WORK SESSION AGENDA

NOTICE IS HEREBY GIVEN THAT THE CENTERVILLE CITY COUNCIL WILL HOLD ITS WORK SESSION MEETING AT 5:30 PM ON MARCH 4, 2025 AT CENTERVILLE CITY HALL, 250 NORTH MAIN STREET, CENTERVILLE, UTAH.

Centerville City Council meetings are open to the public, unless otherwise closed for reasons allowed by law. Centerville City Council meetings may be conducted via electronic means pursuant to Utah Code § 52-4-207. In compliance with the Americans with Disabilities Act, individuals needing special accommodations due to a disability may contact the City Recorder at (801) 295-3477, at least 24 hours in advance of the meeting. The Mayor and Council reserve the right to modify the sequence of agenda items in order to facilitate special needs or provide greater efficiency.

The full agenda packet and backup materials can be found on the Centerville City website at:
https://centervilleutah.gov/129/Agendas-Minutes

A. ROLL CALL

B. BUSINESS ITEMS
Business action or discussion items to be considered.

1. Drainage Audit Discussion
   Presentation on the Drainage Audit Process

C. ADJOURNMENT

CERTIFICATE OF POSTING

I hereby certify that this notice and agenda was posted at Centerville City Hall, published on the Utah Public Notice Website, and provided to a newspaper or media correspondent in accordance with the requirements of the Utah Open and Public Meetings Act, including, but not limited to, provisions of Utah Code § 52-4-202.

Jennifer Robison
Centerville City Recorder

CITY COUNCIL

Staff Report

3/4/2025

Item No. 1.
Title: Drainage Audit Discussion
Initiated By:
Staff Representative: Nate Plaizier, Finance Director

SUBJECT:

Presentation on the Drainage Audit Process

RECOMMENDATION:

BACKGROUND:

Last year, staff completed a comprehensive audit of the drainage utility fees for all commercial and non-single family residential utility accounts. As part of this audit, the City reviewed billing codes, impervious surface, and other relevant factors to determine the accuracy of drainage utility fees being charged. They identified many utility accounts and parcels within the City that were not paying the correct drainage utility fees. Staff has made the corrections, and the updated drainage utility fee rates were reflected on the utility bills.

The audit results also indicated necessary changes to the subsurface drainage utility fees. Staff has made the corrections to the subsurface drainage utility fee, which was also reflected on the utility bills.

In addition to correcting the drainage utility fees, City Council gave Staff direction to recover the storm drainage utility fees that should have been billed to the customer's property. The applicable statute of limitations for recovery of these funds is up to four years depending on the date the property changed or billing error occurred. City Council approved three different options for payment for these recovery amounts:

1. If the entire delinquent amount is paid in full, the customer may receive a 15% discount off the amount due.
2. If the delinquent amount is paid off over a period of 12 months, the customer may receive a 10% discount off the amount due.
3. If the customer's circumstances require more repayment time, we can work out a time frame for repayment. This option will not be charged a finance fee.

Letters were mailed to each customer impacted by the changes to the drainage utility fee. These letters varied slightly, based on whether the change was due to updated measurements of impervious surface, billing errors, or changes to the amount of impervious surface on the property. Also provided with the letter was an FAQ sheet.

ATTACHMENTS:

1. Centerville City - SD Capital Facilities Plan_2023

2. Drainage Audit Presentation
3. Rick Bangerter Letter to the City

CENTERVILLE CITY – STORM DRAIN & SUBDRAIN CAPITAL FACILITIES PLAN

August 2023

Prepared by: ESI Engineering, Inc. - Kevin Campbell, PE
Centerville City Engineer

Kyle Kump, EIT

Brian Naylor, EIT

Preston Brown, Designer

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF EXHIBITS

LIST OF APPENDICES

LIST OF ACRONYMS AND ABBREVIATIONS

Ac-ft	acre-feet
cfs	cubic feet per second
CN	curve number
ERU	Equivalent Residential Unit
GOMB	Governor's Office of Management and Budget
LID	Low Impact Development
LOS	Level of Service
MS4s	Municipal Separate Storm Sewer Systems
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
O&M	Operation and Maintenance
PVC	Polyvinyl Chloride
RCP	Reinforced Concrete Pipe
SCS	Soil Conservation Service
s.f.	square feet
sq. mi.	square miles
SWMP	Stormwater Management Plan
UAC	Utah Administrative Code
USDA	United States Department of Agriculture

1.0 EXECUTIVE SUMMARY

A Capital Facilities Plan is a planning document that presents suggestions for system growth as development proceeds and summarizes the results of system analyses. The Capital Facilities Plan (Plan) analyzes current issues and flaws in the system and provides cost estimates for fixing them. Additionally, the effects of growth are taken into account when recommending effective system expansion or enhancement to meet future demands.

Modeling was used to assess the storm drain system of Centerville City for transmission capacity, storage capacity, and overall system efficiency. This approach allowed for the identification of numerous necessary stormwater projects within the current system to address any shortcomings. The projected expansion of the flood area will call for upgraded transmission systems and more storage space.

A full list of recommended projects is found in Section 5 of this Plan. This list of projects is a summary of deficiencies and potential problems in the existing storm drain system and future deficiencies based on projected growth and development. The project list also includes replacement projects for aging infrastructure.

Project costs were separated into three funding categories for projects that are needed to resolve existing deficiencies and/or storm drain issues and for projects that serve large regions of Centerville City which accommodate demands imposed by future development. The costs for the projects will be funded by Centerville City with some projects having funding contributions from Davis County or from the Developer of the project. Below is a cost breakdown of these costs as described above for the City's Storm Drain Projects (Table 1.1) and Subdrain Projects (Table 1.2):

Table 1.1 – Storm Drain Projects Cost Summary

Cost Breakdown			
Estimated Total Storm Drain Project Costs	Centerville City Cost	Davis County Cost	Developer's Cost
$30,156,546	$26,533,280	$3,623,266	$0

Table 1.2 – Subdrain Projects Cost Summary

Cost Breakdown			
Estimated Total Sub-Drain Project Costs	Centerville City Cost	Davis County Cost	Developer's Cost
$8,308,684	$8,308,684	$0	$0

2.0 INTRODUCTION

2.1 City Characteristics

Centerville City, Utah is located in south Davis County. Centerville City (City) was established in 1847 and incorporated as a city in 1915. The City is surrounded by Farmington City to the north, Bountiful City to the south, the Wasatch Mountain Range to the east, West Bountiful to the southwest, and the Great Salt Lake to the west. The total land area of the City is 5.98 square miles. The main thoroughfares through the city are Interstate 15, Legacy Parkway, Parrish Lane (SR105), and Main Street (SR106). The City's population was 16,884 according to the 2020 census. Estimates are showing the population of the City in 2030 may be over 21,000.

Land use is a mix of residential, commercial, industrial, agricultural, and public facilities. The City's vision for future land use in the undeveloped northwesterly portion of the City (land area between Legacy Parkway and the Nature Conservancy) is slated for a Shorelands Commerce Park with the intent of creating a job center for the City.

2.2 Background

The most current investigation into the storm drain system in Centerville City was carried out by ESI Engineering, Inc. Information for this Plan was gathered from previous reports and plans, Centerville City personnel, State records, and other sources. This Plan independently analyzes and reviews the City's storm drain system and identifies projects necessary to update and/or repair infrastructure based on known needs and to plan for the future growth of the City. This Plan also evaluates projects based on the infrastructure's condition and its importance to the overall storm drain system. Additional information is provided which will be necessary to complete an Impact Fee Facility Plan. The Impact Fee Facility Plan will be completed separately and is not included in this Plan.

2.3 Study Area

The Study Area for this Plan includes all areas within the current city boundary. Centerville City's storm drain system currently serves all areas within the city boundaries. This Plan analyzes the potential future growth within the City boundaries only. The Study Area is approximately 5.98 square miles.

It is understood that the service boundary and/or the proposed land uses may change depending on future and ongoing land developments. These factors may require periodic adjustments to this Plan and the recommended storm drain capital facilities projects.

The storm drain service areas within the city limits are shown in Appendix A.

3.0 ERUs AND GROWTH ESTIMATES

3.1 Equivalent Residential Units

Stormwater runoff varies from property to property throughout a City's storm drain system. This variety is due to the differences in the hardness of the surfaces between properties in a development. A fundamental unit of runoff can be developed for comparative purposes in order to reduce the complexity of examining every property throughout the study area. This basic unit is called an Equivalent Residential Unit, or ERU. For this report, an ERU quantifies the stormwater impact of a typical detached single-family residence. This is the most common type of development within the City. The ERU is utilized to calculate the effects of various development types and to assess the system using a single equating unit of measurement.

3.1.1 Residential ERUs

For the purposes of this study, one ERU is defined as having an area of a directly connected hard surface measuring 3,243 square feet (1 ERU = 3,243 sf). This statistic was generated using the average of samples collected from homes on lots that were about 1/4 acre in size. This includes a proportional portion of all the paved roads in the research region as well as a typical home's driveway. The rooftops of the homes were not included because rainwater from a roof is normally dumped onto pervious surfaces by a rain gutter system. The area was determined using the formulas below for a standard 1/4-acre lot:

$$[85 \text{ ft frontage} \times (41 \text{ ft curb to curb}/2)] + 1500 \text{ sf driveway} = 3{,}243 \text{ sf}$$

The defined ERU can be used to calculate the impact of various types of development within the system, as shown in Table 3.1.

Table 3.1 – ERUs for Various Property Types

Zone	Lot Size	ERUs
Rural Residential	1 Acre	1.12
Semi-Rural Residential	1/2 Acre	1.56
Low-Density Residential	1/3 Acre	1.77
Medium-Density Residential	1/4 Acre	1.15
High-Density Residential	>1/4 Acre	0.95
Other (Commercial, Institutional, Industrial, etc.)	Varies	Calculated based upon the square footage of directly-connected impervious cover.

Properties with large amounts of hard surfacing may have the impact of many single-residence homes. The impact of such properties would therefore be calculated as many ERUs. Commercial lots often have 2 – 3 times the hard surface that similarly-sized residential lots have. As a result, commercial sites generally have higher impact fees than residential sites of similar size.

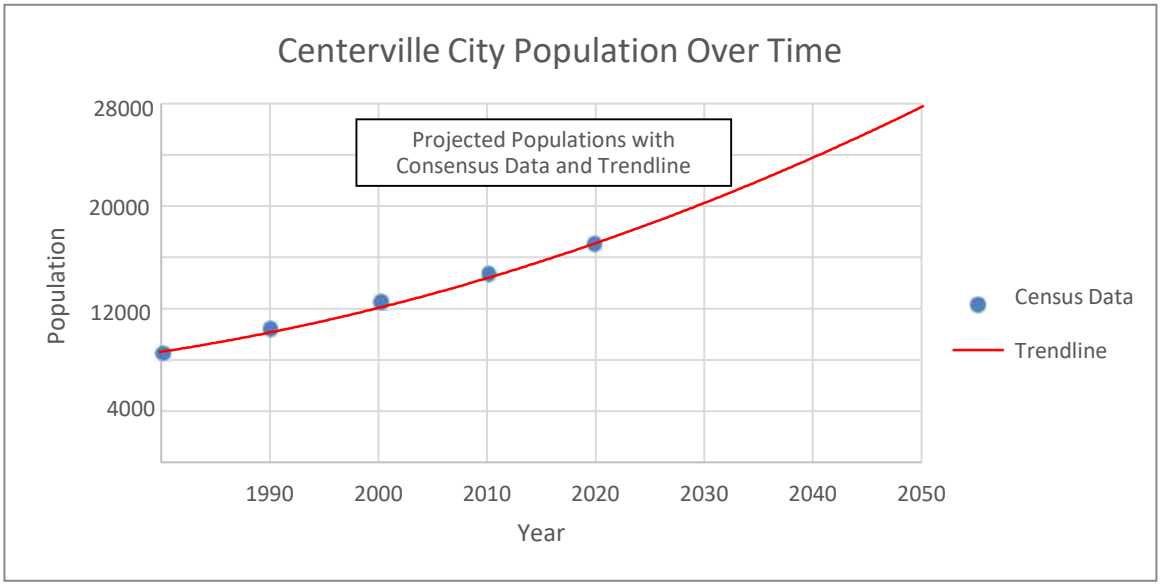
3.2 Growth Estimates

3.2.1 Population Projections

Current population information has been estimated from official US Census Bureau data. From 2010 to 2020 the yearly population growth rate of Centerville averaged 1.5%. Based upon recent development within the City, it is believed that the yearly growth rate will increase in the coming years and is estimated to continue at 1.5% for the purposes of this Plan.

Utilizing historical population data and computationally estimating a curve to best suit the data is a technique to anticipate expected population growth. The population of the City can then be estimated by projecting this curve line into the future. The results of this strategy are displayed in Figure 3.1:

Figure 3.1 – Historic and Projected Population



The projected populations from the regression equation were compared to the populations provided by the Governor's Office of Management and Budget (GOMB) and a constant growth rate of 1.5% per year of the trendline. Table 3.2 below shows these comparisons.

Table 3.2 – Population Projections

Year	GOMB	Regression Equation	Constant Growth Rate (1.5%)
2020	18,484	16,750	16,884*
2030	21,000	20,025	19,417
2040	25,323	23,850	22,330
2050	26,496	27,800	25,680

**Actual data*

3.2.2 ERU Projections

The population growth does not directly correlate with the total projected ERUs because a significant portion of Centerville City is anticipated to be developed into commercial properties; however, the growth rate can be applied to the current number of ERUs to project the future ERUs contributing to the storm drain system. The expected expansion of ERUs was calculated to follow the same growth pattern as the population.

The ERU concept can also be applied to undeveloped land in order to estimate the amount of future stormwater runoff in areas of growth or redevelopment. Table 3.3 gives a breakdown of population projection and projected residential versus non-residential ERUs.

Table 3.3 – Population and ERU Projections

Year	Population Projection	Projected Residential ERUs	Projected Non-Residential ERUs	Projected Total ERUs
2010	15,335*	2,456*	ND	ND
2020	16,884*	3,483	1,507	4,990
2030	21,000	4,248	2,022	6,270
2040	25,323	7,264	2,455	9,719
2050	26,496	7,962	2,823	10,785

**Actual data*
ND – *Data not available*

Centerville City's storm drain system served approximately 4,990 ERUs in 2020. Based upon plans for land zoning and current undeveloped areas, approximately 5,795 additional ERUs could be added in the future over the next 30 years.

For a typical city residential development is expected to closely follow the growth rate of the population, however, non-residential development may have a very different correlation. Due to a large percentage of future ERUs belonging to non-residential development, buildout projections for future developments will likely not represent actual growth rates accurately. Due to a variety of potential changes in the economy and growth rate of the City, it is recommended that this plan be reviewed approximately every five (5) to ten (10) years depending upon actual growth.

4.0 HYDROLOGY

4.1 Introduction

The study of water's presence, distribution, movement, and characteristics is known as hydrology. A crucial component of a storm drain capital facilities plan is estimating the amount of runoff generated by different development types depending on a variety of factors. In other words, knowledge of the site's hydrology is necessary to accurately estimate the volume and flow of water inside a study region for storm drain systems. The slope of a site, the soil composition, the type of land used, and other factors unique to the area of interest are all elements that influence the hydrology of a city.

4.2 Method for Identifying Runoff and Calculating Flows

The 'Rational Method' has been used to estimate the maximum rate of stormwater runoff for a given rainfall intensity over a specific watershed or drainage area. The Rational formula is commonly used for small urban watersheds and takes into account the type of development on which rain falls. Three types of development were considered in the stormwater runoff calculations: business, residential, and park or open space. These developments have been designed to handle minor events, such as the 10-year storm (a storm with a ten percent probability of occurrence in any given year), and then rely on the streets and main drainage channels to handle the more severe events. Davis County utilizes the 100-year event (an event with a one percent probability of occurrence in any given year) for their jurisdictional stream channels that transverse Centerville City. Therefore, where a designated stream channel exists in a particular drainage area the 100-year event has been employed. Rainfall intensity was referenced from Centerville City rainfall data for the 10-year and 100-year return periods. This rainfall data has been included in Appendix B.

Each drainage area collects stormwater and in general, conveys the water west. Drainage area maps with corresponding drainage systems are located in Appendix A. Drainage Areas 1 through 13 convey water to Frontage Road and I-15. Drainage areas 14 through 22 convey water to Legacy Parkway or a corridor referred to as the former D&RG right-of-way (now owned by UTA) and the Sheep Road. These conveyance points or drainage area boundaries (i.e. I-15 or D&RG) have culvert systems that control the quantity of stormwater flow. The flow capacity of the existing culvert system was determined at each conveyance outfall. If the culvert was known to be a concrete pipe, the capacity was estimated through the use of Culvert Capacity Charts in the Concrete Pipe Design Manual by the American Concrete Pipe Association. If the pipe was of another material, such as corrugated metal, then Manning's equation was used to estimate the capacity. With the estimated capacity for each drainage area discharge culvert and the calculated volume of accumulated stormwater for a design rainfall event, an iterative process determined the quantity of storage or detention required per area. Where drainage areas carry Davis County stream channels, the 100-year flow at the mouth of the canyon, as referenced from the 1979 FEMA report by Gingery Associates, Inc. (Gingery), was included in addition to the area calculation. A table summarizing the Gingery information is found in Exhibit 1.

The required storage calculated was then compared to existing detention in the areas to determine whether additional detention would be needed, as the land develops, or if culvert systems at area

boundaries would need to be upgraded. It should be noted that the runoff rates for all areas were calculated based on the land being completely developed at the present zoning status. Detention in the City is recommended, even in the lower areas west of I-15, for the benefit of stormwater pollution prevention in downstream waters, such as Farmington Bay.

4.3 Existing Level of Service

Minimum design standards have been established to determine an effective level of service for the community. In general City Drainage systems are designed to handle the 10-year storm event, while the County Drainage systems (stream channels) are designed to handle the 100-year storm event. This is the basic level of service that is being provided to the residents at this time. While there are still some areas of the City that are located within the 100-year flood plain, most of the flood plains are limited to undeveloped areas in the City.

The goal in the management of stormwater is to help reduce the risk of flood and improve water quality. A sustainable water management program relies on both City and Developer to manage stormwater runoff. In designing the majority of the City systems for the 10-year storm there will likely be minor inconvenience and damage that may occur during these events, but in no case should there be flooding that causes major structural damage, destruction to public facilities, or loss of life.

4.4 Minimum Culvert Sizes for New Development

For new drainage systems installed in City Streets, the minimum standard pipe size is 15" in diameter. Minimum culvert size required to be installed for new development east of I-15 is 24" in diameter and the minimum culvert size required to be installed for new development west of I-15 is 36" diameter due to the flat grades of the land and drainage ditches in these areas. Reinforced concrete pipe is typically required to be installed in the City right-of-way.

It is not the City's intent to have the ditches west of I-15 and Legacy Parkway piped in as a part of future development. The City would prefer to have culverts at road crossings with improved ditches to carry stream and storm drainage flows.

4.5 Retention Requirements for New Development

The General Permit for Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) UPDES Permit No. UTR090000 was updated in February 2020 with new storm water retention requirements. Effective July 1, 2020, Permit Part 4.2.5.1.2 requires new development projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, to manage rainfall on-site and prevent the off- site discharge of the precipitation from all rainfall events less than or equal to the 80th percentile rainfall event.

Redevelopment projects that increase impervious area by more than 10% and disturb more than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, must also manage rainfall on-site and avoid off-site discharge of the net increase in volume associated with precipitation from all rainfall events less than or equal to the 80th percentile rainfall event. This permit requirement will be met by implementing Low Impact Development (LID)

methods that are designed, built, and maintained to infiltrate, evapotranspire, capture, and utilize rainwater and/or stormwater.

4.6 80th Percentile Rainfall Depth

The 80th percentile rainfall depth represents the depth of rainfall which is not exceeded in 80 percent of all runoff producing rainfall events within the time period analyzed. In other words, 80 percent of the rainfall storm events that produce runoff will be less than or equal to this depth. The majority of Utah MS4s have an 80th percentile rainfall depth of between 0.4 - 0.6 inches. The rainfall depth corresponds directly to rainfall volume (not the same as runoff volume) when applied over an area. For example, an 80th percentile rainfall depth of 0.65 inches applied over a 10-acre site equates to approximately 0.5 acre-feet or 875 cubic yards (Utah Division of Water – Fact Sheet, DWQ Guidance for Calculation of 80th Percentile Storm Event).

5.0 STORM DRAIN SYSTEM

5.1 Existing Storm Drain System

There are currently twenty-two (22) drainage areas that Centerville City (City) has been divided into. The Frontage Road/ I-15/ UTA UPRR corridor bisects the City's drainage areas separating them into "east" and "west" drainage areas. Over the past 40-plus years substantial improvements have been made to the storm drain systems located in the City's region including a multitude of culverts running under the corridor.

Regional detention areas have been developed for the City along the Frontage Road in order to minimize storm drain pipe sizing needed to run underneath the corridor.

The City has been in continued cooperation with Davis County, UDOT, and other entities in completing storm drain projects to adequately convey storm water underneath the Frontage Road and I-15 freeway.

Open channel ditches make up some of the City's storm drain system, these channels and the other storm drain systems need to be maintained frequently to replace any worn-out linings and to remove trash and overgrown vegetation. It is advised that frequent examination and maintenance of these regions be carried out in order to lessen the need for significant rehabilitation projects.

The Existing Storm Drain System for Centerville City is shown in Appendix A.

5.2 Storm Drain Goals and Standards

Storm drain systems and infrastructure should be designed and implemented so that the existing hydrology imitates pre-development conditions, meaning the amount of runoff from a new development should be the same quantity of runoff that came about before the development was built-up. This is required by the General Permit issued to the City by the State Division of Water Quality.

The use of detention ponds is a method of reducing the peak flows due to stormwater runoff. Typically, the City allows detention ponds to maintain a discharge rate of 0.1 cfs/acre served. While this standard addresses the rate at which stormwater can leave detention basins, it does not address the quantity of stormwater which may leave a site. Instead of reducing the volume of water that may leave a detention basin, the City has extended the amount of time in which it may leave. This allows more water, by volume, to leave a site than before development. In order to fully match pre-development conditions, stormwater that was previously absorbed should be retained onsite. The State Division of Water Quality has set a date by which these standards must be implemented as stated in Section 4.2.5.3.4 of the November 30, 2016, Storm Water General Permit:

"By March 1, 2020, new development or redevelopment projects… must manage rainfall onsite, and prevent the off-site discharge of the precipitation from all rainfall events less than or equal to the 80th percentile rainfall event."

To accomplish this goal, infiltration basins, evaporation ponds, rainwater harvesting, and other rainwater reuse methods must be implemented to keep stormwater onsite. This requires development construction standards to change in order to store and treat stormwater onsite. In some cases, the implementation of this goal will be difficult, if not impossible. For these situations, the General Permit also states:

"If meeting this retention standard is technically infeasible, a rationale shall be provided on a case-by-case basis for the use of alternative design criteria. The project must document and quantify that infiltration, evapotranspiration, and rainwater harvesting have been used to the maximum extent technically feasible and that full employment of these control are infeasible due to site constraints."

Retaining stormwater onsite in detention basins is a typical practice that the public and residents sometimes have apprehensions about. Due to the determination that these storms, frequently occur for two or more days onsite retention would be overloaded, causing all runoff beyond the pond capacity to proceed to the storm drain system for transmission. Without detention facilities, this runoff may overwhelm the storm drain system and flood areas downstream. Therefore, while it is intended that much of the runoff in typical rain events will be captured onsite, detention facilities and piping downstream are necessary to keep the City's storm drain system operating as intended.

5.3 Projects

Table 5.1 is a list of projects for the City that will help correct current issues in the storm drain system and to meet both present and future demands that the system needs to accommodate. These improvements have been grouped by year and prioritized based on criticality to service the public and infrastructure condition.

Table 5.1 – Storm Drain Capital Improvement Projects

Year Group	Project Year	Project Location/ Description
1	2024	• Deuel Creek Box Culvert 400 West to Frontage Road • Peachtree - 1375 North to Main Street • Briarwood Drive - Bonita Way to 400 East
	2025	• Deuel Creek Box Culvert Main Street to 400 West • Nola Drive & 1375 North - 1675 North to 1350 North • Centerville Jr. High (South Property Line) - 300 East to Main Street or Combine with Rivera SD system
	2026	• I-15 975 North - New 48" Culvert • I-15 Parrish Lane (400 North) – Replace 36" CMP w/ New 36" Culvert
	2027	• I-15 (C112) 2075 North (Lexington Park) - Replace 24" CMP w/ New 36" Culvert • I-15 Frontage Rd & 500 South Replace 24” CMP w/ New 36” Culvert
	2028	• I-15 650 South – Replace 24” CMP w/ New 36” Culvert • I-15 Parrish Creek – Replace 42” CMP w/ New 48”
2	2029	• Parrish Lane - 100 East to Canyon Point • I-15 (P106) North Property Line of Community Park - New 36" Culvert
	2030	• Windsor Lane, Williams Lane, & 300 West Storm Drain • I-15 750 North - Replace 24" CMP w/ New 36" Culvert
	2031	• 700 North & Pheasant Way - London Road to Bonita Way • I-15 Parrish Lane (400 North) - Replace 24" CMP along East Side of I-15 & 800 West Crossing to Parrish Lane
	2032	• Nola Drive - 1200 North to 1350 North • I-15 100 South - Replace 24" CMP w/ New 36" Culvert
	2033	• I-15 Frontage Road - 200 South Replace CMP Culvert • Barnard Street Overflow Storm Drain - Main Street to Oakridge Drive
3	2034	• I-15 625 North - Replace 30" CMP w/ New 36" Culvert • 725 North 1250 West & 600 North 1250 West - Inlet Box Replacement
	2035	• Parrish Creek 950 West to 1250 West - Channel Improvements • Public Works Dry Beds
	2036	• Rick's Creek Culvert at 575 West (Parallel w/ New 36" Elliptical) • Island View - 550 South to 650 South
	2037	• 500 South - UPRR / UTA - Replace 24" CMP w/ New 36" Culvert • Carrington Lane - Main Street to Ricks Creek Reservoir

	2038	• 650 North - 1000 West to 1250 West - Replace 30" CMP w/ 42" RCP • Parrish Lane - Crossing at 800 West (7-11 to Carls Jr.) - Replace 36" CMP
4	2039	• 400 South - 400 East to 700 East • 780 South - 50 West to Pitford Drive
	2040	• Hillside Property Drainage Project • 200 South - 600 East to 500 East - Replace CMP
	2041	• 700 South - 475 East to 700 East • 600 North - 1250 West to Legacy Parkway
	2042	• 400 North - 1550 West to 1300 West • 1250 West - Crossing at 75 North
	2043	• 70 West - 115 N to Center Street • 550 South - Pitford Drive to 400 West - Pipe Lining Project
5	2044	• 1275 North - 1250 West to 1300 West • Aspen Way & Poplar Circle - 400 East to 610 East
	2045	• Willow Valley Drive to Frontage Road Swale - Pipe (3) 15" System • Main Street - 1600 North to Smoot Park
	2046	• 1825 North - Main Street to 300 East • 1975 North - Main Street to 150 East
	2047	• Future 1250 West Extension - Rick's Creek 12' x 5' Box Culvert • Future 1250 West Extension - 1875 North (Villa de France) - 36" RCP Culvert
	2048	• D&RG Rick's Creek - 72" x 48" Elliptical RCP Culvert • D&RG 2075 North - 36" Culvert
6	2049	• 1275 N - replace ADS with RCP • 71" x 47" CMP Culvert at Legacy Trail and Sheep Road at 1000 North
	2050	• Sheep Road 2075 North - 36" Culvert • Sheep Road Rick's Creek - 71" x 47" Elliptical RCP Culvert

Table 5.2 is a list of projects for the City that will help correct current issues in the subdrain system and to meet both present and future demands that the system needs to accommodate. These improvements have been grouped by year and prioritized based on criticality to service the public and infrastructure condition.

Table 5.2 – Subdrain Capital Improvement Projects

Year Group	Project Year	Project Location/ Description
1	2024	• Pitford - 550 South to Tobe
	2025	• N/A
	2026	• Ariane Way - 450 West to 650 West
	2027	• Parrish Lane - 100 East to Main Street
	2028	• N/A
2	2029	• 1850 North - 100 West to 400 West
	2030	• 1500 North Cul-de-sac on 400 West
	2031	• 1600 North (Rick's Creek Way) - 100 West to 200 West
	2032	• 1650 North (Milky Way) - 100 West to 200 West
	2033	• 1800 North - 300 West to 400 West
3	2034	• Lewis & Clark Drive - Fremont Cir to Jim Bridger Dr / Frontage Rd Crossing
	2035	• N/A
	2036	• 700 S. - 300 E. to 400 E., 600 S. - 300 E. to 400 E., 300 E. - 600 S. to 725 S.
	2037	• Tobe Drive - 350 West to 400 West
	2038	• N/A
4	2039	• Mountain View Drive & Creek View Drive
	2040	• N/A
	2041	• Canyon Breeze Drive
	2042	• N/A
	2043	• 400 West - 1500 North to 1375 North
5	2044	• 100 West Cul-de-sac on 1450 North
	2045	• 850 South / 780 South - 150 West (Slip-Line)
	2046	• Lund Lane - 700 West to 200 West
	2047	• Freedom Hills Park SE Corner - Sub-drain & Duncan Spring
	2048	• 2100 North - 400 West to Churchill Drive (in back yards of 2115 North & 2101 North)
6	2049	• 150 West - 845 South to 780 South
	2050	• 2075 North / 725 West

5.4 Summary and Conclusions

The existing and planned storm drain systems have been assessed to identify what system improvements and upgrades are required, as described in the preceding sections. These upgrades have been grouped by year and ranked in order of importance and according to where future development is anticipated to have the biggest impact on the storm drain system. Table 6.1 has an itemized cost estimate for each project.

The lists and projects detailed in this Plan are not intended to be an all-inclusive list of storm drain projects that will be needed to be completed in the City as build-out is reached. The intent of the lists is to include storm drain projects that will accomplish the following objectives:

- Increase existing storm drain system sizes for maintenance purposes and /or for proper design flows.
- Construct new improvements at proper sizes to carry design flows.
- Serve as a Storm Drain Master Plan when development occurs.

6.0 STORM DRAIN SYSTEM PROJECTS AND COST ESTIMATES

6.1 Storm Drain Projects and Cost Estimates

As detailed in the previous sections, the existing and future storm drain systems have been analyzed to determine needed system improvements. While a few of these projects will be driven by development, others are necessary to provide better efficiency and reliability of the system. A summarized list of the projects for the years 2024 through 2039 and their associated costs is shown in Table 6.1.

Table 6.1 – Storm Drain Projects Cost Summary

Project Year	Project Description	Total Estimated Cost	Cost Breakdown		
			Centerville City Cost	Davis County Cost	Developer's Cost
2024	Deuel Creek Box Culvert 400 West to Frontage Road	**$1,321,094**	$430,469	$890,625	$0
2024	Peachtree - 1375 North to Main Street	**$645,830**	$645,830	$0	$0
2024	Briarwood Drive - Bonita Way to 400 East	**$341,185**	$341,185	$0	$0
2025	Deuel Creek Box Culvert Main Street to 400 West	**$1,582,000**	$395,500	$1,186,500	$0
2025	Nola Drive & 1375 North - 1675 North to 1350 North	**$268,236**	$268,236	**$0**	**$0**
2025	Centerville Jr. High (South Property Line) - 300 East to Main Street or Combine with Rivera SD system	**$877,830**	$877,830	$0	$0
2026	I-15 975 North - New 48" Culvert	**$542,450**	$135,612	$406,838	$0
2026	I-15 Parrish Lane (400 North) – Replace 36" CMP w/ New 36" Culvert	**$1,394,683**	$1,394,683	$0	$0
2027	I-15 (C112) 2075 North (Lexington Park) - Replace 24" CMP w/ New 36" Culvert	**$949,750**	$949,750	$0	$0
2027	I-15 Frontage Rd & 500 South Replace 24" CMP w/ New 36" Culvert	**$688,750**	$688,750	$0	$0
2028	I-15 650 South – Replace 24" CMP w/ New 36" Culvert	**$688,750**	$688,750	$0	$0
2028	I-15 Parrish Creek – Replace 42" CMP w/ New 48"	**$743,000**	$185,750	$557,250	$0

Project Year	Project Description	Total Estimated Cost	Cost Breakdown		
			Centerville City Cost	Davis County Cost	Developer's Cost
2029	Parrish Lane - 100 East to Canyon Point	**$451,675**	$451,675	$0	$0
2029	I-15 (P106) North Property Line of Community Park - New 36" Culvert	**$978,750**	$978,750	$0	$0
2030	Windsor Lane, Williams Lane, & 300 West Storm Drain	**$473,280**	$473,280	$0	$0
2030	I-15 750 North - Replace 24" CMP w/ New 36" Culvert	**$703,250**	$703,250	$0	$0
2031	700 North & Pheasant Way - London Road to Bonita Way	**$392,515**	$392,515	$0	$0
2031	I-15 Parrish Lane (400 North) - Replace 24" CMP along East Side of I-15 & 800 West Crossing to Parrish Lane	**$726,958**	$726,958	$0	$0
2032	Nola Drive - 1200 North to 1350 North	**$181,468**	$181,468	$0	$0
2032	I-15 100 South - Replace 24" CMP w/ New 36" Culvert	**$1,075,900**	$1,075,900	$0	$0
2033	I-15 Frontage Road - 200 South Replace CMP Culvert	**$151,670**	$151,670	$0	$0
2033	Barnard Street Overflow Storm Drain - Main Street to Oakridge Drive	**$1,560,200**	$1,560,200	$0	$0
2034	I-15 625 North - Replace 30" CMP w/ New 36" Culvert	**$1,069,375**	$1,069,375	$0	$0
2034	725 North 1250 West & 600 North 1250 West - Inlet Box Replacement	**$266,945**	$266,945	$0	$0
2035	Parrish Creek 950 West to 1250 West - Channel Improvements	**$552,850**	$138,212	$414,638	$0
2035	Public Works Dry Beds	**$171,100**	$171,100	$0	$0
2036	Rick's Creek Culvert at 575 West (Parallel w/ New 36" Elliptical)	**$70,720**	$17,680	$53,040	$0
2036	Island View - 550 South to 650 South	**$188,573**	$188,573	$0	$0

Project Year	Project Description	Total Estimated Cost	Cost Breakdown		
			Centerville City Cost	Davis County Cost	Developer's Cost
2037	500 South - UPRR / UTA - Replace 24" CMP w/ New 36" Culvert	**$469,800**	$469,800	$0	$0
2037	Carrington Lane - Main Street to Ricks Creek Reservoir	**$445,078**	$445,078	$0	$0
2038	650 North - 1000 West to 1250 West - Replace 30" CMP w/ 42" RCP	**$881,600**	$881,600	$0	$0
2038	Parrish Lane - Crossing at 800 West (7-11 to Carls Jr.) - Replace 36" CMP	**$187,485**	$187,485	$0	$0
2039	400 South - 400 East to 700 East	**$247,878**	$247,878	$0	$0
2039	780 South - 50 West to Pitford Drive	**$422,313**	$422,313	$0	$0
2040	Hillside Property Drainage Project	**$2,216,325**	$2,216,325	$0	$0
2040	200 South - 600 East to 500 East - Replace CMP	**$177,770**	$177,770	$0	$0
2041	700 South - 475 East to 700 East	**$422,313**	$422,313	$0	$0
2041	600 North - 1250 West to Legacy Parkway	**$385,120**	$385,120	$0	$0
2042	400 North - 1550 West to 1300 West	**$452,400**	$452,400	$0	$0
2042	1250 West - Crossing at 75 North	**$109,062**	$109,062	$0	$0
2043	70 West - 115 N to Center Street	**$485,243**	$485,243	$0	$0
2043	550 South - Pitford Drive to 400 West - Pipe Lining Project	**$287,100**	$287,100	$0	$0
2044	1275 North - 1250 West to 1300 West	**$582,900**	$582,900	$0	$0
2044	Aspen Way & Poplar Circle - 400 East to 610 East	**$295,583**	$295,583	$0	$0
2045	Willow Valley Drive to Frontage Road Swale - Pipe (3) 15" System	**$760,743**	$760,743	$0	$0

Project Year	Project Description	Total Estimated Cost	Cost Breakdown		
			Centerville City Cost	Davis County Cost	Developer's Cost
2045	Main Street - 1600 North to Smoot Park	**$169,179**	$169,179	$0	$0
2046	1825 North - Main Street to 300 East	**$561,875**	$561,875	$0	$0
2046	1975 North - Main Street to 150 East	**$328,425**	$328,425	$0	$0
2047	Future 1250 West Extension - Rick's Creek 12' x 5' Box Culvert	**$241,788**	$241,788	$0	$0
2047	Future 1250 West Extension - 1875 North (Villa de France) - 36" RCP Culvert	**$107,663**	$107,663	$0	$0
2048	D&RG Rick's Creek - 72" x 48" Elliptical RCP Culvert	**$152,500**	$38,125	$114,375	$0
2048	D&RG 2075 North - 36" Culvert	**$114,913**	$114,913	$0	$0
2049	1275 N - replace ADS with RCP	**$95,787**	$95,787	$0	$0
2049	71" x 47" CMP Culvert at Legacy Trail and Sheep Road at 1000 North	**$217,863**	$217,863	$0	$0
2050	Sheep Road 2075 North - 36" Culvert	**$119,263**	$119,263	$0	$0
2050	Sheep Road Rick's Creek - 71" x 47" Elliptical RCP Culvert	**$159,790**	$159,790	$0	$0
	TOTAL	**$30,156,546**	**$26,533,280**	**$3,623,266**	**$0**

6.2 Subdrain Projects and Cost Estimates

A summarized list of the projects for the years 2024 through 2044 and their associated costs is shown in Table 6.2.

Table 6.2 – Subdrain Projects Cost Summary

Project Year	Project Description	Total Estimated Cost	Cost Breakdown		
			Centerville City Cost	Davis County Cost	Developer's Cost
2024	Pitford - 550 South to Tobe	**$250,705**	$250,705	$0	$0
2025	N/A	**$0**	$0	$0	$0
2026	Ariane Way - 450 West to 650 West	**$690,389**	$690,389	$0	$0
2027	Parrish Lane - 100 East to Main Street	**$257,216**	$257,216	$0	$0
2028	N/A	**$0**	$0	**$0**	**$0**
2029	1850 North - 100 West to 400 West	**$581,102**	$581,102	$0	$0
2030	1500 North Cul-de-sac on 400 West	**$181,410**	$181,410	$0	$0
2031	1600 North (Rick's Creek Way) - 100 West to 200 West	**$501,541**	$501,541	$0	$0
2032	1650 North (Milky Way) - 100 West to 200 West	**$531,708**	$531,708	$0	$0
2033	1800 North - 300 West to 400 West	**$225,932**	$225,932	$0	$0
2034	Lewis & Clark Drive - Fremont Cir to Jim Bridger Dr / Frontage Rd Crossing	**$150,771**	$150,771	$0	$0
2035	N/A	**$734,660**	$734,660	$0	$0
2036	700 S. - 300 E. to 400 E., 600 S. - 300 E. to 400 E., 300 E. - 600 S. to 725 S.	**$501,570**	$501,570	$0	$0
2037	Tobe Drive - 350 West to 400 West	**$365,284**	$365,284	$0	$0
2038	N/A	**$0**	$0	$0	$0
2039	Mountain View Drive & Creek View Drive	**$532,629**	$532,629	$0	$0

Project Year	Project Description	Total Estimated Cost	Cost Breakdown		
			Centerville City Cost	Davis County Cost	Developer's Cost
2040	N/A	**$0**	$0	$0	$0
2041	Canyon Breeze Drive	**$554,952**	$554,952	$0	$0
2042	N/A	**$0**	$0	$0	$0
2043	400 West - 1500 North to 1375 North	**$568,444**	$568,444	$0	$0
2044	100 West Cul-de-sac on 1450 North	**$197,766**	$197,766	$0	$0
2045	850 South / 780 South - 150 West (Slip-Line)	**$197,200**	$197,200	$0	$0
2046	Lund Lane - 700 West to 200 West	**$328,570**	$328,570	$0	$0
2047	Freedom Hills Park SE Corner - Sub-drain & Duncan Spring	**$125,556**	$125,556	$0	$0
2048	2100 North - 400 West to Churchill Drive (in back yards of 2115 North & 2101 North)	**$249,400**	$249,400	$0	$0
2049	150 West - 845 South to 780 South	**$148,379**	$148,379	$0	$0
2050	2075 North / 725 West	**$433,500**	$433,500	$0	$0
	TOTAL	**$8,308,684**	**$8,308,684**	**$0**	**$0**

See Appendix C - Storm Drain Project Itemized Cost Estimates.

See Appendix D - Subdrain Project Itemized Cost Estimates.

7.0 GLOSSARY OF TERMS

10-YEAR STORM: The storm event capable of producing rainfall expected to be equaled or exceeded on the average of once in 10 years. The storm event which has a 10% chance of being equaled or exceeded in any given year.

100-YEAR STORM: The storm event capable of producing rainfall expected to be equaled or exceeded on the average of once in 100 years. The storm event which has a 1% chance of being equaled or exceeded in any given year.

BEST MANAGEMENT PRACTICES (BMPs): BMPs include schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of the waters of the State. BMPs also include treatment, requirements, operating procedures, and practices to control facility site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage and good housekeeping solutions that include the proper handling, storage, and disposal of toxic materials to prevent stormwater pollution.

CATCH BASIN: A curbside opening that collects stormwater from streets and serves as an entry point to the storm drain system.

DESIGN RAINSTORM: A rainfall event, defined by storm frequency and storm duration, that is used to design drainage structures or conveyance systems.

DETENTION BASIN: An impoundment structure designed to reduce peak runoff flow rates by retaining a portion of the runoff during periods of peak flow and then releasing the runoff at lower flow rates.

FLOOD CONTROL CHANNEL: The open portions (often concrete-lined) of the storm drain system.

GUTTER: The edge of a street (below the curb) designed to drain water runoff from streets, driveways, and parking lots into catch basins.

INITIAL STORM DRAINAGE SYSTEM: The drainage system which provides conveyance for the storm runoff from minor storm events. The initial drainage system should be designed to reduce street maintenance, control nuisance flooding, help create an orderly urban system, and provide convenience to residents, while still meeting the criteria of the EPA's Storm Water Phase II mandate.

MAJOR STORM DRAINAGE SYSTEM: The drainage system which provides protection from flooding of homes during a major storm event.

MINOR STORM EVENT: A storm event that is less than or equal to the 10-year storm.

MAJOR STORM EVENT: Generally accepted as the 100-year storm. Typically homes should be protected from flooding in storm events up to a 100-year event.

MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4): MS4 refers to a collection of structures designed to gather stormwater and discharge it into local streams and rivers.

RETENTION BASIN: An impoundment structure designed to contain all of the runoff from a design storm event. Retention basins usually contain the runoff until it evaporates or infiltrates into the ground.

STORM DURATION: The length of time that defines the rainfall depth or intensity for a given frequency.

STORM FREQUENCY: A measure of the relative risk that the precipitation depth for a particular design storm will be equaled or exceeded in any given year. This risk is usually expressed in years.

STORM WATER: Rain runoff, snowmelt runoff, and other surface runoff and drainage that enters the storm drain system and empties into lakes, rivers, or streams.

WATERSHED: A watershed is land that collects water and drains it into a river system or lake.

8.0 REFERENCES AND WORKS CITED

Google Earth. Retrieved February 7, 2023, from Centerville City, Utah.

USDA, NRCS. (January 1999). *Urban Hydrology for Small Watersheds.* Washington, D.C. pp. A-1.

NOAA. https://hdsc.nws.noaa.gov/pfds/pfds_map_cont.html?bkmrk=ut.

U.S. Census Bureau. https://www.census.gov/quickfacts/fact/table/centervillecityutah.

'Culverts at Frontage Road, I-15, UTA, UPRR & Legacy Highway.' Centerville City – Storm Drain Master Plan Update 2013. ESI Engineering, Inc.

1979 FEMA Report by Gingery & Associates.

'Estimated Flood Frequency Discharges at Interstate 15 for Major Channels in Davis County.' Table 2 from report by CH2M Hill, 1997.

Davis County and Vicinity USGS Gage Records. Table 3.1 of report.

Utah Division of Water – Fact Sheet, DWQ Guidance for Calculation of 80th Percentile Storm Event

Exhibits

(Pages 22-1 through 22-4)

GINGERY 1979

STREAM NAME	AFFECTED COMMUNITIES	LOCATION	IDENTIFICATION NUMBER	DRAINAGE AREA (sq. mi.)	DISCHARGES (cfs)			
					10-Yr.	50-Yr.	100-Yr.	500-Yr
Tributary #1	North Salt Lake	Canyon Mouth	1	0.75			25	
Tributary #2	North Salt Lake	Canyon Mouth	2	1.2			40	
Tributary #3	North Salt Lake	Canyon Mouth	3	1.3			45	
Hooper Canyon	North Salt Lake	Orchard Drive	4	1.4	50	120	160	320
		Canyon Mouth	5	1.0	16	25	33	67
North Canyon	North Salt Lake	Orchard Drive	6	3.1	60	170	250	550
		Canyon Mouth	7	2.7	40	70	110	225
Mill Creek	West Bountiful	D&RGW Railroad	8	10.9	220	300	310	310
Barton Creek	West Bountiful	D&RGW Railroad	9	7.4	100	230	250	260
Stone Creek	West Bountiful	D&RGW Railroad	10	6.4	50	230	575	1450
Deuel Creek	West Bountiful	D&RGW Railroad	11	3.4	135	280	360	600
	Centerville	Canyon Mouth	12	3.1	35	65	110	300
Parrish Creek	Centerville	D&RGW Railroad	13	3.3	50	140	220	550
		Canyon Mouth	14	2.1	30	50	70	200
Barnard Creek	Centerville	D&RGW Railroad	15	2.0	70	155	220	500
		Canyon Mouth	16	1.4	20	35	50	130
Ricks Creek	Centerville	D&RGW Railroad	17	3.1	110	230	300	520
		Canyon Mouth	18	2.5	45	95	150	400
Unnamed Creek	Davis County	D&RGW Railroad	19	1.4	20	70	110	270
		Canyon Mouth	20	0.78	10	20	28	50

CH2M HILL 1997

TABLE 2
Estimated Flood Frequency Discharges at Interstate 15 for Major Stream Channels in Davis County

Natural Channel	10-year Summer Cloudburst (cfs)	25-year Summer Cloudburst (cfs)	100-year Clear Sky Snowmelt (cfs)	100-year Clear Sky Snowmelt with 10-year Spring Cloudburst (for information only) (cfs)
Barton Creek	455	855	373	458
Stone Creek	656	1308	361	485
Deuel Creek	210	410	259	300
Barton, Stone, and Deuel Creek	1080	2015	993	1211
Parrish Creek	184	312	167	207
Barnard Creek	212	407	113	154
Parrish and Barnard Creek	338	662	280	351
Ricks Creek	289	533	194	253
Davis Creek	21	80	127	132
Steed Creek	95	196	211	232
Farmington Creek	Note A	Note A	826	Note A
Rudd Creek	Note A	Note A	58	Note A
Farmington and Rudd Creek	209	441	876	932
Shepard Creek	469	989	190	289
South Fork Holmes Creek	209	432	226	271

Note A - Combines with another drainage before reaching I-15.

Table 3.1
Davis County and Vicinity USGS Gage Records

	STATION	AREA	2-YR	10-YR	100-YR	FEMA SNOW 100-YEAR	2Y/ SQ M	10Y/ SQ M	100Y/ SQ M
10143500	*CENTERVILLE CREEK NEAR CENTERVILLE*	3.15	16	50	200	64	5	16	63
10172500	*CITY CREEK NEAR SALT LAKE CITY*	19.2	58	125	294	333	3	7	15
10172000	*EMIGRATION CREEK NEAR SALT LAKE CITY*	18.4	23	64	206	320	1	3	11
10142000	*FARMINGTON CREEK NEAR FARMINGTON*	10.0	137	332	600	184	14	33	60
10141500	*HOLMES CREEK NEAR KAYSVILLE*	2.49	20	60	200	52	8	24	80
10141400	*HOWARD SLOUGH AT HOOPER*	20.6	162	274	493	355	8	13	24
10143000	*MILL CREEK AT BOUNTIFUL*	8.79	38	120	435	163	4	14	49
10143000	*PARRISH CREEK NEAR CENTERVILLE*	2.08	16	40	150	44	8	19	72
10172200	*RED BUTTE CREEK NEAR SALT LAKE CITY*	7.25	14	54	254	137	2	7	35
10142500	*RICKS CREEK NEAR CENTERVILLE*	2.35	21	55	180	49	9	23	77
10144000	*STONE CREEK NEAR BOUNTIFUL*	4.48	38	100	370	88	8	22	83
10141393	*STORM DRAIN AT SUNSET*	0.80	23	96	467	N/A	29	120	584
10145126	*STORM DRAIN TO MILL CREEK, BOUNTIFUL*	0.87	25	71	232	N/A	29	82	267
10145125	*STORM DRAIN E OF ORCH DR, BOUNTIFUL*	1.50	35	102	334	N/A	23	68	223

4. PRECIPITATION RUNOFF ANALYSIS CRITERIA

4.1 Introduction

The COE computer program, HEC-1, is used for the calculation of flow hydrographs. Use of HEC-1 with a consistent unit graph for all hydrologic calculations will provide compatible results between the calculated peak flows from smaller developments and the larger watershed master plan in which they are located.

In order to minimize the potential for entering inappropriate or inconsistent input data and to aid the user in developing an error-free HEC-1 input file, the HEC-1 preprocessor, DCPRE, is provided. DCPRE uses HEC-1 compatible methods to generate, combine, and route hydrographs. The DCPRE program can be used for the analysis of existing drainage areas as well as design of drainage systems.

Culverts at Frontage Road , I-15, UTA, UPRR & Legacy Hwy. in Centerville City

#	Description - North/South Location	Frontage Road	I-15	UTA	UPRR	Legacy Hwy.	DRG / UTA Trail	Sheep Road	Comments
1	800 South (Air Products - South PL)	42" RCP	42" RCP	-	-	DSB Culvert	DSB	N/A	Drains into Stone Barton Canal east of UTA
2	600 South (Air Products - North PL)	18" to 24" type unknown	18" to 24" type unknown	-	-	DSB Culvert	DSB	N/A	This culvert has been identified at the Stone Barton Canal but not on east side of F.R.
3	450 South (Tri-City)	24 " CMP	24" CMP	New 24" RCP	24" RCP CI	DSB	DSB	N/A	Drains into D.C. Channel west of UPRR. Culvert needs to be found on east side of F.R.
4	Deuel Creek (400 South)	54" RCP & 6' x 4' Box Culvert	54" RCP & 6' x 4' Box Culvert	New 10' x 3' Box Culvert & 54" RCP	10' x 2' Bridge & 54" RCP	DSB	DSB	N/A	Drains into new Deuel Creek Channel west of UPRR and then to DSB
5	UDOT system at south PL of Land Rover	unknown	18" CMP	-	-	-	-	-	Drains into Syro Steel system beneath UTA / UPRR
6	Lone Star - Syro Steel	24" CMP - needs upsized	24" CMP - needs upsized	New 36" SSP	New 36" SSP	48"	48"	2 - 36"	Proposed upsize of culvert at F.R. - I-15 to 36" RCP - this drainage ends up behind Legacy Tile
7	36" System along north side of Parrish Lane	36" RCP	36" CMP - needs replaced	36" CMP - needs replaced	36" CMP - needs replaced	48"	48" RCP	36" RCP - 500' north	the new 48" system was installed at DRG by City
8	McDonald's north PL	24" CMP - needs upsized	30" CMP - needs replaced	New 42" SSP	New 42" SSP	48"	2 - 48" CMP at 725 N.	4 - 36" CMP at 725 N.	System through Jed Taylor's and along 650 North needs to be upsized and replaced
9	Creekview Drive	24" CMP - needs replaced	24" CMP - needs replaced	-	-	-	-	-	combines with McDonald's system east of UTA
10	Parrish Creek	New 48" RCP	42" CMP - needs replaced	New 36"RCP	36" RCP	54"	Goes to 725 N. systems	Goes to 725 N. systems	if this system overflows west of F.R. it would go to McDonald's system
11	Chase Lane Overflow	54" RCP	54" RCP	54" RCP & New 54" SSP	54" RCP & New 54" SSP	New 22' x 4' Box Culvert - verify	72 x 44 CMP Need new large culvert	36" ADS Need new large culvert	restriction at F.R., I-15, and 950 West compared to UTA, UPRR & Legacy Hwy. - also need new system at DRG and Sheep Road
12	Barnard Creek	New 36" RCP	15" to 24" CMP?	New 30" SSP	New 30" SSP	36"	36" RCP	2 - 36" ADS	24" system beneath UDOT shed property needs upsized to 36" and possibly no easement
13	Community Park South	42" CMP	42" CMP	New 42" SSP	New 42" SSP	42"	36" CMP	2 - 36" ADS	additional culvert needed at DRG
14	Community Park North	24" CMP	24" CMP	24" CMP	24" CMP	42" (combined with 15)	18" CMP	36" ADS	drains into diagonal ditch
15	Sub-drain Station	18" CMP or RCP?	18" CMP or RCP?	24" CMP	24" CMP	42" (combined with 14)	-	-	Drains into diagonal ditch - outlet grade is too low
16	Rick's Creek	New 10' x 3' Box Culvert	42" CMP - needs upsized	New 2 - 48" SSP	New 2 - 48" SSP	5' x 12' Box Culvert - verify	72 x 44 CMP & 36" CMP	3 - 36" CMP	additional culverts needed at DRG and Sheep Road
17	Villa de France	24" CMP - needs replaced	24" CMP - needs replaced	24" RCP	24" RCP CI	24" ADS - verify	-	-	combines with Lexington drainage west of UPRR
18	Lexington Park	24" CMP - needs replace	24" CMP - needs replaced	New 24" SSP	New 24" SSP	24" ADS - verify	24" RCP - needs upsize	12" CMP - needs upsize	need new 36" systems at DRG and Sheep Road
19	Abe Millet & South PL of Woods	24" CMP	24" CMP	-	-	-	-	-	both systems overflow east of UTA and go to Lexington system or sub beneath UTA/UPRR
20	Lund Lane	24" CMP - needs upsize	24" CMP - needs upsize	24" RCP - needs upsize	12" CMP - needs upsize	36" ADS	-	-	Flows into Farmington and crosses DRG and Sheep Road in Davis Creek system

36" SSP 36" SSP 36" SSP 36" SSP

Appendix A

Centerville City Storm Drain Area Maps

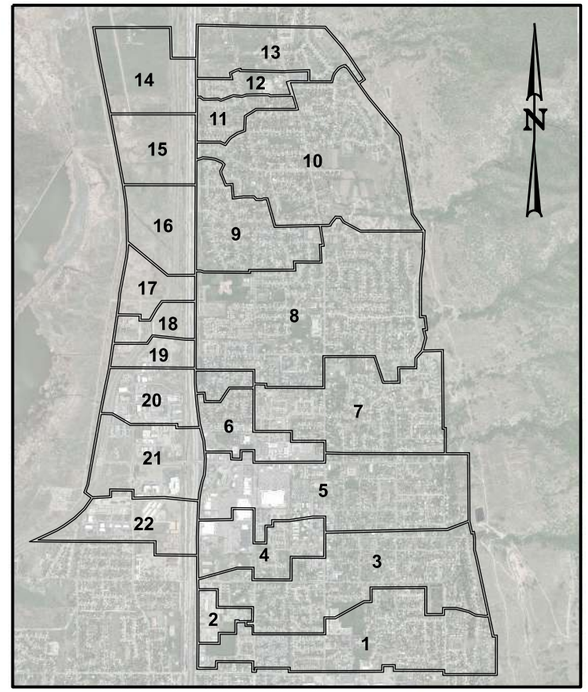
PIPE SIZE (IN INCHES)

- COUNTY
- PRIVATE
- STATE
- 4
- 6
- 8
- 10
- 12
- 15
- 18
- 21
- 24
- 30
- 36
- 42
- 48
- 54
- 60
- 72

DRAINAGE AREA STATISTICS

DRAINAGE AREA 1 = 239.1 AC
DRAINAGE AREA 2 = 27.0 AC
DRAINAGE AREA 3 = 267.9 AC
DRAINAGE AREA 4 = 97.6 AC
DRAINAGE AREA 5 = 283.4 AC
DRAINAGE AREA 6 = 76.9 AC
DRAINAGE AREA 7 = 240.6 AC
DRAINAGE AREA 8 = 419.6 AC
DRAINAGE AREA 9 = 132.5 AC
DRAINAGE AREA 10 = 333.7 AC
DRAINAGE AREA 11 = 42.6 AC
DRAINAGE AREA 12 = 35.4 AC
DRAINAGE AREA 13 = 108.0 AC
DRAINAGE AREA 14 = 112.7 AC
DRAINAGE AREA 15 = 85.7 AC
DRAINAGE AREA 16 = 85.1 AC
DRAINAGE AREA 17 = 49.7 AC
DRAINAGE AREA 18 = 37.8 AC
DRAINAGE AREA 19 = 35.2 AC
DRAINAGE AREA 20 = 77.4 AC
DRAINAGE AREA 21 = 124.3 AC
DRAINAGE AREA 22 = 96.5 AC

CITY AERIAL



SURFACE FEATURES

- BOX CULVERT
- DETENTION AREA
- DRAINAGE AREA
- 1 — DRAINAGE AREA ZONE
- OPEN WATERWAY

ABBREVIATIONS

CMP	CORRUGATED METAL PIPE
DC	DAVIS COUNTY
HDPE	HIGH DENSITY POLYETHYLENE
PVC	POLY VINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
SH	SHEET NUMBER
SLPC	SMOOTH LINED PIPE CULVERT

INDEX TO SHEETS

REVISION	DATE	BY	DESCRIPTION

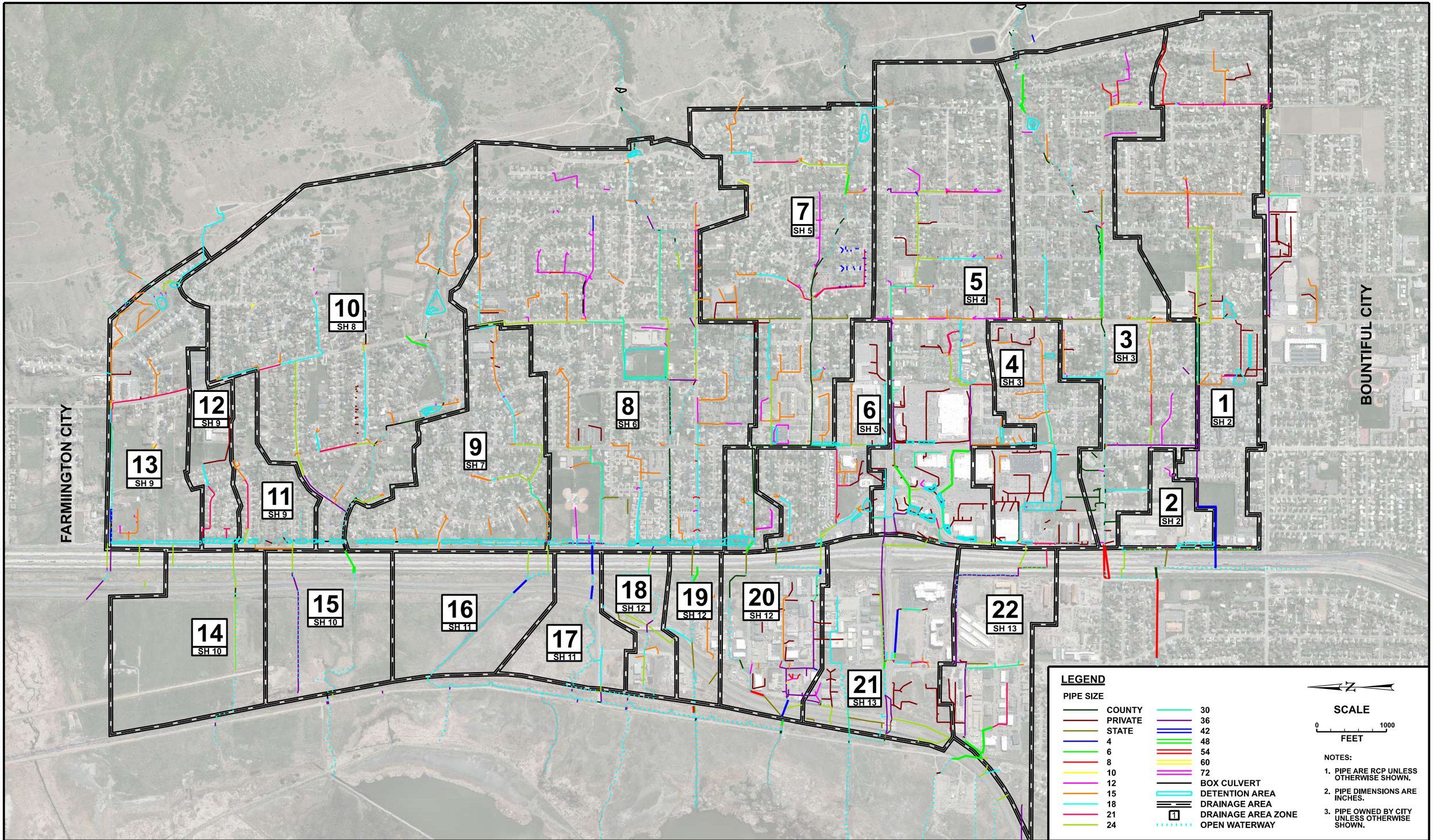
DESIGN PSB
DRAWN PSB
CHECKED KLC
DATE 06/05/2023

LEGEND & SHEET INDEX

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

ESI ENGINEERING
CIVIL - STRUCTURAL - LAND SURVEY
4141 WEST 2100 SOUTH, SUITE 100
WEST VALLEY, UTAH 84120
TEL: (801) 263-1752

SHEET 1
OF 18
PROJECT NO. 20-131



REVISION	DATE	BY	DESCRIPTION

DESIGN PSB
DRAWN PSB
CHECKED KLC
DATE 06/05/2023

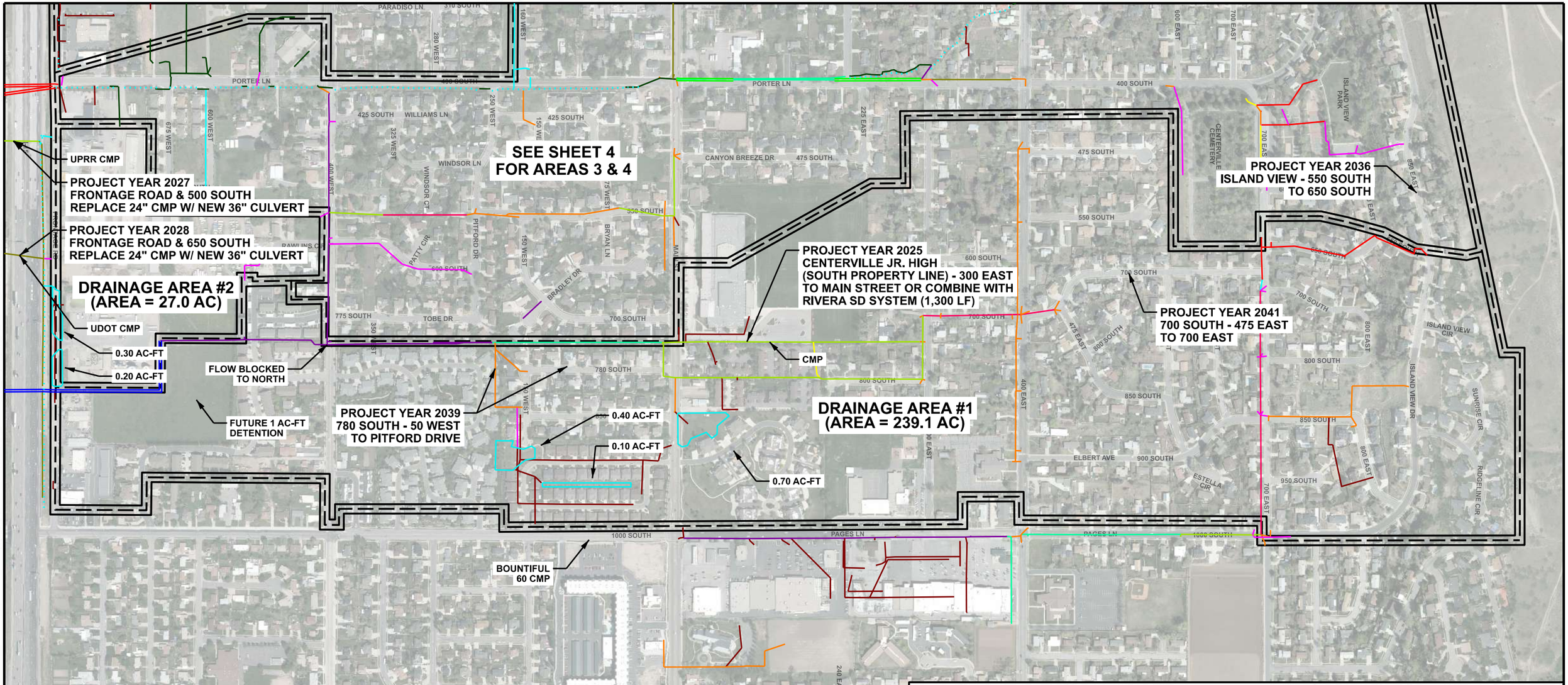
OVERALL STORM DRAIN MASTER PLAN & DRAINAGE AREAS

CENTERVILLE CITY STORM DRAIN MASTER PLAN

ESI ENGINEERING
CIVIL - STRUCTURAL - LAND SURVEY
4141 WEST 2100 SOUTH, SUITE 100
WEST VALLEY, UTAH 84120
TEL: (801) 263-1752

SHEET 2 OF 18

PROJECT NO. 20-131



LEGEND

PIPE SIZE

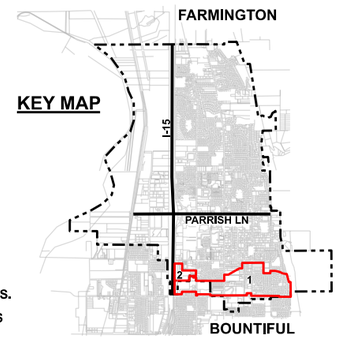
COUNTY	42		
PRIVATE	48		
STATE	54		
4	60		
6	72		
8	BOX CULVERT		
10	DETENTION AREA		
12	DRAINAGE AREA		
15	OPEN WATERWAY		
18	CMP	CORRUGATED METAL PIPE	
21	DC	DAVIS COUNTY	
24	HDPE	HIGH DENSITY POLYETHYLENE	
30	PVC	POLY VINYL CHLORIDE	
36	RCP	REINFORCED CONCRETE PIPE	
	SLPC	SMOOTH LINED PIPE CULVERT	

N

SCALE
0 500
FEET

NOTES:
1. PIPE ARE RCP UNLESS OTHERWISE SHOWN.
2. PIPE DIMENSIONS ARE INCHES.
3. PIPE OWNED BY CITY UNLESS OTHERWISE SHOWN.

KEY MAP



REVISION	DATE	BY	DESCRIPTION	DESIGN	PSB
				DRAWN	PSB
				CHECKED	KLC
				DATE	06/05/2023

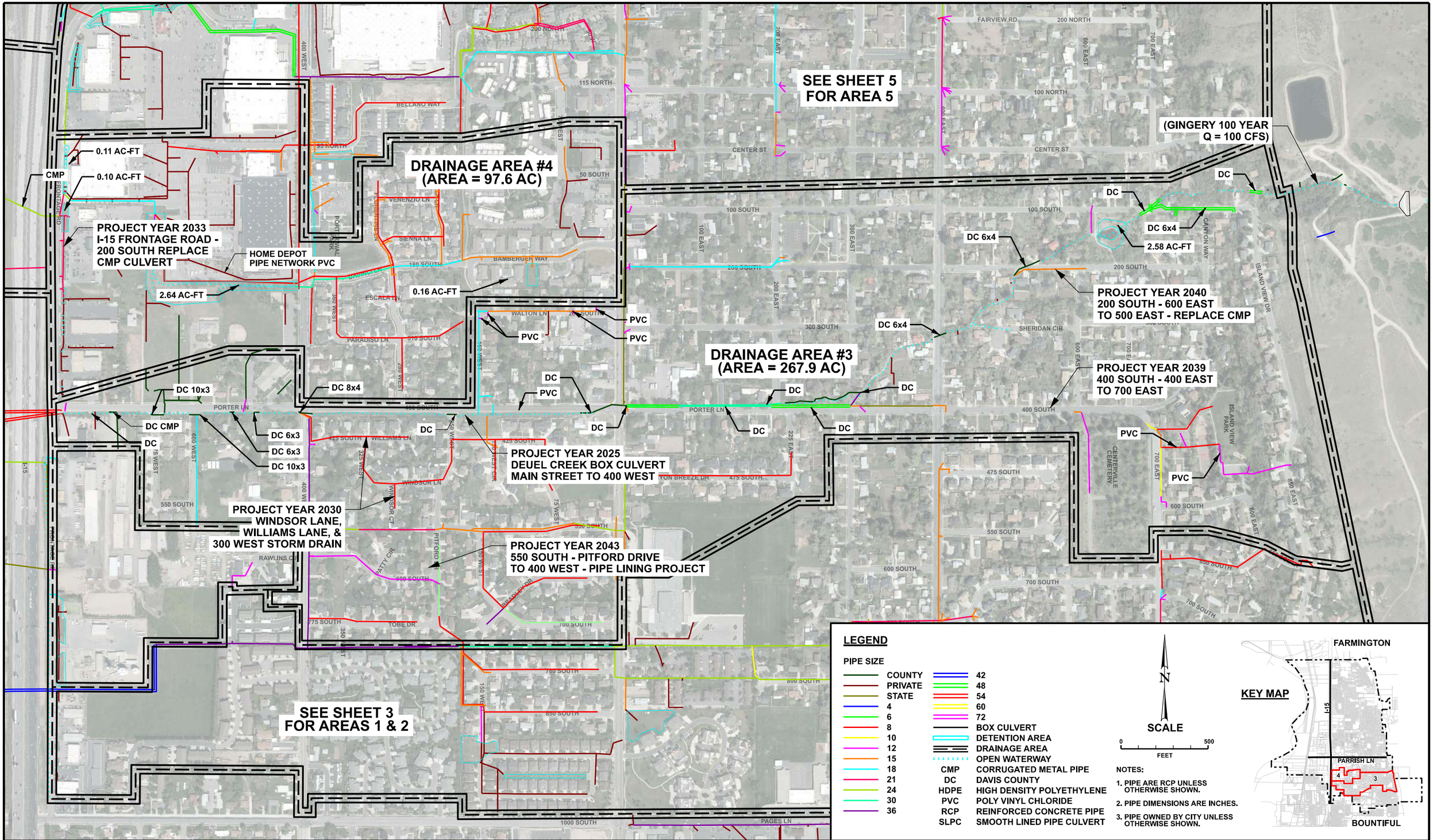
STORM DRAINAGE AREAS 1 & 2

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

ESI ENGINEERING
CIVIL - STRUCTURAL - LAND SURVEY
4141 WEST 2100 SOUTH, SUITE 100
WEST VALLEY, UTAH 84120
TEL: (801) 263-1752

SHEET 3 OF 18

PROJECT NO. 20-131



LEGEND

PIPE SIZE

COUNTY	42
PRIVATE	48
STATE	54
4	60
6	72
8	BOX CULVERT
10	DETENTION AREA
12	DRAINAGE AREA
15	OPEN WATERWAY
18	CMP CORRUGATED METAL PIPE
21	DC DAVIS COUNTY
24	HDPE HIGH DENSITY POLYETHYLENE
30	PVC POLY VINYL CHLORIDE
36	RCP REINFORCED CONCRETE PIPE
	SLPC SMOOTH LINED PIPE CULVERT

N

SCALE
0 500
FEET

NOTES:
1. PIPE ARE RCP UNLESS OTHERWISE SHOWN.
2. PIPE DIMENSIONS ARE INCHES.
3. PIPE OWNED BY CITY UNLESS OTHERWISE SHOWN.

KEY MAP

REVISION	DATE	BY	DESCRIPTION

DESIGN PSB
DRAWN PSB
CHECKED KLC
DATE 06/05/2023

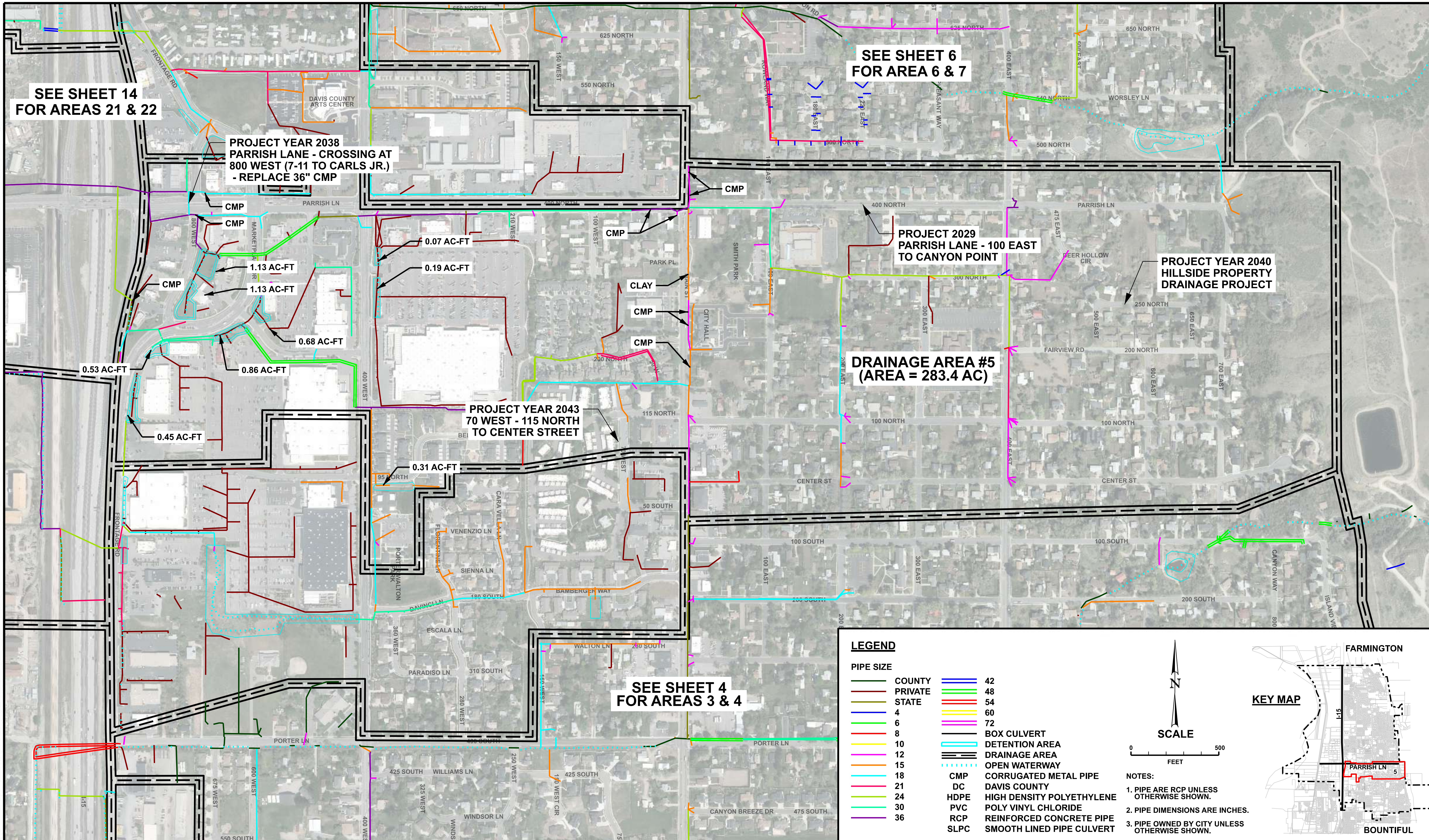
STORM DRAINAGE AREAS 3 & 4

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

ESI ENGINEERING
CIVIL - STRUCTURAL - LAND SURVEY
4141 WEST 2100 SOUTH, SUITE 100
WEST VALLEY, UTAH 84120
TEL: (801) 263-1752

SHEET 4
OF 18

PROJECT NO.
20-131



REVISION	DATE	BY	DESCRIPTION

DESIGN PSB
DRAWN PSB
CHECKED KLC
DATE 06/05/2023

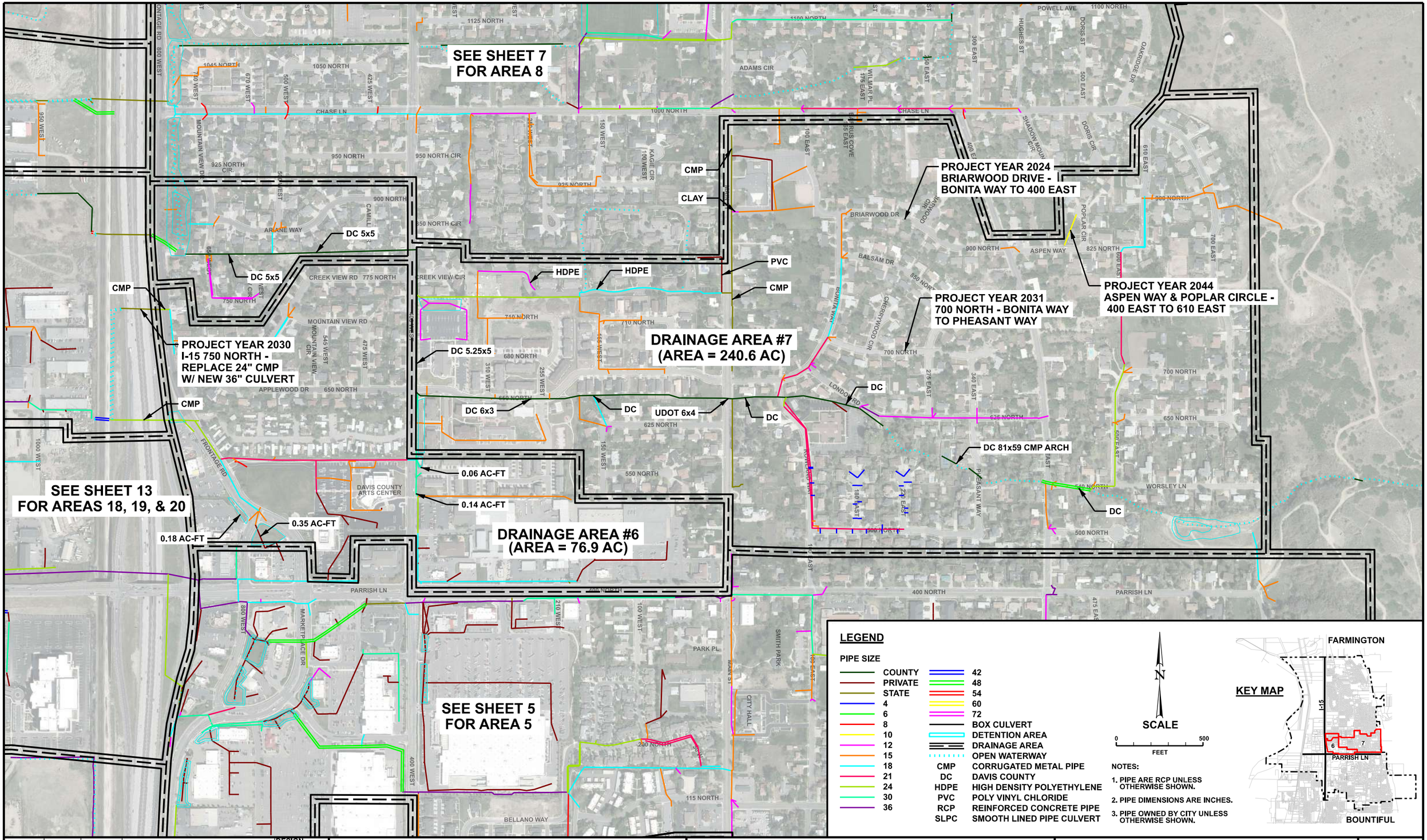
STORM DRAINAGE AREA 5

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

ESI ENGINEERING
CIVIL - STRUCTURAL - LAND SURVEY
4141 WEST 2100 SOUTH, SUITE 100
WEST VALLEY, UTAH 84120
TEL: (801) 263-1752

SHEET 5
OF 18

PROJECT NO.
20-131



LEGEND

PIPE SIZE

COUNTY	42	BOX CULVERT	
PRIVATE	48	DETENTION AREA	
STATE	54	DRAINAGE AREA	
4	60	OPEN WATERWAY	
6	72	CMP	CORRUGATED METAL PIPE
8		DC	DAVIS COUNTY
10		HDPE	HIGH DENSITY POLYETHYLENE
12		PVC	POLY VINYL CHLORIDE
15		RCP	REINFORCED CONCRETE PIPE
18		SLPC	SMOOTH LINED PIPE CULVERT
21			
24			
30			
36			

N

SCALE
0 500
FEET

NOTES:
1. PIPE ARE RCP UNLESS OTHERWISE SHOWN.
2. PIPE DIMENSIONS ARE INCHES.
3. PIPE OWNED BY CITY UNLESS OTHERWISE SHOWN.

KEY MAP

REVISION	DATE	BY	DESCRIPTION

DESIGN PSB
DRAWN PSB
CHECKED KLC
DATE 06/05/2023

STORM DRAINAGE AREAS 6 & 7

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

ESI ENGINEERING
CIVIL - STRUCTURAL - LAND SURVEY
4141 WEST 2100 SOUTH, SUITE 100
WEST VALLEY, UTAH 84120
TEL: (801) 263-1752

SHEET 6
OF 18

PROJECT NO.
20-131

LEGEND

PIPE SIZE

COUNTY		42	
PRIVATE		48	
STATE		54	
4		60	
6		72	
8		BOX CULVERT	
10		DETENTION AREA	
12		DRAINAGE AREA	
15		OPEN WATERWAY	
18	CMP	CORRUGATED METAL PIPE	
21	DC	DAVIS COUNTY	
24	HDPE	HIGH DENSITY POLYETHYLENE	
30	PVC	POLY VINYL CHLORIDE	
36	RCP	REINFORCED CONCRETE PIPE	
	SLPC	SMOOTH LINED PIPE CULVERT	

N

SCALE

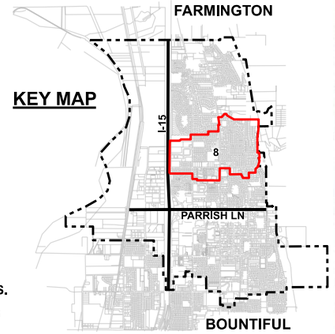
0 500

FEET

NOTES:

1. PIPE ARE RCP UNLESS OTHERWISE SHOWN.
2. PIPE DIMENSIONS ARE INCHES.
3. PIPE OWNED BY CITY UNLESS OTHERWISE SHOWN.

KEY MAP



SEE SHEET 8 FOR AREA 9

SEE SHEET 13 FOR AREAS 18, 19, & 20

SEE SHEET 6 FOR AREAS 6 & 7

DRAINAGE AREA #8 (AREA = 419.6 AC)

PROJECT YEAR 2037
CARRINGTON LANE - MAIN STREET TO RICKS CREEK RESERVIOR

PROJECT YEAR 2024
PEACHTREE - CASA LOMA DRIVE TO MAIN STREET

PROJECT YEAR 2025
NOLA DRIVE & 1375 NORTH STORM DRAIN

PROJECT YEAR 2032
NOLA DRIVE - 1200 NORTH TO 1350 NORTH

PROJECT YEAR 2033
BARNARD STREET OVERFLOW STORM DRAIN - MAIN STREET TO OAKRIDGE DRIVE

PROJECT YEAR 2029
I-15 (P106) NORTH PROPERTY LINE OF THE COMMUNITY PARK - NEW 36" CULVERT

PROJECT YEAR 2036
RICK'S CREEK CULVERT AT 575 WEST (PARALLEL W/ NEW 36" ELLIPTICAL)

PROJECT YEAR 2026
I-15 975 NORTH - NEW 48" CULVERT

(GINGERY 100 YR Q = 50 CFS)

UDOT

CMP

PVC

DC

DC PE

DC CMP

0.51 AC-FT

0.44 AC-FT

0.12 AC-FT

0.77 AC-FT

0.62 AC-FT

0.54 AC-FT

5.91 AC-FT

0.64 AC-FT

DC 5x4

DC 6x4

REVISION	DATE	BY	DESCRIPTION

DESIGN PSB
DRAWN PSB
CHECKED KLC
DATE 06/05/2023

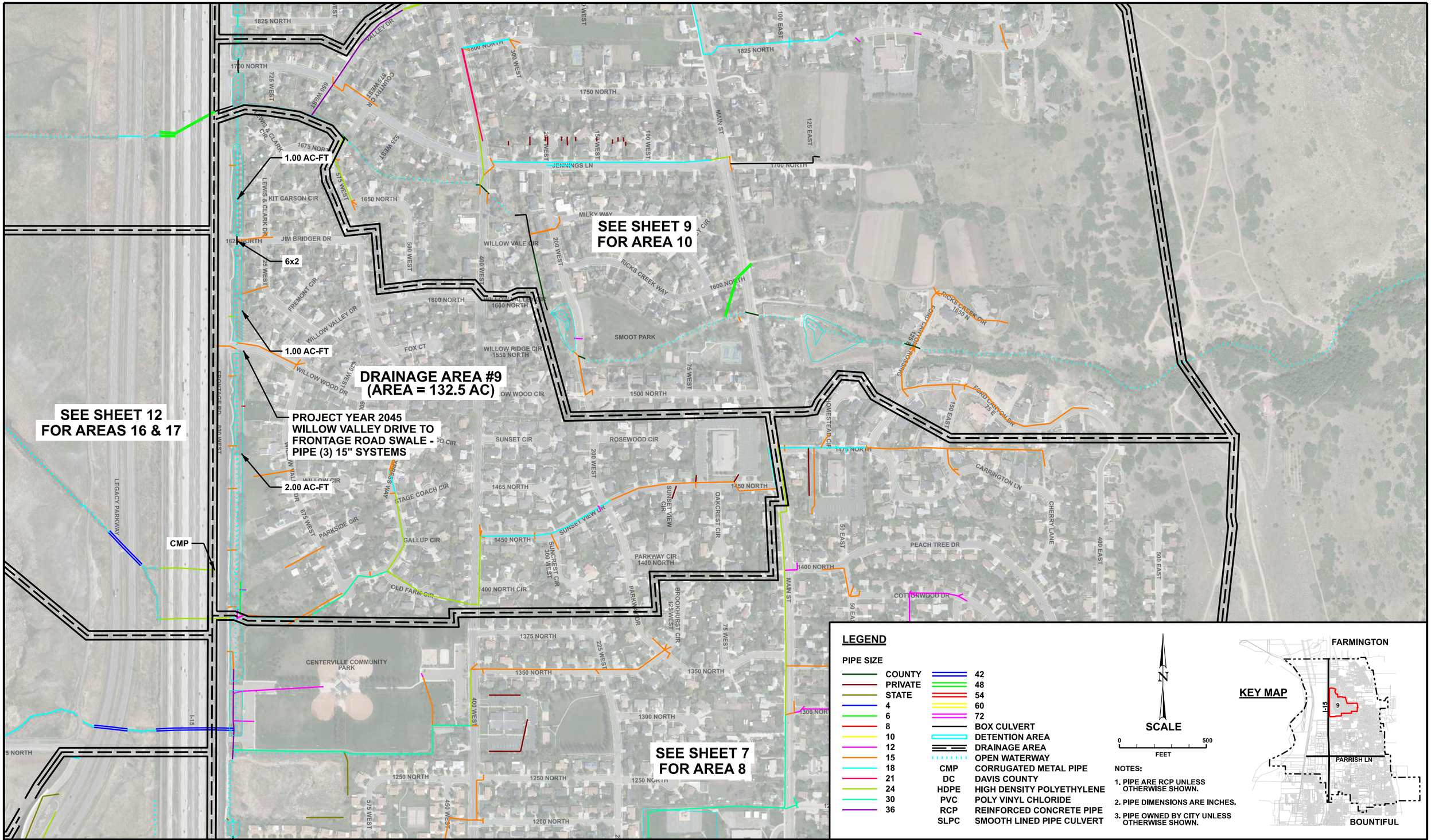
STORM DRAINAGE AREA 8

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

ESI ENGINEERING
CIVIL - STRUCTURAL - LAND SURVEY
4141 WEST 2100 SOUTH, SUITE 100
WEST VALLEY, UTAH 84120
TEL: (801) 263-1752

SHEET 7 OF 18

PROJECT NO. 20-131



LEGEND

PIPE SIZE

COUNTY	42		
PRIVATE	48		
STATE	54		
4	60		
6	72		
8	BOX CULVERT		
10	DETENTION AREA		
12	DRAINAGE AREA		
15	OPEN WATERWAY		
18	CMP	CORRUGATED METAL PIPE	
21	DC	DAVIS COUNTY	
24	HDPE	HIGH DENSITY POLYETHYLENE	
30	PVC	POLY VINYL CHLORIDE	
36	RCP	REINFORCED CONCRETE PIPE	
	SLPC	SMOOTH LINED PIPE CULVERT	

N

SCALE

0 500

FEET

NOTES:

1. PIPE ARE RCP UNLESS OTHERWISE SHOWN.
2. PIPE DIMENSIONS ARE INCHES.
3. PIPE OWNED BY CITY UNLESS OTHERWISE SHOWN.

KEY MAP

REVISION	DATE	BY	DESCRIPTION

DESIGN PSB
DRAWN PSB
CHECKED KLC
DATE 06/05/2023

STORM DRAINAGE AREA 9

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

ESI ENGINEERING
CIVIL - STRUCTURAL - LAND SURVEY
4141 WEST 2100 SOUTH, SUITE 100
WEST VALLEY, UTAH 84120
TEL: (801) 263-1752

SHEET 8
OF 18

PROJECT NO.
20-131

LEGEND

PIPE SIZE

COUNTY	42
PRIVATE	48
STATE	54
4	60
6	72
8	BOX CULVERT
10	DETENTION AREA
12	DRAINAGE AREA
15	OPEN WATERWAY
18	CORRUGATED METAL PIPE
21	DAVIS COUNTY
24	HIGH DENSITY POLYETHYLENE
30	POLY VINYL CHLORIDE
36	REINFORCED CONCRETE PIPE
CMP	SMOOTH LINED PIPE CULVERT
DC	
HDPE	
PVC	
RCP	
SLPC	

N

SCALE

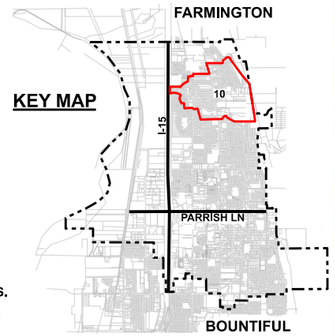
0 500

FEET

NOTES:

1. PIPE ARE RCP UNLESS OTHERWISE SHOWN.
2. PIPE DIMENSIONS ARE INCHES.
3. PIPE OWNED BY CITY UNLESS OTHERWISE SHOWN.

KEY MAP



SEE SHEET 10
FOR AREAS 11, 12 & 13

PROJECT YEAR 2046
1975 NORTH - MAIN STREET
TO 150 EAST

UDOT

CMP

UDOT

UDOT

PROJECT YEAR 2046
1825 NORTH - MAIN STREET
TO 300 EAST

SEE SHEET 9
FOR AREA 10

0.14 AC-FT

0.38 AC-FT

DC 10x3

DRAINAGE AREA #10
(AREA = 333.7 AC)

UDOT

CMP

DC CMP
81x59 ARCH

PROJECT YEAR 2045
MAIN STREET - 1600 NORTH
TO SMOOT PARK

DC CMP
CONCRETE
LINED BOTTOM

1.16 AC-FT

CMP

DC CMP

DC 72 CMP

6.68 AC-FT

(GINGERY 100 YR
Q = 150 CFS)

SEE SHEET 8
FOR AREA 9

REVISION	DATE	BY	DESCRIPTION

DESIGN	PSB
DRAWN	PSB
CHECKED	KLC
DATE	06/05/2023

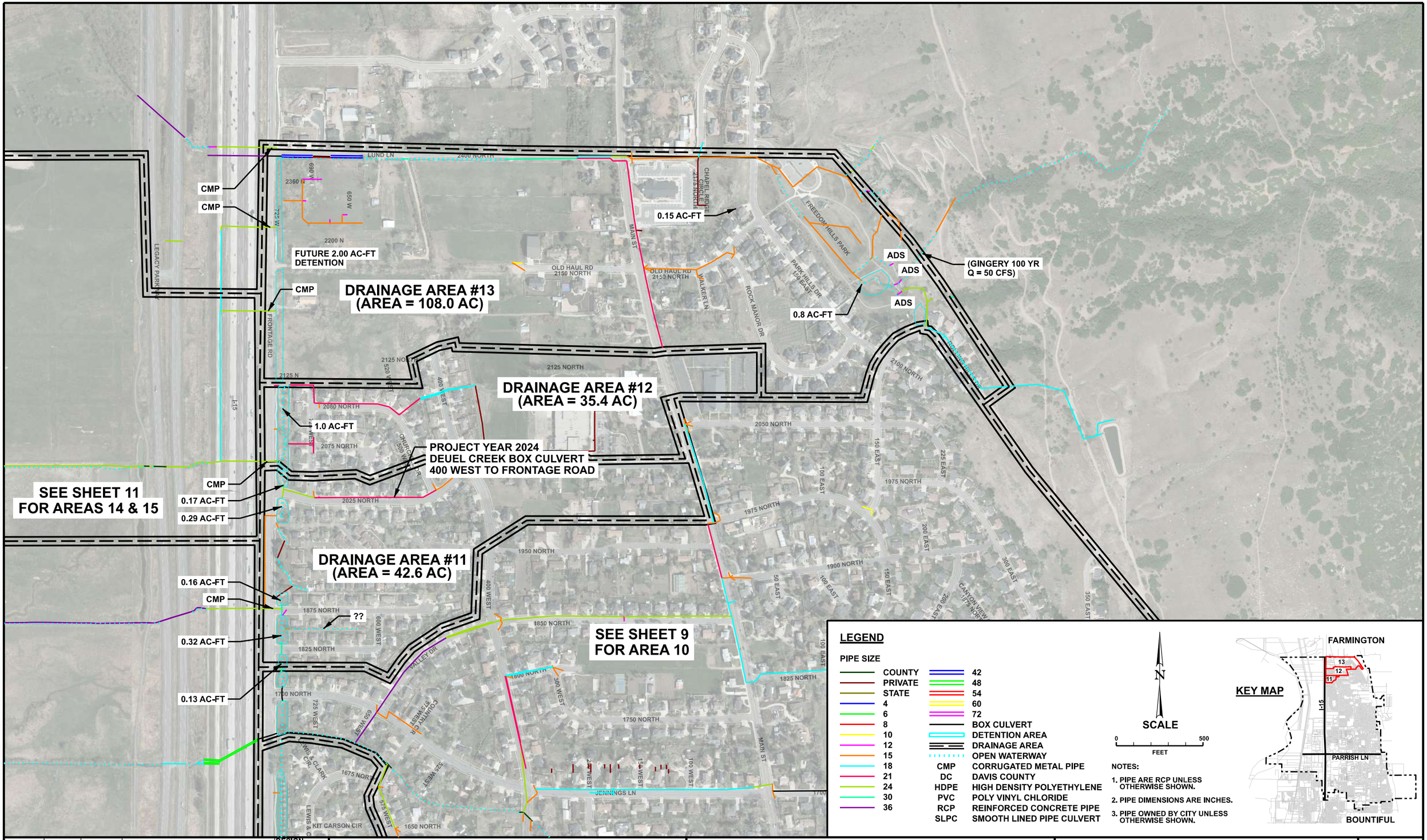
STORM DRAINAGE AREA 10

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

ESI ENGINEERING
CIVIL - STRUCTURAL - LAND SURVEY
4141 WEST 2100 SOUTH, SUITE 100
WEST VALLEY, UTAH 84120
TEL: (801) 263-1752

SHEET 9
OF 18

PROJECT NO.
20-131



LEGEND

PIPE SIZE

COUNTY	42
PRIVATE	48
STATE	54
4	60
6	72
8	BOX CULVERT
10	DETENTION AREA
12	DRAINAGE AREA
15	OPEN WATERWAY
18	CMP CORRUGATED METAL PIPE
21	DC DAVIS COUNTY
24	HDPE HIGH DENSITY POLYETHYLENE
30	PVC POLY VINYL CHLORIDE
36	RCP REINFORCED CONCRETE PIPE
	SLPC SMOOTH LINED PIPE CULVERT

N

SCALE

0 500

FEET

NOTES:

1. PIPE ARE RCP UNLESS OTHERWISE SHOWN.
2. PIPE DIMENSIONS ARE INCHES.
3. PIPE OWNED BY CITY UNLESS OTHERWISE SHOWN.

KEY MAP

REVISION	DATE	BY	DESCRIPTION

DESIGN	PSB
DRAWN	PSB
CHECKED	KLC
DATE	06/05/2023

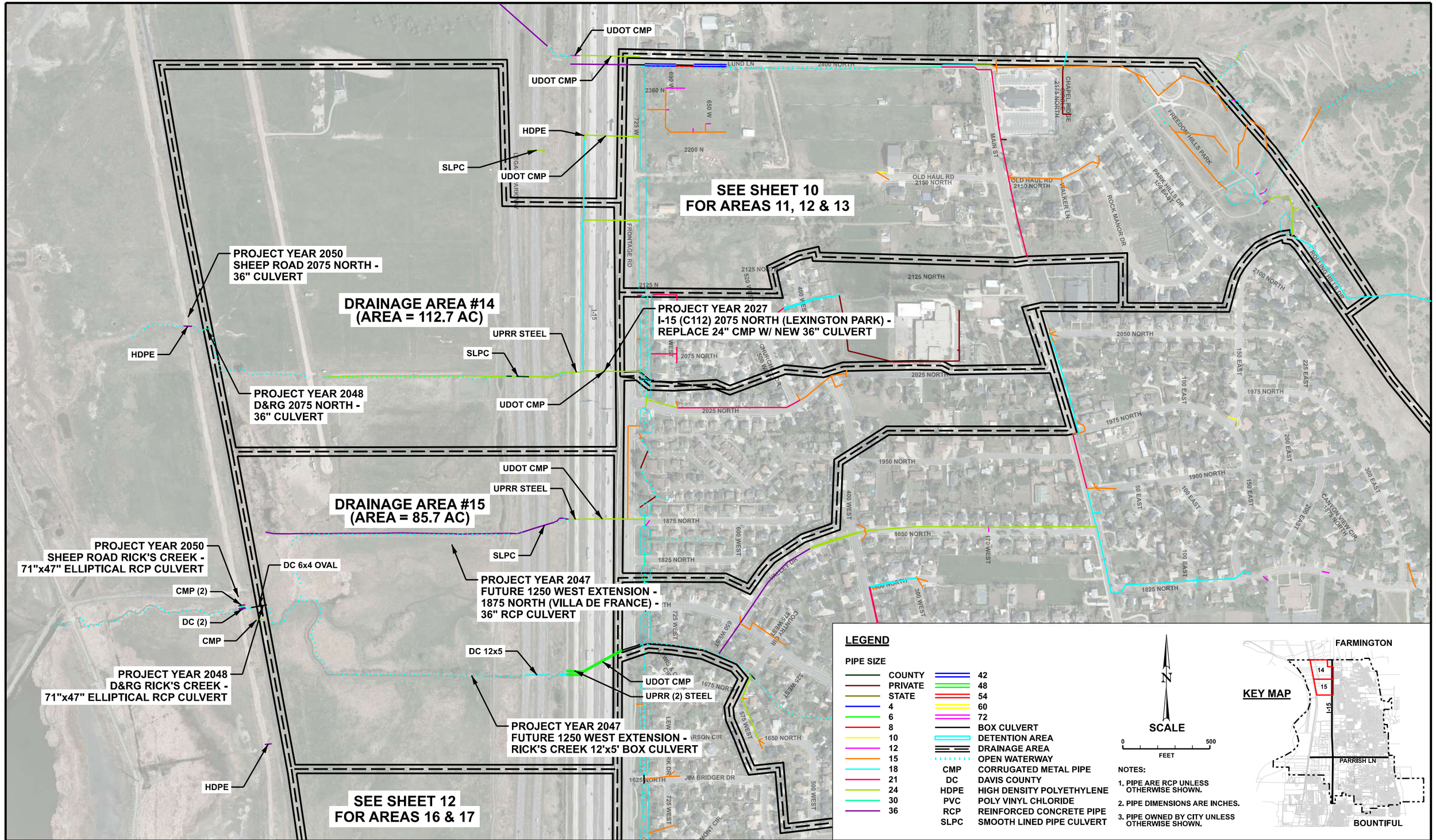
STORM DRAINAGE AREAS 11, 12, & 13

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

ESI ENGINEERING
CIVIL - STRUCTURAL - LAND SURVEY
4141 WEST 2100 SOUTH, SUITE 100
WEST VALLEY, UTAH 84120
TEL: (801) 263-1752

SHEET 10 OF 18

PROJECT NO. 20-131



REVISION	DATE	BY	DESCRIPTION

DESIGN	PSB
DRAWN	PSB
CHECKED	KLC
DATE	06/05/2023

STORM DRAINAGE AREAS 14 & 15

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

ESI ENGINEERING
CIVIL - STRUCTURAL - LAND SURVEY
4141 WEST 2100 SOUTH, SUITE 100
WEST VALLEY, UTAH 84120
TEL: (801) 263-1752

SHEET 11
OF 18

PROJECT NO.
20-131

SEE SHEET 11
FOR AREAS 14 & 15

SEE SHEET 8
FOR AREA 9

SEE SHEET 13
FOR AREAS 18, 19 & 20

CMP
HDPE
CMP
SLPC
UPRR CMP
UDOT CMP
HDPE
UDOT CMP
CMP
PROJECT YEAR 2044
1275 NORTH - 1300 WEST
TO 1250 WEST
HDPE
HDPE
HDPE
CMP
UDOT CMP
PROJECT YEAR 2049
1275 NORTH - REPLACE ADS
WITH RCP
UPRR STEEL
SLPC
HDPE
HDPE
CMP
CMP

LEGAL DRIVE
LEWIS & CLARK CIR
1675 NORTH
525 WEST
575 WEST
LEWIS & CLARK DR
KIT CARSON CIR
1650 NORTH
JIM BRIDGER DR
1625 NORTH
725 WEST
FREMONT CIR
500 WEST
400 WEST
1600 NORTH
FOX CT
WILLOW RIDGE CIR
1550 NORTH
WILLOW WOOD DR
630 WEST
1500 NORTH
WILLOW WOOD CIR
WILLOW BEND DR
690 WEST
WILLOW VALLEY DR
675 WEST
WILLOW CIR
PARKSIDE CIR
SADDLEWOOD CIR
RIVER CREEK WAY
STAGE COACH CIR
GALLUP CIR
1465 NORTH
1450 NORTH
SUNSET CIR
ROSEWOOD CIR
200 WEST
SUNSET VIEW DR
SUNSET VIEW CIR
OAKCREST CIR
SUNCREST CIR
300 WEST
OLD FARM CIR
1400 NORTH CIR
PARKWAY CIR
1400 NORTH
1375 NORTH
1350 NORTH
CENTERVILLE COMMUNITY PARK
225 WEST
125 WEST
75 WEST
BROOKHURST CIR
PARKWAY DR
400
1275 NORTH
1300 WEST
FRONTAGE RD
800 WEST
I-15
LEGACY PARKWAY
725 WEST
700 WEST
FRONTAGE RD
1750 NORTH
JENNINGS LN
1700 NORTH
MILKY WAY
1650 NORTH
JERSEY CIR
WILLOW VALE CIR
RICKS CREEK WAY
1600 NORTH
SMOOT PARK
MAIN ST
125 EAST
HOMESTEAD CIR
1475 NORTH
50 EAST
PEACH
1400 NORTH
COTTONWOOD
MAIN ST
50 EAST
PARRISH LN

LEGEND

PIPE SIZE

COUNTY	42
PRIVATE	48
STATE	54
4	60
6	72
8	BOX CULVERT
10	DETENTION AREA
12	DRAINAGE AREA
15	OPEN WATERWAY
18	CMP CORRUGATED METAL PIPE
21	DC DAVIS COUNTY
24	HDPE HIGH DENSITY POLYETHYLENE
30	PVC POLY VINYL CHLORIDE
36	RCP REINFORCED CONCRETE PIPE
	SLPC SMOOTH LINED PIPE CULVERT

N

SCALE
0 500
FEET

NOTES:
1. PIPE ARE RCP UNLESS OTHERWISE SHOWN.
2. PIPE DIMENSIONS ARE INCHES.
3. PIPE OWNED BY CITY UNLESS OTHERWISE SHOWN.

KEY MAP
FARMINGTON
16
15
17
PARRISH LN
BOUNTIFUL

REVISION	DATE	BY	DESCRIPTION

DESIGN PSB
DRAWN PSB
CHECKED KLC
DATE 06/05/2023

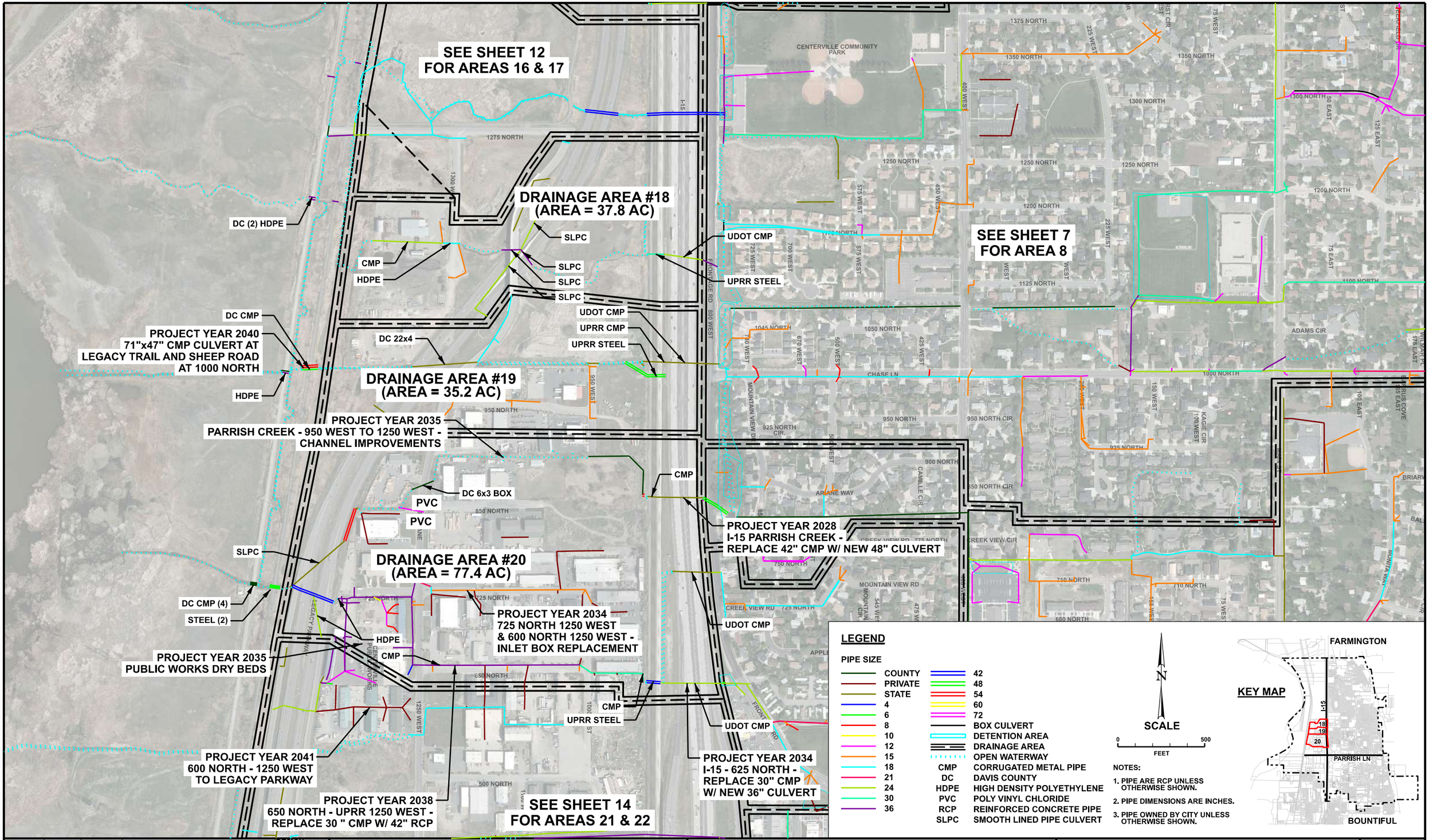
STORM DRAINAGE AREAS 16 & 17

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

ESI ENGINEERING
CIVIL - STRUCTURAL - LAND SURVEY
4141 WEST 2100 SOUTH, SUITE 100
WEST VALLEY, UTAH 84120
TEL: (801) 263-1752

SHEET 12
OF 18

PROJECT NO.
20-131



REVISION	DATE	BY	DESCRIPTION

DESIGN PSB
DRAWN PSB
CHECKED KLC
DATE 06/05/2023

STORM DRAINAGE AREAS 18, 19, & 20

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

ESI ENGINEERING
CIVIL - STRUCTURAL - LAND SURVEY
4141 WEST 2100 SOUTH, SUITE 100
WEST VALLEY, UTAH 84120
TEL: (801) 263-1752

SHEET 13 OF 18

PROJECT NO. 20-131

SEE SHEET 13
FOR AREAS 18, 19, & 20

DRAINAGE AREA #21
(AREA = 124.3 AC)

DRAINAGE AREA #22
(AREA = 96.5 AC)

SEE SHEET 6
FOR AREA 6 & 7

SEE SHEET 5
FOR AREA 5

SEE SHEET 4
FOR AREAS 3 & 4

HDPE

HDPE

HDPE

PROJECT YEAR 2041
400 NORTH - 1250 WEST
TO 1350 WEST

CMP

PROJECT YEAR 2026
I-15 PARRISH LANE (400 NORTH) -
REPLACE 36" CMP W/ NEW 36" CULVERT

5x3 OVAL

PROJECT YEAR 2042
400 NORTH - 1550 WEST
TO 1300 WEST

HDPE

CMP

PROJECT YEAR 2031
I-15 PARRISH LANE (400 NORTH) -
REPLACE 24" CMP ALONG EAST SIDE
OF I-15 & 800 WEST CROSSING
TO PARRISH LANE

CMP

HDPE

HDPE

HDPE

PROJECT YEAR 2042
1250 WEST - CROSSING AT 75 NORTH

CMP

UPRR STEEL

UDOT CMP

PROJECT YEAR 2032
I-15 100 SOUTH - REPLACE
24" CMP W/ NEW 36" CULVERT

UDOT CMP

PROJECT YEAR 2037
500 SOUTH - UPRR/UTA -
REPLACE 24" CMP W/ NEW 36 CULVERT

CREEK VIEW RD
725 NORTH
APPLEWOOD DR
650 NORTH
680 NORTH
625 NORTH
550 NORTH
DAVIS COUNTY
ARTS CENTER
FRONTAGE RD
PARRISH LN
MARKETPLACE DR
PARK PL
CITY HALL
SMITH PARK
200 NORTH
115 NORTH
BELLANO WAY
95 NORTH
50 SOUTH
VENEZIO LN
SIENNA LN
CARA VEN LN
FLORENTINE LN
75 NORTH
400 SOUTH
CHILD LANE
1250 WEST
1000 WEST
800 WEST
300 WEST
400 WEST
210 WEST
100 WEST
150 WEST
310 WEST
255 WEST
175 WEST

LEGEND

PIPE SIZE

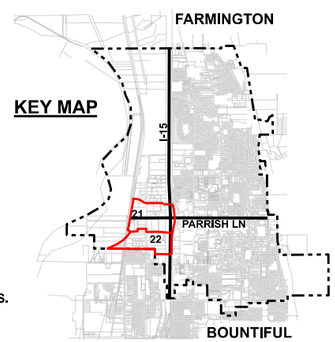
COUNTY	42
PRIVATE	48
STATE	54
4	60
6	72
8	BOX CULVERT
10	DETENTION AREA
12	DRAINAGE AREA
15	OPEN WATERWAY
18	CMP CORRUGATED METAL PIPE
21	DC DAVIS COUNTY
24	HDPE HIGH DENSITY POLYETHYLENE
30	PVC POLY VINYL CHLORIDE
36	RCP REINFORCED CONCRETE PIPE
	SLPC SMOOTH LINED PIPE CULVERT

N

SCALE
0 500
FEET

NOTES:
1. PIPE ARE RCP UNLESS OTHERWISE SHOWN.
2. PIPE DIMENSIONS ARE INCHES.
3. PIPE OWNED BY CITY UNLESS OTHERWISE SHOWN.

KEY MAP



REVISION	DATE	BY	DESCRIPTION

DESIGN PSB
DRAWN PSB
CHECKED KLC
DATE 06/05/2023

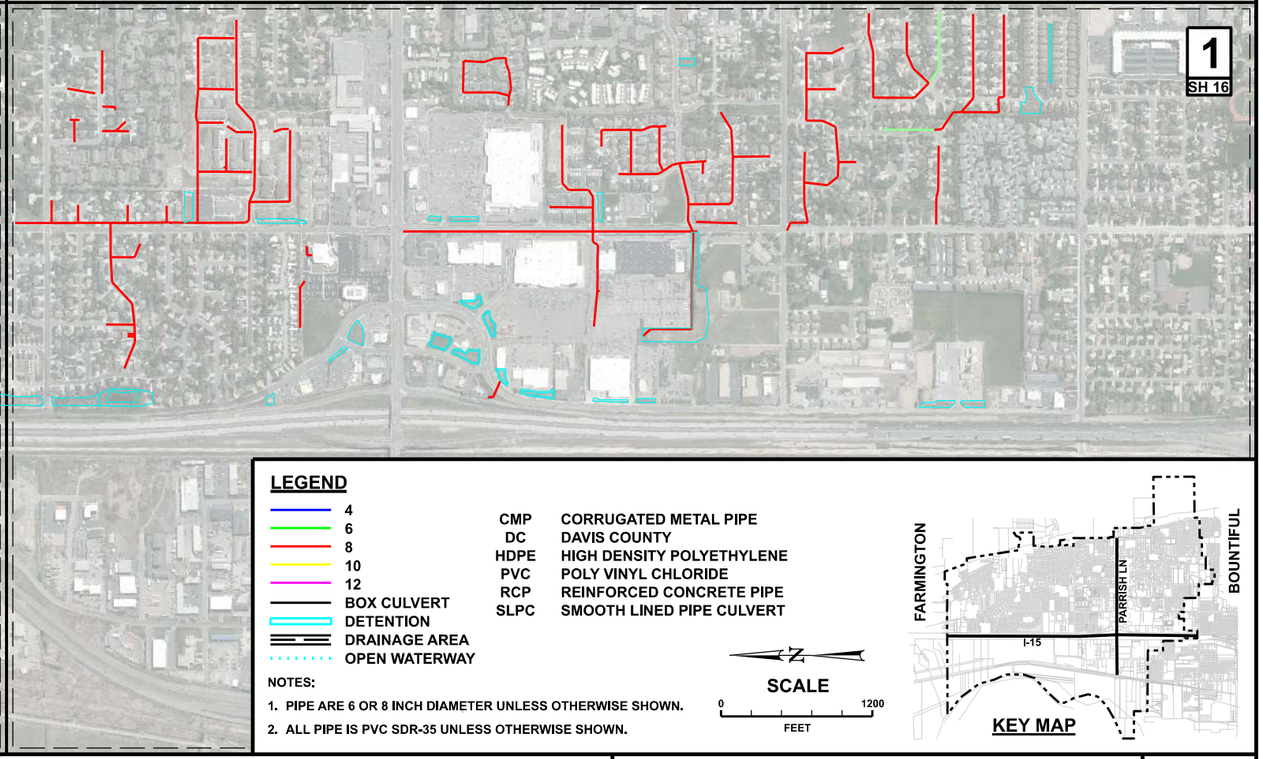
STORM DRAINAGE AREAS 21 & 22

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

ESI ENGINEERING
CIVIL - STRUCTURAL - LAND SURVEY
4141 WEST 2100 SOUTH, SUITE 100
WEST VALLEY, UTAH 84120
TEL: (801) 263-1752

SHEET 14
OF 18

PROJECT NO.
20-131



LEGEND

- 4
- 6
- 8
- 10
- 12
- BOX CULVERT
- DETENTION
- DRAINAGE AREA
- OPEN WATERWAY

CMP	CORRUGATED METAL PIPE
DC	DAVIS COUNTY
HDPE	HIGH DENSITY POLYETHYLENE
PVC	POLY VINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
SLPC	SMOOTH LINED PIPE CULVERT

NOTES:

1. PIPE ARE 6 OR 8 INCH DIAMETER UNLESS OTHERWISE SHOWN.
2. ALL PIPE IS PVC SDR-35 UNLESS OTHERWISE SHOWN.

SCALE

0 1200

FEET

KEY MAP

REVISION	DATE	BY	DESCRIPTION

DESIGN	PSB
DRAWN	PSB
CHECKED	KLC
DATE	06/08/2023

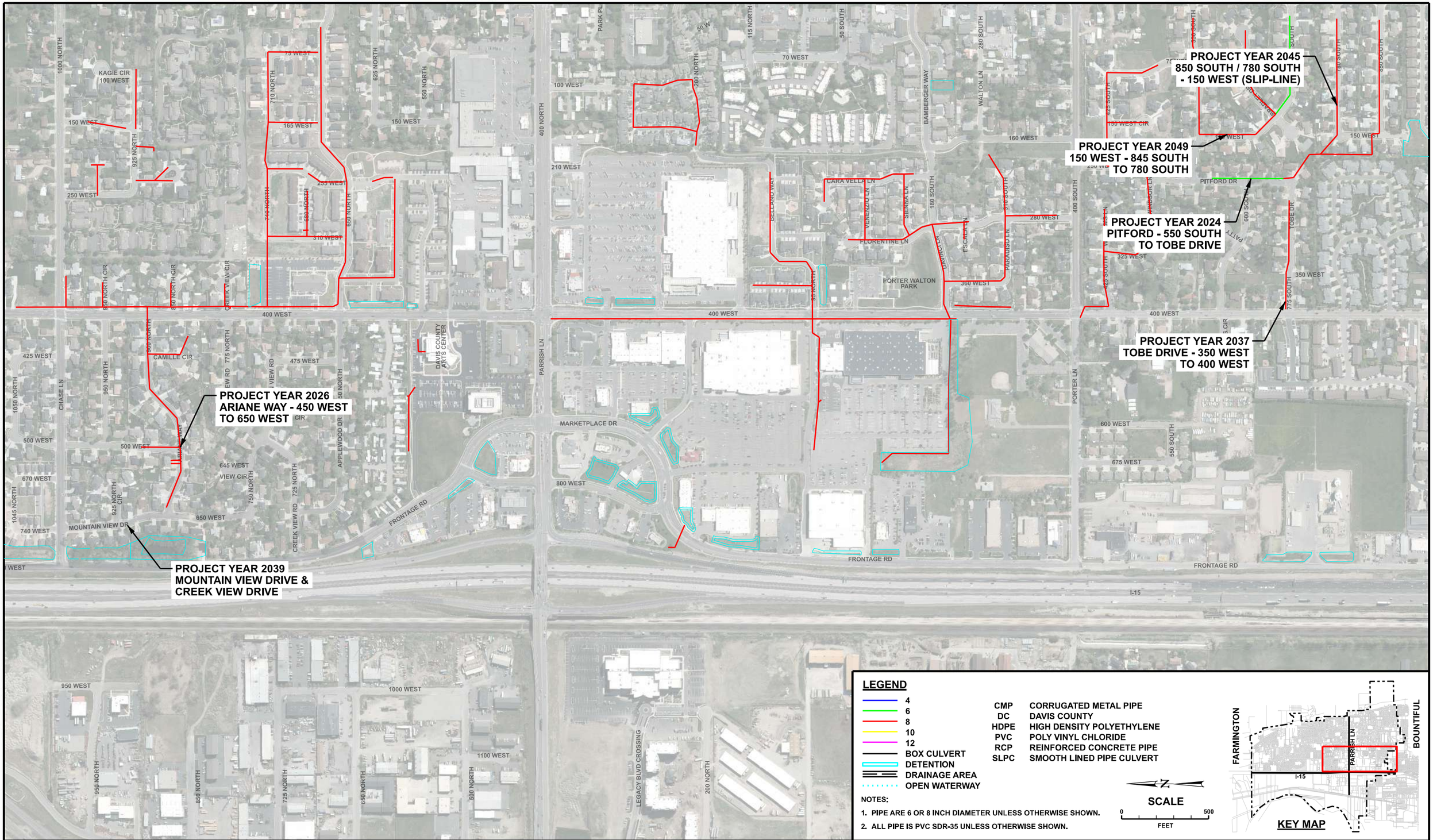
OVERALL SUB-SURFACE MASTER PLAN & DRAINAGE AREAS

CENTERVILLE CITY STORM DRAIN MASTER PLAN

ESI ENGINEERING
CIVIL - STRUCTURAL - LAND SURVEY
4141 WEST 2100 SOUTH, SUITE 100
WEST VALLEY, UTAH 84120
TEL: (801) 263-1752

SHEET 15
OF 18

PROJECT NO.
20-131



LEGEND

4	
6	
8	
10	
12	
BOX CULVERT	
DETENTION	
DRAINAGE AREA	
OPEN WATERWAY	

CMP	CORRUGATED METAL PIPE
DC	DAVIS COUNTY
HDPE	HIGH DENSITY POLYETHYLENE
PVC	POLY VINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
SLPC	SMOOTH LINED PIPE CULVERT

NOTES:

1. PIPE ARE 6 OR 8 INCH DIAMETER UNLESS OTHERWISE SHOWN.
2. ALL PIPE IS PVC SDR-35 UNLESS OTHERWISE SHOWN.

SCALE

0 500

FEET

KEY MAP

REVISION	DATE	BY	DESCRIPTION

DESIGN	PSB
DRAWN	PSB
CHECKED	KLC
DATE	06/05/2023

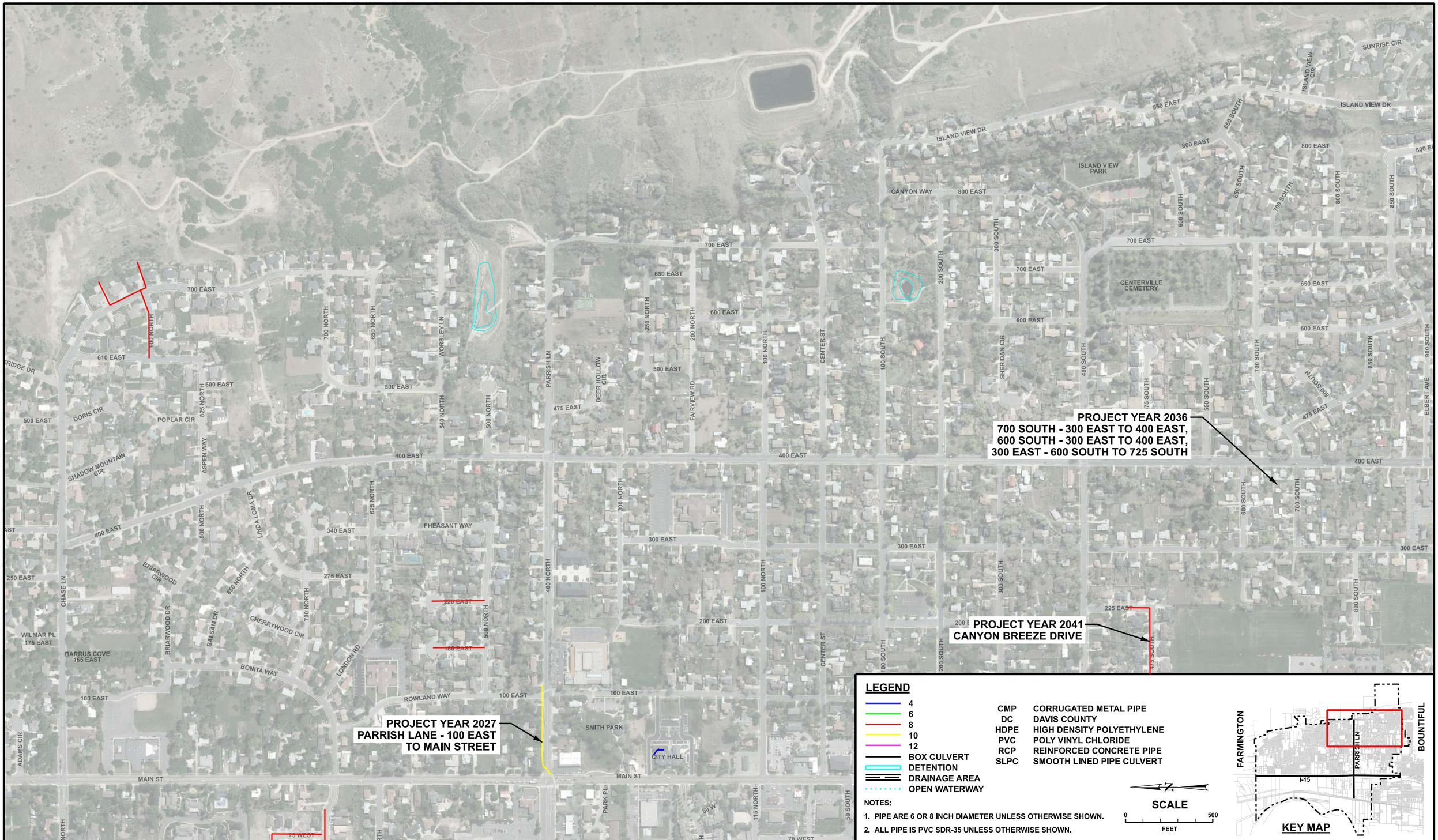
SUB-DRAIN DRAINAGE AREA 1

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

ESI ENGINEERING
CIVIL - STRUCTURAL - LAND SURVEY
4141 WEST 2100 SOUTH, SUITE 100
WEST VALLEY, UTAH 84120
TEL: (801) 263-1752

SHEET 16
OF 18

PROJECT NO.
20-131



LEGEND

- 4
- 6
- 8
- 10
- 12
- BOX CULVERT
- DETENTION
- DRAINAGE AREA
- OPEN WATERWAY

CMP	CORRUGATED METAL PIPE
DC	DAVIS COUNTY
HDPE	HIGH DENSITY POLYETHYLENE
PVC	POLY VINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
SLPC	SMOOTH LINED PIPE CULVERT

NOTES:

1. PIPE ARE 6 OR 8 INCH DIAMETER UNLESS OTHERWISE SHOWN.
2. ALL PIPE IS PVC SDR-35 UNLESS OTHERWISE SHOWN.

SCALE
0 500
FEET

REVISION	DATE	BY	DESCRIPTION

DESIGN PSB
DRAWN PSB
CHECKED KLC
DATE 06/05/2023

SUB-DRAIN DRAINAGE AREA 2

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

ESI ENGINEERING
CIVIL - STRUCTURAL - LAND SURVEY
4141 WEST 2100 SOUTH, SUITE 100
WEST VALLEY, UTAH 84120
TEL: (801) 263-1752

SHEET 17
OF 18

PROJECT NO.
20-131

PROJECT YEAR 2047
FREEDOM HILLS PARK
SOUTH EAST CORNER
SUB-DRAIN & DUNCAN SPRING

PROJECT YEAR 2031
1600 NORTH (RICKS CREEK WAY) -
100 WEST TO 200 WEST

PROJECT YEAR 2032
1650 NORTH (MILKY WAY) -
100 WEST TO 200 WEST

PROJECT YEAR 2044
100 WEST CUL-DE-SAC
ON 1450 NORTH

PROJECT YEAR 2029
1850 NORTH - 100 WEST
TO 400 WEST

PROJECT YEAR 2030
1500 NORTH CUL-DE-SAC
ON 400 WAST

PROJECT YEAR 2033
1800 NORTH - 300 WEST
TO 400 WEST

PROJECT YEAR 2043
400 WEST - 1500 NORTH
TO 1375 NORTH

PROJECT YEAR 2046
LUND LANE - 700 WEST
TO 200 WEST

PROJECT YEAR 2048
2100 NORTH - 400 WEST
TO CHURCHILL DRIVE
(IN BACKYARDS OF 2115 NORTH
& 2101 NORTH)

PROJECT YEAR 2050
2075 NORTH / 725 WEST

PROJECT YEAR 2034
LEWIS & CLARK DRIVE -
FREMONT CIRCLE TO JIM BRIDGER DRIVE
/FRONTAGE ROAD CROSSING

LEGEND

- 4
- 6
- 8
- 10
- 12
- BOX CULVERT
- DETENTION
- DRAINAGE AREA
- OPEN WATERWAY

CMP	CORRUGATED METAL PIPE
DC	DAVIS COUNTY
HDPE	HIGH DENSITY POLYETHYLENE
PVC	POLY VINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
SLPC	SMOOTH LINED PIPE CULVERT

NOTES:
1. PIPE ARE 6 OR 8 INCH DIAMETER UNLESS OTHERWISE SHOWN.
2. ALL PIPE IS PVC SDR-35 UNLESS OTHERWISE SHOWN.

SCALE
0 500
FEET

KEY MAP

REVISION	DATE	BY	DESCRIPTION

DESIGN PSB
DRAWN PSB
CHECKED KLC
DATE 06/05/2023

SUB-DRAIN DRAINAGE AREA 3

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

ESI ENGINEERING
CIVIL - STRUCTURAL - LAND SURVEY
4141 WEST 2100 SOUTH, SUITE 100
WEST VALLEY, UTAH 84120
TEL: (801) 263-1752

SHEET 18
OF 18

PROJECT NO.
20-131

Appendix B

Centerville City NOAA Rainfall Data

NOAA Atlas 14, Volume 1, Version 5
Location name: Centerville, Utah, USA*
Latitude: 40.9202°, Longitude: -111.879°
Elevation: 4290 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.138 (0.119-0.162)	0.174 (0.152-0.206)	0.238 (0.205-0.280)	0.296 (0.252-0.350)	0.390 (0.324-0.465)	0.479 (0.386-0.576)	0.583 (0.454-0.708)	0.707 (0.529-0.875)	0.907 (0.644-1.16)	1.09 (0.741-1.43)
10-min	0.210 (0.182-0.247)	0.265 (0.230-0.313)	0.362 (0.312-0.427)	0.450 (0.384-0.532)	0.594 (0.494-0.707)	0.729 (0.588-0.876)	0.887 (0.692-1.08)	1.08 (0.806-1.33)	1.38 (0.980-1.76)	1.66 (1.13-2.17)
15-min	0.260 (0.225-0.307)	0.329 (0.285-0.388)	0.449 (0.387-0.529)	0.558 (0.476-0.660)	0.736 (0.612-0.877)	0.903 (0.728-1.09)	1.10 (0.857-1.34)	1.33 (0.999-1.65)	1.71 (1.22-2.18)	2.06 (1.40-2.70)
30-min	0.351 (0.304-0.413)	0.443 (0.384-0.523)	0.605 (0.521-0.712)	0.751 (0.640-0.888)	0.992 (0.824-1.18)	1.22 (0.981-1.46)	1.48 (1.16-1.80)	1.79 (1.34-2.22)	2.30 (1.64-2.94)	2.78 (1.88-3.63)
60-min	0.434 (0.376-0.511)	0.548 (0.476-0.647)	0.748 (0.645-0.881)	0.930 (0.793-1.10)	1.23 (1.02-1.46)	1.51 (1.21-1.81)	1.83 (1.43-2.22)	2.22 (1.66-2.75)	2.85 (2.02-3.63)	3.44 (2.33-4.49)
2-hr	0.574 (0.509-0.660)	0.716 (0.636-0.826)	0.927 (0.816-1.07)	1.13 (0.981-1.30)	1.45 (1.24-1.70)	1.75 (1.45-2.06)	2.12 (1.69-2.52)	2.54 (1.96-3.10)	3.23 (2.35-4.05)	3.87 (2.69-4.98)
3-hr	0.675 (0.607-0.763)	0.833 (0.749-0.943)	1.04 (0.927-1.18)	1.24 (1.09-1.40)	1.56 (1.35-1.78)	1.85 (1.56-2.14)	2.20 (1.82-2.58)	2.63 (2.10-3.14)	3.32 (2.53-4.08)	3.96 (2.89-5.00)
6-hr	0.887 (0.813-0.973)	1.08 (0.994-1.19)	1.31 (1.19-1.44)	1.51 (1.37-1.67)	1.82 (1.62-2.02)	2.08 (1.83-2.32)	2.39 (2.06-2.71)	2.76 (2.32-3.18)	3.45 (2.81-4.12)	4.07 (3.23-5.05)
12-hr	1.13 (1.03-1.24)	1.38 (1.26-1.52)	1.66 (1.52-1.84)	1.91 (1.73-2.11)	2.28 (2.04-2.54)	2.59 (2.28-2.90)	2.92 (2.53-3.31)	3.28 (2.78-3.77)	3.87 (3.19-4.56)	4.37 (3.51-5.25)
24-hr	1.44 (1.33-1.57)	1.77 (1.63-1.93)	2.11 (1.94-2.29)	2.40 (2.20-2.60)	2.79 (2.55-3.03)	3.10 (2.82-3.36)	3.41 (3.09-3.71)	3.73 (3.37-4.06)	4.16 (3.72-4.60)	4.49 (3.99-5.30)
2-day	1.70 (1.57-1.85)	2.08 (1.92-2.26)	2.48 (2.29-2.70)	2.82 (2.60-3.06)	3.27 (3.00-3.55)	3.62 (3.31-3.93)	3.97 (3.62-4.33)	4.33 (3.92-4.73)	4.81 (4.32-5.27)	5.17 (4.61-5.69)
3-day	1.88 (1.73-2.05)	2.31 (2.13-2.52)	2.77 (2.55-3.02)	3.15 (2.89-3.43)	3.67 (3.36-4.00)	4.08 (3.71-4.44)	4.49 (4.07-4.90)	4.92 (4.43-5.38)	5.48 (4.90-6.03)	5.92 (5.25-6.54)
4-day	2.07 (1.90-2.26)	2.54 (2.33-2.77)	3.05 (2.80-3.33)	3.48 (3.19-3.80)	4.07 (3.72-4.44)	4.53 (4.12-4.95)	5.01 (4.53-5.48)	5.50 (4.94-6.04)	6.16 (5.48-6.79)	6.68 (5.89-7.39)
7-day	2.52 (2.33-2.73)	3.10 (2.86-3.36)	3.72 (3.43-4.03)	4.23 (3.90-4.59)	4.94 (4.53-5.36)	5.49 (5.01-5.97)	6.05 (5.49-6.60)	6.63 (5.98-7.24)	7.40 (6.62-8.13)	8.00 (7.10-8.84)
10-day	2.87 (2.66-3.11)	3.53 (3.27-3.82)	4.21 (3.89-4.55)	4.76 (4.40-5.14)	5.49 (5.04-5.93)	6.03 (5.52-6.52)	6.57 (5.99-7.12)	7.11 (6.45-7.72)	7.81 (7.04-8.52)	8.33 (7.46-9.11)
20-day	3.84 (3.54-4.15)	4.72 (4.36-5.10)	5.58 (5.16-6.04)	6.25 (5.77-6.76)	7.11 (6.54-7.68)	7.73 (7.10-8.36)	8.33 (7.63-9.03)	8.90 (8.13-9.66)	9.62 (8.75-10.5)	10.1 (9.18-11.1)
30-day	4.73 (4.40-5.07)	5.80 (5.39-6.23)	6.82 (6.34-7.33)	7.62 (7.07-8.18)	8.64 (8.00-9.28)	9.37 (8.66-10.1)	10.1 (9.30-10.9)	10.8 (9.89-11.6)	11.6 (10.6-12.6)	12.2 (11.1-13.3)
45-day	5.91 (5.49-6.35)	7.24 (6.72-7.79)	8.50 (7.89-9.16)	9.50 (8.80-10.2)	10.8 (9.97-11.6)	11.7 (10.8-12.6)	12.6 (11.6-13.6)	13.5 (12.4-14.6)	14.6 (13.4-15.8)	15.4 (14.0-16.8)
60-day	7.02 (6.50-7.54)	8.59 (7.97-9.26)	10.1 (9.35-10.9)	11.2 (10.4-12.1)	12.7 (11.8-13.7)	13.8 (12.7-14.8)	14.8 (13.6-16.0)	15.8 (14.5-17.0)	17.0 (15.5-18.4)	17.8 (16.2-19.4)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

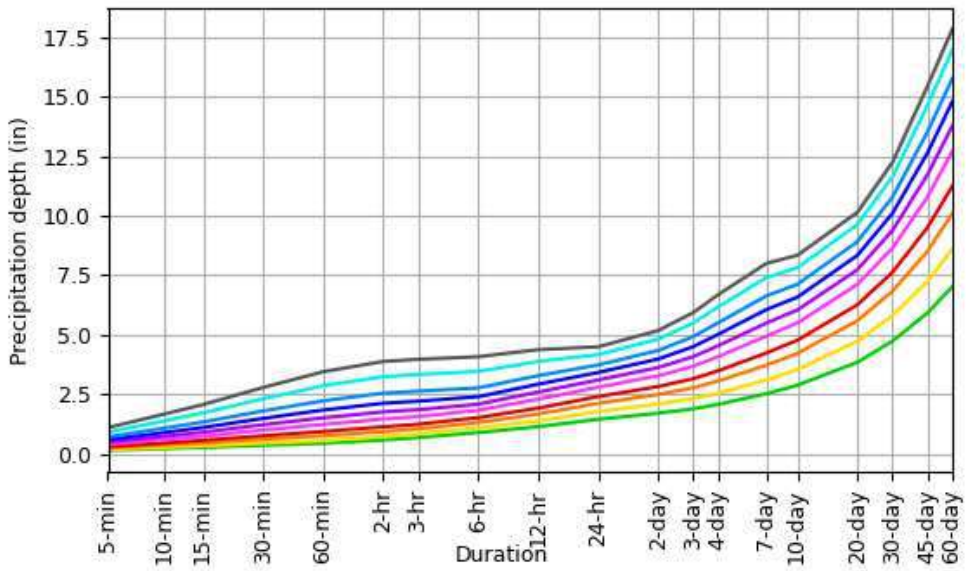
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

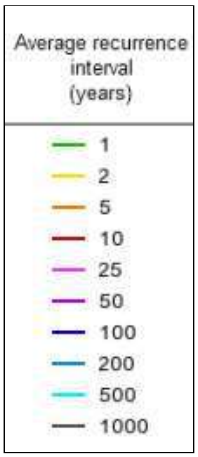
Please refer to NOAA Atlas 14 document for more information.

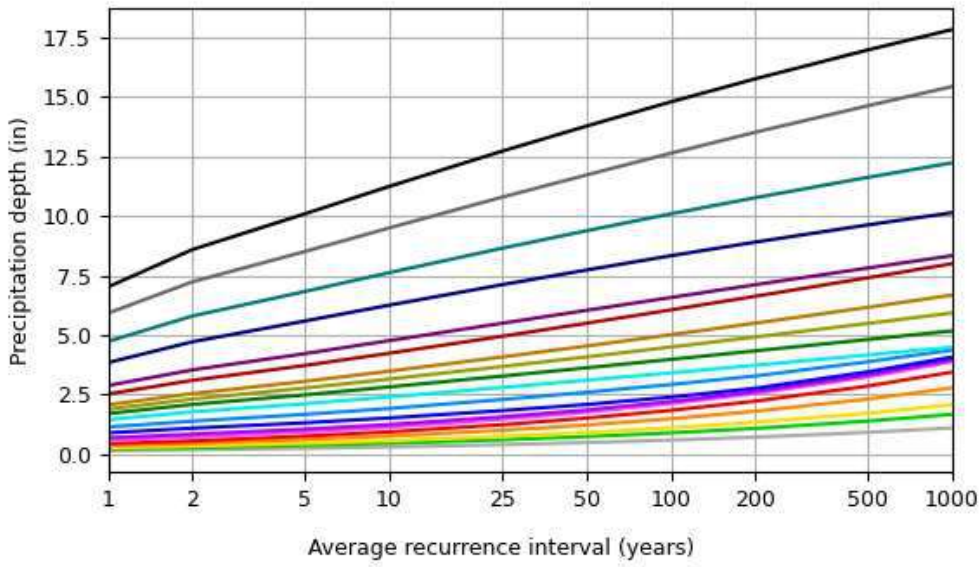
Back to Top

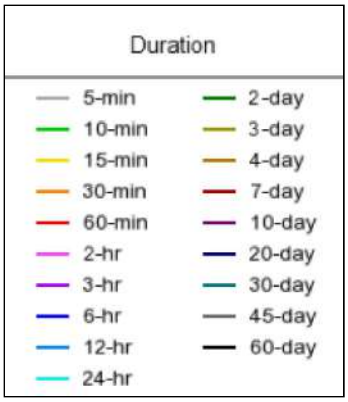
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 40.9202°, Longitude: -111.8790°









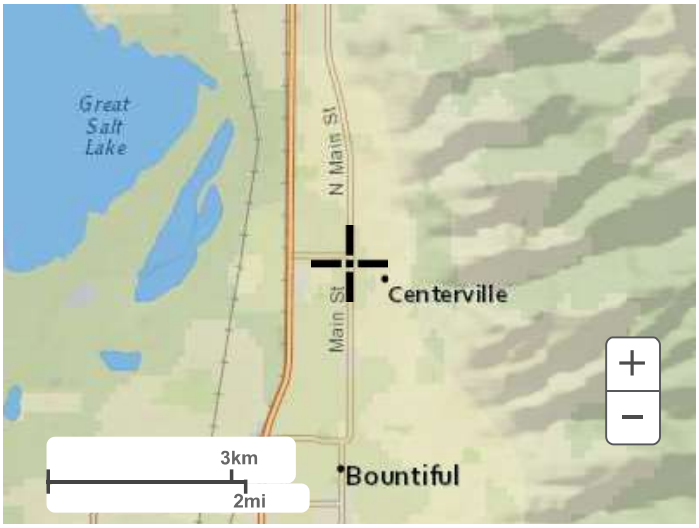
NOAA Atlas 14, Volume 1, Version 5

Created (GMT): Fri Jun 2 22:05:52 2023

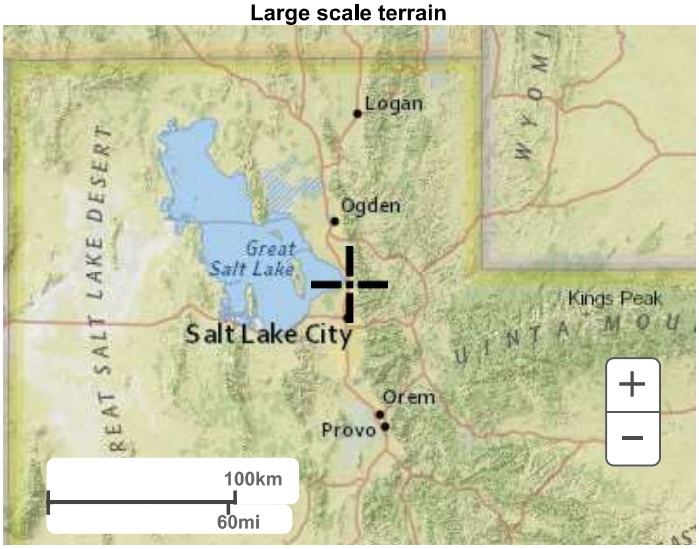
Back to Top

Maps & aerials

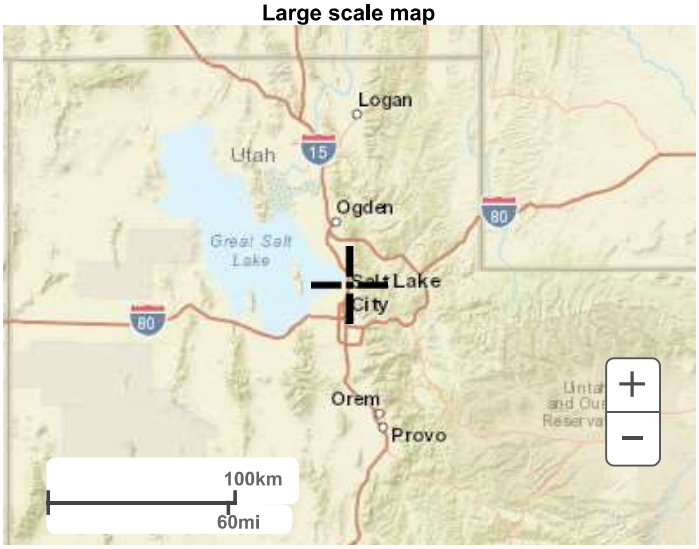
Small scale terrain



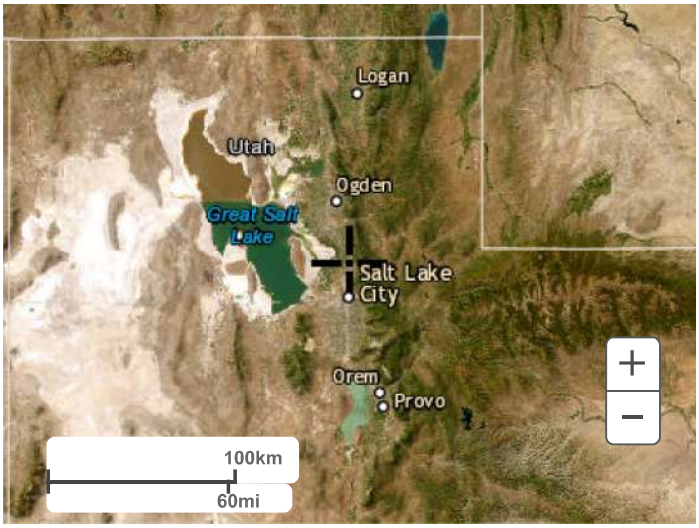
Large scale terrain



Large scale map



Large scale aerial



Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Appendix C

Storm Drain Project Cost Estimates

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 24 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2024 - Deuel Creek Box Culvert 400 West to Frontage Road					
1	Provide & install new 3' x 10' box culvert storm drain	1,100	LF	$800.00	$880,000.00
2	Pothole existing utility for new alignment	1	Lump Sum	$1,000.00	$1,000.00
3	Excavate and haul away native material	150	CY	$20.00	$3,000.00
4	Import gravel bedding	2,500	TN	$25.00	$62,500.00
5	Import granular barrow (including compaction)	7,000	TN	$25.00	$175,000.00
6	Import untreated base course (including compaction)	1,200	TN	$30.00	$36,000.00
7	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-7)				**$1,187,500.00**
	Davis County's Cost	75%			**$890,625.00**
	Centerville City's Cost	25%			**$296,875.00**
8	Contingency	25%			$74,218.75
9	Design Engineering and Survey	10%			$29,687.50
10	Construction Management and Staking	10%			$29,687.50
	Total Construction Project (Items 1-10)				**$430,468.75**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 24 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2024 - Peachtree Drive - Casa Loma Drive to Main Steet					
1	Install new 12" PVC storm drain w/ seperation fabric	2,400	LF	$65.00	$156,000.00
2	Provide & Install 48" storm drain manhole (incudes manhole lid and ring, grout and collars)	10	EA	$4,500.00	$45,000.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	14	EA	$3,500.00	$49,000.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	6	EA	$6,000.00	$36,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
6	Remove and haul away excisting storm drain pipe	120	LF	$20.00	$2,400.00
7	Remove and haul away excisting storm drain structures	6	EA	$1,000.00	$6,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
9	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
10	Pulverize and haul away asphalt (including saw-cutting)	175	CY	$20.00	$3,500.00
11	Excavate and haul away native material	1,500	CY	$20.00	$30,000.00
12	Import gravel bedding	820	TN	$25.00	$20,500.00
13	Import granular barrow (including compaction)	1,600	TN	$25.00	$40,000.00
14	Import untreated base course (including compaction)	600	TN	$30.00	$18,000.00
15	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-15)				**$445,400.00**
16	Contingency	25%			$111,350.00
17	Design Engineering and Survey	10%			$44,540.00
18	Construction Management and Staking	10%			$44,540.00
	Total Construction Project (Items 1-18)				**$645,830.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 24 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2024 - Briarwood Drive - Bonita Way to 400 East					
1	Install new 12" PVC storm drain w/ seperation fabric	1,200	LF	$65.00	$78,000.00
2	Provide & Install 48" storm drain manhole (incudes manhole lid and ring, grout and collars)	5	EA	$4,500.00	$22,500.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	5	EA	$3,500.00	$17,500.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	3	EA	$6,000.00	$18,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	2	EA	$1,000.00	$2,000.00
6	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
7	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
8	Pulverize and haul away asphalt (including saw-cutting)	90	CY	$20.00	$1,800.00
9	Excavate and haul away native material	800	CY	$20.00	$16,000.00
10	Import gravel bedding	400	TN	$25.00	$10,000.00
11	Import granular barrow (including compaction)	900	TN	$25.00	$22,500.00
12	Import untreated base course (including compaction)	300	TN	$30.00	$9,000.00
13	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-13)				**$235,300.00**
14	Contingency	25%			$58,825.00
15	Design Engineering and Survey	10%			$23,530.00
16	Construction Management and Staking	10%			$23,530.00
	Total Construction Project (Items 1-16)				**$341,185.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 25 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2025 - Deuel Creek Box Culvert Main Street to 400 West					
1	Provide & install new 3' x 10' box culvert storm drain	1,500	LF	$800.00	$1,200,000.00
2	Pothole existing utility for new alignment	1	Lump Sum	$1,000.00	$1,000.00
3	Excavate and haul away native material	150	CY	$20.00	$3,000.00
4	Import gravel bedding	3,000	TN	$25.00	$75,000.00
5	Import granular barrow (including compaction)	9,000	TN	$25.00	$225,000.00
6	Import untreated base course (including compaction)	1,600	TN	$30.00	$48,000.00
7	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-7)				**$1,582,000.00**
	Davis County's Cost	75%			**$1,186,500.00**
	Centerville City's Cost	25%			**$395,500.00**
8	Contingency	25%			$98,875.00
9	Design Engineering and Survey	10%			$39,550.00
10	Construction Management and Staking	10%			$39,550.00
	Total Construction Project (Items 1-10)				**$573,475.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by:			Project No.
		Checked by:			25 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2025 - Nola Drive & 1375 North - 1675 North to 1350 North					
1	Install new 12" PVC storm drain w/ seperation fabric	800	LF	$65.00	$52,000.00
2	Provide & Install 48" storm drain manhole (incudes manhole lid and ring, grout and collars)	3	EA	$4,500.00	$13,500.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	6	EA	$3,500.00	$21,000.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	3	EA	$6,000.00	$18,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
6	Remove and haul away excisting storm drain pipe	60	LF	$20.00	$1,200.00
7	Remove and haul away excisting storm drain structures	2	EA	$1,000.00	$2,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
9	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
10	Pulverize and haul away asphalt (including saw-cutting)	72	CY	$20.00	$1,440.00
11	Excavate and haul away native material	480	CY	$20.00	$9,600.00
12	Import gravel bedding	300	TN	$25.00	$7,500.00
13	Import granular barrow (including compaction)	550	TN	$25.00	$13,750.00
14	Import untreated base course (including compaction)	200	TN	$30.00	$6,000.00
15	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-15)				**$184,990.00**
16	Contingency	25%			$46,247.50
17	Design Engineering and Survey	10%			$18,499.00
18	Construction Management and Staking	10%			$18,499.00
	Total Construction Project (Items 1-18)				**$268,235.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 25 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2025 - Centerville Jr. High (South Property Line) - 300 East to Main Street or Combine with Rivera SD system					
1	Install new 24" RPC storm drain w/ seperation fabric	1,500	LF	$240.00	$360,000.00
2	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	4	EA	$5,000.00	$20,000.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	4	EA	$3,500.00	$14,000.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	3	EA	$6,000.00	$18,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	3	EA	$1,000.00	$3,000.00
6	Remove and haul away excisting storm drain pipe	1,500	LF	$20.00	$30,000.00
7	Remove and haul away excisting storm drain structures	6	EA	$1,000.00	$6,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
9	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
10	Pulverize and haul away asphalt (including saw-cutting)	20	CY	$20.00	$400.00
11	Excavate and haul away native material	1,800	CY	$20.00	$36,000.00
12	Import gravel bedding	900	TN	$25.00	$22,500.00
13	Import granular barrow (including compaction)	2,000	TN	$25.00	$50,000.00
14	Import untreated base course (including compaction)	50	TN	$30.00	$1,500.00
15	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	30	TN	$200.00	$6,000.00
16	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-16)				**$605,400.00**
17	Contingency	25%			$151,350.00
18	Design Engineering and Survey	10%			$60,540.00
19	Construction Management and Staking	10%			$60,540.00
	Total Construction Project (Items 1-19)				**$877,830.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 26 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
	Project Year 2026 - I-15 975 North - New 48" Culvert				
1	Bore 48" steel casing under I-15, UTA & UPRR	260	LF	$1,400.00	$364,000.00
2	Bore pit and acceptance pit excavation and backfill	1	Lump Sum	$20,000.00	$20,000.00
3	Install new 48" RPC storm drain w/ seperation fabric	180	LF	$280.00	$50,400.00
4	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	4	EA	$5,000.00	$20,000.00
5	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	2	EA	$3,500.00	$7,000.00
6	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	2	EA	$1,000.00	$2,000.00
7	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
8	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
9	Pulverize and haul away asphalt (including saw-cutting)	40	CY	$20.00	$800.00
10	Excavate and haul away native material	400	CY	$20.00	$8,000.00
11	Import gravel bedding	350	TN	$25.00	$8,750.00
12	Import granular barrow (including compaction)	100	TN	$25.00	$2,500.00
13	Import untreated base course (including compaction)	100	TN	$30.00	$3,000.00
14	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	90	TN	$200.00	$18,000.00
15	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-15)				**$542,450.00**
	Davis County's Cost	75%			**$406,837.50**
	Centerville City's Cost	25%			**$135,612.50**
16	Contingency	25%			$33,903.13
17	Design Engineering and Survey	10%			$13,561.25
18	Construction Management and Staking	10%			$13,561.25
	Total Construction Project (Items 1-18)				**$196,638.13**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 26 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2026 - I-15 Parrish Lane (400 North) - Replace 36" CMP w/ New 36" Culvert					
1	Bore 36" steel casing under I-15	600	LF	$1,200.00	$720,000.00
2	Bore pit and acceptance pit excavation and backfill	1	Lump Sum	$20,000.00	$20,000.00
3	Fill abandoned CMP with grout	160	CY	$250.00	$40,000.00
4	Install new 24" RPC storm drain w/ seperation fabric	120	LF	$240.00	$28,800.00
5	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	4	EA	$5,000.00	$20,000.00
6	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	6	EA	$3,500.00	$21,000.00
7	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	3	EA	$1,000.00	$3,000.00
8	Remove and haul away excisting storm drain pipe	300	LF	$20.00	$6,000.00
9	Remove and haul away excisting storm drain structures	10	EA	$1,000.00	$10,000.00
10	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
11	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
12	Pulverize and haul away asphalt (including saw-cutting)	80	CY	$20.00	$1,600.00
13	Excavate and haul away native material	150	CY	$20.00	$3,000.00
14	Import gravel bedding	100	TN	$25.00	$2,500.00
15	Import granular barrow (including compaction)	150	TN	$25.00	$3,750.00
16	Import untreated base course (including compaction)	40	TN	$30.00	$1,200.00
17	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	40	TN	$200.00	$8,000.00
18	UDOT/UTA/UPRR Permits, Fees, Flagging etc.	1	Lump Sum	$25,000.00	$25,000.00
19	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$40,000.00	$40,000.00
	Subtotal (Items 1-19)				**$961,850.00**
20	Contingency	25%			$240,462.50
21	Design Engineering and Survey	10%			$96,185.00

22	Construction Management and Staking	10%		$96,185.00
	Total Construction Project (Items 1-22)			**$1,394,682.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 27 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2027 - I-15 (C112) 2075 North (Lexington Park)- Replace 24" CMP w/ New 36" Culvert					
1	Bore 36" steel casing under I-15, UTA & UPRR	450	LF	$1,200.00	$540,000.00
2	Bore pit and acceptance pit excavation and backfill	1	Lump Sum	$20,000.00	$20,000.00
3	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	3	EA	$5,000.00	$15,000.00
4	Outlet structure	1	EA	$5,000.00	$5,000.00
5	Fill abandoned CMP with grout	40	CY	$250.00	$10,000.00
6	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
7	Remove and haul away excisting storm drain structures	4	EA	$1,000.00	$4,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$5,000.00	$5,000.00
9	UDOT/UTA/UPRR Permits, Fees, Flagging etc.	1	Lump Sum	$25,000.00	$25,000.00
10	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-10)				**$655,000.00**
11	Contingency	25%			$163,750.00
12	Design Engineering and Survey	10%			$65,500.00
13	Construction Management and Staking	10%			$65,500.00
	Total Construction Project (Items 1-13)				**$949,750.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 27 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2027 - I-15 Frontage Rd & 500 South Replace 24" CMP w/ New 36" Culvert					
1	Bore 36" steel casing under I-15	300	LF	$1,200.00	$360,000.00
2	Bore pit and acceptance pit excavation and backfill	1	Lump Sum	$20,000.00	$20,000.00
3	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	3	EA	$5,000.00	$15,000.00
4	Outlet structure	1	EA	$5,000.00	$5,000.00
5	Fill abandoned CMP with grout	40	CY	$250.00	$10,000.00
6	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
7	Remove and haul away excisting storm drain structures	4	EA	$1,000.00	$4,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$5,000.00	$5,000.00
9	UDOT/UTA/UPRR Permits, Fees, Flagging etc.	1	Lump Sum	$25,000.00	$25,000.00
10	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-10)				**$475,000.00**
11	Contingency	25%			$118,750.00
12	Design Engineering and Survey	10%			$47,500.00
13	Construction Management and Staking	10%			$47,500.00
	Total Construction Project (Items 1-13)				**$688,750.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 28 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2028 - I-15 650 South - Replace 24" CMP w/ New 36" Culvert					
1	Bore 36" steel casing under I-15	300	LF	$1,200.00	$360,000.00
2	Bore pit and acceptance pit excavation and backfill	1	Lump Sum	$20,000.00	$20,000.00
3	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	3	EA	$5,000.00	$15,000.00
4	Outlet structure	1	EA	$5,000.00	$5,000.00
5	Fill abandoned CMP with grout	40	CY	$250.00	$10,000.00
6	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
7	Remove and haul away excisting storm drain structures	4	EA	$1,000.00	$4,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$5,000.00	$5,000.00
9	UDOT/UTA/UPRR Permits, Fees, Flagging etc.	1	Lump Sum	$25,000.00	$25,000.00
10	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-10)				**$475,000.00**
11	Contingency	25%			$118,750.00
12	Design Engineering and Survey	10%			$47,500.00
13	Construction Management and Staking	10%			$47,500.00
	Total Construction Project (Items 1-13)				**$688,750.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 28 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2028 - I-15 Parrish Creek - Replace 42" CMP w/ New 48"					
1	Bore 48" steel casing under I-15, UTA & UPRR	420	LF	$1,400.00	$588,000.00
2	Bore pit and acceptance pit excavation and backfill	1	Lump Sum	$20,000.00	$20,000.00
3	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	3	EA	$5,000.00	$15,000.00
4	Outlet structure	1	EA	$5,000.00	$5,000.00
5	Fill abandoned CMP with grout	200	CY	$250.00	$50,000.00
6	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
7	Remove and haul away excisting storm drain structures	4	EA	$1,000.00	$4,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$5,000.00	$5,000.00
9	UDOT/UTA/UPRR Permits, Fees, Flagging etc.	1	Lump Sum	$25,000.00	$25,000.00
10	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-10)				**$743,000.00**
	Davis County's Cost	75%			**$557,250.00**
	Centerville City's Cost	25%			**$185,750.00**
11	Contingency	25%			$46,437.50
12	Design Engineering and Survey	10%			$18,575.00
13	Construction Management and Staking	10%			$18,575.00
	Total Construction Project (Items 1-13)				**$269,337.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 29 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2029 - Parrish Lane - 100 East to Canyon Point					
1	Install new 12" PVC storm drain w/ seperation fabric	1,600	LF	$65.00	$104,000.00
2	Provide & Install 48" storm drain manhole (incudes manhole lid and ring, grout and collars)	3	EA	$4,500.00	$13,500.00
3	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	1	EA	$5,000.00	$5,000.00
4	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	12	EA	$3,500.00	$42,000.00
5	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	4	EA	$6,000.00	$24,000.00
6	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	2	EA	$1,000.00	$2,000.00
7	Remove and haul away excisting storm drain structures	2	EA	$1,000.00	$2,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
9	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
10	Pulverize and haul away asphalt (including saw-cutting)	200	CY	$20.00	$4,000.00
11	Excavate and haul away native material	1,000	CY	$20.00	$20,000.00
12	Import gravel bedding	600	TN	$25.00	$15,000.00
13	Import granular barrow (including compaction)	1,200	TN	$25.00	$30,000.00
14	Import untreated base course (including compaction)	400	TN	$30.00	$12,000.00
15	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-15)				**$311,500.00**
16	Contingency	25%			$77,875.00
17	Design Engineering and Survey	10%			$31,150.00
18	Construction Management and Staking	10%			$31,150.00
	Total Construction Project (Items 1-18)				**$451,675.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 29 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2029 - I-15 (P106) North Property Line of Community Park - New 36" Culvert					
1	Bore 36" steel casing under I-15, UTA & UPRR	450	LF	$1,200.00	$540,000.00
2	Bore pit and acceptance pit excavation and backfill	1	Lump Sum	$20,000.00	$20,000.00
3	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	3	EA	$5,000.00	$15,000.00
4	Outlet structure	1	EA	$5,000.00	$5,000.00
5	Fill abandoned CMP with grout	120	CY	$250.00	$30,000.00
6	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
7	Remove and haul away excisting storm drain structures	4	EA	$1,000.00	$4,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$5,000.00	$5,000.00
9	UDOT/UTA/UPRR Permits, Fees, Flagging etc.	1	Lump Sum	$25,000.00	$25,000.00
10	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-10)				**$675,000.00**
11	Contingency	25%			$168,750.00
12	Design Engineering and Survey	10%			$67,500.00
13	Construction Management and Staking	10%			$67,500.00
	Total Construction Project (Items 1-13)				**$978,750.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by:			Project No.
		Checked by:			30 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2030 - Windsor Lane, Williams Lane, & 300 West Storm Drain					
1	Install new 12" PVC storm drain w/ seperation fabric	1,200	LF	$65.00	$78,000.00
2	Provide & Install 48" storm drain manhole (incudes manhole lid and ring, grout and collars)	7	EA	$4,500.00	$31,500.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	12	EA	$3,500.00	$42,000.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	4	EA	$6,000.00	$24,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
6	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
7	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
8	Pulverize and haul away asphalt (including saw-cutting)	95	CY	$20.00	$1,900.00
9	Excavate and haul away native material	800	CY	$20.00	$16,000.00
10	Import gravel bedding	500	TN	$25.00	$12,500.00
11	Import granular barrow (including compaction)	900	TN	$25.00	$22,500.00
12	Import untreated base course (including compaction)	300	TN	$30.00	$9,000.00
13	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	250	TN	$200.00	$50,000.00
14	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-14)				**$326,400.00**
15	Contingency	25%			$81,600.00
16	Design Engineering and Survey	10%			$32,640.00
17	Construction Management and Staking	10%			$32,640.00
	Total Construction Project (Items 1-17)				**$473,280.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 30 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2030 - I-15 750 North - Replace 24" CMP w/ New 36" Culvert					
1	Bore 36" steel casing under I-15	300	LF	$1,200.00	$360,000.00
2	Bore pit and acceptance pit excavation and backfill	1	Lump Sum	$20,000.00	$20,000.00
3	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	3	EA	$5,000.00	$15,000.00
4	Outlet structure	1	EA	$5,000.00	$5,000.00
5	Fill abandoned CMP with grout	80	CY	$250.00	$20,000.00
6	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
7	Remove and haul away excisting storm drain structures	4	EA	$1,000.00	$4,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$5,000.00	$5,000.00
9	UDOT/UTA/UPRR Permits, Fees, Flagging etc.	1	Lump Sum	$25,000.00	$25,000.00
10	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-10)				**$485,000.00**
11	Contingency	25%			$121,250.00
12	Design Engineering and Survey	10%			$48,500.00
13	Construction Management and Staking	10%			$48,500.00
	Total Construction Project (Items 1-13)				**$703,250.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 31 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2031 - 700 North & Phasant Way - London Road to Bonita Way					
1	Install new 12" PVC storm drain w/ seperation fabric	1,400	LF	$65.00	$91,000.00
2	Provide & Install 48" storm drain manhole (incudes manhole lid and ring, grout and collars)	2	EA	$4,500.00	$9,000.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	10	EA	$3,500.00	$35,000.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	4	EA	$6,000.00	$24,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	2	EA	$1,000.00	$2,000.00
6	Remove and haul away excisting storm drain pipe	60	LF	$20.00	$1,200.00
7	Remove and haul away excisting storm drain structures	2	EA	$1,000.00	$2,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
9	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
10	Pulverize and haul away asphalt (including saw-cutting)	125	CY	$20.00	$2,500.00
11	Excavate and haul away native material	900	CY	$20.00	$18,000.00
12	Import gravel bedding	500	TN	$25.00	$12,500.00
13	Import granular barrow (including compaction)	1,000	TN	$25.00	$25,000.00
14	Import untreated base course (including compaction)	350	TN	$30.00	$10,500.00
15	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-15)				**$270,700.00**
16	Contingency	25%			$67,675.00
17	Design Engineering and Survey	10%			$27,070.00
18	Construction Management and Staking	10%			$27,070.00
	Total Construction Project (Items 1-18)				**$392,515.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 31 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2031 - I-15 Parrish Lane (400 North) - Replace 24" CMP along East Side of I-15 & 800 West Crossing to Parrish Lane					
1	Bore 24" steel casing under I-15	115	LF	$1,000.00	$115,000.00
2	Bore pit and acceptance pit excavation and backfill	1	Lump Sum	$20,000.00	$20,000.00
3	Fill abandoned CMP with grout	160	CY	$250.00	$40,000.00
4	Install new 24" RPC storm drain w/ seperation fabric	530	LF	$240.00	$127,200.00
5	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	4	EA	$5,000.00	$20,000.00
6	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	6	EA	$3,500.00	$21,000.00
7	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	3	EA	$1,000.00	$3,000.00
8	Remove and haul away excisting storm drain pipe	500	LF	$20.00	$10,000.00
9	Remove and haul away excisting storm drain structures	8	EA	$1,000.00	$8,000.00
10	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
11	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
12	Pulverize and haul away asphalt (including saw-cutting)	70	CY	$20.00	$1,400.00
13	Excavate and haul away native material	600	CY	$20.00	$12,000.00
14	Import gravel bedding	500	TN	$25.00	$12,500.00
15	Import granular barrow (including compaction)	550	TN	$25.00	$13,750.00
16	Import untreated base course (including compaction)	150	TN	$30.00	$4,500.00
17	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	100	TN	$200.00	$20,000.00
18	UDOT/UTA/UPRR Permits, Fees, Flagging etc.	1	Lump Sum	$25,000.00	$25,000.00
19	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$40,000.00	$40,000.00
	Subtotal (Items 1-19)				**$501,350.00**
20	Contingency	25%			$125,337.50
21	Design Engineering and Survey	10%			$50,135.00

22	Construction Management and Staking	10%		$50,135.00
	Total Construction Project (Items 1-22)			**$726,957.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 32 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
	Project Year 2032 - Nola Drive - 1200 North to 1350 North				
1	Install new 12" PVC storm drain w/ seperation fabric	350	LF	$65.00	$22,750.00
2	Provide & Install 48" storm drain manhole (incudes manhole lid and ring, grout and collars)	2	EA	$4,500.00	$9,000.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	6	EA	$3,500.00	$21,000.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	2	EA	$6,000.00	$12,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
6	Remove and haul away excisting storm drain pipe	40	LF	$20.00	$800.00
7	Remove and haul away excisting storm drain structures	2	EA	$1,000.00	$2,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
9	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
10	Pulverize and haul away asphalt (including saw-cutting)	30	CY	$20.00	$600.00
11	Excavate and haul away native material	250	CY	$20.00	$5,000.00
12	Import gravel bedding	150	TN	$25.00	$3,750.00
13	Import granular barrow (including compaction)	250	TN	$25.00	$6,250.00
14	Import untreated base course (including compaction)	100	TN	$30.00	$3,000.00
15	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-15)				**$125,150.00**
16	Contingency	25%			$31,287.50
17	Design Engineering and Survey	10%			$12,515.00
18	Construction Management and Staking	10%			$12,515.00
	Total Construction Project (Items 1-18)				**$181,467.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 32 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2032 - I-15 100 South - Replace 24" CMP w/ New 36" Culvert					
1	Bore 36" steel casing under I-15	520	LF	$1,200.00	$624,000.00
2	Bore pit and acceptance pit excavation and backfill	1	Lump Sum	$20,000.00	$20,000.00
3	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	3	EA	$5,000.00	$15,000.00
4	Outlet structure	1	EA	$5,000.00	$5,000.00
5	Fill abandoned CMP with grout	60	CY	$250.00	$15,000.00
6	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
7	Remove and haul away excisting storm drain structures	2	EA	$1,000.00	$2,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$5,000.00	$5,000.00
9	UDOT/UTA/UPRR Permits, Fees, Flagging etc.	1	Lump Sum	$25,000.00	$25,000.00
10	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-10)				**$742,000.00**
11	Contingency	25%			$185,500.00
12	Design Engineering and Survey	10%			$74,200.00
13	Construction Management and Staking	10%			$74,200.00
	Total Construction Project (Items 1-13)				**$1,075,900.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by:			Project No.
		Checked by:			33 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2033 - I-15 Frontage Road - 200 South Replace CMP Culvert					
1	Install new 36" RPC storm drain w/ seperation fabric	100	LF	$260.00	$26,000.00
2	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	2	EA	$5,000.00	$10,000.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	2	EA	$3,500.00	$7,000.00
4	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	2	EA	$1,000.00	$2,000.00
5	Remove and haul away excisting storm drain pipe	100	LF	$20.00	$2,000.00
6	Remove and haul away excisting storm drain structures	2	EA	$1,000.00	$2,000.00
7	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
8	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
9	Pulverize and haul away asphalt (including saw-cutting)	20	CY	$20.00	$400.00
10	Excavate and haul away native material	150	CY	$20.00	$3,000.00
11	Import gravel bedding	110	TN	$25.00	$2,750.00
12	Import granular barrow (including compaction)	90	TN	$25.00	$2,250.00
13	Import untreated base course (including compaction)	40	TN	$30.00	$1,200.00
14	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	40	TN	$200.00	$8,000.00
15	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-15)				**$104,600.00**
16	Contingency	25%			$26,150.00
17	Design Engineering and Survey	10%			$10,460.00
18	Construction Management and Staking	10%			$10,460.00
	Total Construction Project (Items 1-18)				**$151,670.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 33 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2033 - Barnard Street Overflow Storm Drain - Main Street to Oakridge Drive					
1	Install new 24" RCP storm drain w/ seperation fabric	2,600	LF	$240.00	$624,000.00
2	Provide & Install 48" storm drain manhole (incudes manhole lid and ring, grout and collars)	8	EA	$4,500.00	$36,000.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	18	EA	$3,500.00	$63,000.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	6	EA	$6,000.00	$36,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	3	EA	$1,000.00	$3,000.00
6	Remove and haul away excisting storm drain pipe	100	LF	$20.00	$2,000.00
7	Remove and haul away excisting storm drain structures	12	EA	$1,000.00	$12,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
9	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
10	Pulverize and haul away concrete roadway (including saw-cutting)	500	CY	$20.00	$10,000.00
11	Excavate and haul away native material	3,500	CY	$20.00	$70,000.00
12	Import gravel bedding	2,200	TN	$25.00	$55,000.00
13	Import granular barrow (including compaction)	3,800	TN	$25.00	$95,000.00
14	Import untreated base course (including compaction)	900	TN	$30.00	$27,000.00
15	UDOT Permits, Fees, etc.	1	Lump Sum	$5,000.00	$5,000.00
16	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-16)				**$1,076,000.00**
17	Contingency	25%			$269,000.00
18	Design Engineering and Survey	10%			$107,600.00
19	Construction Management and Staking	10%			$107,600.00
	Total Construction Project (Items 1-19)				**$1,560,200.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 34 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2034 - I-15 625 North - Replace 30" CMP w/ New 36" Culvert					
1	Bore 36" steel casing under I-15	500	LF	$1,200.00	$600,000.00
2	Bore pit and acceptance pit excavation and backfill	1	Lump Sum	$20,000.00	$20,000.00
3	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	3	EA	$5,000.00	$15,000.00
4	Outlet structure	1	EA	$5,000.00	$5,000.00
5	Fill abandoned CMP with grout	130	CY	$250.00	$32,500.00
6	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
7	Remove and haul away excisting storm drain structures	4	EA	$1,000.00	$4,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$5,000.00	$5,000.00
9	UDOT/UTA/UPRR Permits, Fees, Flagging etc.	1	Lump Sum	$25,000.00	$25,000.00
10	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-10)				**$737,500.00**
11	Contingency	25%			$184,375.00
12	Design Engineering and Survey	10%			$73,750.00
13	Construction Management and Staking	10%			$73,750.00
	Total Construction Project (Items 1-13)				**$1,069,375.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 34 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2034 - 725 North 1250 West & 600 North 1250 West - Inlet Box Replacement					
1	Install new 36" RCP storm drain w/ seperation fabric	140	LF	$260.00	$36,400.00
2	Install new 24" RCP storm drain w/ seperation fabric	65	LF	$240.00	$15,600.00
3	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	2	EA	$5,000.00	$10,000.00
4	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	6	EA	$3,500.00	$21,000.00
5	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	3	EA	$6,000.00	$18,000.00
6	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	3	EA	$1,000.00	$3,000.00
7	Remove and haul away excisting storm drain pipe	200	LF	$20.00	$4,000.00
8	Remove and haul away excisting storm drain structures	8	EA	$1,000.00	$8,000.00
9	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
10	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
11	Pulverize and haul away asphalt (including saw-cutting)	30	CY	$20.00	$600.00
12	Excavate and haul away native material	300	CY	$20.00	$6,000.00
13	Import gravel bedding	200	TN	$25.00	$5,000.00
14	Import granular barrow (including compaction)	250	TN	$25.00	$6,250.00
15	Import untreated base course (including compaction)	75	TN	$30.00	$2,250.00
16	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	50	TN	$200.00	$10,000.00
17	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-17)				**$184,100.00**
18	Contingency	25%			$46,025.00
19	Design Engineering and Survey	10%			$18,410.00
20	Construction Management and Staking	10%			$18,410.00

	Total Construction Project (Items 1-20)		**$266,945.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 35 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
	Project Year 2035 - Parrish Creek 950 West to 1250 West - Channel Improvements				
1	Install new 48" RPC storm drain w/ seperation fabric	1,510	LF	$280.00	$422,800.00
2	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	6	EA	$5,000.00	$30,000.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	2	EA	$3,500.00	$7,000.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	2	EA	$6,000.00	$12,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	2	EA	$1,000.00	$2,000.00
6	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
7	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
8	Pulverize and haul away asphalt (including saw-cutting)	40	CY	$20.00	$800.00
9	Excavate and haul away native material	400	CY	$20.00	$8,000.00
10	Import gravel bedding	350	TN	$25.00	$8,750.00
11	Import granular barrow (including compaction)	100	TN	$25.00	$2,500.00
12	Import untreated base course (including compaction)	100	TN	$30.00	$3,000.00
13	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	90	TN	$200.00	$18,000.00
14	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-14)				**$552,850.00**
	Davis County's Cost	75%			**$414,637.50**
	Centerville City's Cost	25%			**$138,212.50**
15	Contingency	25%			$34,553.13
16	Design Engineering and Survey	10%			$13,821.25
17	Construction Management and Staking	10%			$13,821.25
	Total Construction Project (Items 1-17)				**$200,408.13**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by:			Project No.
		Checked by:			35 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2035 - Public Works Dry Beds					
1	Concrete dry bed construction	1	Lump Sum	$75,000.00	$75,000.00
2	Clearing & Grubbing	1	Lump Sum	$10,000.00	$10,000.00
3	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
4	Mobilization and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-4)				**$118,000.00**
5	Contingency	25%			$29,500.00
6	Design Engineering and Survey	10%			$11,800.00
7	Construction Management and Staking	10%			$11,800.00
	Total Construction Project (Items 1-7)				**$171,100.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by:			Project No.
		Checked by:			36 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2036 - Rick's Creek Culvert at 575 West (Parallel w/ New 36" Elliptical)					
1	Install new 36" RCP storm drain w/ seperation fabric	50	LF	$260.00	$13,000.00
2	Provide & Install inlet/outlet structure	2	EA	$5,000.00	$10,000.00
3	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
4	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
5	Pulverize and haul away asphalt (including saw-cutting)	6	CY	$20.00	$120.00
6	Excavate and haul away native material	100	CY	$20.00	$2,000.00
7	Import gravel bedding	60	TN	$25.00	$1,500.00
8	Import granular barrow (including compaction)	100	TN	$25.00	$2,500.00
9	Import untreated base course (including compaction)	20	TN	$30.00	$600.00
10	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	15	TN	$200.00	$3,000.00
11	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-11)				**$70,720.00**
	Davis County's Cost	75%			**$53,040.00**
	Centerville City's Cost	25%			**$17,680.00**
12	Contingency	25%			$4,420.00
13	Design Engineering and Survey	10%			$1,768.00
14	Construction Management and Staking	10%			$1,768.00
	Total Construction Project (Items 1-14)				**$25,636.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 36 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2036 - Island View - 550 South to 650 South					
1	Install new 12" PVC storm drain w/ seperation fabric	600	LF	$65.00	$39,000.00
2	Provide & Install 48" storm drain manhole (incudes manhole lid and ring, grout and collars)	1	EA	$4,500.00	$4,500.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	1	EA	$3,500.00	$3,500.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	2	EA	$6,000.00	$12,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
6	Remove and haul away excisting storm drain pipe	20	LF	$20.00	$400.00
7	Remove and haul away excisting storm drain structures	2	EA	$1,000.00	$2,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
9	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
10	Pulverize and haul away asphalt (including saw-cutting)	45	CY	$20.00	$900.00
11	Excavate and haul away native material	400	CY	$20.00	$8,000.00
12	Import gravel bedding	250	TN	$25.00	$6,250.00
13	Import granular barrow (including compaction)	400	TN	$25.00	$10,000.00
14	Import untreated base course (including compaction)	150	TN	$30.00	$4,500.00
15	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-15)				**$130,050.00**
16	Contingency	25%			$32,512.50
17	Design Engineering and Survey	10%			$13,005.00
18	Construction Management and Staking	10%			$13,005.00
	Total Construction Project (Items 1-18)				**$188,572.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by:			Project No.
		Checked by:			37 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2037 - 500 South - UPRR / UTA - Replace 24" CMP w/ New 36" Culvert					
1	Bore 36" steel casing under I-15	180	LF	$1,200.00	$216,000.00
2	Bore pit and acceptance pit excavation and backfill	1	Lump Sum	$20,000.00	$20,000.00
3	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	2	EA	$5,000.00	$10,000.00
4	Outlet structure	1	EA	$5,000.00	$5,000.00
5	Fill abandoned CMP with grout	40	CY	$250.00	$10,000.00
6	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
7	Remove and haul away excisting storm drain structures	2	EA	$1,000.00	$2,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$5,000.00	$5,000.00
9	UDOT/UTA/UPRR Permits, Fees, Flagging etc.	1	Lump Sum	$25,000.00	$25,000.00
10	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-10)				**$324,000.00**
11	Contingency	25%			$81,000.00
12	Design Engineering and Survey	10%			$32,400.00
13	Construction Management and Staking	10%			$32,400.00
	Total Construction Project (Items 1-13)				**$469,800.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 37 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
	Project Year 2037 - Carrington Lane - Main Street to Ricks Creek Reservior				
1	Install new 12" PVC storm drain w/ seperation fabric	230	LF	$65.00	$14,950.00
2	Provide & Install 48" storm drain manhole (incudes manhole lid and ring, grout and collars)	13	EA	$4,500.00	$58,500.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	14	EA	$3,500.00	$49,000.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	4	EA	$6,000.00	$24,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	2	EA	$1,000.00	$2,000.00
6	Remove and haul away excisting storm drain pipe	120	LF	$20.00	$2,400.00
7	Remove and haul away excisting storm drain structures	6	EA	$1,000.00	$6,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
9	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
10	Pulverize and haul away asphalt (including saw-cutting)	180	CY	$20.00	$3,600.00
11	Excavate and haul away native material	1,500	CY	$20.00	$30,000.00
12	Import gravel bedding	820	TN	$25.00	$20,500.00
13	Import granular barrow (including compaction)	1,600	TN	$25.00	$40,000.00
14	Import untreated base course (including compaction)	600	TN	$30.00	$18,000.00
15	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-15)				**$306,950.00**
16	Contingency	25%			$76,737.50
17	Design Engineering and Survey	10%			$30,695.00
18	Construction Management and Staking	10%			$30,695.00
	Total Construction Project (Items 1-18)				**$445,077.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 38 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2038 - 650 North - 1000 West to 1250 West - Replace 30" CMP w/ 42" RCP					
1	Install new 42" RCP storm drain w/ seperation fabric	1,450	LF	$260.00	$377,000.00
2	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	2	EA	$5,000.00	$10,000.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	4	EA	$3,500.00	$14,000.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	6	EA	$6,000.00	$36,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	2	EA	$1,000.00	$2,000.00
6	Remove and haul away excisting storm drain pipe	1,100	LF	$20.00	$22,000.00
7	Remove and haul away excisting storm drain structures	10	EA	$1,000.00	$10,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
9	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
10	Pulverize and haul away asphalt (including saw-cutting)	150	CY	$20.00	$3,000.00
11	Excavate and haul away native material	1,600	CY	$20.00	$32,000.00
12	Import gravel bedding	1,200	TN	$25.00	$30,000.00
13	Import granular barrow (including compaction)	1,000	TN	$25.00	$25,000.00
14	Import untreated base course (including compaction)	300	TN	$30.00	$9,000.00
15	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-15)				**$608,000.00**
16	Contingency	25%			$152,000.00
17	Design Engineering and Survey	10%			$60,800.00
18	Construction Management and Staking	10%			$60,800.00
	Total Construction Project (Items 1-18)				**$881,600.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 38 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2038 - Parrish Lane - Crossing at 800 West (7-11 to Carls Jr.) - Replace 36" CMP					
1	Install new 36" RCP storm drain w/ seperation fabric	120	LF	$240.00	$28,800.00
2	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	2	EA	$5,000.00	$10,000.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	2	EA	$3,500.00	$7,000.00
4	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	4	EA	$1,000.00	$4,000.00
5	Remove and haul away excisting storm drain pipe	120	LF	$20.00	$2,400.00
6	Remove and haul away excisting storm drain structures	4	EA	$1,000.00	$4,000.00
7	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
8	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
9	Pulverize and haul away asphalt (including saw-cutting)	30	CY	$20.00	$600.00
10	Excavate and haul away native material	300	CY	$20.00	$6,000.00
11	Import gravel bedding	200	TN	$25.00	$5,000.00
12	Import granular barrow (including compaction)	250	TN	$25.00	$6,250.00
13	Import untreated base course (including compaction)	75	TN	$30.00	$2,250.00
14	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	50	TN	$200.00	$10,000.00
15	UDOT Permits, Fees, etc.	1	Lump Sum	$5,000.00	$5,000.00
16	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-16)				**$129,300.00**
17	Contingency	25%			$32,325.00
18	Design Engineering and Survey	10%			$12,930.00
19	Construction Management and Staking	10%			$12,930.00
	Total Construction Project (Items 1-19)				**$187,485.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 39 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
	Project Year 2039 - 400 South - 400 East to 700 East				
1	Install new 12" PVC storm drain w/ seperation fabric	600	LF	$65.00	$39,000.00
2	Provide & Install 48" storm drain manhole (incudes manhole lid and ring, grout and collars)	7	EA	$4,500.00	$31,500.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	1	EA	$3,500.00	$3,500.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	2	EA	$6,000.00	$12,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	2	EA	$1,000.00	$2,000.00
6	Remove and haul away excisting storm drain pipe	30	LF	$20.00	$600.00
7	Remove and haul away excisting storm drain structures	2	EA	$1,000.00	$2,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
9	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
10	Pulverize and haul away asphalt (including saw-cutting)	130	CY	$20.00	$2,600.00
11	Excavate and haul away native material	200	CY	$20.00	$4,000.00
12	Import gravel bedding	250	TN	$25.00	$6,250.00
13	Import granular barrow (including compaction)	400	TN	$25.00	$10,000.00
14	Import untreated base course (including compaction)	150	TN	$30.00	$4,500.00
15	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	75	TN	$200.00	$15,000.00
16	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-16)				**$170,950.00**
17	Contingency	25%			$42,737.50
18	Design Engineering and Survey	10%			$17,095.00
19	Construction Management and Staking	10%			$17,095.00
	Total Construction Project (Items 1-19)				**$247,877.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by:			Project No.
		Checked by:			39 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2039 - 780 South - 50 West to Pitford Drive					
1	Install new 12" PVC storm drain w/ seperation fabric	1,500	LF	$65.00	$97,500.00
2	Provide & Install 48" storm drain manhole (incudes manhole lid and ring, grout and collars)	7	EA	$4,500.00	$31,500.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	10	EA	$3,500.00	$35,000.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	3	EA	$6,000.00	$18,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
6	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
7	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
8	Pulverize and haul away asphalt (including saw-cutting)	150	CY	$20.00	$3,000.00
9	Excavate and haul away native material	900	CY	$20.00	$18,000.00
10	Import gravel bedding	550	TN	$25.00	$13,750.00
11	Import granular barrow (including compaction)	1,000	TN	$25.00	$25,000.00
12	Import untreated base course (including compaction)	350	TN	$30.00	$10,500.00
13	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-13)				**$291,250.00**
14	Contingency	25%			$72,812.50
15	Design Engineering and Survey	10%			$29,125.00
16	Construction Management and Staking	10%			$29,125.00
	Total Construction Project (Items 1-16)				**$422,312.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 40 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
	Project Year 2040 - Hillside Property Drainage Project				
1	Install new 18" RCP storm drain w/ seperation fabric	3,900	LF	$160.00	$624,000.00
2	Provide & Install 60" storm drain manhole w/grated lid (incudes manhole lid and ring, grout and collars)	15	EA	$5,000.00	$75,000.00
3	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	6	EA	$6,000.00	$36,000.00
4	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
5	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
6	Install new concrete curb & gutter	1,700	LF	$65.00	$110,500.00
7	Excavate and haul away native material	5,200	CY	$20.00	$104,000.00
8	Import gravel bedding	2,700	TN	$25.00	$67,500.00
9	Import granular barrow (including compaction)	6,700	TN	$25.00	$167,500.00
10	Import untreated base course (including compaction)	3,000	TN	$30.00	$90,000.00
11	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	1,100	TN	$200.00	$220,000.00
12	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-12)				**$1,528,500.00**
13	Contingency	25%			$382,125.00
14	Design Engineering and Survey	10%			$152,850.00
15	Construction Management and Staking	10%			$152,850.00
	Total Construction Project (Items 1-15)				**$2,216,325.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 40 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2040 - 200 South - 600 East to 500 East - Replace CMP					
1	Install new 12" PVC storm drain w/ seperation fabric	400	LF	$65.00	$26,000.00
2	Provide & Install 48" storm drain manhole (incudes manhole lid and ring, grout and collars)	1	EA	$4,500.00	$4,500.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	3	EA	$3,500.00	$10,500.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	2	EA	$6,000.00	$12,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
6	Remove and haul away excisting storm drain pipe	400	LF	$20.00	$8,000.00
7	Remove and haul away excisting storm drain structures	4	EA	$1,000.00	$4,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
9	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
10	Pulverize and haul away asphalt (including saw-cutting)	30	CY	$20.00	$600.00
11	Excavate and haul away native material	250	CY	$20.00	$5,000.00
12	Import gravel bedding	150	TN	$25.00	$3,750.00
13	Import granular barrow (including compaction)	250	TN	$25.00	$6,250.00
14	Import untreated base course (including compaction)	100	TN	$30.00	$3,000.00
15	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-15)				**$122,600.00**
16	Contingency	25%			$30,650.00
17	Design Engineering and Survey	10%			$12,260.00
18	Construction Management and Staking	10%			$12,260.00
	Total Construction Project (Items 1-18)				**$177,770.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 41 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2041 - 700 South - 475 East to 700 East					
1	Install new 12" PVC storm drain w/ seperation fabric	1,500	LF	$65.00	$97,500.00
2	Provide & Install 48" storm drain manhole (incudes manhole lid and ring, grout and collars)	7	EA	$4,500.00	$31,500.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	10	EA	$3,500.00	$35,000.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	3	EA	$6,000.00	$18,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
6	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
7	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
8	Pulverize and haul away asphalt (including saw-cutting)	150	CY	$20.00	$3,000.00
9	Excavate and haul away native material	900	CY	$20.00	$18,000.00
10	Import gravel bedding	550	TN	$25.00	$13,750.00
11	Import granular barrow (including compaction)	1,000	TN	$25.00	$25,000.00
12	Import untreated base course (including compaction)	350	TN	$30.00	$10,500.00
13	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-13)				**$291,250.00**
14	Contingency	25%			$72,812.50
15	Design Engineering and Survey	10%			$29,125.00
16	Construction Management and Staking	10%			$29,125.00
	Total Construction Project (Items 1-16)				**$422,312.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 41 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2041 - 600 North - 1250 West to Legacy Parkway					
1	Install new 36" RCP storm drain w/ seperation fabric	620	LF	$260.00	$161,200.00
2	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	4	EA	$5,000.00	$20,000.00
3	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	2	EA	$1,000.00	$2,000.00
4	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
5	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
6	Excavate and haul away native material	700	CY	$20.00	$14,000.00
7	Import gravel bedding	500	TN	$25.00	$12,500.00
8	Import granular barrow (including compaction)	500	TN	$25.00	$12,500.00
9	Import untreated base course (including compaction)	180	TN	$30.00	$5,400.00
10	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-10)				**$265,600.00**
11	Contingency	25%			$66,400.00
12	Design Engineering and Survey	10%			$26,560.00
13	Construction Management and Staking	10%			$26,560.00
	Total Construction Project (Items 1-13)				**$385,120.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 42 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2042 - 400 North - 1550 West to 1300 West					
1	Install new 36" RPC storm drain w/ seperation fabric	650	LF	$260.00	$169,000.00
2	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	2	EA	$5,000.00	$10,000.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	6	EA	$3,500.00	$21,000.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	2	EA	$6,000.00	$12,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	2	EA	$1,000.00	$2,000.00
6	Remove and haul away excisting storm drain pipe	350	LF	$20.00	$7,000.00
7	Remove and haul away excisting storm drain structures	7	EA	$1,000.00	$7,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
9	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
10	Excavate and haul away native material	750	CY	$20.00	$15,000.00
11	Import gravel bedding	500	TN	$25.00	$12,500.00
12	Import granular barrow (including compaction)	500	TN	$25.00	$12,500.00
13	Import untreated base course (including compaction)	200	TN	$30.00	$6,000.00
14	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-14)				**$312,000.00**
15	Contingency	25%			$78,000.00
16	Design Engineering and Survey	10%			$31,200.00
17	Construction Management and Staking	10%			$31,200.00
	Total Construction Project (Items 1-17)				**$452,400.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 42 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
	Project Year 2042 -1250 West - Crossing at 75 North				
1	Install new 24" RPC storm drain w/ seperation fabric	60	LF	$240.00	$14,400.00
2	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	2	EA	$5,000.00	$10,000.00
3	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	2	EA	$1,000.00	$2,000.00
4	Remove and haul away excisting storm drain pipe	60	LF	$20.00	$1,200.00
5	Remove and haul away excisting storm drain structures	2	EA	$1,000.00	$2,000.00
6	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
7	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
8	Pulverize and haul away asphalt (including saw-cutting)	7	CY	$20.00	$140.00
9	Excavate and haul away native material	75	CY	$20.00	$1,500.00
10	Import gravel bedding	45	TN	$25.00	$1,125.00
11	Import granular barrow (including compaction)	50	TN	$25.00	$1,250.00
12	Import untreated base course (including compaction)	20	TN	$30.00	$600.00
13	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	15	TN	$200.00	$3,000.00
14	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-14)				**$75,215.00**
15	Contingency	25%			$18,803.75
16	Design Engineering and Survey	10%			$7,521.50
17	Construction Management and Staking	10%			$7,521.50
	Total Construction Project (Items 1-17)				**$109,061.75**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 43 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
	Project Year 2043 - 70 West - 115 N to Center Street				
1	Install new 15" RPC storm drain w/ seperation fabric	800	LF	$180.00	$144,000.00
2	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	3	EA	$5,000.00	$15,000.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	2	EA	$3,500.00	$7,000.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	5	EA	$6,000.00	$30,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
6	Remove and haul away excisting storm drain pipe	750	LF	$20.00	$15,000.00
7	Remove and haul away excisting storm drain structures	9	EA	$1,000.00	$9,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
9	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
10	Pulverize and haul away asphalt (including saw-cutting)	70	CY	$20.00	$1,400.00
11	Excavate and haul away native material	600	CY	$20.00	$12,000.00
12	Import gravel bedding	350	TN	$25.00	$8,750.00
13	Import granular barrow (including compaction)	700	TN	$25.00	$17,500.00
14	Import untreated base course (including compaction)	200	TN	$30.00	$6,000.00
15	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	150	TN	$200.00	$30,000.00
16	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-16)				**$334,650.00**
17	Contingency	25%			$83,662.50
18	Design Engineering and Survey	10%			$33,465.00
19	Construction Management and Staking	10%			$33,465.00
	Total Construction Project (Items 1-19)				**$485,242.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by:			Project No.
		Checked by:			43 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2043 - 550 South - Pitford Drive to 400 West - Pipe Lining Project					
1	Line 3 sections of 24" CMP	650	LF	$220.00	$143,000.00
2	Mobilization, demobilization, bonds, permits, and Fees	1	Lump Sum	$5,000.00	$5,000.00
3	Traffic control/barricading	1	Lump Sum	$50,000.00	$50,000.00
	Subtotal (Items 1-3)				**$198,000.00**
4	Contingency	25%			$49,500.00
5	Design Engineering and Survey	10%			$19,800.00
6	Construction Management and Staking	10%			$19,800.00
	Total Construction Project (Items 1-6)				**$287,100.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 44 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
	Project Year 2044 - 1275 North - 1250 West to 1300 West				
1	Install new 24" RPC storm drain w/ seperation fabric	1,000	LF	$240.00	$240,000.00
2	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	4	EA	$5,000.00	$20,000.00
3	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	2	EA	$1,000.00	$2,000.00
4	Remove and haul away excisting storm drain structures	2	EA	$1,000.00	$2,000.00
5	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
6	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
7	Excavate and haul away native material	1,400	CY	$20.00	$28,000.00
8	Import gravel bedding	900	TN	$25.00	$22,500.00
9	Import granular barrow (including compaction)	1,500	TN	$25.00	$37,500.00
10	Import untreated base course (including compaction)	400	TN	$30.00	$12,000.00
11	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-11)				**$402,000.00**
12	Contingency	25%			$100,500.00
13	Design Engineering and Survey	10%			$40,200.00
14	Construction Management and Staking	10%			$40,200.00
	Total Construction Project (Items 1-14)				**$582,900.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 44 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2044 - Aspen Way & Poplar Circle - 400 East to 610 East					
1	Install new 12" PVC storm drain w/ seperation fabric	1,000	LF	$65.00	$65,000.00
2	Provide & Install 48" storm drain manhole (incudes manhole lid and ring, grout and collars)	3	EA	$4,500.00	$13,500.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	5	EA	$3,500.00	$17,500.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	3	EA	$6,000.00	$18,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	3	EA	$1,000.00	$3,000.00
6	Remove and haul away excisting storm drain pipe	30	LF	$20.00	$600.00
7	Remove and haul away excisting storm drain structures	1	EA	$1,000.00	$1,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
9	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
10	Pulverize and haul away asphalt (including saw-cutting)	75	CY	$20.00	$1,500.00
11	Excavate and haul away native material	600	CY	$20.00	$12,000.00
12	Import gravel bedding	350	TN	$25.00	$8,750.00
13	Import granular barrow (including compaction)	700	TN	$25.00	$17,500.00
14	Import untreated base course (including compaction)	250	TN	$30.00	$7,500.00
15	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-15)				**$203,850.00**
16	Contingency	25%			$50,962.50
17	Design Engineering and Survey	10%			$20,385.00
18	Construction Management and Staking	10%			$20,385.00
	Total Construction Project (Items 1-18)				**$295,582.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 45 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2045 - Willow Valley Drive to Frontage Road Swale - Pipe (3) 15" System					
1	Install new 15" RCP storm drain w/ seperation fabric	1,600	LF	$180.00	$288,000.00
2	Provide & Install 48" storm drain manhole (incudes manhole lid and ring, grout and collars)	2	EA	$4,500.00	$9,000.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	3	EA	$3,500.00	$10,500.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	3	EA	$6,000.00	$18,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	2	EA	$1,000.00	$2,000.00
6	Remove and haul away excisting storm drain pipe	100	LF	$20.00	$2,000.00
7	Remove and haul away excisting storm drain structures	5	EA	$1,000.00	$5,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
9	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
10	Pulverize and haul away asphalt (including saw-cutting)	120	CY	$20.00	$2,400.00
11	Excavate and haul away native material	1,200	CY	$20.00	$24,000.00
12	Import gravel bedding	650	TN	$25.00	$16,250.00
13	Import granular barrow (including compaction)	1,500	TN	$25.00	$37,500.00
14	Import untreated base course (including compaction)	400	TN	$30.00	$12,000.00
15	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	300	TN	$200.00	$60,000.00
16	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-16)				**$524,650.00**
17	Contingency	25%			$131,162.50
18	Design Engineering and Survey	10%			$52,465.00
19	Construction Management and Staking	10%			$52,465.00
	Total Construction Project (Items 1-19)				**$760,742.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 45 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
	Project Year 2045 - Main Street - 1600 North to Smoot Park				
1	Install new 12" PVC storm drain w/ seperation fabric	325	LF	$65.00	$21,125.00
2	Provide & Install 48" storm drain manhole (incudes manhole lid and ring, grout and collars)	1	EA	$4,500.00	$4,500.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	1	EA	$3,500.00	$3,500.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	2	EA	$6,000.00	$12,000.00
5	Provide & Install inlet/outlet structure	1	EA	$5,000.00	$5,000.00
6	Remove and haul away excisting storm drain pipe	325	LF	$20.00	$6,500.00
7	Remove and haul away excisting storm drain structures	2	EA	$1,000.00	$2,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
9	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
10	Pulverize and haul away asphalt (including saw-cutting)	40	CY	$20.00	$800.00
11	Excavate and haul away native material	250	CY	$20.00	$5,000.00
12	Import gravel bedding	120	TN	$25.00	$3,000.00
13	Import granular barrow (including compaction)	320	TN	$25.00	$8,000.00
14	Import untreated base course (including compaction)	75	TN	$30.00	$2,250.00
15	UDOT permits, fees ect.	1	Lump Sum	$5,000.00	$5,000.00
16	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-16)				**$116,675.00**
17	Contingency	25%			$29,168.75
18	Design Engineering and Survey	10%			$11,667.50
19	Construction Management and Staking	10%			$11,667.50
	Total Construction Project (Items 1-19)				**$169,178.75**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 46 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
	Project Year 2046 - 1825 North - Main Street to 300 East				
1	Install new 12" PVC storm drain w/ seperation fabric	2,000	LF	$65.00	$130,000.00
2	Provide & Install 48" storm drain manhole (incudes manhole lid and ring, grout and collars)	8	EA	$4,500.00	$36,000.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	14	EA	$3,500.00	$49,000.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	5	EA	$6,000.00	$30,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
6	Remove and haul away excisting storm drain pipe	150	LF	$20.00	$3,000.00
7	Remove and haul away excisting storm drain structures	8	EA	$1,000.00	$8,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
9	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
10	Pulverize and haul away asphalt (including saw-cutting)	175	CY	$20.00	$3,500.00
11	Excavate and haul away native material	1,200	CY	$20.00	$24,000.00
12	Import gravel bedding	600	TN	$25.00	$15,000.00
13	Import granular barrow (including compaction)	1,200	TN	$25.00	$30,000.00
14	Import untreated base course (including compaction)	500	TN	$30.00	$15,000.00
15	UDOT permits, fees ect.	1	Lump Sum	$5,000.00	$5,000.00
16	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-16)				**$387,500.00**
17	Contingency	25%			$96,875.00
18	Design Engineering and Survey	10%			$38,750.00
19	Construction Management and Staking	10%			$38,750.00
	Total Construction Project (Items 1-19)				**$561,875.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 46 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
	Project Year 2046 - 1975 North - Main Street to 150 East				
1	Install new 12" PVC storm drain w/ seperation fabric	1,000	LF	$65.00	$65,000.00
2	Provide & Install 48" storm drain manhole (incudes manhole lid and ring, grout and collars)	5	EA	$4,500.00	$22,500.00
3	Provide & Install storm drain inlet boxes and grates (including removal of existing, coring, collars, grouting and curb & gutter)	7	EA	$3,500.00	$24,500.00
4	Provide & Install combo box (including manhole lid and ring, inlet grate, removal of existing, coring, collars, grouting and curb & gutter)	3	EA	$6,000.00	$18,000.00
5	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
6	Remove and haul away excisting storm drain pipe	120	LF	$20.00	$2,400.00
7	Remove and haul away excisting storm drain structures	4	EA	$1,000.00	$4,000.00
8	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
9	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
10	Pulverize and haul away asphalt (including saw-cutting)	80	CY	$20.00	$1,600.00
11	Excavate and haul away native material	600	CY	$20.00	$12,000.00
12	Import gravel bedding	350	TN	$25.00	$8,750.00
13	Import granular barrow (including compaction)	650	TN	$25.00	$16,250.00
14	Import untreated base course (including compaction)	250	TN	$30.00	$7,500.00
15	UDOT permits, fees ect.	1	Lump Sum	$5,000.00	$5,000.00
16	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-16)				**$226,500.00**
17	Contingency	25%			$56,625.00
18	Design Engineering and Survey	10%			$22,650.00
19	Construction Management and Staking	10%			$22,650.00
	Total Construction Project (Items 1-19)				**$328,425.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 47 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2047 - Future 1250 West Extension - Rick's Creek 12' x 5' Box Culvert					
1	Install new 12' x 5' box culvert	100	LF	$1,000.00	$100,000.00
2	Install inlet and outlet headwall structures	2	EA	$10,000.00	$20,000.00
3	Pothole existing utility for new alignment	1	Lump Sum	$1,000.00	$1,000.00
4	Excavate and haul away native material	500	CY	$20.00	$10,000.00
5	Import gravel bedding	100	TN	$25.00	$2,500.00
6	Import granular barrow (including compaction)	100	TN	$25.00	$2,500.00
7	Import untreated base course (including compaction)	25	TN	$30.00	$750.00
8	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-8)				**$166,750.00**
9	Contingency	25%			$41,687.50
10	Design Engineering and Survey	10%			$16,675.00
11	Construction Management and Staking	10%			$16,675.00
	Total Construction Project (Items 1-11)				**$241,787.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 47 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2047 - Future 1250 West Extension - 1875 North (Villa de France) - 36" RCP Culvert					
1	Install new 36" RCP storm drain w/ seperation fabric	100	LF	$260.00	$26,000.00
2	Install inlet and outlet structures	2	EA	$1,000.00	$2,000.00
3	Pothole existing utility for new alignment	1	Lump Sum	$1,000.00	$1,000.00
4	Excavate and haul away native material	500	CY	$20.00	$10,000.00
5	Import gravel bedding	80	TN	$25.00	$2,000.00
6	Import granular barrow (including compaction)	100	TN	$25.00	$2,500.00
7	Import untreated base course (including compaction)	25	TN	$30.00	$750.00
8	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-8)				**$74,250.00**
9	Contingency	25%			$18,562.50
10	Design Engineering and Survey	10%			$7,425.00
11	Construction Management and Staking	10%			$7,425.00
	Total Construction Project (Items 1-11)				**$107,662.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by:			Project No.
		Checked by:			48 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2048 - D&RG Rick's Creek - 72" x 48" Elliptical RCP Culvert					
1	Install new 72" x 48" Elliptical RCP culvert storm drain w/ seperation fabric	100	LF	$1,000.00	$100,000.00
2	Install inlet and outlet structures	2	EA	$1,000.00	$2,000.00
3	Pothole existing utility for new alignment	1	Lump Sum	$1,000.00	$1,000.00
4	Excavate and haul away native material	250	CY	$20.00	$5,000.00
5	Import gravel bedding	175	TN	$25.00	$4,375.00
6	Import granular barrow (including compaction)	175	TN	$25.00	$4,375.00
7	Import untreated base course (including compaction)	25	TN	$30.00	$750.00
8	UTA permits, fees ect.	1	Lump Sum	$5,000.00	$5,000.00
9	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-9)				**$152,500.00**
	Davis County's Cost	75%			**$114,375.00**
	Centerville City's Cost	25%			**$38,125.00**
10	Contingency	25%			$9,531.25
11	Design Engineering and Survey	10%			$3,812.50

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by:			Project No.
		Checked by:			48 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2048 - D&RG 2075 North - 36" Culvert					
1	Install new 36" RCP storm drain w/ seperation fabric	100	LF	$260.00	$26,000.00
2	Install inlet and outlet structures	2	EA	$1,000.00	$2,000.00
3	Pothole existing utility for new alignment	1	Lump Sum	$1,000.00	$1,000.00
4	Excavate and haul away native material	500	CY	$20.00	$10,000.00
5	Import gravel bedding	80	TN	$25.00	$2,000.00
6	Import granular barrow (including compaction)	100	TN	$25.00	$2,500.00
7	Import untreated base course (including compaction)	25	TN	$30.00	$750.00
8	UTA permits, fees ect.	1	Lump Sum	$5,000.00	$5,000.00
9	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-9)				**$79,250.00**
10	Contingency	25%			$19,812.50
11	Design Engineering and Survey	10%			$7,925.00
12	Construction Management and Staking	10%			$7,925.00
	Total Construction Project (Items 1-12)				**$114,912.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 49 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
	Project Year 2049 - 1275 N - replace ADS with RCP				
1	Install new 24" RCP storm drain w/ seperation fabric	50	LF	$240.00	$12,000.00
2	Provide & Install 60" storm drain manhole (incudes manhole lid and ring, grout and collars)	2	EA	$5,000.00	$10,000.00
3	Tie-in to existing storm drain system (includes coring existing manhole & new collars)	2	EA	$1,000.00	$2,000.00
4	Remove and haul away excisting storm drain pipe	50	LF	$20.00	$1,000.00
5	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
6	Remove and replace concrete (including saw-cutting)	1	Lump Sum	$5,000.00	$5,000.00
7	Pulverize and haul away asphalt (including saw-cutting)	10	CY	$20.00	$200.00
8	Excavate and haul away native material	50	CY	$20.00	$1,000.00
9	Import gravel bedding	25	TN	$25.00	$625.00
10	Import granular barrow (including compaction)	35	TN	$25.00	$875.00
11	Import untreated base course (including compaction)	12	TN	$30.00	$360.00
12	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-12)				**$66,060.00**
13	Contingency	25%			$16,515.00
14	Design Engineering and Survey	10%			$6,606.00
15	Construction Management and Staking	10%			$6,606.00
	Total Construction Project (Items 1-15)				**$95,787.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 49 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2049 - 71" x 47" CMP Culvert at Legacy Trail and Sheep Road at 1000 North					
1	Install new 72" x 48" Elliptical RCP culvert storm drain w/ seperation fabric under Legacy Trail	100	LF	$1,000.00	$100,000.00
2	Install inlet and outlet structures	2	EA	$2,500.00	$5,000.00
3	Pothole existing utility for new alignment	1	Lump Sum	$1,000.00	$1,000.00
4	Excavate and haul away native material	200	CY	$20.00	$4,000.00
5	Import gravel bedding	200	TN	$25.00	$5,000.00
6	Import granular barrow (including compaction)	150	TN	$25.00	$3,750.00
7	Import untreated base course (including compaction)	50	TN	$30.00	$1,500.00
8	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-8)				**$150,250.00**
9	Contingency	25%			$37,562.50
10	Design Engineering and Survey	10%			$15,025.00
11	Construction Management and Staking	10%			$15,025.00
	Total Construction Project (Items 1-11)				**$217,862.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 50 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2050 - Sheep Road 2075 North - 36" Culvert					
1	Install new 36" RCP storm drain w/ seperation fabric	100	LF	$260.00	$26,000.00
2	Install inlet and outlet structures	2	EA	$5,000.00	$10,000.00
3	Pothole existing utility for new alignment	1	Lump Sum	$1,000.00	$1,000.00
4	Excavate and haul away native material	500	CY	$20.00	$10,000.00
5	Import gravel bedding	80	TN	$25.00	$2,000.00
6	Import granular barrow (including compaction)	100	TN	$25.00	$2,500.00
7	Import untreated base course (including compaction)	25	TN	$30.00	$750.00
8	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-8)				**$82,250.00**
9	Contingency	25%			$20,562.50
10	Design Engineering and Survey	10%			$8,225.00
11	Construction Management and Staking	10%			$8,225.00
	Total Construction Project (Items 1-11)				**$119,262.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 50 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2050 - Sheep Road Rick's Creek - 71" x 47" Elliptical RCP Culvert					
1	Install new 72" x 48" Elliptical RCP culvert storm drain w/ seperation fabric under Sheep Road	65	LF	$1,000.00	$65,000.00
2	Install inlet and outlet structures	2	EA	$2,500.00	$5,000.00
3	Pothole existing utility for new alignment	1	Lump Sum	$1,000.00	$1,000.00
4	Excavate and haul away native material	150	CY	$20.00	$3,000.00
5	Import gravel bedding	100	TN	$25.00	$2,500.00
6	Import granular barrow (including compaction)	100	TN	$25.00	$2,500.00
7	Import untreated base course (including compaction)	40	TN	$30.00	$1,200.00
8	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-8)				**$110,200.00**
9	Contingency	25%			$27,550.00
10	Design Engineering and Survey	10%			$11,020.00
11	Construction Management and Staking	10%			$11,020.00
	Total Construction Project (Items 1-11)				**$159,790.00**

Appendix D

Subdrain Project Cost Estimates

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 24 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2024 - Pitford - 550 South to Tobe					
1	Install new 8" PVC subdrain w/ seperation fabric	470	LF	$55.00	$25,850.00
2	Install new 4" PVC subdrain lateral w/ seperation fabric	250	LF	$45.00	$11,250.00
3	Provide & Install 48" subdrain manhole (incudes manhole lid and ring, grout and collars)	3	EA	$4,500.00	$13,500.00
4	Tie-in to existing subdrain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
5	Remove and haul away excisting subdrain pipe	470	LF	$20.00	$9,400.00
6	Remove and haul away excisting subdrain structures	4	EA	$1,000.00	$4,000.00
7	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
8	Remove and replace curb and gutter (including saw-cut)	100	LF	$65.00	$6,500.00
9	Remove and replace sidewalk (including saw-cut)	160	SF	$20.00	$3,200.00
10	Pulverize and haul away asphalt (including saw-cutting)	60	CY	$20.00	$1,200.00
11	Excavate and haul away native material	750	CY	$20.00	$15,000.00
12	Import gravel bedding	200	TN	$25.00	$5,000.00
13	Import granular barrow (including compaction)	700	TN	$25.00	$17,500.00
14	Import untreated base course (including compaction)	150	TN	$30.00	$4,500.00
15	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	110	TN	$200.00	$22,000.00
16	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-16)				**$172,900.00**
17	Contingency	25%			$43,225.00
18	Design Engineering and Survey	10%			$17,290.00
19	Construction Management and Staking	10%			$17,290.00
	Total Construction Project (Items 1-19)				**$250,705.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 26 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2026 - Ariane Way - 450 West to 650 West					
1	Install new 8" PVC subdrain w/ seperation fabric	1,600	LF	$55.00	$88,000.00
2	Install new 4" PVC subdrain lateral w/ seperation fabric	550	LF	$45.00	$24,750.00
3	Provide & Install 48" subdrain manhole (incudes manhole lid and ring, grout and collars)	9	EA	$4,500.00	$40,500.00
4	Tie-in to existing subdrain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
5	Remove and haul away excisting subdrain pipe	1,600	LF	$20.00	$32,000.00
6	Remove and haul away excisting subdrain structures	10	EA	$1,000.00	$10,000.00
7	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
8	Remove and replace curb and gutter (including saw-cut)	290	LF	$65.00	$18,850.00
9	Remove and replace sidewalk (including saw-cut)	464	SF	$20.00	$9,280.00
10	Pulverize and haul away asphalt (including saw-cutting)	200	CY	$20.00	$4,000.00
11	Excavate and haul away native material	2,500	CY	$20.00	$50,000.00
12	Import gravel bedding	550	TN	$25.00	$13,750.00
13	Import granular barrow (including compaction)	2,300	TN	$25.00	$57,500.00
14	Import untreated base course (including compaction)	450	TN	$30.00	$13,500.00
15	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	400	TN	$200.00	$80,000.00
16	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-16)				**$476,130.00**
17	Contingency	25%			$119,032.50
18	Design Engineering and Survey	10%			$47,613.00
19	Construction Management and Staking	10%			$47,613.00
	Total Construction Project (Items 1-19)				**$690,388.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 27 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
	Project Year 2027 - Parrish Lane - 100 East to Main Street				
1	Install new 8" PVC subdrain w/ seperation fabric	450	LF	$55.00	$24,750.00
2	Install new 4" PVC subdrain lateral w/ seperation fabric	220	LF	$45.00	$9,900.00
3	Provide & Install 48" subdrain manhole (incudes manhole lid and ring, grout and collars)	3	EA	$4,500.00	$13,500.00
4	Tie-in to existing subdrain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
5	Remove and haul away excisting subdrain pipe	450	LF	$20.00	$9,000.00
6	Remove and haul away excisting subdrain structures	2	EA	$1,000.00	$2,000.00
7	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
8	Remove and replace curb and gutter (including saw-cut)	70	LF	$65.00	$4,550.00
9	Remove and replace sidewalk (including saw-cut)	112	SF	$20.00	$2,240.00
10	Pulverize and haul away asphalt (including saw-cutting)	60	CY	$20.00	$1,200.00
11	Excavate and haul away native material	700	CY	$20.00	$14,000.00
12	Import gravel bedding	150	TN	$25.00	$3,750.00
13	Import granular barrow (including compaction)	1,200	TN	$25.00	$30,000.00
14	Import untreated base course (including compaction)	150	TN	$30.00	$4,500.00
15	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	120	TN	$200.00	$24,000.00
16	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-16)				**$177,390.00**
17	Contingency	25%			$44,347.50
18	Design Engineering and Survey	10%			$17,739.00
19	Construction Management and Staking	10%			$17,739.00
	Total Construction Project (Items 1-19)				**$257,215.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 29 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2029 - 1850 North - 100 West to 400 West					
1	Install new 8" PVC subdrain w/ seperation fabric	1,400	LF	$55.00	$77,000.00
2	Install new 4" PVC subdrain lateral w/ seperation fabric	780	LF	$45.00	$35,100.00
3	Provide & Install 48" subdrain manhole (incudes manhole lid and ring, grout and collars)	7	EA	$4,500.00	$31,500.00
4	Tie-in to existing subdrain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
5	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
6	Remove and replace curb and gutter (including saw-cut)	280	LF	$65.00	$18,200.00
7	Remove and replace sidewalk (including saw-cut)	448	SF	$20.00	$8,960.00
8	Pulverize and haul away asphalt (including saw-cutting)	200	CY	$20.00	$4,000.00
9	Excavate and haul away native material	2,300	CY	$20.00	$46,000.00
10	Import gravel bedding	500	TN	$25.00	$12,500.00
11	Import granular barrow (including compaction)	2,000	TN	$25.00	$50,000.00
12	Import untreated base course (including compaction)	450	TN	$30.00	$13,500.00
13	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	350	TN	$200.00	$70,000.00
14	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-14)				**$400,760.00**
15	Contingency	25%			$100,190.00
16	Design Engineering and Survey	10%			$40,076.00
17	Construction Management and Staking	10%			$40,076.00
	Total Construction Project (Items 1-17)				**$581,102.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 30 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2030 - 1500 North Cul-de-sac on 400 West					
1	Install new 8" PVC subdrain w/ seperation fabric	350	LF	$55.00	$19,250.00
2	Install new 4" PVC subdrain lateral w/ seperation fabric	150	LF	$45.00	$6,750.00
3	Provide & Install 48" subdrain manhole (incudes manhole lid and ring, grout and collars)	1	EA	$4,500.00	$4,500.00
4	Tie-in to existing subdrain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
5	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
6	Remove and replace curb and gutter (including saw-cut)	80	LF	$65.00	$5,200.00
7	Remove and replace sidewalk (including saw-cut)	128	SF	$20.00	$2,560.00
8	Pulverize and haul away asphalt (including saw-cutting)	50	CY	$20.00	$1,000.00
9	Excavate and haul away native material	600	CY	$20.00	$12,000.00
10	Import gravel bedding	150	TN	$25.00	$3,750.00
11	Import granular barrow (including compaction)	500	TN	$25.00	$12,500.00
12	Import untreated base course (including compaction)	120	TN	$30.00	$3,600.00
13	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	100	TN	$200.00	$20,000.00
14	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-14)				**$125,110.00**
15	Contingency	25%			$31,277.50
16	Design Engineering and Survey	10%			$12,511.00
17	Construction Management and Staking	10%			$12,511.00
	Total Construction Project (Items 1-17)				**$181,409.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 31 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2031 - 1600 North (Rick's Creek Way) - 100 West to 200 West					
1	Install new 8" PVC subdrain w/ seperation fabric	1,200	LF	$55.00	$66,000.00
2	Install new 4" PVC subdrain lateral w/ seperation fabric	520	LF	$45.00	$23,400.00
3	Provide & Install 48" subdrain manhole (incudes manhole lid and ring, grout and collars)	8	EA	$4,500.00	$36,000.00
4	Tie-in to existing subdrain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
5	Remove and haul away excisting subdrain pipe	450	LF	$20.00	$9,000.00
6	Remove and haul away excisting subdrain structures	2	EA	$1,000.00	$2,000.00
7	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
8	Remove and replace curb and gutter (including saw-cut)	170	LF	$65.00	$11,050.00
9	Remove and replace sidewalk (including saw-cut)	272	SF	$20.00	$5,440.00
10	Pulverize and haul away asphalt (including saw-cutting)	150	CY	$20.00	$3,000.00
11	Excavate and haul away native material	1,900	CY	$20.00	$38,000.00
12	Import gravel bedding	400	TN	$25.00	$10,000.00
13	Import granular barrow (including compaction)	1,500	TN	$25.00	$37,500.00
14	Import untreated base course (including compaction)	350	TN	$30.00	$10,500.00
15	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	300	TN	$200.00	$60,000.00
16	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-16)				**$345,890.00**
17	Contingency	25%			$86,472.50
18	Design Engineering and Survey	10%			$34,589.00
19	Construction Management and Staking	10%			$34,589.00
	Total Construction Project (Items 1-19)				**$501,540.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 32 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2032 - 1650 North (Milky Way) - 100 West to 200 West					
1	Install new 8" PVC subdrain w/ seperation fabric	1,200	LF	$55.00	$66,000.00
2	Install new 4" PVC subdrain lateral w/ seperation fabric	585	LF	$45.00	$26,325.00
3	Provide & Install 48" subdrain manhole (incudes manhole lid and ring, grout and collars)	8	EA	$4,500.00	$36,000.00
4	Tie-in to existing subdrain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
5	Remove and haul away excisting subdrain pipe	1,000	LF	$20.00	$20,000.00
6	Remove and haul away excisting subdrain structures	5	EA	$1,000.00	$5,000.00
7	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
8	Remove and replace curb and gutter (including saw-cut)	210	LF	$65.00	$13,650.00
9	Remove and replace sidewalk (including saw-cut)	336	SF	$20.00	$6,720.00
10	Pulverize and haul away asphalt (including saw-cutting)	150	CY	$20.00	$3,000.00
11	Excavate and haul away native material	1,900	CY	$20.00	$38,000.00
12	Import gravel bedding	400	TN	$25.00	$10,000.00
13	Import granular barrow (including compaction)	1,500	TN	$25.00	$37,500.00
14	Import untreated base course (including compaction)	350	TN	$30.00	$10,500.00
15	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	300	TN	$200.00	$60,000.00
16	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-16)				**$366,695.00**
17	Contingency	25%			$91,673.75
18	Design Engineering and Survey	10%			$36,669.50
19	Construction Management and Staking	10%			$36,669.50
	Total Construction Project (Items 1-19)				**$531,707.75**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 33 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2033 - 1800 North - 300 West to 400 West					
1	Install new 8" PVC subdrain w/ seperation fabric	450	LF	$55.00	$24,750.00
2	Install new 4" PVC subdrain lateral w/ seperation fabric	175	LF	$45.00	$7,875.00
3	Provide & Install 48" subdrain manhole (incudes manhole lid and ring, grout and collars)	3	EA	$4,500.00	$13,500.00
4	Tie-in to existing subdrain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
5	Remove and haul away excisting subdrain pipe	450	LF	$20.00	$9,000.00
6	Remove and haul away excisting subdrain structures	2	EA	$1,000.00	$2,000.00
7	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
8	Remove and replace curb and gutter (including saw-cut)	70	LF	$65.00	$4,550.00
9	Remove and replace sidewalk (including saw-cut)	112	SF	$20.00	$2,240.00
10	Pulverize and haul away asphalt (including saw-cutting)	50	CY	$20.00	$1,000.00
11	Excavate and haul away native material	650	CY	$20.00	$13,000.00
12	Import gravel bedding	200	TN	$25.00	$5,000.00
13	Import granular barrow (including compaction)	600	TN	$25.00	$15,000.00
14	Import untreated base course (including compaction)	130	TN	$30.00	$3,900.00
15	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	100	TN	$200.00	$20,000.00
16	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-16)				**$155,815.00**
17	Contingency	25%			$38,953.75
18	Design Engineering and Survey	10%			$15,581.50
19	Construction Management and Staking	10%			$15,581.50
	Total Construction Project (Items 1-19)				**$225,931.75**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 34 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2034 - Lewis & Clark Drive - Fremont Cir to Jim Bridger Dr / Frontage Rd Crossing					
1	Install new 8" PVC subdrain w/ seperation fabric	300	LF	$55.00	$16,500.00
2	Install new 4" PVC subdrain lateral w/ seperation fabric	60	LF	$45.00	$2,700.00
3	Provide & Install 48" subdrain manhole (incudes manhole lid and ring, grout and collars)	2	EA	$4,500.00	$9,000.00
4	Tie-in to existing subdrain system (includes coring existing manhole & new collars)	2	EA	$1,000.00	$2,000.00
5	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
6	Remove and replace curb and gutter (including saw-cut)	40	LF	$65.00	$2,600.00
7	Remove and replace sidewalk (including saw-cut)	64	SF	$20.00	$1,280.00
8	Pulverize and haul away asphalt (including saw-cutting)	35	CY	$20.00	$700.00
9	Excavate and haul away native material	450	CY	$20.00	$9,000.00
10	Import gravel bedding	100	TN	$25.00	$2,500.00
11	Import granular barrow (including compaction)	400	TN	$25.00	$10,000.00
12	Import untreated base course (including compaction)	90	TN	$30.00	$2,700.00
13	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	60	TN	$200.00	$12,000.00
14	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-14)				**$103,980.00**
15	Contingency	25%			$25,995.00
16	Design Engineering and Survey	10%			$10,398.00
17	Construction Management and Staking	10%			$10,398.00
	Total Construction Project (Items 1-17)				**$150,771.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 36 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2036 - 700 S. - 300 E. to 400 E., 600 S. - 300 E. to 400 E., 300 E. - 600 S. to 725 S.					
1	Install new 8" PVC subdrain w/ seperation fabric	1,200	LF	$55.00	$66,000.00
2	Install new 4" PVC subdrain lateral w/ seperation fabric	730	LF	$45.00	$32,850.00
3	Provide & Install 48" subdrain manhole (incudes manhole lid and ring, grout and collars)	8	EA	$4,500.00	$36,000.00
4	Tie-in to existing subdrain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
5	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
6	Remove and replace curb and gutter (including saw-cut)	230	LF	$65.00	$14,950.00
7	Remove and replace sidewalk (including saw-cut)	368	SF	$20.00	$7,360.00
8	Pulverize and haul away asphalt (including saw-cutting)	150	CY	$20.00	$3,000.00
9	Excavate and haul away native material	2,000	CY	$20.00	$40,000.00
10	Import gravel bedding	450	TN	$25.00	$11,250.00
11	Import granular barrow (including compaction)	1,700	TN	$25.00	$42,500.00
12	Import untreated base course (including compaction)	400	TN	$30.00	$12,000.00
13	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	230	TN	$200.00	$46,000.00
14	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-14)				**$345,910.00**
15	Contingency	25%			$86,477.50
16	Design Engineering and Survey	10%			$34,591.00
17	Construction Management and Staking	10%			$34,591.00
	Total Construction Project (Items 1-17)				**$501,569.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 37 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2037 - Tobe Drive - 350 West to 400 West					
1	Install new 8" PVC subdrain w/ seperation fabric	750	LF	$55.00	$41,250.00
2	Install new 4" PVC subdrain lateral w/ seperation fabric	400	LF	$45.00	$18,000.00
3	Provide & Install 48" subdrain manhole (incudes manhole lid and ring, grout and collars)	5	EA	$4,500.00	$22,500.00
4	Tie-in to existing subdrain system (includes coring existing manhole & new collars)	2	EA	$1,000.00	$2,000.00
5	Remove and haul away excisting subdrain pipe	750	LF	$20.00	$15,000.00
6	Remove and haul away excisting subdrain structures	5	EA	$1,000.00	$5,000.00
7	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
8	Remove and replace curb and gutter (including saw-cut)	160	LF	$65.00	$10,400.00
9	Remove and replace sidewalk (including saw-cut)	256	SF	$20.00	$5,120.00
10	Pulverize and haul away asphalt (including saw-cutting)	90	CY	$20.00	$1,800.00
11	Excavate and haul away native material	1,200	CY	$20.00	$24,000.00
12	Import gravel bedding	250	TN	$25.00	$6,250.00
13	Import granular barrow (including compaction)	1,000	TN	$25.00	$25,000.00
14	Import untreated base course (including compaction)	220	TN	$30.00	$6,600.00
15	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	180	TN	$200.00	$36,000.00
16	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-16)				**$251,920.00**
17	Contingency	25%			$62,980.00
18	Design Engineering and Survey	10%			$25,192.00
19	Construction Management and Staking	10%			$25,192.00
	Total Construction Project (Items 1-19)				**$365,284.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 39 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
	Project Year 2039 - Mountain View Drive & Creek View Drive				
1	Install new 8" PVC subdrain w/ seperation fabric	1,250	LF	$55.00	$68,750.00
2	Install new 4" PVC subdrain lateral w/ seperation fabric	690	LF	$45.00	$31,050.00
3	Provide & Install 48" subdrain manhole (incudes manhole lid and ring, grout and collars)	8	EA	$4,500.00	$36,000.00
4	Tie-in to existing subdrain system (includes coring existing manhole & new collars)	2	EA	$1,000.00	$2,000.00
5	Remove and haul away excisting subdrain pipe	500	LF	$20.00	$10,000.00
6	Remove and haul away excisting subdrain structures	4	EA	$1,000.00	$4,000.00
7	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
8	Remove and replace curb and gutter (including saw-cut)	290	LF	$65.00	$18,850.00
9	Remove and replace sidewalk (including saw-cut)	464	SF	$20.00	$9,280.00
10	Pulverize and haul away asphalt (including saw-cutting)	150	CY	$20.00	$3,000.00
11	Excavate and haul away native material	1,900	CY	$20.00	$38,000.00
12	Import gravel bedding	400	TN	$25.00	$10,000.00
13	Import granular barrow (including compaction)	1,500	TN	$25.00	$37,500.00
14	Import untreated base course (including compaction)	330	TN	$30.00	$9,900.00
15	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	280	TN	$200.00	$56,000.00
16	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-16)				**$367,330.00**
17	Contingency	25%			$91,832.50
18	Design Engineering and Survey	10%			$36,733.00
19	Construction Management and Staking	10%			$36,733.00
	Total Construction Project (Items 1-19)				**$532,628.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 41 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2041 - Canyon Breeze Drive					
1	Install new 8" PVC subdrain w/ seperation fabric	1,300	LF	$55.00	$71,500.00
2	Install new 4" PVC subdrain lateral w/ seperation fabric	655	LF	$45.00	$29,475.00
3	Provide & Install 48" subdrain manhole (incudes manhole lid and ring, grout and collars)	8	EA	$4,500.00	$36,000.00
4	Tie-in to existing subdrain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
5	Remove and haul away excisting subdrain pipe	1,100	LF	$20.00	$22,000.00
6	Remove and haul away excisting subdrain structures	4	EA	$1,000.00	$4,000.00
7	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
8	Remove and replace curb and gutter (including saw-cut)	250	LF	$65.00	$16,250.00
9	Remove and replace sidewalk (including saw-cut)	400	SF	$20.00	$8,000.00
10	Pulverize and haul away asphalt (including saw-cutting)	150	CY	$20.00	$3,000.00
11	Excavate and haul away native material	1,900	CY	$20.00	$38,000.00
12	Import gravel bedding	400	TN	$25.00	$10,000.00
13	Import granular barrow (including compaction)	1,600	TN	$25.00	$40,000.00
14	Import untreated base course (including compaction)	350	TN	$30.00	$10,500.00
15	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	300	TN	$200.00	$60,000.00
16	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-16)				**$382,725.00**
17	Contingency	25%			$95,681.25
18	Design Engineering and Survey	10%			$38,272.50
19	Construction Management and Staking	10%			$38,272.50
	Total Construction Project (Items 1-19)				**$554,951.25**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 43 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
	Project Year 2043 - 400 West - 1500 North to 1375 North				
1	Install new 8" PVC subdrain w/ seperation fabric	1,300	LF	$55.00	$71,500.00
2	Install new 4" PVC subdrain lateral w/ seperation fabric	210	LF	$45.00	$9,450.00
3	Provide & Install 48" subdrain manhole (incudes manhole lid and ring, grout and collars)	10	EA	$4,500.00	$45,000.00
4	Tie-in to existing subdrain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
5	Remove and haul away excisting subdrain pipe	1,200	LF	$20.00	$24,000.00
6	Remove and haul away excisting subdrain structures	10	EA	$1,000.00	$10,000.00
7	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
8	Remove and replace curb and gutter (including saw-cut)	140	LF	$65.00	$9,100.00
9	Remove and replace sidewalk (including saw-cut)	224	SF	$20.00	$4,480.00
10	Pulverize and haul away asphalt (including saw-cutting)	200	CY	$20.00	$4,000.00
11	Excavate and haul away native material	2,000	CY	$20.00	$40,000.00
12	Import gravel bedding	400	TN	$25.00	$10,000.00
13	Import granular barrow (including compaction)	1,600	TN	$25.00	$40,000.00
14	Import untreated base course (including compaction)	350	TN	$30.00	$10,500.00
15	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	400	TN	$200.00	$80,000.00
16	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-16)				**$392,030.00**
17	Contingency	25%			$98,007.50
18	Design Engineering and Survey	10%			$39,203.00
19	Construction Management and Staking	10%			$39,203.00
	Total Construction Project (Items 1-19)				**$568,443.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 *Consulting Engineers & Land Surveyors*	Project: Drainage Master Plan Storm Drain Projects Owner: **Centerville City** Estimated by: Checked by:	Sheet No. 1 of 1 Project No. 44 - ###

Conceptual Estimate

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
	Project Year 2044 - 100 West Cul-de-sac on 1450 North				
1	Install new 8" PVC subdrain w/ seperation fabric	400	LF	$55.00	$22,000.00
2	Install new 4" PVC subdrain lateral w/ seperation fabric	200	LF	$45.00	$9,000.00
3	Provide & Install 48" subdrain manhole (incudes manhole lid and ring, grout and collars)	2	EA	$4,500.00	$9,000.00
4	Tie-in to existing subdrain system (includes coring existing manhole & new collars)	2	EA	$1,000.00	$2,000.00
5	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
6	Remove and replace curb and gutter (including saw-cut)	70	LF	$65.00	$4,550.00
7	Remove and replace sidewalk (including saw-cut)	112	SF	$20.00	$2,240.00
8	Pulverize and haul away asphalt (including saw-cutting)	50	CY	$20.00	$1,000.00
9	Excavate and haul away native material	625	CY	$20.00	$12,500.00
10	Import gravel bedding	150	TN	$25.00	$3,750.00
11	Import granular barrow (including compaction)	550	TN	$25.00	$13,750.00
12	Import untreated base course (including compaction)	120	TN	$30.00	$3,600.00
13	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	100	TN	$200.00	$20,000.00
14	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-14)				**$136,390.00**
15	Contingency	25%			$34,097.50
16	Design Engineering and Survey	10%			$13,639.00
17	Construction Management and Staking	10%			$13,639.00
	Total Construction Project (Items 1-17)				**$197,765.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 45 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2045 - 850 South / 780 South - 150 West (Slip-Line)					
1	Line 3 sections of 8" CMP	450	LF	$180.00	$81,000.00
2	Mobilization, demobilization, bonds, permits, and Fees	1	Lump Sum	$5,000.00	$5,000.00
3	Traffic control/barricading	1	Lump Sum	$50,000.00	$50,000.00
	Subtotal (Items 1-3)				**$136,000.00**
4	Contingency	25%			$34,000.00
5	Design Engineering and Survey	10%			$13,600.00
6	Construction Management and Staking	10%			$13,600.00
	Total Construction Project (Items 1-6)				**$197,200.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 46 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2046 - Lund Lane - 700 West to 200 West					
1	Install new 8" PVC subdrain w/ seperation fabric	1,000	LF	$55.00	$55,000.00
2	Install new 4" PVC subdrain lateral w/ seperation fabric	100	LF	$45.00	$4,500.00
3	Provide & Install 48" subdrain manhole (incudes manhole lid and ring, grout and collars)	4	EA	$4,500.00	$18,000.00
4	Tie-in to existing subdrain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
5	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
6	Remove and replace curb and gutter (including saw-cut)	100	LF	$65.00	$6,500.00
7	Remove and replace sidewalk (including saw-cut)	160	SF	$20.00	$3,200.00
8	Pulverize and haul away asphalt (including saw-cutting)	100	CY	$20.00	$2,000.00
9	Excavate and haul away native material	1,200	CY	$20.00	$24,000.00
10	Import gravel bedding	300	TN	$25.00	$7,500.00
11	Import granular barrow (including compaction)	1,000	TN	$25.00	$25,000.00
12	Import untreated base course (including compaction)	230	TN	$30.00	$6,900.00
13	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	200	TN	$200.00	$40,000.00
14	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-14)				**$226,600.00**
15	Contingency	25%			$56,650.00
16	Design Engineering and Survey	10%			$22,660.00
17	Construction Management and Staking	10%			$22,660.00
	Total Construction Project (Items 1-17)				**$328,570.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 47 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2047 - Freedom Hills Park SE Corner - Sub-drain & Duncan Spring					
1	Install new 8" PVC subdrain w/ seperation fabric	250	LF	$55.00	$13,750.00
2	Provide & Install 48" subdrain manhole (incudes manhole lid and ring, grout and collars)	3	EA	$4,500.00	$13,500.00
3	Outlet structure	1	EA	$5,000.00	$5,000.00
4	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
5	Pulverize and haul away asphalt (including saw-cutting)	2	CY	$20.00	$40.00
6	Excavate and haul away native material	300	CY	$20.00	$6,000.00
7	Import gravel bedding	70	TN	$25.00	$1,750.00
8	Import granular barrow (including compaction)	520	TN	$25.00	$13,000.00
9	Import untreated base course (including compaction)	5	TN	$30.00	$150.00
10	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	2	TN	$200.00	$400.00
11	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-11)				**$86,590.00**
12	Contingency	25%			$21,647.50
13	Design Engineering and Survey	10%			$8,659.00
14	Construction Management and Staking	10%			$8,659.00
	Total Construction Project (Items 1-14)				**$125,555.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 48 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2048 - 2100 North - 400 West to Churchill Drive (in back yardsof 2115 North & 2101 North)					
1	Line 3 sections of 8" CMP	650	LF	$180.00	$117,000.00
2	Mobilization, demobilization, bonds, permits, and Fees	1	Lump Sum	$5,000.00	$5,000.00
3	Traffic control/barricading	1	Lump Sum	$50,000.00	$50,000.00
	Subtotal (Items 1-3)				**$172,000.00**
4	Contingency	25%			$43,000.00
5	Design Engineering and Survey	10%			$17,200.00
6	Construction Management and Staking	10%			$17,200.00
	Total Construction Project (Items 1-6)				**$249,400.00**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 49 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2049 - 150 West - 845 South to 780 South					
1	Install new 8" PVC subdrain w/ seperation fabric	230	LF	$55.00	$12,650.00
2	Install new 4" PVC subdrain lateral w/ seperation fabric	40	LF	$45.00	$1,800.00
3	Provide & Install 48" subdrain manhole (incudes manhole lid and ring, grout and collars)	2	EA	$4,500.00	$9,000.00
4	Tie-in to existing subdrain system (includes coring existing manhole & new collars)	3	EA	$1,000.00	$3,000.00
5	Remove and haul away excisting subdrain structures	2	EA	$1,000.00	$2,000.00
6	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
7	Remove and replace curb and gutter (including saw-cut)	40	LF	$65.00	$2,600.00
8	Remove and replace sidewalk (including saw-cut)	64	SF	$20.00	$1,280.00
9	Pulverize and haul away asphalt (including saw-cutting)	25	CY	$20.00	$500.00
10	Excavate and haul away native material	325	CY	$20.00	$6,500.00
11	Import gravel bedding	80	TN	$25.00	$2,000.00
12	Import granular barrow (including compaction)	300	TN	$25.00	$7,500.00
13	Import untreated base course (including compaction)	350	TN	$30.00	$10,500.00
14	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	50	TN	$200.00	$10,000.00
15	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-15)				**$102,330.00**
16	Contingency	25%			$25,582.50
17	Design Engineering and Survey	10%			$10,233.00
18	Construction Management and Staking	10%			$10,233.00
	Total Construction Project (Items 1-18)				**$148,378.50**

ESI Engineering, Inc. 4141 West 2100 South, Suite 100 West Valley, Utah 84120 Phone (801) 263-1752 ***Consulting Engineers & Land Surveyors***		Project:	Drainage Master Plan Storm Drain Projects		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			Project No. 50 - ###
Conceptual Estimate					
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT
Project Year 2050 - 2075 North / 725 West					
1	Install new 8" PVC subdrain w/ seperation fabric	1,000	LF	$55.00	$55,000.00
2	Install new 4" PVC subdrain lateral w/ seperation fabric	275	LF	$45.00	$12,375.00
3	Provide & Install 48" subdrain manhole (incudes manhole lid and ring, grout and collars)	6	EA	$4,500.00	$27,000.00
4	Tie-in to existing subdrain system (includes coring existing manhole & new collars)	1	EA	$1,000.00	$1,000.00
5	Remove and haul away excisting subdrain pipe	1,000	LF	$20.00	$20,000.00
6	Remove and haul away excisting subdrain structures	7	EA	$1,000.00	$7,000.00
7	Pothole existing utility for new alignment	1	Lump Sum	$3,000.00	$3,000.00
8	Remove and replace curb and gutter (including saw-cut)	170	LF	$65.00	$11,050.00
9	Remove and replace sidewalk (including saw-cut)	272	SF	$20.00	$5,440.00
10	Pulverize and haul away asphalt (including saw-cutting)	110	CY	$20.00	$2,200.00
11	Excavate and haul away native material	1,500	CY	$20.00	$30,000.00
12	Import gravel bedding	320	TN	$25.00	$8,000.00
13	Import granular barrow (including compaction)	1,300	TN	$25.00	$32,500.00
14	Import untreated base course (including compaction)	280	TN	$30.00	$8,400.00
15	Asphalt patching (PG-58-28, DM 1/2", 50 gyrations, 15% max. RAP)	230	TN	$200.00	$46,000.00
16	Mobilization, Traffic Control, and Restore landscaping	1	Lump Sum	$30,000.00	$30,000.00
	Subtotal (Items 1-16)				**$298,965.00**
17	Contingency	25%			$74,741.25
18	Design Engineering and Survey	10%			$29,896.50
19	Construction Management and Staking	10%			$29,896.50
	Total Construction Project (Items 1-19)				**$433,499.25**

CENTERVILLE

18 UTAH 47

DRAINAGE UTILITY FEE AUDIT

04 MARCH 2025

Agenda

I. Introduction of Drainage Utility Fee
II. Drainage Utility Fee Code
III. Audit Results
IV. Statute of Limitations
V. Additional Issues
VI. Implemented Changes

Introduction

History of Drainage Utility Fee

2021 Audit

Comprehensive Audit of Commercial/Multi-family Housing

Fee Schedule 8.010

Fee Schedule

8.010 Definitions

For purposes of the Drainage Utility Fees set forth in this Fee Schedule, the following words shall be defined as follows:

(a) Developed Parcel. "Developed parcel" means any parcel that has been altered from its natural condition by the construction of improvements or other impervious surface areas or by grading or filling of the ground surface areas which grading or filling affects the hydraulic properties of the parcel.

(b) Equivalent Dwelling Unit ("EDU"). "Equivalent Dwelling Unit" or "EDU" is based upon the number of plumbing fixture units per building, structure and/or dwelling on a developed parcel. One EDU is defined as 20 fixture units as determined using the most recent edition of the Uniform Plumbing Code, as adopted by the City.

(c) Equivalent Service Unit ("ESU"). "Equivalent Service Unit" or "ESU" means the average amount of impervious surface, expressed in square feet, on developed single-family residential parcels in Centerville City.

(d) Impervious Surface. "Impervious Surface" means any hard surface area which either prevents or retards the absorption or entry of water into the soil mantle as it entered under natural conditions pre-existing to development, or any hard surface area which causes water to run off the surface in greater quantities or at an increased rate of flow from that present under natural conditions pre-existent to development. Common impervious surfaces include, but are not limited to: rooftops; concrete or asphalt paving; walkways; patios; decks; driveways; parking lots; storage areas; trafficked or compacted gravel; or other surfaces which similarly impede the natural infiltration into the ground or runoff of storm and surface water.

(e) Parcel. The smallest separately segregated unit or plot of land having an identified owner, boundaries, and surface area which is documented for tax purposes and given a tax account (lot) number by the Davis County Assessor.

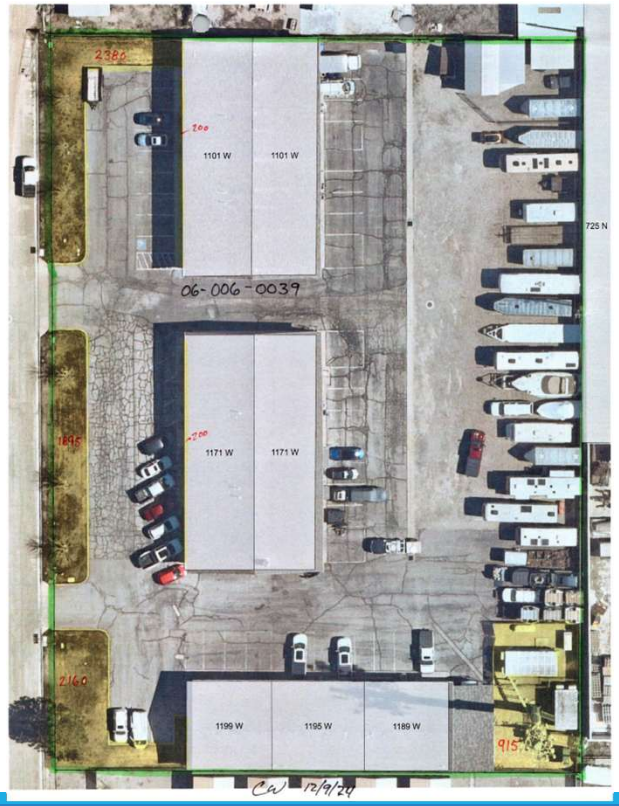
(f) Single-Family Residential. A residential building having only one living unit, or a residential building having more than one living unit, if living units are separately owned and titled.

(g) Subdrain District. "Subdrain District" means parcels and/or property located within a defined area or areas of the City specifically benefitted and/or serviced by a subdrain system as more particularly set forth in CFS 8.070 (Subdrain District Map). For purposes of determining the boundaries of the Subdrain District(s) within the City, the following factors shall be considered: actual service connections from the property to a main subdrain system collection line; the ability and/or necessity of the property to connect to a main subdrain system collection line, the proximity of the property to existing subdrain systems; areas or property with an identified subsurface water problem; and property located within developed subdivision containing a subdrain system.

HISTORY

Adopted by Res. 2017-18 on 8/15/2017

Fee Calculation Example



Method: (a) _____ Field measurement (d) _____ As Builts from site plan
(b) _____ Davis County Records (e) _____ Site plans on file at city
(c) X Scale from aerials (f) X Site visit

References: _____

Total Area of Lot: (a) 2 AC 87120 SF From: COUNTY

Calculation:

Area of Landscape:

2380
200
1895
200
2160
915
7750

W X L = SF
___ X ___ =
Total Area L.S. = 7750 (b)

Area of Hard Surface:

W X L = SF
___ X ___ =
Total Area H.S. = 79370 (c)

ESU Calculation

Total Impervious Surface on site = 79370 SF (d) RECALCULATION AT REQUEST OF PROPERTY OWNER
ESU for Centerville = 3,600 (e)
Total number of ESU on parcel d/e = 22.05 (f)
Monthly rate per ESU = $8.48 (g)
Monthly fee without Credit f*g = $186.98 (h) FEE WITH 50% CREDIT $93.49
Yearly fee without Credit h*12 = $_____ (i)

Categories

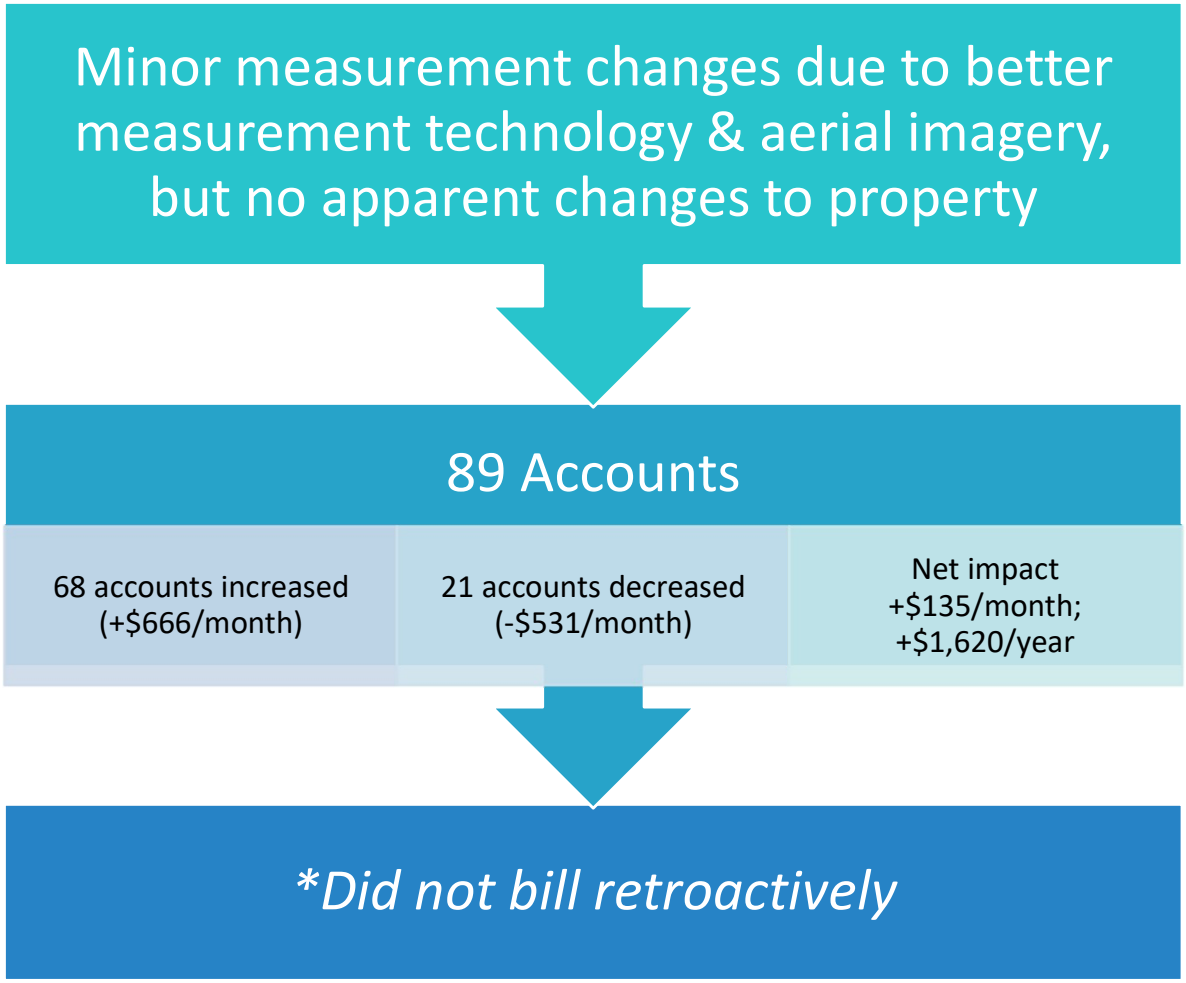

Correct Fees
Updated Measurements
Misc. Billing Issues
New Impervious Surface
Undeveloped Parcels

Correct Fees

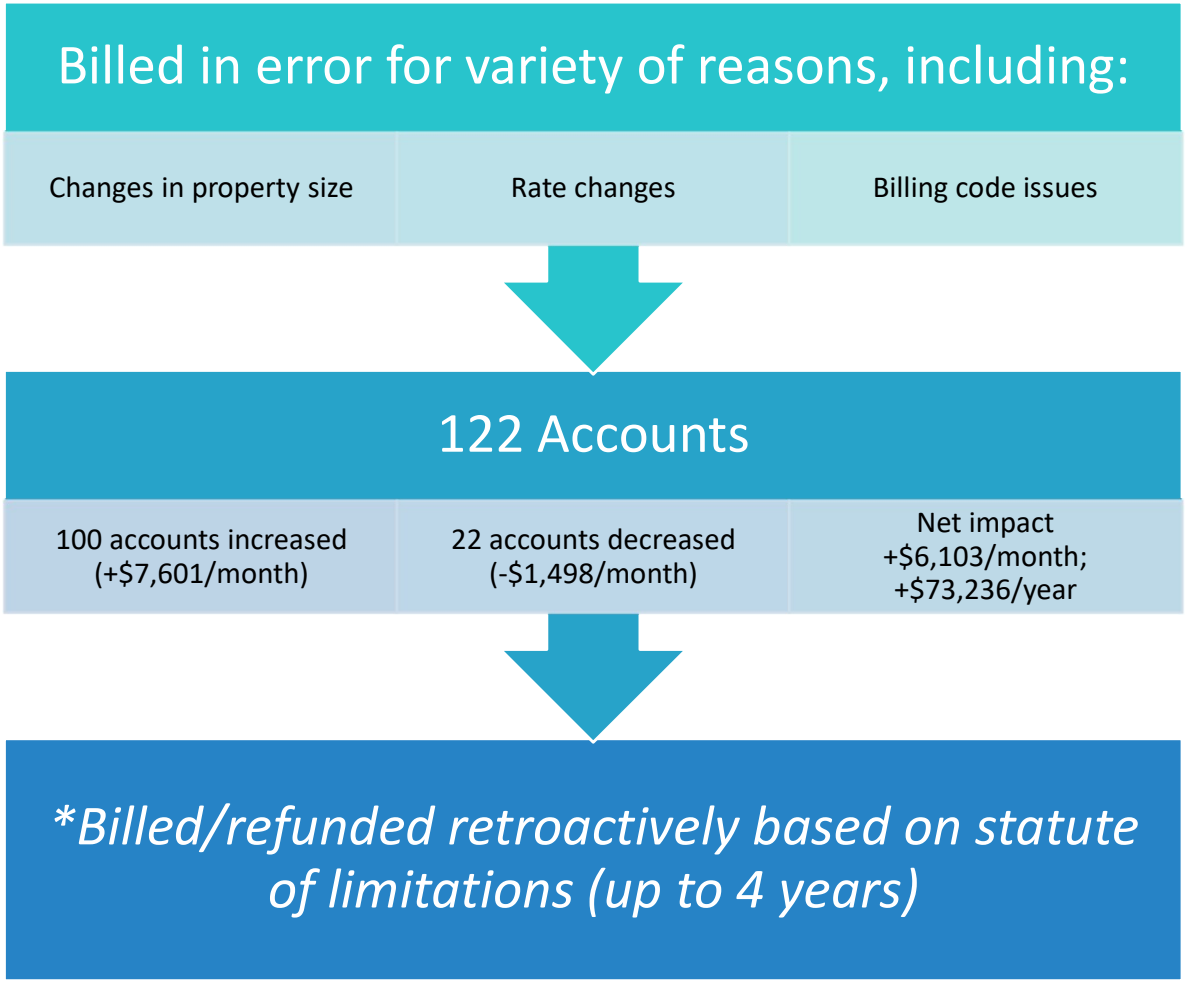
48 Accounts

Majority corrected in 2021 or have recently changed ownership

Updated Measurements



Misc. Billing Issues



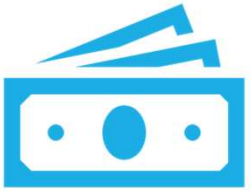
Misc. Billing Issues (cont.)

Total amount billed retroactively = $360,025

Actual received YTD (15% discount) – $204,623

Actual received/set to receive on payment plan (10% discount) – $3,806

Amount outstanding (22 accounts/7 owners) - $117,567

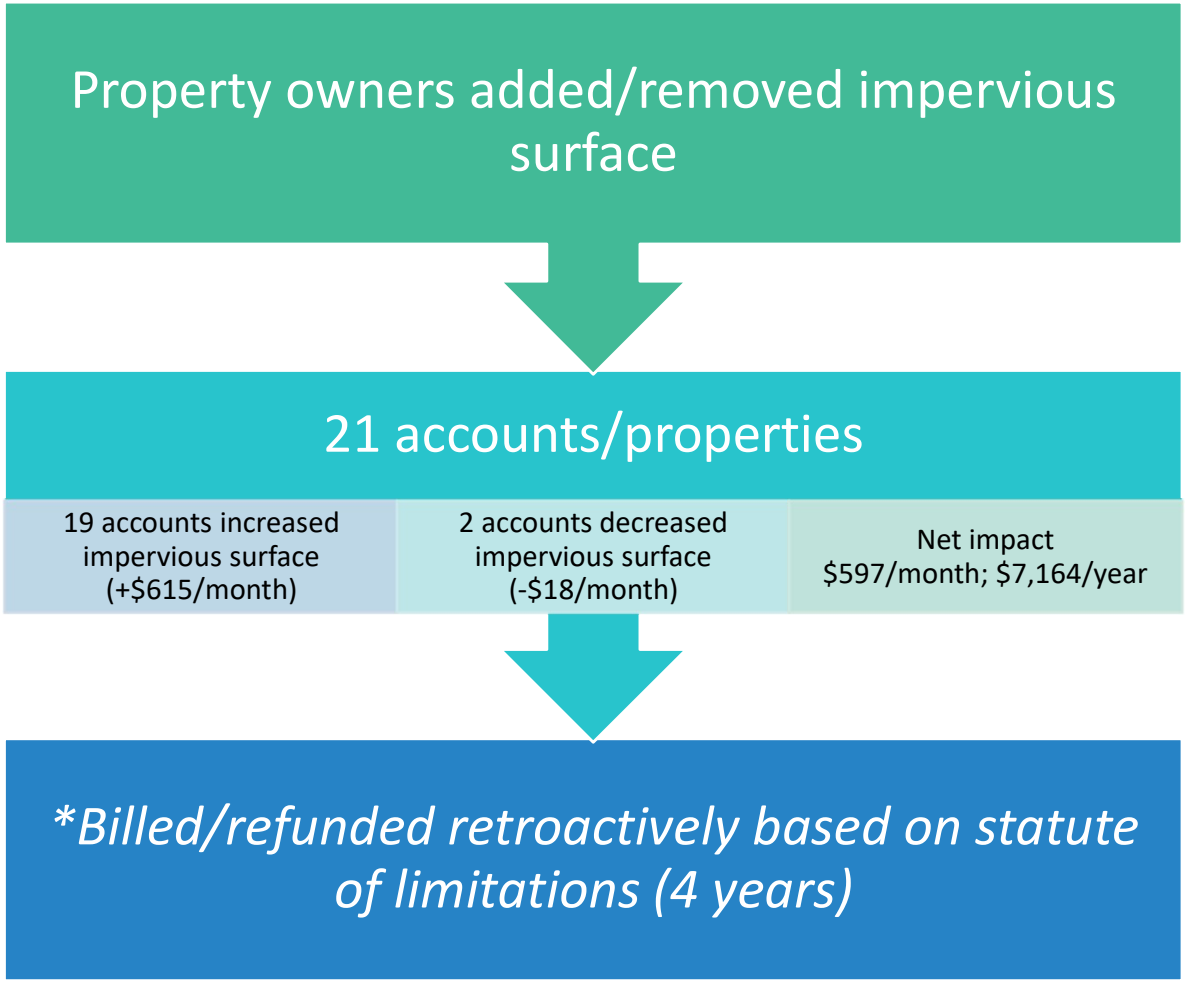


Total amount refunded = $71,528

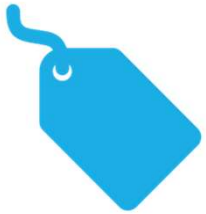
Customer Billed Residential Rate

- Correct Amount - $19,683
- Actual Paid - $1,812
- Retroactively Billed - $4,420
- Net Loss to City - $13,451

Change in Impervious Surface



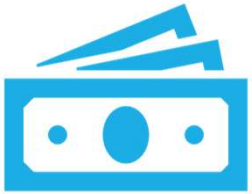
Change in Impervious Surface (cont.)



Total amount billed retroactively = $39,119

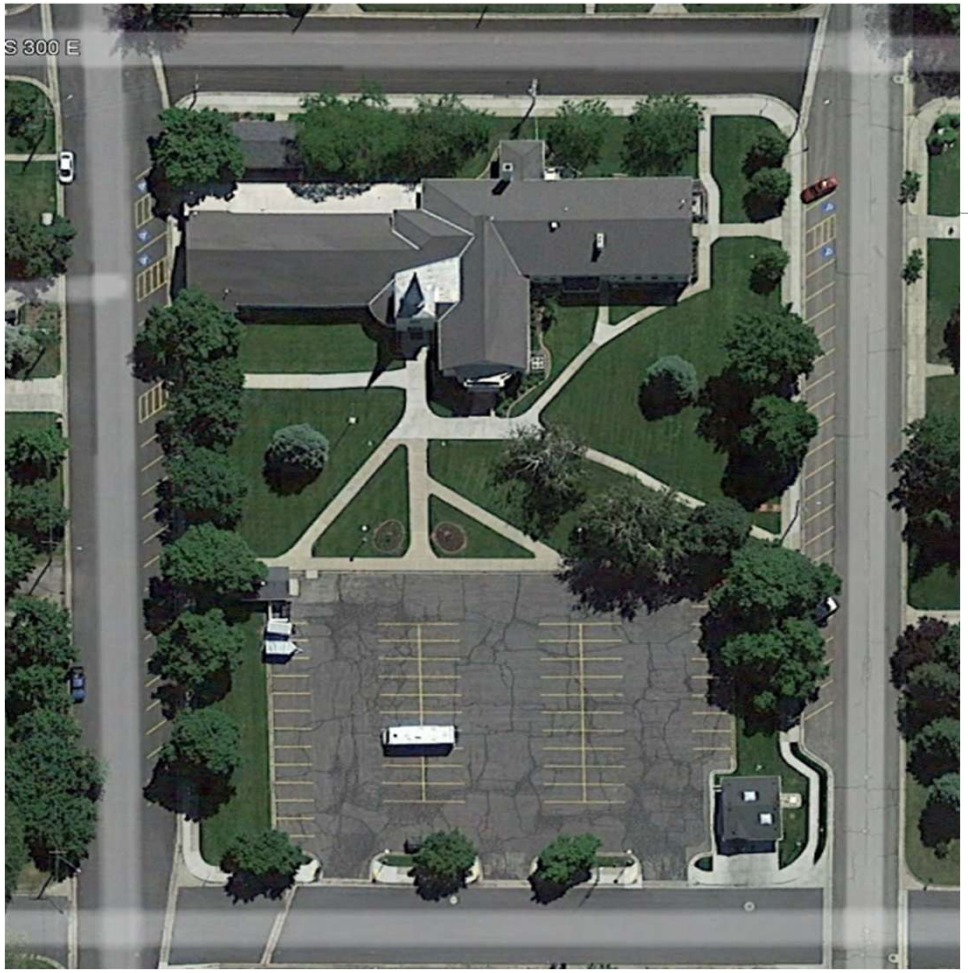
Actual received YTD (15% discount) – $31,816

Amount outstanding (1 account) - $1,689

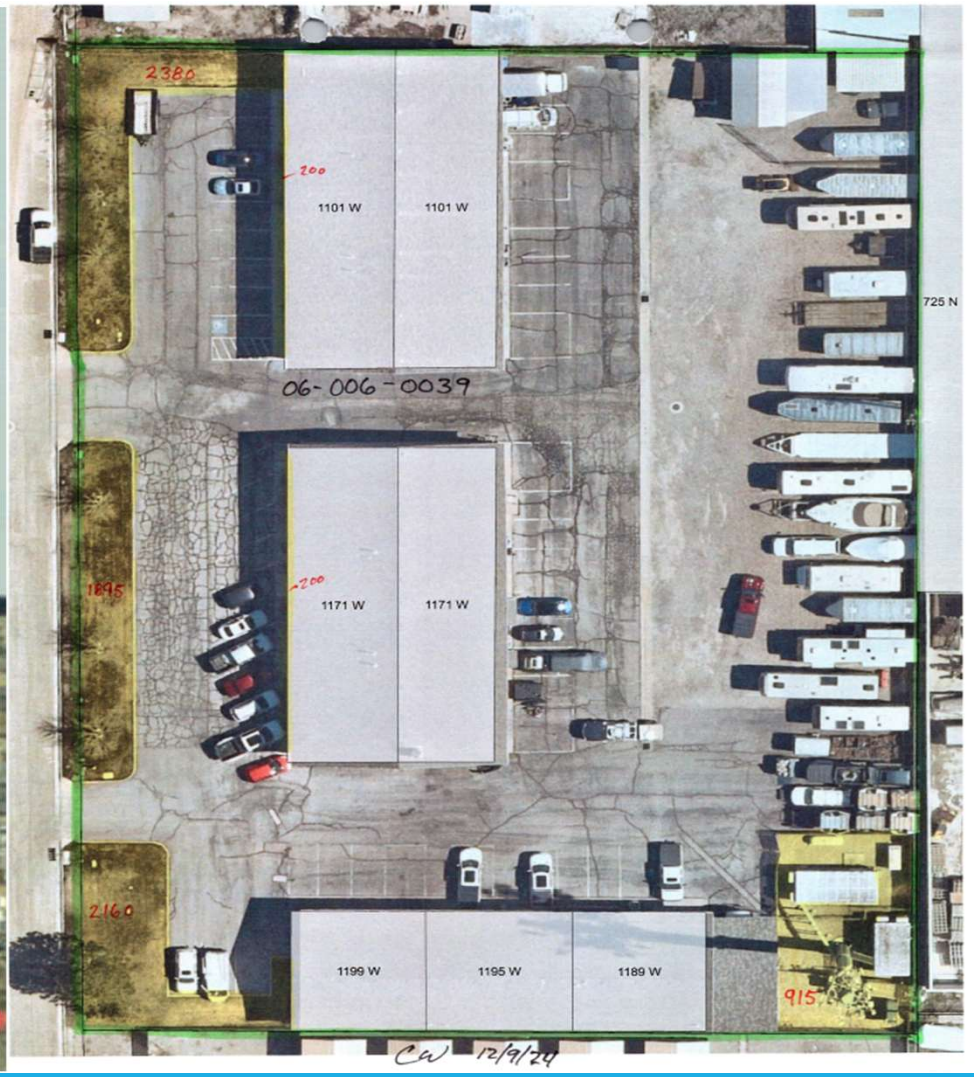


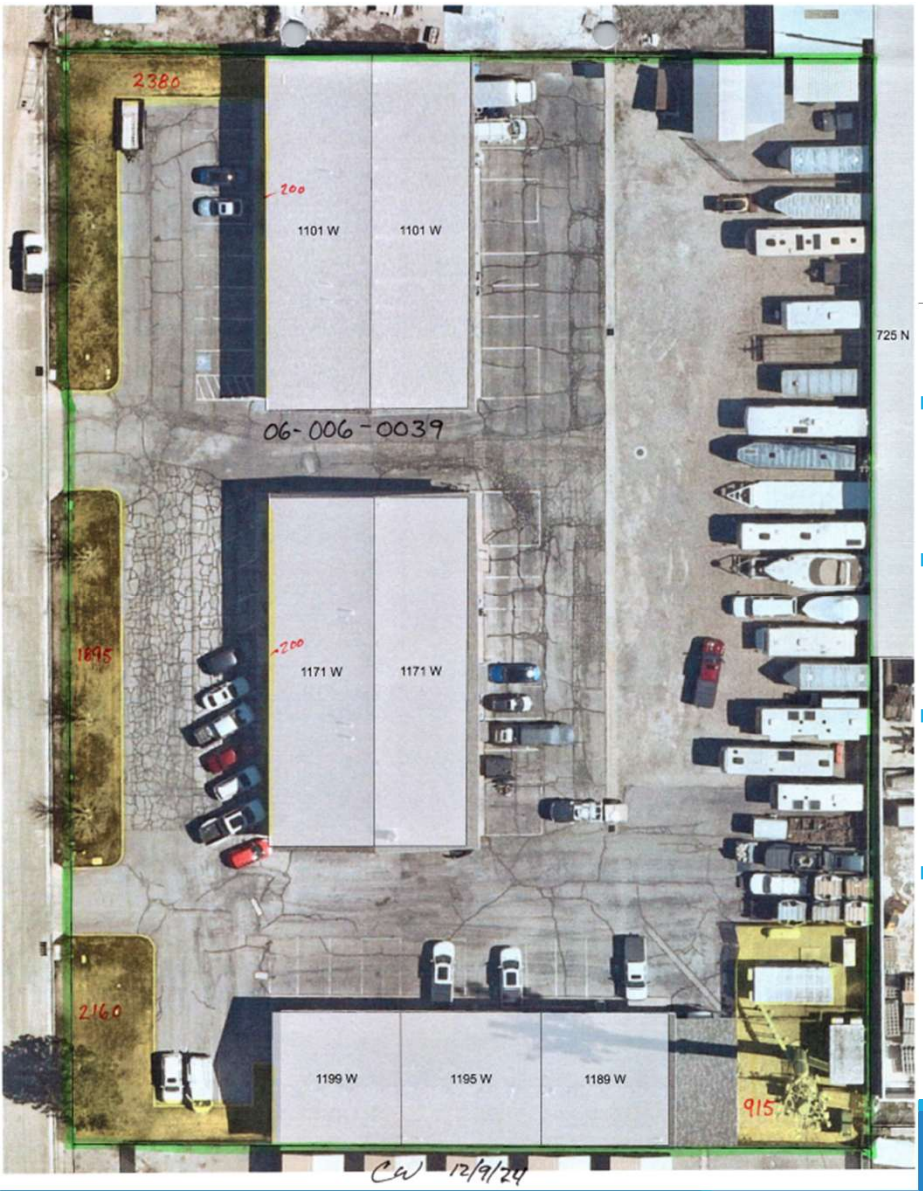
Total amount refunded = $855


40 E
382 N
PARRISH LN (400 N)
MAIN ST (SR 106)


S 300 E


160 S
100 S
200 S


2380
200
1101 W
1101 W
725 N
06-006-0039
1895
200
1171 W
1171 W
2160
1199 W
1195 W
1189 W
915
CW 12/9/24



Customer Added Impervious Surface

- Correct Billing - $15,421
- Actual Paid - $4,012
- Retroactively Billed - $1,689
- Net Loss to City - $9,720

Undeveloped Parcels

Property owners have added impervious surface; no utility accounts

21 properties

**Will address in near future*


Barnard Creek

Statute of Limitations for Billing City Services

4 yrs

- If billing issue is based on an open account for work, labor, or services, SOL is 4 years
- An "open account" is express or implied agreement concerning a connected series of debit and credit charges where the account is considered a continuation of a related series
- Drainage utility fees are billed in arrears, so could possibly be considered an open account

4 yrs

- If billing issue is based on a contract or obligation that is not set forth in writing, SOL is 4 years
- Drainage fees are assessed by Code and Fee Schedule
- Residents do not sign a contract for drainage fees
- Drainage utility fees are most likely considered a contract or obligation not based in writing

6 yrs

- If billing issue is based on written contract or obligation, SOL is 6 years
- Residents do not sign a contract for drainage fees, so not an obligation based on written contract

Additional Issues

- Credits
- Multifamily Projects
- Undeveloped Parcels
- Definitions

Procedural Changes

- **New ownership of commercial property**
  - When a new commercial utility customer signs up, Finance Department will verify with Drainage Utility Department that the drainage fee is correct. This will be done by imagery comparison, or the property will be remeasured if discrepancies appear.

- **New commercial building**
  - We start billing with opening of utility account rather than waiting for occupancy. (Use site plan to calculate impervious surface.)

- **Account modifications**
  - ESUs are entered into billing software with a multiplying factor of “x” dollars to prevent fee adjustments from being missed or miscalculated.

Process Changes

- **Perform drainage review periodically**
  - Includes:
    - Reviewing aerial footage for changes in impervious surface
    - Recalculating impervious surface, if necessary
  - Frequency of review to be determined

- **Verification**
  - After the Drainage Supervisor calculates impervious surface, it will be reviewed and approved by a second person.

Centerville City Administration,

Thank you for temporarily moving back the starting date for implementation of the proposed 50% Storm Drain Utility Fee increase. The intention to send out a letter to all businesses and commercial property owners impacted by the City's recent Storm Drain Utility Fee decisions, and invite affected property owners to an 'open house' and 'workshop' and, hopefully, a 'public hearing', to further enlightenment the community and solicit input and feedback from those entities, as well as the public in general, is now commendable.

Two main issues remain questionable:

1. While adjusted, corrected and updated Storm Drain fee charges for almost all businesses and commercial property owners recently occurring in the City seem appropriate.... Being followed by the City then proceeding to **'Back charge'** those fees **for 4 full years**, (in a few cases, 'refund' a few of those entities who were overcharged) can be greatly disputed. This 'back charge' transpired, despite the fact, that, it was the City's own error through inaccurately billing the proper owners over the course of dozens of years. These erroneous billing calculations were not the sole responsibility of the current City Administration. Some of the billing errors had transpired and had then been perpetuated by various City Administrations for over 20 years. The miscalculations included overcharging or undercharging those property owners. Notably, even given the above problems, the Storm Drain fund has NOT operated in arrears, nor in the 'red', for any of those past four years.

   Any BACK CHARGE at all, or minimally, at least the length of time (months or years), to try to GO BACK on the Businesses, needs to be reconsidered

2. **The City's new pending resolution of a full 50% increase of Storm Drain Utility Fees** for all residents, businesses, and commercial property owners **needs to be reconsidered** following City enlightenment to the affected parties and then allowance and consideration of those entities' feedback, input, suggestions and/or recommendations.

In a City Council Meeting of January 7, 2025, The City Administration was provided with some data extrapolated by a few businesses from the City's own 'self audit' data of businesses' and commercial property owner's Storm drain fee recalculations and some of the City's own financial reports. Key points made are summarized and presented below.

Councilman Summerhays, in that meeting, asked Staff to please report back to City leaders as to the accuracy of the figures and calculations presented. Many of us welcome

and encourage such scrutiny and, if necessary, make corrections, modify more accurately, clarify better, confirm, or additionally add data and facts pertinent to the discussions likely to transpire at an Open House, and certainly at the anticipated 'work session'. We didn't have access to all the data the City must have pertinent to the discussions forthcoming.

KEY POINTS derived from the City's own 'self audit' etc.:

1. The **overall revenue** the City has received for the Storm Drainage Fund has been around **$1,340,000** for, at least, the last couple of years.
2. The **recalculation** of Businesses and Commercial Property owners monthly Storm Drainage fees alone **increases the City's entire budget** for storm drainage by around **$150,769 per year** or approximately **11% per year** going forward (This calculates in both the few 43 properties decreasing in fees along with the 276 properties increasing in fees)
3. **All** of Centerville's **372 businesses** monthly Storm Drain fees **were audited**
4. **319 of the businesses, or 86%, had errors** in what they should have been paying.
   a. **43 businesses, or 12%,** had their **fees decreased.**
   b. **53 businesses, or 14%,** had **no change in** their **fees.**
   c. **276 businesses, or 74%,** had **fees increase.**
      i. 1 property increased $12,465 /yr (X 4 yrs back) = $49,872
      1 property increased $7,989 /yr (X 4 yrs back) = $31,958
      1 property increased $5,824 /yr (X 4 yrs back) = $23,299
      1 property increased $5,292 /yr (X 4 yrs back) = $21,168
      3 properties increased over $3,600 /yr (X 4 yrs back) = $14,400
      7 properties increased over $2,400 /yr (X 4 yrs back) = $9,600
      19 properties increased over $1,200 /yr (X 4 yrs back) = $4,800
      27 properties increased over $600 /yr (X 4 yrs back) = $2,400
      23 properties increased over $480 /yr (X 4 yrs back) = $1,920
      193 properties increased somewhere under $40 /month or somewhere under $480 / yr (X 4 yrs back) = under $1,920
   d. Note; Council member Mecham commented in an individual meeting recently that she, at least, had been unaware, until after the Jan 7th City Council meeting presentation, that that many businesses had been so heavily impacted by the fee recalculations and the 4 year pay back amounts.

5. The **recalculation of the businesses monthly fees** alone **generates** an increase of $12,667 /mo or **$150,769 annually**
   a. **If the City pays 4 years of Back fees to businesses who overpaid**, the **City would owe them back** ($98,272 for Storm Drain Utility plus $4,656 for subsurface drain) or **a total of $102,929** one time **payback**
   b. **If the City collects 4 years of Back fees from businesses who underpaid, the City collects (4 X $150,769) = $603,076**
   c. **With $603,076 coming in to the City, while the City pays out $102,929, it equals a net gain by the City of $500,147. That amounts to over a half a million dollar windfall to the City for Back fees paid for the past that were obviously NOT even necessary nor expended as the City Storm drain fund operated in the black over those four years anyway.**
6. **The businesses in Centerville generate and collect sales taxes and contribute through their own property taxes, over 61% of the General revenues Centerville City receives**. Contributors and producers to one's revenues likely should be fostered, respected, informed, considered and counseled with, particularly in matters that may affect one another's financial bottom lines.

The City's 50% increase in all Utility fees will be ON TOP OF, and in addition to, the increase from the recalculation of business fees. Therefore with what the City is currently proposing, or will of its residents and businesses, is an 11% increase plus a 50% increase on top of that which, with compounding, is about a 63% increase over its current yearly revenue ($1,340,000 X 1.63%) = $2,184,200, plus the City is hoping for the $500,147 windfall.

That is $2,184,200 + $500,147 = $2,684,347 for the next year '2025' (it is understood now that part of the anticipated increase for this year has been lost since the 50% increase has not been implemented yet)

However, assuming $2,684,347 for, let's say 2025, and then $2,184,200 every year going forward beyond that, is a BIG ask from what the Utility fund has been operating on currently = $1,340,000.

Important: Can the City please do an evaluation of the totality of the property (maybe broken down by each property the CITY itself owns, or operates within Centerville) of the

"impermeable ground" or space involved that any other business would be required to pay storm drain and subsurface drain fees for? As per done by Cameron for the business property 'audit', The City's own buildings, storage areas, parking lots, etc. etc. and many other impermeable surfaces everywhere, constitute a very large footprint of the impermeable surface in Centerville City as a whole. The City is impacting and wearing out the storm drain system with its own proportionate area contributing to needs of the entire storm drain system. Currently all the residents and businesses are "subsidizing" the City's own impact. If the City were required to meet the same formulas and calculations that businesses do, how much would the City's fees be each month/year? The City obviously pays its own share of power or electricity, gas bills, sewer usage fees, etc. Shouldn't the City pay its proportionate share of Storm Drain and subdrain fees? Without dragging some money from the City's General fund over into the Storm drain fee Utility, the residents and businesses are, in fact, subsidizing the City. The City needs some 'skin in the game', it helps us all recognize and appreciate that raising "fees" is like a raising taxes and needs to be kept under constraints just like prudent business and residents like to keep their fees and taxes under constraint.

If the Storm drain system is in such dire need, perhaps the City needs to put it to a vote of the citizens for a bond to see if it gets enough support from citizens to meet needs, rather than simply hope to 'push it off' in inordinately large degree to the businesses.