>Criteria Weight</i>
<i>Consequence of Failure Criteria</i>			
Location	US or State Highway	5	15
	Arterial & Collector Road	4	
	Local Road	1	
	Pigeon Creek	4	
	Other Stream	2	
	Railroad	3	
Projected Demand Shortfall	>1,000 gpm	5	15
	500-1,000 gpm	4	
	200-500 gpm	2	
	<200 gpm	1	
<i>Other Criteria</i>			
Available Fire Flow	>3,500 gpm	1	10
	1,500-3,500 gpm	2	
	1,000-1,500 gpm	4	
	<1,000 gpm	5	
Pipe Material	Asbestos Concrete	5	10
	Galvanized Steel	4	
	Steel	4	
	Unknown	3	
	Cast Iron	4	
	Concrete	2	
	Ductile Iron	2	
	PVC, PE, HDPE	1	
Copper	1		

## 1.2. Proposed Projects

High scoring main segments were grouped into projects based on location and scores of adjacent water mains. The proposed water main replacement projects are shown in **Figure 1** and listed in **Table 2**. For the projects identified, the maximum segment score was 370 and the average project score, weighted by length across all projects was 212.

Limits of the proposed projects were confirmed or revised based on input from EWSU Operations during a workshop held September 22, 2020. Additional comments from EWSU's Program Management Office, Operations group, Engineering Services group, and outside reviewers were also incorporated after a November 19, 2020 workshop. All proposed projects in **Table 2** total approximately 45 miles of water main replacement. These projects include the highest scoring projects and high scoring projects identified as priorities by EWSU Operations.

Historically, the goal for Refresh Evansville was to replace 15 miles of water main per year. Projects in **Table 2** were prepared in preparation for a 3-year rate case at this historic replacement rate. However, EWSU intends to file a 5-year rate case prioritizing capital investments for the water treatment plant

rehabilitation/replacement project during the 2022 Water Rate Case. As a result, it is expected that only a portion of these projects will move forward as part of the 2022 Water Rate Case. The specific projects moving forward will be identified closer to the rate case filing date.

### 1.3. Project Costs

Water main replacement project cost estimates were completed using the EWSU Cost Estimating Tool Scoping Report tab. The same standard pay items, non-standard pay items and lump sum pay items were used to determine the construction costs for each project. The tool generally uses average unit prices for standard pay items based on bids received from 2017 to 2020, however there were many standard pay items that lacked unit prices due to a lack of bid data. Unit prices for these pay items were estimated by HNTB based on RSMeans 2019 pricing data and similar pay items which had bid data. The Scoping Report tab in the tool includes a contingency percentage of 30% for construction costs. Non-construction costs include program management, design engineering, and construction engineering. Standard percentages of 3.0%, 10.0% and 9.6% were used for each, respectively. The sum of construction costs, contingency, and non-construction costs comprise the estimated total project capital cost for EWSU. The costs for each proposed project are shown in Table 2.

**Table 2. Proposed Water Main Replacement Projects**

<i>EWSU Project Number</i>	<i>Report Number</i>	<i>Project Name</i>	<i>Main Diameter (inches)</i>	<i>Total Linear Feet</i>	<i>Total Construction Cost</i>	<i>Total Non-Construction Cost</i>	<i>Total Capital Cost</i>
TBD	3	Cardinal Drive, Stringtown to North Kentucky	8	6,330	\$1,870,000	\$423,000	\$2,293,000
TBD	7	Franklin Street, Tekoppel to Schreeder	8	2,320	\$816,000	\$185,000	\$1,001,000
TBD	9	South Evergreen Acres Neighborhood	8	5,270	\$1,528,000	\$346,000	\$1,874,000
TBD	10	East Mill Road and Weaver Road	8	3,010	\$849,000	\$192,000	\$1,041,000
TBD	12	Poplar Grove Neighborhood, West of Addison	8	4,680	\$1,594,000	\$361,000	\$1,955,000
TBD	16	Mount Vernon Rd, Vanness Avenue to Harmony Way	8, 12, 16	9,630	\$3,366,000	\$761,000	\$4,127,000
TBD	17	Indiana Street, Illinois Street, and Franklin Street	8	3,210	\$1,095,000	\$248,000	\$1,343,000
TBD	18	Broadway Avenue Phase II	8, 12	11,800	\$4,584,000	\$1,037,000	\$5,621,000
TBD	19	North Ballard Neighborhood	8, 12	5,490	\$1,770,000	\$401,000	\$2,171,000
TBD	23	Mill Road, West of St Joseph	8	4,370	\$1,327,000	\$300,000	\$1,627,000

<i>EWSU Project Number</i>	<i>Report Number</i>	<i>Project Name</i>	<i>Main Diameter (inches)</i>	<i>Total Linear Feet</i>	<i>Total Construction Cost</i>	<i>Total Non- Construction Cost</i>	<i>Total Capital Cost</i>
TBD	24	Moffet Lane, Browning Road, and Viehe Drive	8	7,140	\$1,994,000	\$451,000	\$2,445,000
TBD	26	Downtown Area between Martin Luther King Jr Boulevard and Morton Avenue, North of Walnut	8, 12, 20	14,660	\$5914,000	\$1,337,000	\$7,251,000
TBD	27	Downtown Area between 2 <sup>nd</sup> Street and Martin Luther King Jr Boulevard, North of Main	8, 12, 20	13,010	\$4,542,000	\$1,027,000	\$5,569,000
TBD	28	Washington Avenue Phase I	8, 12	9,150	\$3,211,000	\$726,000	\$3,937,000
TBD	29	Southeast Jacobsville Neighborhood	8, 12, 16	23,430	\$7,394,000	\$1,672,000	\$9,066,000
TBD	30	Governor Street, Canal to Delaware	16	4,540	\$2,062,000	\$467,000	\$2,529,000
TBD	31	Reitz Hill Neighborhood	8	12,580	\$4,180,000	\$945,000	\$5,125,000
TBD	32	Howell Neighborhood	8	17,040	\$5,342,000	\$1,208,000	\$6,550,000
TBD	33	Downtown Area on 1 <sup>st</sup> and 2 <sup>nd</sup> Streets	8, 12	12,790	\$4,542,000	\$1,027,000	\$5,569,000
TBD	36	South Cedar Hall Neighborhood	8, 12	6,190	\$1,895,000	\$429,000	\$2,324,000
TBD	37	Central Cedar Hall Neighborhood	8, 12	18,360	\$5,888,000	\$1,331,000	\$7,219,000
TBD	38	North STAR Neighborhood	8, 24	15,890	\$5,742,000	\$1,298,000	\$7,040,000
TBD	39	Elliot Street and Morton Avenue	8, 12	9,550	\$3,046,000	\$689,000	\$3,735,000
TBD	41	Trinity Storm Water Park	8, 12, 20	4,670	\$2,668,000	\$393,000	\$3,061,000

In addition to the proposed projects in **Table 2**, some projects from the 2019 Water Rate Case will not have their design, construction, or both funded as bond and SRF loan funds from the rate case are depleted. Those projects are listed in **Table 3** and were provided to HNTB by American Structurepoint in September 2020. Rather than making these projects a priority over the projects in **Table 2**, the scores of these projects were updated and the projects were ranked for priority alongside the projects in **Table 2**.

Initially, the first four projects listed (U1071, U1019, U1062, and U1069) were intended to have their designs funded with 2019 Water Rate Case funding sources. Updated scoping reports for these four projects are included in this report to update their cost estimates to current costs. During the November 19, 2020 workshop, it was determined that only one of the four projects (U1071) would likely move

forward, however all four scoping reports were provided for flexibility. The next four projects listed rank near the bottom of the priority list so it was assumed that they will not move forward, and updated scoping reports were not prepared.

**Table 3. Water Main Replacement Projects from 2019 Water Rate Case**

<i>EWSU Project Number</i>	<i>Project Name</i>	<i>Main Diameter (inches)</i>	<i>Total Linear Feet</i>	<i>Total Construction Cost</i>	<i>Total Non-Construction Cost</i>	<i>Total Capital Cost</i>
U1071	Charlotte Avenue and Russell Avenue	8, 12	2,910	\$931,000	\$90,000	\$1,021,000
U1019	Franklin Avenue and Illinois Avenue, East of Pigeon Creek	8, 12, 20	4,410	\$2,837,000	\$273,000	\$3,110,000
U1062	Ohio Street, Pigeon Creek to St Joseph	12	5,270	\$1,615,000	\$156,000	\$1,771,000
U1069	Speaker Road, James Avenue and Nolan Avenue	8	2,970	\$833,000	\$80,000	\$913,000
U1060	Tupman Road, North of Upper Mt. Vernon Road	8	2,000	--	--	--
TBD	New York Avenue, Bayse to Riverside	8	2,100	--	--	--
U1029	Stanley Avenue, Governor to East of Kerth	8	5,600	--	--	--
TBD	Gayne Street, West of Vanness	8	450	--	--	--

In addition to the water main replacements in **Tables 2 and 3**, EWSU may be required to relocate water mains to avoid conflicts with road projects. At this time, there are five known road projects that may require relocation of some or all of the water mains within the project limits. EWSU will also include an annual reservation for unknown road projects in the 2022 Water Rate Case. The annual reservation is based on historical spending for road relocations from 2017 to 2021. The known road projects and annual reservation costs are summarized in **Table 4**. Scoping reports were prepared for each of the known road construction projects with the assumption that all water mains within the project limits require relocation. The relocation of all water mains within the project limits for these five projects totals approximately 8 miles, however the exact relocations will not be known until utility coordination efforts have started.

**Table 4. Annual Road Project Budgets**

<i>EWSU Project Number</i>	<i>Project Name</i>	<i>Main Diameter (inches)</i>	<i>Total Linear Feet</i>	<i>Total Construction Cost</i>	<i>Total Non-Construction Cost</i>	<i>Total Capital Cost</i>
TBD	Walnut Phase 3, MLK To US 41 Roadwork Water Main Relocation	8, 24	4,270	\$1,620,000	\$367,000	\$1,987,000
TBD	Lloyd Expressway, Rosenberger To Epworth INDOT Roadwork Water Main Relocation	8, 12, 20, 24	17,110	\$13,011,000	\$2,941,000	\$15,952,000

<i>EWSU Project Number</i>	<i>Project Name</i>	<i>Main Diameter (inches)</i>	<i>Total Linear Feet</i>	<i>Total Construction Cost</i>	<i>Total Non- Construction Cost</i>	<i>Total Capital Cost</i>
TBD	Oak Hill Road, Eastwood To Millersburg Vanderburgh County Roadwork Water Main Relocation	8, 12	5,320	\$1,608,000	\$364,000	\$1,972,000
U1110	Booneville New Harmony, Petersburg To SR 57 Vanderburgh County Roadwork Water Main Relocation	12	6,660	\$2,170,000	\$491,000	\$2,661,000
U1131	Oak Hill Road, Lynch to Saint George Vanderburgh County Roadwork Water Main Relocation	8, 12	6,080	\$1,822,000	\$412,000	\$2,234,000
TBD	2022 Annual Road Projects	TBD	TBD	--	--	\$3,000,000 <sup>1</sup>
TBD	2023 Annual Road Projects	TBD	TBD	--	--	\$3,000,000 <sup>1</sup>
TBD	2024 Annual Road Projects	TBD	TBD	--	--	\$3,000,000 <sup>1</sup>
TBD	2025 Annual Road Projects	TBD	TBD	--	--	\$3,000,000 <sup>1</sup>
TBD	2026 Annual Road Projects	TBD	TBD	--	--	\$3,000,000 <sup>1</sup>

<sup>1</sup> Costs provided by EWSU



## 2. Hydraulic Modeling

The available fire flow and static pressure within the project limits and surrounding areas were evaluated for each project using the WaterGEMS distribution system model under maximum day demands of 26.7 million gallons per day (MGD) based upon 2019 data. One or two alternatives for replacement main diameter were evaluated for each proposed replacement project. Pressure zone boundary changes were also evaluated for select projects for EWSU consideration.

Prior to modeling the proposed projects, the distribution system model was updated to include projects that are planned to be complete prior to the start of any 2022 Rate Case Projects. The water mains within the project limits were updated to reflect the planned or design diameters and materials as well as the Hazen-Williams C-factor (roughness) of recently installed water mains. The projects that were updated are shown in **Table 5**. The status listed was the project status as of September 2020.

**Table 5. Proposed Water Main Replacement Projects**

<i>EWSU Project Number</i>	<i>Project Name</i>	<i>Status</i>
U1030	Allens Lane - Phase I	Design
U1086	Bartels Drive, South of Evergreen Road	Design
U1059	Bellaire Road, Oak Hill to Weinbach	Design
W11101	Broadway, Red Bank to Schutte & Frey Road	Close Out
U1026	Claremont, Bosse, and Craig Avenues	Design
U1050	Columbia - Phase I & Fares, Columbia to Morgan	Construction
U11109	Covert Avenue, Hawthorne to Vann	Construction
U1042	Covert Avenue, Phase 2 and Wedge Avenue	Construction
U1018	Dexter and Jackson	Construction
W11114	Eichel Avenue, Fares to HWY 41	Close Out
U1143	Evans St and Louisiana	Design
U1027	Fendrich Neighborhood	Design
U1003	First Avenue, Morgan to Booster Station	Construction
U1070	Grove Street, South of Allens Lane	Design
W11109	Harmony Way and Franklin Heights Neighborhood	Design
W11110	Hogue Road, Red Bank Road west	Design
U1020	Inglefield Road, Darmstadt Road to HWY 41	Planning
U1018	Jackson and Dexter Avenues	Construction
U1017	Kansas Road, Relocation & Extension Phase 1	Construction
U1017	Kansas Road, Relocation & Extension Phase 2	Design
U1130	North Kerth Avenue, St. George to Christ	Design
U1073	Lincoln Booster Station	Planning
U1068	Maryland Street, New Harmony Way to Wessel Lane	Design
TBD	Mesker Park - Phase I	Planning
U1072	Morgan Avenue, Fares to Heidelbach	Design



<i>EWSU Project Number</i>	<i>Project Name</i>	<i>Status</i>
U1087	Southeast Side Neighborhood	Design
W11111	New Harmony Road, Allens Lane to Harmony Way	Design
U1131	Oak Hill Road Relocation	Design
U1142	Peerless Road, Upper Mt. Vernon to Moye	Design
U1054	Rosewood Drive, Weaver to Herrmann	Design
U1056	Schmitt Lane, Whetstone and Bexley Roads	Construction
U1057	Schroeder Road, HWY 41 to Volkman Tank	Design
TBD	Schutte Road, Broadway to USI Tank	Planning
U1023	Senate Avenue, Petersburg to Kentucky	Design
TBD	Sonntag Avenue, north of Maryland St	Planning
W10961	Stringtown Road	Complete
W11120	Sweetser Rotherwood Area	Construction
U1025	Upper Mount Vernon - Phase 1, Red Bank and New Harmony Road	Design
U1028	US 41 and Lynch	Design
TBD	Waggoner Avenue	Planning
W11023	Walcott Street	Complete
U1052	Wall Street, Linwood to Evans	Planning
U1043	Walnut Street Phase 1	Construction
U1044	Walnut Street Phase 2	Design

### 3. Environmental Assessments

A preliminary environmental assessment was performed for each proposed project included in Table 2. The preliminary environmental assessment was completed and consisted of a desktop review of relevant layers from IndianaMap and Indiana Department of Transportation (INDOT) Geographical Information Office (GIO) Library to identify sites that may be of concern within one-half mile of the proposed project limits. Maps showing the approximate project limits, one-half mile radii, and sites of potential concern are included in the individual scoping reports. A listing of sites that require additional investigation during the Preliminary Engineering Report phase will be compiled for each project, as applicable.

#### 3.1. Results

Most of the projects have sites of known contamination within one-half mile of the project limits, but about half of the projects are expected to be unaffected by those sites. Many of the proposed projects are within the Jacobsville Superfund Site boundary, though it is unlikely that will impact the projects. Many water main replacement projects have been built in recent years were within the boundary and were unaffected including Washington Avenue and SE Second Street, North Main Street, and Stringtown Road. Most of sites that are adjacent to projects limits are known leaking underground storage tanks or brownfields.

In order to account for additional costs associated with potential contamination along the project corridors, an environmental remediation contingency was included within the project scoping report cost estimates for projects immediately adjacent to known contaminated sites. An evaluation of several representative projects determined that a 5% environmental remediation contingency was appropriate at this stage of project planning.

The 5% environmental remediation contingency was determined through the development of remediation line items for each main size taking into account FKM (Viton) gaskets, ductile iron pipe, and V-Bio polyethylene wrap. The disposal of existing backfill and new backfill were not included in the contingency as these items are only needed in severe remediation circumstances. Without project specific geotechnical information including these items would inappropriately increase the contingencies. The remediation line items are shown in **Table 6**. These remediation line items by size were then applied to several projects with a wide range of lengths and number of known contaminated sites. On the representative projects, the environmental remediation costs accounted for approximately 2% to 9% of project costs. The majority of evaluated projects fell within the lower end of this range. As the full extent of necessary remediation is unknown until field conditions are determined, a 5% environmental remediation contingency was applied in all applicable cases.

**Table 6. Environmental Remediation Line Items**

<i>Main Size (Inches)</i>	<i>Total</i>
4	\$16,100
8	\$13,200
12	\$19,900
16	\$2,200
20	\$2,700
24	\$3,100
Assumptions: - 5.5-foot-deep trench - 5-foot-wide trench - 200 feet of main affected by each contamination site - Pipe joints every 20 feet - Main sizes 4", 8", and 12" replace PVC with DI - Main sizes 16" and larger already DI	

CARDINAL DRIVE,  
STRINGTOWN TO  
KENTUCKY WATER  
MAIN REPLACEMENT  
SCOPING REPORT

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2022 WATER RATE CASE



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December 2020  
Last Revision January 2021

PREPARED FOR

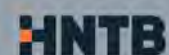
**Evansville Water & Sewer Utility**

1 SE 9<sup>th</sup> Street  
Suite 200  
Evansville, IN 47708  
Phone: (812) 421-2120  
Contact: Michael Labitkze, P.E.

PREPARED BY

**HNTB Corporation**

111 Monument Circle  
Suite 1200  
Indianapolis, IN 46204  
Phone: (317) 636-4682  
Contact: Jason Hoff, P.E.



# CARDINAL DRIVE, STRINGTOWN TO KENTUCKY WATER MAIN REPLACEMENT SCOPING REPORT

## 1. Project Summary

The proposed Cardinal Drive, Stringtown to Kentucky Water Main Replacement Project includes the replacement of approximately 6,330 feet of water main. The project is expected to include approximately eight (8) fire hydrants, twelve (12) gate valves, and 108 service connections. Approximately 6,380 feet of existing water main will be abandoned and filled with grout.

### 1.1. Project Limits

The project scope includes replacement of existing water mains along Cardinal Drive between Stringtown Road to N Kentucky Avenue, Idlewild Drive between N Bedford Avenue and N Kentucky Avenue, Tulip Avenue between N Evans Avenue and N Kentucky Avenue, N Bedford Avenue between Cardinal Drive and Tulip Avenue and N Kentucky Avenue between Idlewild Drive and E Olmstead Avenue. The proposed project and potential alignment for proposed water mains are shown in **Figure 1**. Actual horizontal and vertical alignment will be determined during final design based on surveyed locations of existing utilities in the project area.

### 1.2. Project Drivers

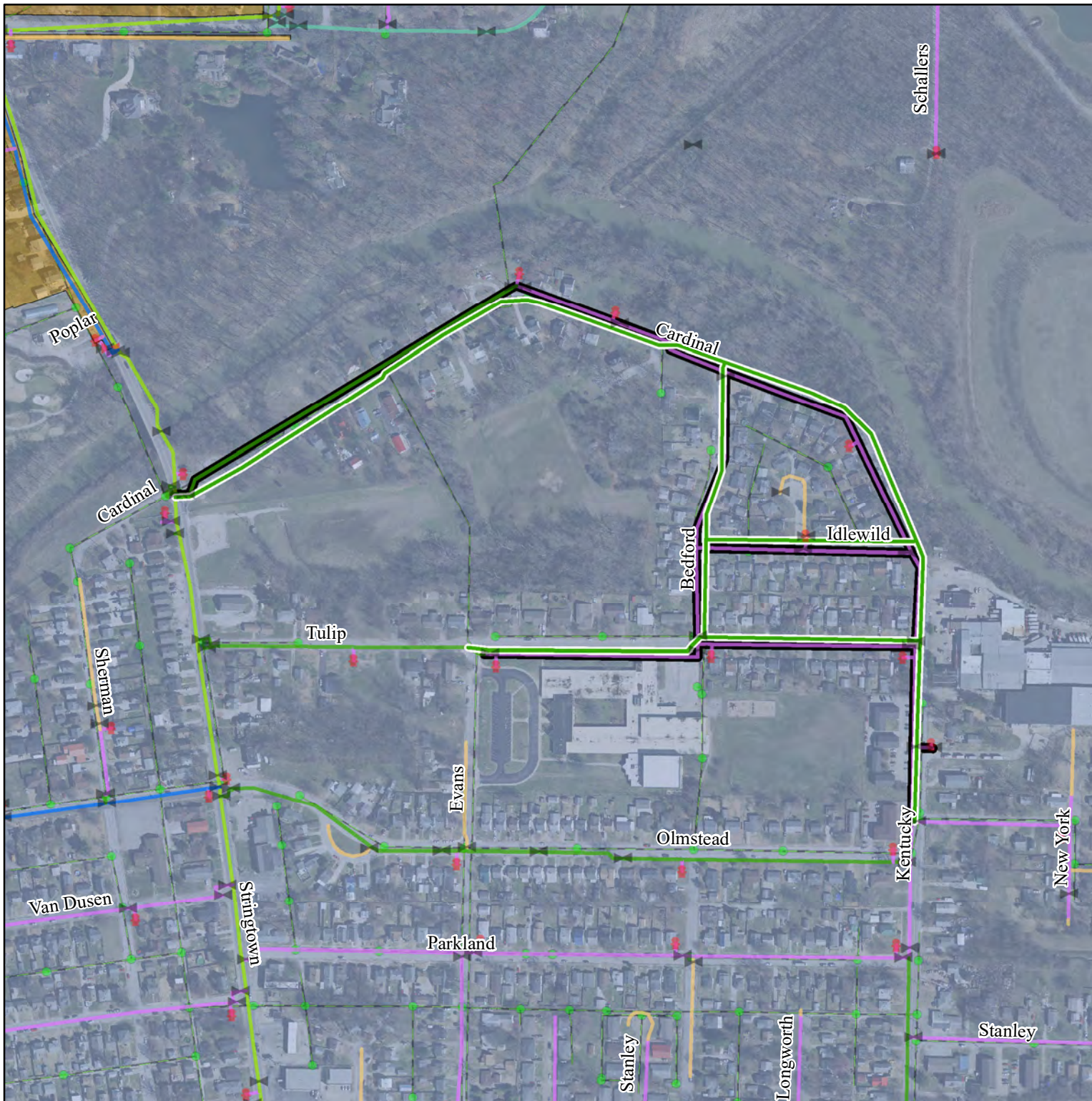
The existing water mains within the proposed project limits have replacement prioritization scores ranging from 130 to 270. The average score weighted by length for the existing water mains is 203.

This project had a high replacement rating due to a high likelihood of failure criteria score from this project's high historical rate of failure. Pipe material also contributed to this project's high score.

### 1.3. Project Cost

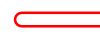
The total capital cost estimate for the project is \$2,293,000. This includes \$1,870,000 construction costs and \$423,000 non-construction costs. The project costs were estimated using the EWSU Cost Estimating Tool Scoping Report tab. The cost estimate is included at the end of the scoping report.


**Figure 1**  
**Report No. 3**  
**Cardinal Drive, Stringtown to**  
**to Kentucky**



**Legend**

**Proposed Project**

 Trenchless Installation


 Main to be Abandoned


 Proposed Main

**Water Infrastructure**

 Hydrants

**Valves**

 System Isolation



 System Separation

**Mains**

 <6"  20"

 6"  24"

 8"  30"

 10"  36"

 12"  48"

 16"  Private

**Pressure Zones**

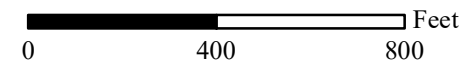
 Central  Lincoln

 Killian  Northern

**Sanitary Infrastructure**

 Manholes  Sewer

 N  
 Print Date: December 2020

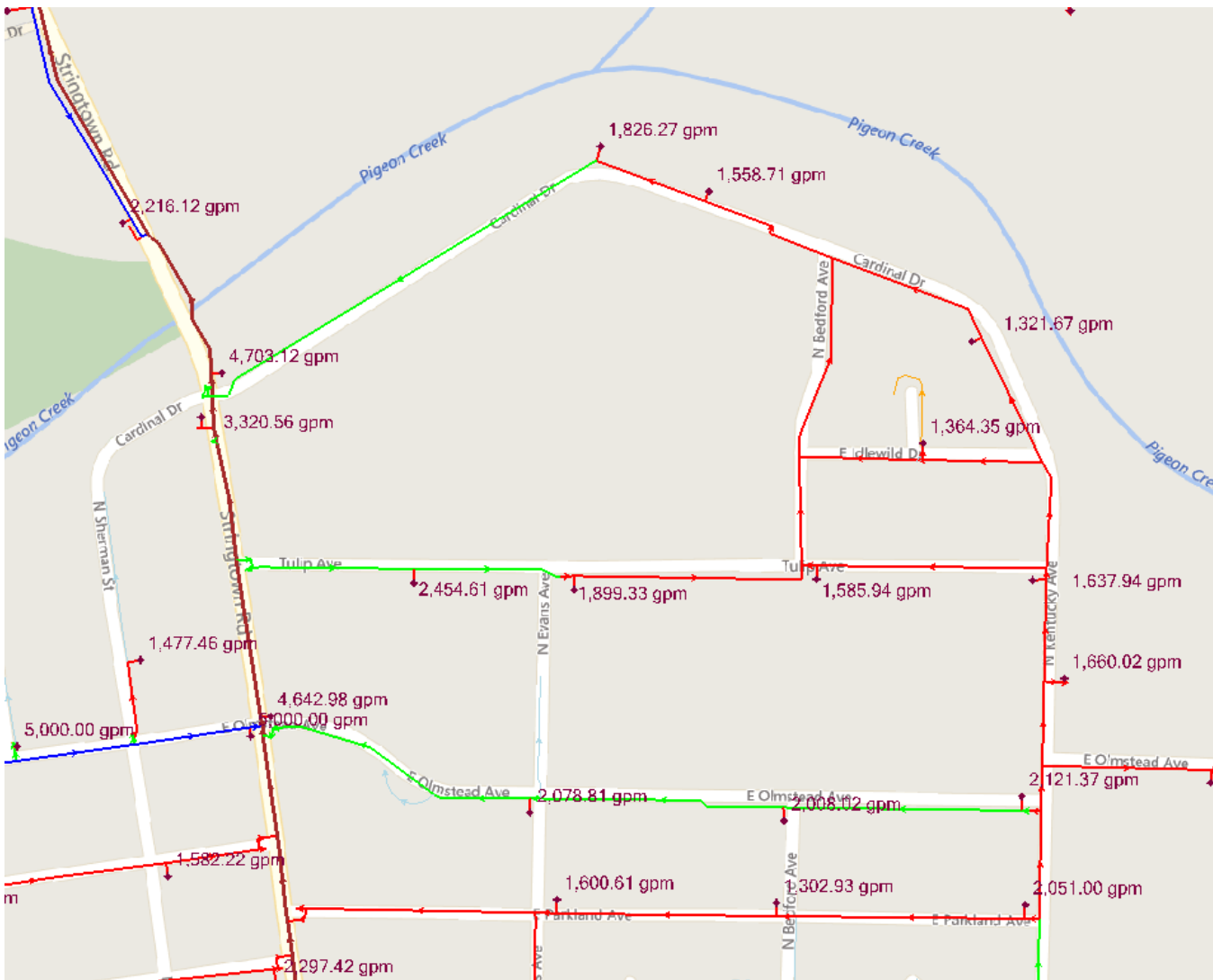
 0 400 800 Feet

## 2. Hydraulic Modeling

The available fire flow within the project limits and surrounding areas were evaluated using the WaterGEMS distribution system model under maximum day demands of 26.7 million gallons per day (MGD) based upon 2019 data. One (1) alternative was evaluated for replacement. Alternative 1 includes replacement with all 8-inch diameter water main in the project limits.

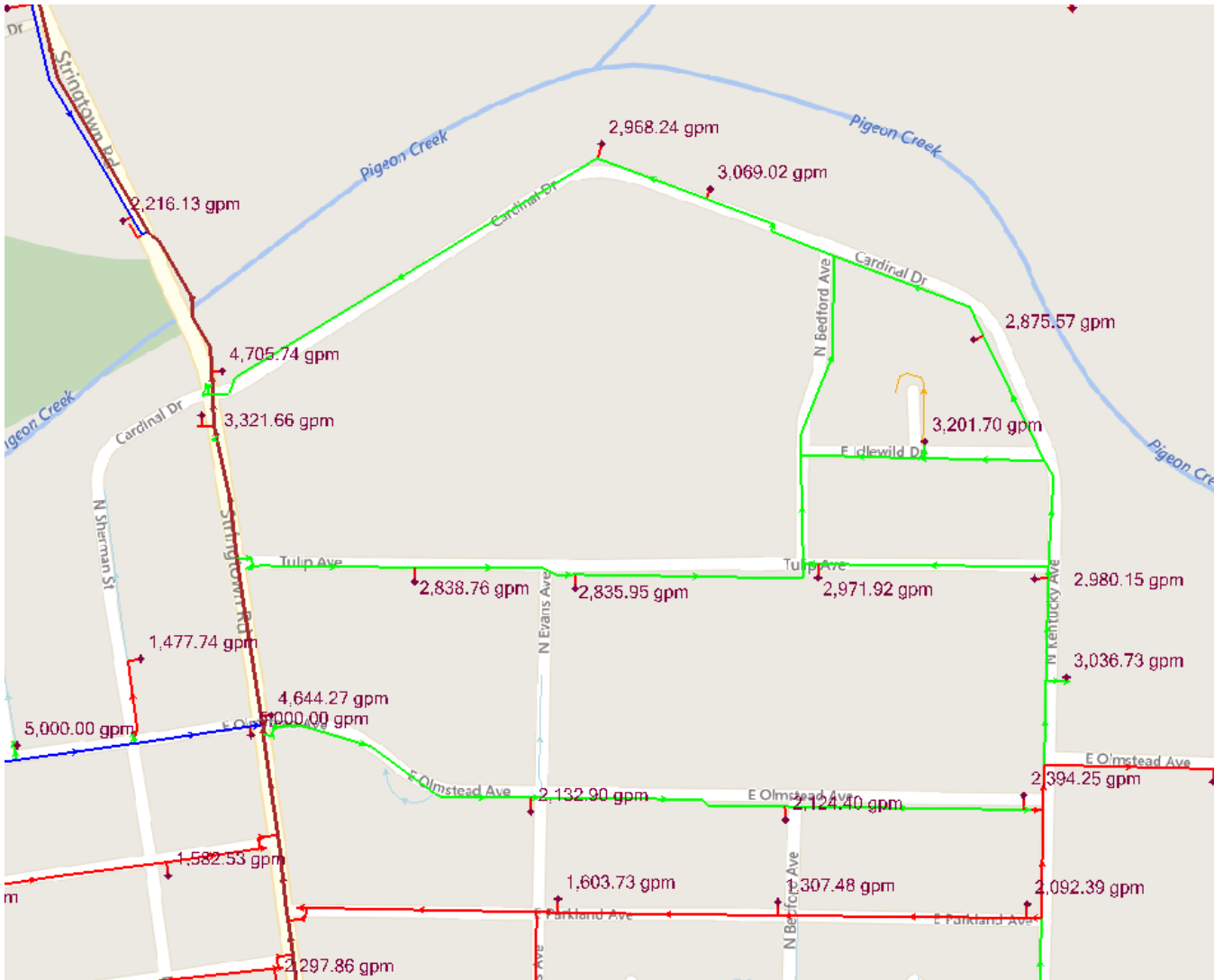
### 2.1. Results

The existing available fire flow in the project limits are shown in **Figure 2**. The available fire flow in the project limits for Alternative 1 are shown in **Figure 3**.



**Figure 2. Existing Available Fire Flow**

**CARDINAL DRIVE, STRINGTOWN TO KENTUCKY WATER MAIN REPLACEMENT SCOPING REPORT**



**Figure 3. Alternative 1 Available Fire Flow**

**2.1. Conclusion**

The project area is primarily residential, so the required fire flow is expected to be approximately 1,500 gallons per minute. Alternative 1 provides the required fire flow, therefore Alternative 1 was selective to provide the required fire flow in the project area.

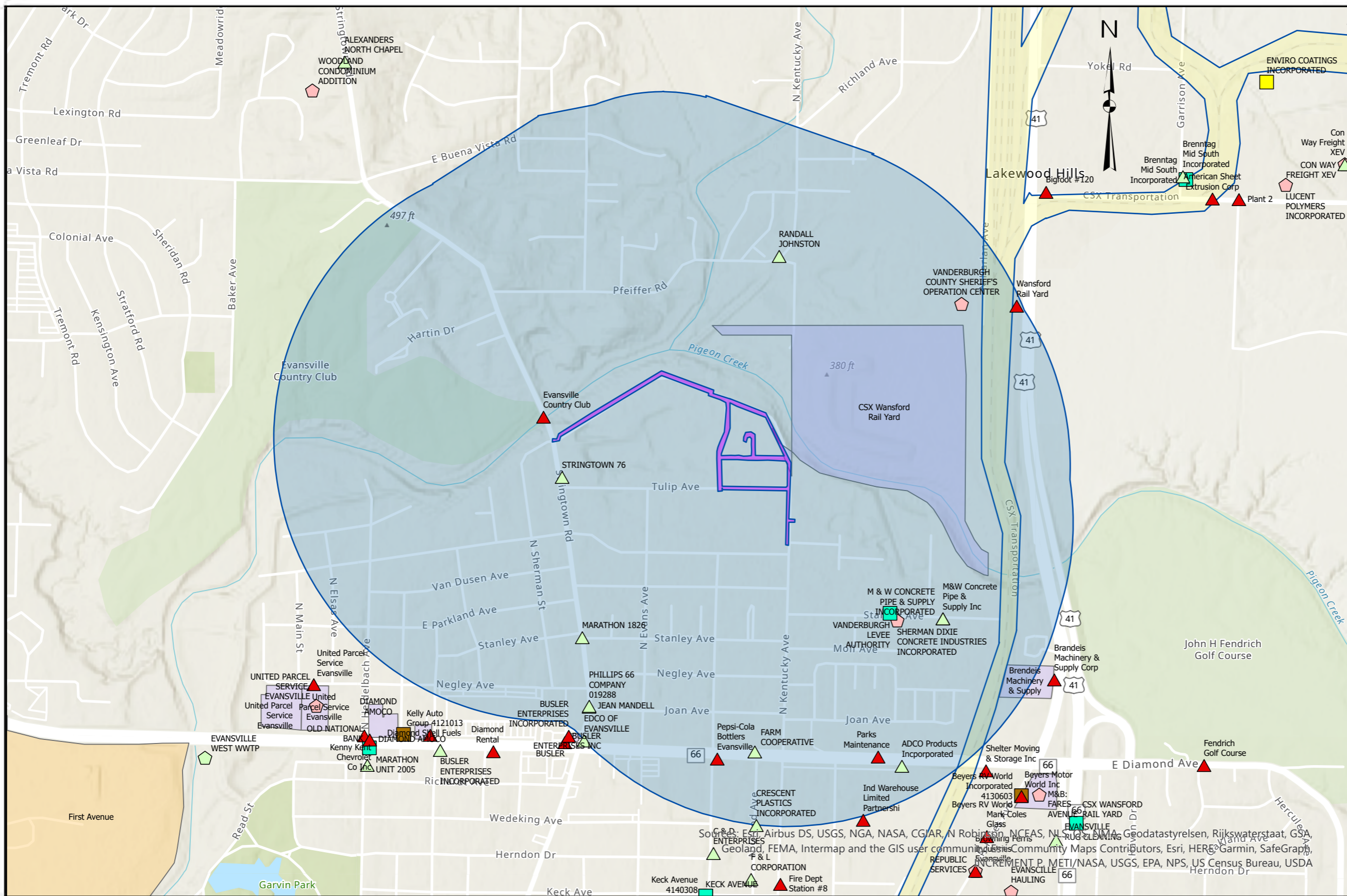
**3. Environmental Assessment**

A preliminary environmental assessment was performed within the project limits and surrounding area using IndianaMap and Indiana Department of Transportation (INDOT) Geographical Information Office (GIO) Library to identify sites that may be of concern within one-half mile of the proposed project limits. The assessment of the project limits and surrounding area identified nine (9) potential contaminated sites and five (5) known contaminated sites as shown in **Figure 4**.

### 3.1. Site Specific Concerns

The preliminary environmental assessment identified zero (0) known contaminated sites with close proximity to the project.





**LEGEND**

**KNOWN CONTAMINATED SITES**

- BROWNFIELD SITE
- CLEANUP SITE
- CONFINED FEEDING OPERATION
- SUPERFUND SITE
- LEAKING UNDERGROUND STORAGE TANK SITE
- VOLUNTARY REMEDIATION PROGRAM SITE
- INSTITUTIONAL CONTROL SITE
- JACOBVILLE SUPERFUND SITE BOUNDARY
- WASTE COAL COMBUSTION IMPOUNDMENT

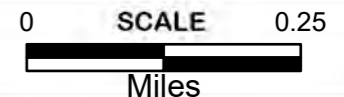
**POTENTIAL CONTAMINATED SITES**

- ELECTRONIC RECYCLING FACILITY
- MANUFACTURED GAS PLANT
- NPDES FACILITY
- NPDES PIPE LOCATION
- SEPTAGE WASTE SITE
- SOLID WASTE DISPOSAL/PROCESSING FACILITY
- UNDERGROUND STORAGE TANK SITE
- WASTE TIRE SITE
- RAILROAD
- SOLID WASTE LANDFILL

**PROJECT INFORMATION**

- HALF MILE RADIUS
- PROPOSED PROJECT LIMITS

**Figure 4**



**TITLE:** Cardinal Drive Hazardous Materials Concerns

**LOCATION:** Cardinal Drive,  
Stringtown Road to N. Kentucky Avenue,  
Evansville, IN  
X: 87.5484439  
Y: 38.0081907

**PREPARED FOR:**  
EVANSVILLE WATER & SEWER  
DEPARTMENT  
REFRESH PROGRAM  
1 NW MARTIN LUTHER KING JR BLVD  
EVANSVILLE, INDIANA 47708

**DELIVERED TO:**  
HNTB CORPORATION  
111 MONUMENT CIRCLE,  
SUITE 1200  
INDIANAPOLIS, INDIANA 46204



**MAIN OFFICE:**  
4209 HIGHWAY 41 NORTH, SUITE 24, EVANSVILLE, INDIANA 47711  
**INDIANAPOLIS OFFICE:**  
6745 S GRAY ROAD, SUITE I, INDIANAPOLIS, IN 46237

**CRANE PROJECT NO.120-0108H**

**DATE: 11/6/2020**



# Scoping Report

## Project Capital Cost Estimate

Cardinal Drive, Stringtown to Kentucky Water Main Replacement  
Report #: 3

### CONSTRUCTION COSTS

ITEM ID	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
<b>STANDARD PAY ITEMS</b>					
1083	8" PVC C900 PIPE	6,330	LF	\$86.00	\$544,380.00
1026	8" MJ GATE VALVE	12	EA	\$1,645.00	\$19,740.00
1013	8" MJ 45° BEND	44	EA	\$441.00	\$19,404.00
1036	8" MJ TEE	6	EA	\$679.00	\$4,074.00
1119	FIRE HYDRANT ASSEMBLY WITH GATE VALVE	8	EA	\$5,814.00	\$46,512.00
1132	3/4"-1" WATER SERVICE RELOCATION, OPEN CUT	108	EA	\$1,682.00	\$181,656.00
7006	20" Tapping Sleeve & 8" Tapping Valve	1	LS	\$9,145.00	\$9,145.00
6004	Proposed 8" to Existing 8" Connection	1	LS	\$7,122.00	\$7,122.00
6003	Proposed 8" to Existing 6" Connection	1	LS	\$6,308.00	\$6,308.00
6002	Proposed 8" to Existing 4" Connection	1	LS	\$5,964.00	\$5,964.00
5006	ABANDON AND GROUT FILL EXISTING MAIN	6,380	LF	\$10.00	\$63,800.00
5007	COMPACTED AGGREGATE, NO. 53S	6,330	LF	\$9.00	\$56,970.00
5021	HOT MIX ASPHALT BASE	6,330	LF	\$28.00	\$177,240.00
5023	HOT MIX ASPHALT SURFACE	6,330	LF	\$12.00	\$75,960.00
<b>NON-STANDARD PAY ITEMS</b>					
--					
--					
--					
<b>STANDARD LUMP SUM PAY ITEMS</b>					
DESCRIPTION	QUANTITY	UNIT	%	TOTAL PRICE	
Mobilization & Demobilization (4% - 5%)	1	LS	5.0%	\$61,000.00	
Construction Engineering (2% - 3%)	1	LS	3.0%	\$36,600.00	
Clearing & Grubbing (0.5% - 1.5%)	1	LS	1.0%	\$12,200.00	
Erosion Control Devices (1% - 2%)	1	LS	2.0%	\$24,400.00	
Maintenance of Traffic (3% - 4%)	1	LS	4.0%	\$48,800.00	
Restoration, Grading, and Seeding (2% - 3%)	1	LS	3.0%	\$36,600.00	

CONSTRUCTION COST SUBTOTAL = \$1,437,875.00

CONTINGENCY (30%) = \$431,400.00

TOTAL ESTIMATED CONSTRUCTION COST, SCOPING REPORT = **\$1,870,000.00**

### NON-CONSTRUCTION COSTS

DESCRIPTION	QUANTITY	UNIT	%	TOTAL PRICE
Engineering Program Management Fees (estimated)	1	LS	3.0%	\$56,100.00
Engineering Design Fees (estimated)	1	LS	10.0%	\$187,000.00
Engineering Construction Engineering Fees (estimated)	1	LS	9.6%	\$179,600.00

NON-CONSTRUCTION COST SUBTOTAL = \$423,000.00

TOTAL ESTIMATED CAPITAL COST, SCOPING REPORT = \$2,293,000.00

FRANKLIN STREET,  
TEKOPPEL TO  
SCHREEDER WATER  
MAIN REPLACEMENT  
SCOPING REPORT

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2022 WATER RATE CASE



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December 2020  
Last Revision January 2021

PREPARED FOR

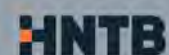
**Evansville Water & Sewer Utility**

1 SE 9<sup>th</sup> Street  
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Evansville, IN 47708  
Phone: (812) 421-2120  
Contact: Michael Labitkze, P.E.

PREPARED BY

**HNTB Corporation**

111 Monument Circle  
Suite 1200  
Indianapolis, IN 46204  
Phone: (317) 636-4682  
Contact: Jason Hoff, P.E.



# FRANKLIN STREET, TEKOPPEL TO SCHREEDER WATER MAIN REPLACEMENT SCOPING REPORT

## 1. Project Summary

The proposed Franklin Street, Tekoppel To Schreeder Water Main Replacement Project includes the replacement of approximately 2,320 feet of water main. The project is expected to include approximately three (3) fire hydrants, two (2) gate valves, two (2) automatic flushing device, and thirty-five (35) service connections. Approximately 2,310 feet of existing water main will be abandoned and filled with grout.

### 1.1. Project Limits

The project scope includes replacement of existing water mains along Franklin Street between N Tekoppel Avenue and Schreeder Avenue. The proposed project and potential alignment for proposed water mains are shown in **Figure 1**. A pressure zone boundary change was also considered as part of the project and is also shown in **Figure 1**. Actual horizontal and vertical alignment will be determined during final design based on surveyed locations of existing utilities in the project area.

### 1.2. Project Drivers

The existing water mains within the proposed project limits have replacement prioritization scores ranging from 175 to 275. The average score weighted by length for the existing water mains is 222.

This project had a high replacement rating due to a high likelihood of failure criteria score from this project's high historical rate of failure, short service life remaining, and high operating pressure. Pipe material also contributed to this project's high score.

### 1.3. Project Cost

The total capital cost estimate for the project is \$1,001,000. This includes \$816,000 construction costs and \$185,000 non-construction costs. The project costs were estimated using the EWSU Cost Estimating Tool Scoping Report tab. The cost estimate is included at the end of the scoping report.