WORK SESSION AGENDA

NOTICE IS HEREBY GIVEN THAT THE CENTERVILLE CITY COUNCIL WILL HOLD ITS WORK SESSION MEETING AT 5:30 PM ON FEBRUARY 6, 2024 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. Discussion - Drainage Capital Facilities Plan
   Presentation and update on the Drainage Capital Facilities Plan by the City Engineer
2. Discussion - Pickleball Courts
   Update on Pickleball Courts progress

C. DEPARTMENT OR COMMITTEE REPORTS
Department heads or committee chairs may provide updates regarding department or committee assignments or events.

1. Finance Department Report
   Preview the FY 2025 budget process and report on the Finance Department

D. CLOSED SESSION
The City Council may vote to discuss matters in a closed session for reasons allowed by law, including, but not limited to, the provisions of Utah Code § 52-4-205 of the Open and Public Meetings Act, and for attorney-client matters that are privileged pursuant to Utah Code § 78B-1-137.

E. 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

2/6/2024

Item No. 1.
Title: Discussion - Drainage Capital Facilities Plan
Initiated By: Kevin Campbell, City Engineer
Staff Representative: Kevin Campbell, City Engineer

SUBJECT:

Presentation and update on the Drainage Capital Facilities Plan by the City Engineer

RECOMMENDATION:

BACKGROUND:

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):

Please see attached document for the complete Capital Facilities Plan.

ATTACHMENTS:

1. Centerville City - SD Capital Facilities Plan_2023
2. additional staff request for drainage

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

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Appendix B Centerville City NOAA Rainfall Data
Appendix C Storm Drain Project Cost Estimates
Appendix D Subdrain Project Cost Estimates

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.

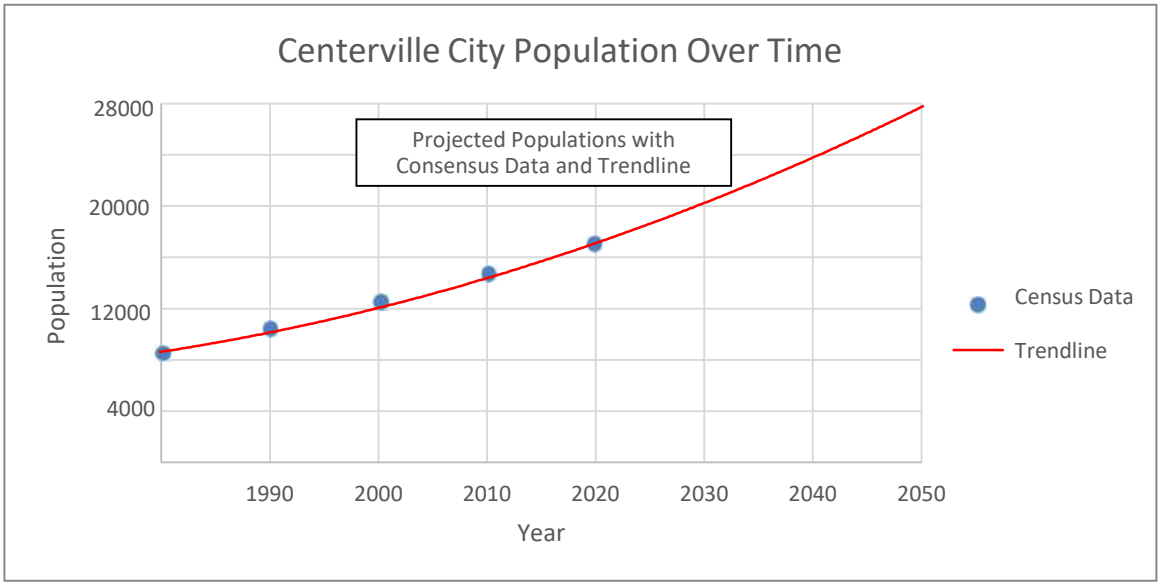
3.2 Growth Estimates

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.

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'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

SURFACE FEATURES

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

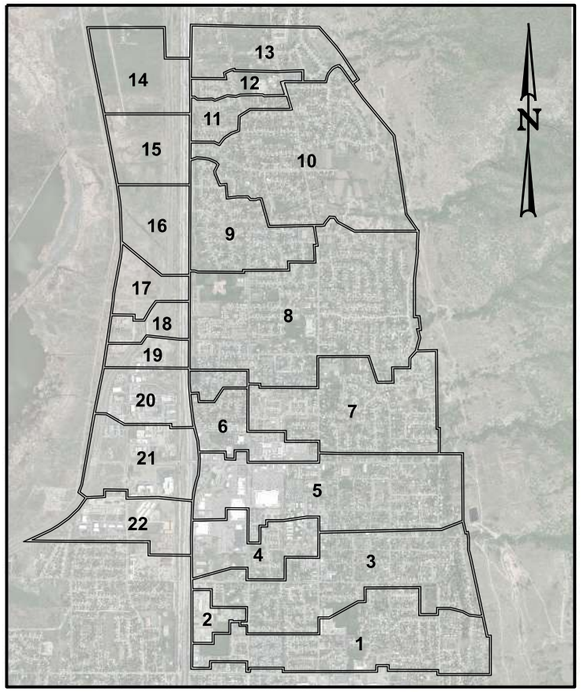
DRAINAGE AREA STATISTICS

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

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

CITY AERIAL



INDEX TO SHEETS

SHEET NO.	DESCRIPTION
1	LEGEND & SHEET INDEX
2	OVERALL STORM DRAIN MASTER PLAN & DRAINAGE AREAS
3	STORM DRAINAGE AREAS 1 & 2
4	STORM DRAINAGE AREAS 3 & 4
5	STORM DRAINAGE AREA 5
6	STORM DRAINAGE AREAS 6 & 7
7	STORM DRAINAGE AREA 8
8	STORM DRAINAGE AREA 9
9	STORM DRAINAGE AREA 10
10	STORM DRAINAGE AREAS 11, 12, & 13
11	STORM DRAINAGE AREAS 14 & 15
12	STORM DRAINAGE AREAS 16 & 17
13	STORM DRAINAGE AREAS 18, 19, & 20
14	STORM DRAINAGE AREAS 21 & 22
15	OVERALL SUB-SURFACE MASTER PLAN & DRAINAGE AREAS
16	SUB-DRAIN DRAINAGE AREA 1
17	SUB-DRAIN DRAINAGE AREA 2
18	SUB-DRAIN DRAINAGE AREA 3

REVISION	DATE	BY	DESCRIPTION

DESIGN PSB
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DATE 06/05/2023

LEGEND & SHEET INDEX

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

ESI ENGINEERING
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WEST VALLEY, UTAH 84120
TEL: (801) 263-1752

SHEET 1
OF 18

PROJECT NO. 20-131

FARMINGTON CITY

BOUNTIFUL CITY

1 SH 2
2 SH 2
3 SH 3
4 SH 3
5 SH 4
6 SH 5
7 SH 5
8 SH 6
9 SH 7
10 SH 8
11 SH 9
12 SH 9
13 SH 9
14 SH 10
15 SH 10
16 SH 11
17 SH 11
18 SH 12
19 SH 12
20 SH 12
21 SH 13
22 SH 13

LEGEND

PIPE SIZE

- COUNTY
- PRIVATE
- STATE
- 4
- 6
- 8
- 10
- 12
- 15
- 18
- 21
- 24
- 30
- 36
- 42
- 48
- 54
- 60
- 72
- BOX CULVERT
- DETENTION AREA
- DRAINAGE AREA
- 1 DRAINAGE AREA ZONE
- OPEN WATERWAY

N

SCALE

0 1000

FEET

NOTES:

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

REVISION	DATE	BY	DESCRIPTION

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OVERALL STORM DRAIN MASTER PLAN & DRAINAGE AREAS

CENTERVILLE CITY STORM DRAIN MASTER PLAN

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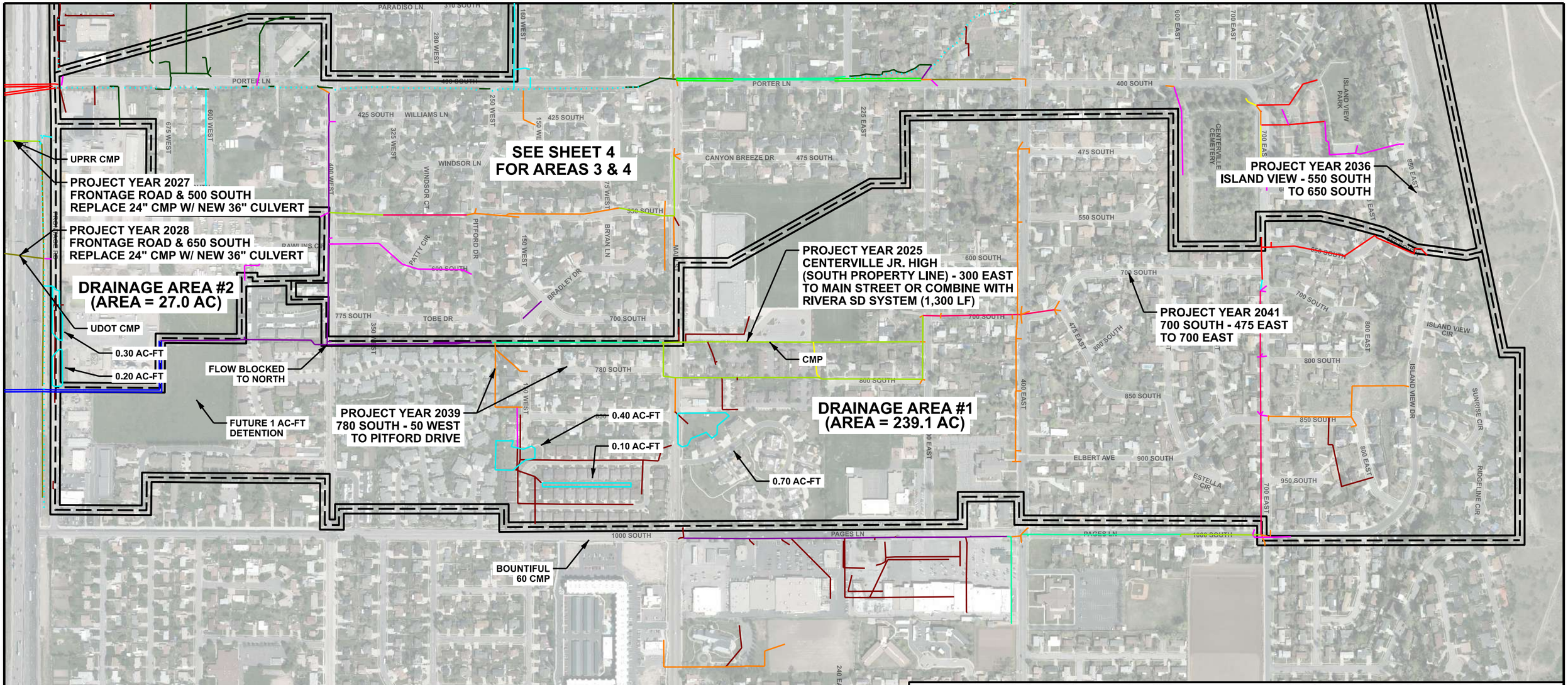
SHEET 2
OF 18

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

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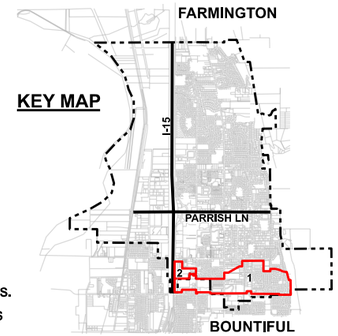
KEY MAP



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STORM DRAINAGE AREAS 1 & 2

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

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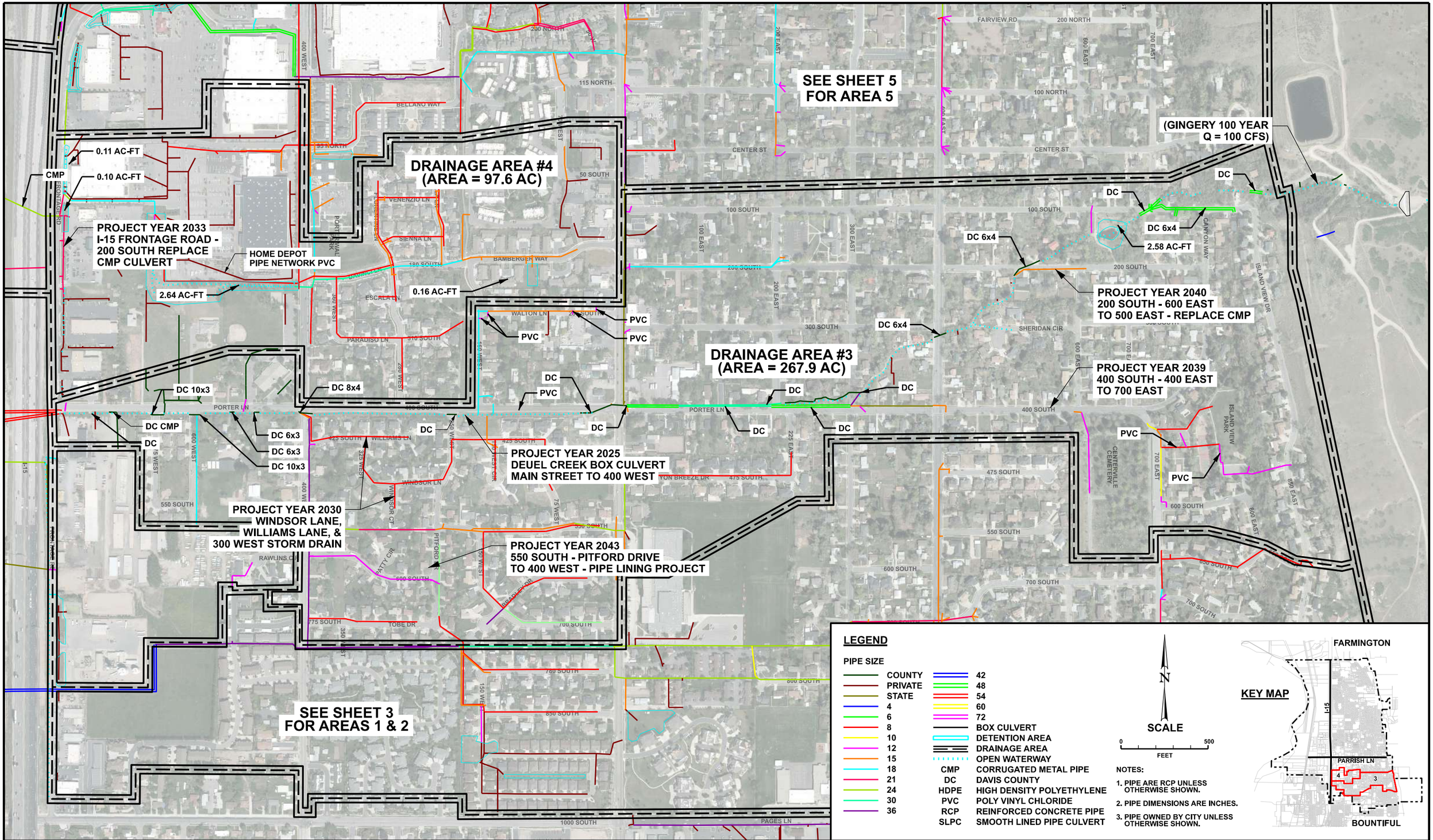
SHEET 3 OF 18

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
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30	PVC POLY VINYL CHLORIDE
36	RCP REINFORCED CONCRETE PIPE
	SLPC SMOOTH LINED PIPE CULVERT

N

SCALE
0 500
FEET

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3. PIPE OWNED BY CITY UNLESS OTHERWISE SHOWN.

KEY MAP

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STORM DRAINAGE AREAS 3 & 4

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

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SHEET 4
OF 18

PROJECT NO.
20-131

SEE SHEET 14
FOR AREAS 21 & 22

SEE SHEET 6
FOR AREA 6 & 7

PROJECT YEAR 2038
PARRISH LANE - CROSSING AT
800 WEST (7-11 TO CARLS JR.)
- REPLACE 36" CMP

CMP
CMP
CMP
CMP
CMP
CMP
CMP
CLAY

0.07 AC-FT
0.19 AC-FT
1.13 AC-FT
1.13 AC-FT
0.68 AC-FT
0.86 AC-FT
0.53 AC-FT
0.45 AC-FT
0.31 AC-FT

PROJECT YEAR 2043
70 WEST - 115 NORTH
TO CENTER STREET

PROJECT 2029
PARRISH LANE - 100 EAST
TO CANYON POINT

PROJECT YEAR 2040
HILLSIDE PROPERTY
DRAINAGE PROJECT

DRAINAGE AREA #5
(AREA = 283.4 AC)

SEE SHEET 4
FOR AREAS 3 & 4

DAVIS COUNTY ARTS CENTER
FRONTAGE RD
550 NORTH
625 NORTH
650 NORTH
150 WEST
550 NORTH
500 NORTH
WORSLEY LN
PARRISH LN
400 NORTH
475 EAST
DEER HOLLOW CIR
800 WEST
MARKETPLACE DR
210 WEST
100 WEST
PARK PL
SMITH PARK
100 EAST
CITY HALL
300 NORTH
300 EAST
250 NORTH
500 EAST
650 EAST
FAIRVIEW RD
200 NORTH
700 EAST
800 EAST
200 NORTH
115 NORTH
100 NORTH
400 WEST
CENTER ST
95 NORTH
50 SOUTH
100 SOUTH
300 EAST
CANYON WAY
200 SOUTH
CARA VELLA LN
VENENZIO LN
FLORENTINE LN
PORTER HALTON PARK
SIENNA LN
480 SOUTH
DAVINCI LN
BAMBERGER WAY
ESCALA LN
360 WEST
WALTON LN
280 SOUTH
PARADISO LN
310 SOUTH
280 WEST
340 WEST
PORTER LN
400 SOUTH
425 SOUTH
WILLIAMS LN
250 WEST
150 WEST CIR
325 WEST
WINDSOR LN
CANYON BREEZE DR
475 SOUTH
675 WEST
600 WEST
550 SOUTH
I-15

LEGEND

PIPE SIZE

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

N

SCALE
0 500
FEET

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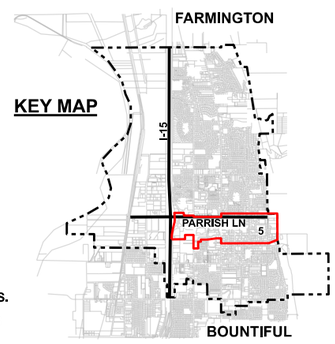
2. PIPE DIMENSIONS ARE INCHES.
3. PIPE OWNED BY CITY UNLESS OTHERWISE SHOWN.

KEY MAP



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STORM DRAINAGE AREA 5

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

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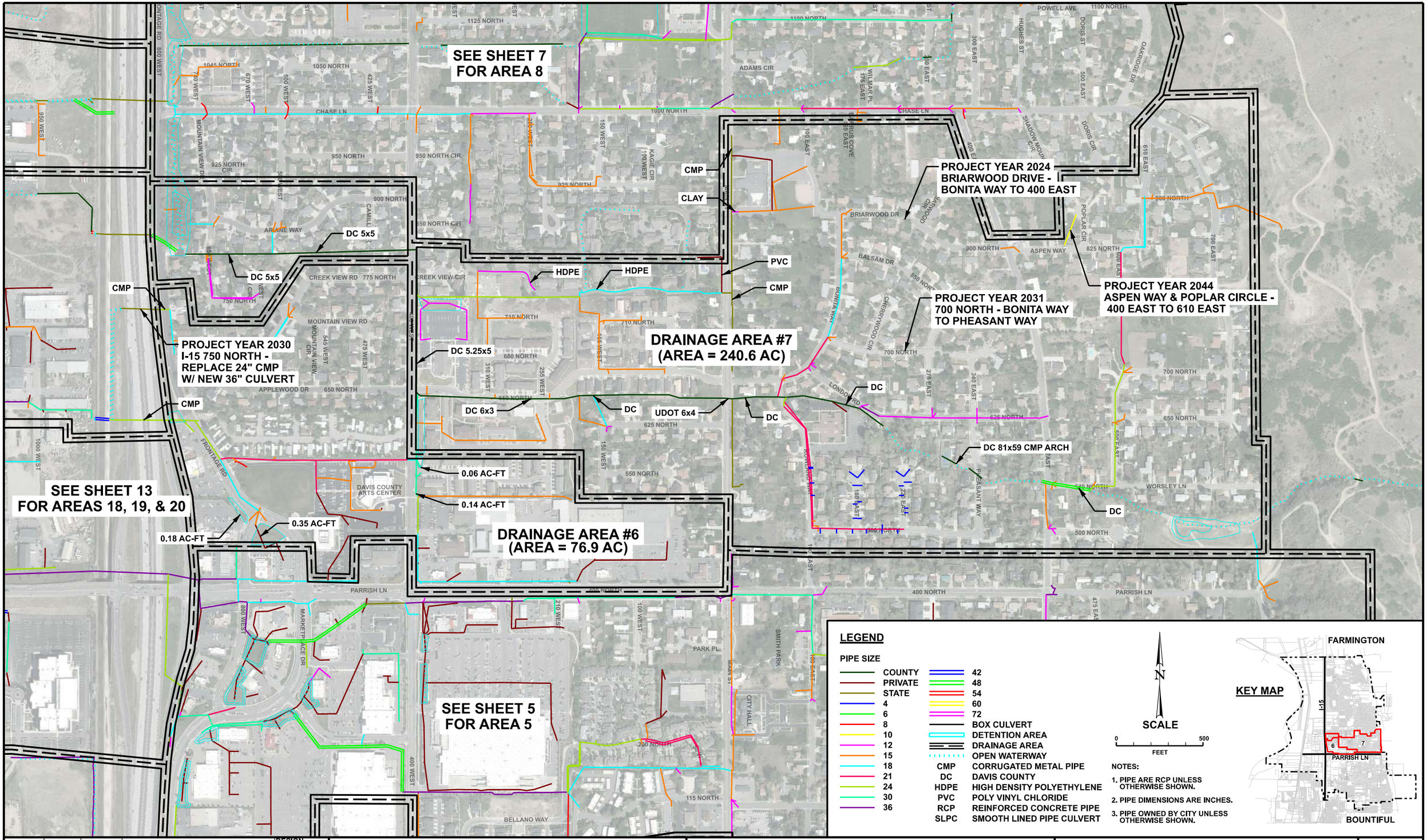
SHEET 5
OF 18

PROJECT NO.
20-131



LEGEND

PIPE SIZE

COUNTY	42
PRIVATE	48
STATE	54
4	60
6	72
8	BOX CULVERT
10	DETENTION AREA
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15	OPEN WATERWAY
18	CMP CORRUGATED METAL PIPE
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	SLPC SMOOTH LINED PIPE CULVERT

N

SCALE
0 500
FEET

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KEY MAP

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STORM DRAINAGE AREAS 6 & 7

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

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SHEET 6
OF 18

PROJECT NO.
20-131

LEGEND

PIPE SIZE

COUNTY		42	
PRIVATE		48	
STATE		54	
4		60	
6		72	
8		BOX CULVERT	
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	SLPC	SMOOTH LINED PIPE CULVERT	

N

SCALE

0 500

FEET

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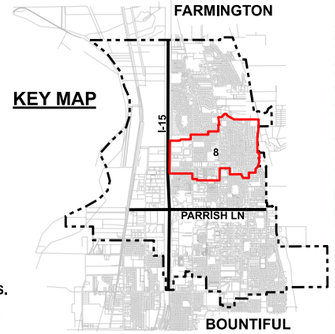

SEE SHEET 8 FOR AREA 9

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

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STORM DRAINAGE AREA 8

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

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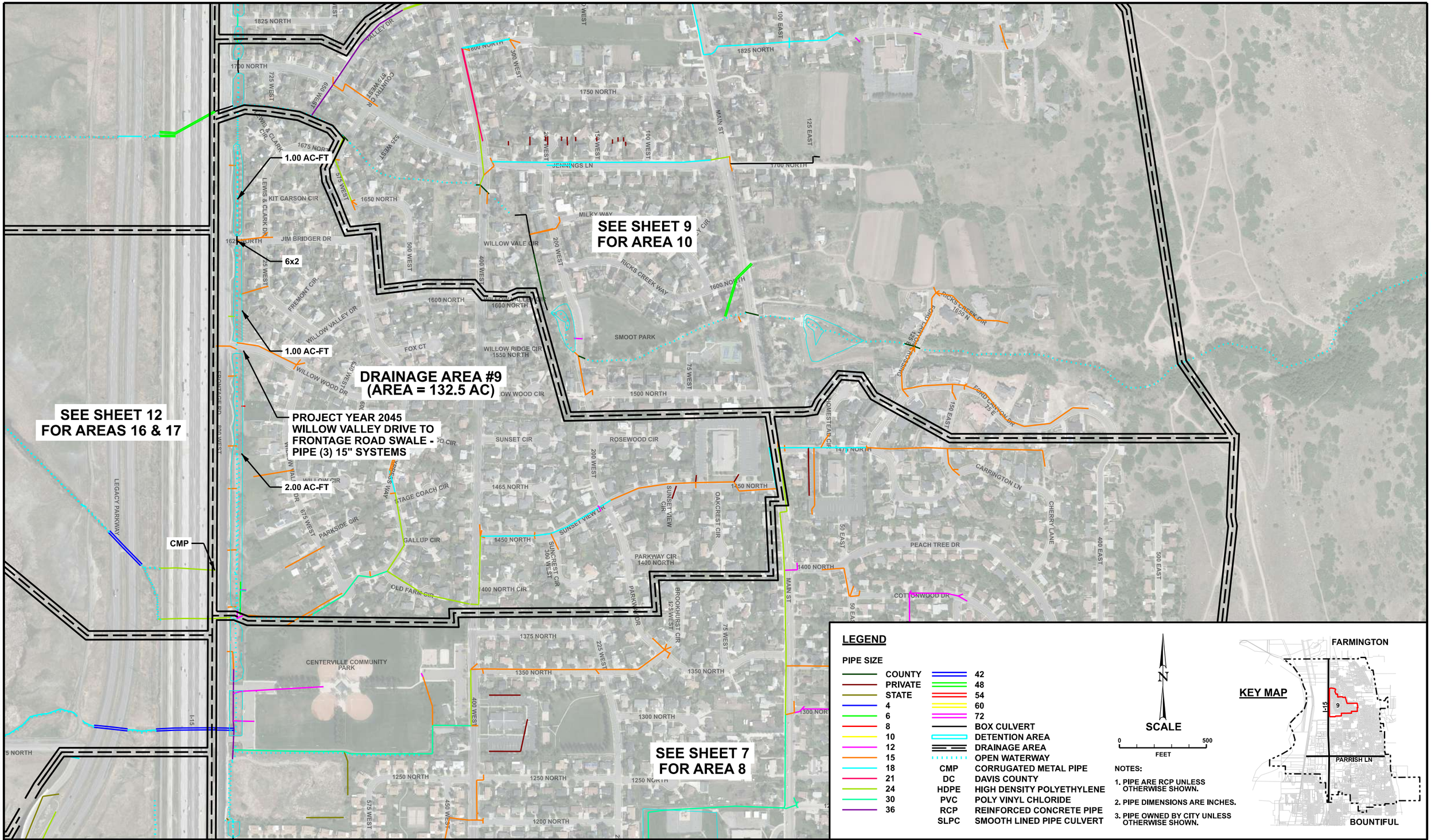
SHEET 7 OF 18

PROJECT NO. 20-131



LEGEND

PIPE SIZE

COUNTY	42		
PRIVATE	48		
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8	BOX CULVERT		
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36	RCP	REINFORCED CONCRETE PIPE	
	SLPC	SMOOTH LINED PIPE CULVERT	

N

SCALE

0 500

FEET

NOTES:

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2. PIPE DIMENSIONS ARE INCHES.
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KEY MAP

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STORM DRAINAGE AREA 9

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

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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
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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:

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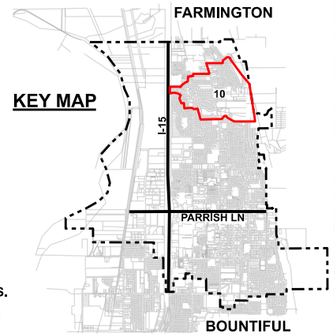
3. PIPE OWNED BY CITY UNLESS OTHERWISE SHOWN.

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

2100 NORTH
2050 NORTH
2025 NORTH
1975 NORTH
1950 NORTH
1900 NORTH
1875 NORTH
1850 NORTH
1825 NORTH
1800 NORTH
1700 NORTH
1675 NORTH
1650 NORTH
1625 NORTH
1600 NORTH
1550 NORTH
1500 NORTH
1475 NORTH
OLD HAUL RD
2150 NORTH
WALKER LN
PARK HILLS DR
150 EAST
ROCKY MOUNTAIN DR
MAIN ST
25 EAST
100 EAST
125 EAST
150 EAST
200 EAST
300 EAST
350 EAST
50 EAST
CANYON VIEW CIR
1975 NORTH
400 WEST
600 WEST
725 WEST
650 WEST
575 WEST
525 WEST
500 WEST
300 WEST
200 WEST
170 WEST
150 WEST
100 WEST
75 WEST
25 WEST
VALLEY DR
COUNTRY CLUB DR
LEWIS & CLARK CIR
LEWIS & CLARK DR
KIT CARSON CIR
JIM BRIDGER DR
FREMONT CIR
WILLOW VALLEY DR
FOX CT
WILLOW RIDGE CIR
1550 NORTH
WILLOW WOOD DR
WILLOW WOOD CIR
WILLOW BEND DR
SADDLEWOOD CIR
SUNSET CIR
ROSEWOOD CIR
JENNINGS LN
MILKY WAY
WILLOW VALE CIR
RICKS CREEK WAY
JERSEY CIR
SMOOT PARK
FRONTAGE RD
RICKS CREEK CIR
1630 N
FORD CANYON DR
1250 E CROSSING
FORD CANYON DR
175 E
HOMESTEAD CIR
150 EAST

REVISION	DATE	BY	DESCRIPTION

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STORM DRAINAGE AREA 10

CENTERVILLE CITY
STORM DRAIN MASTER PLAN

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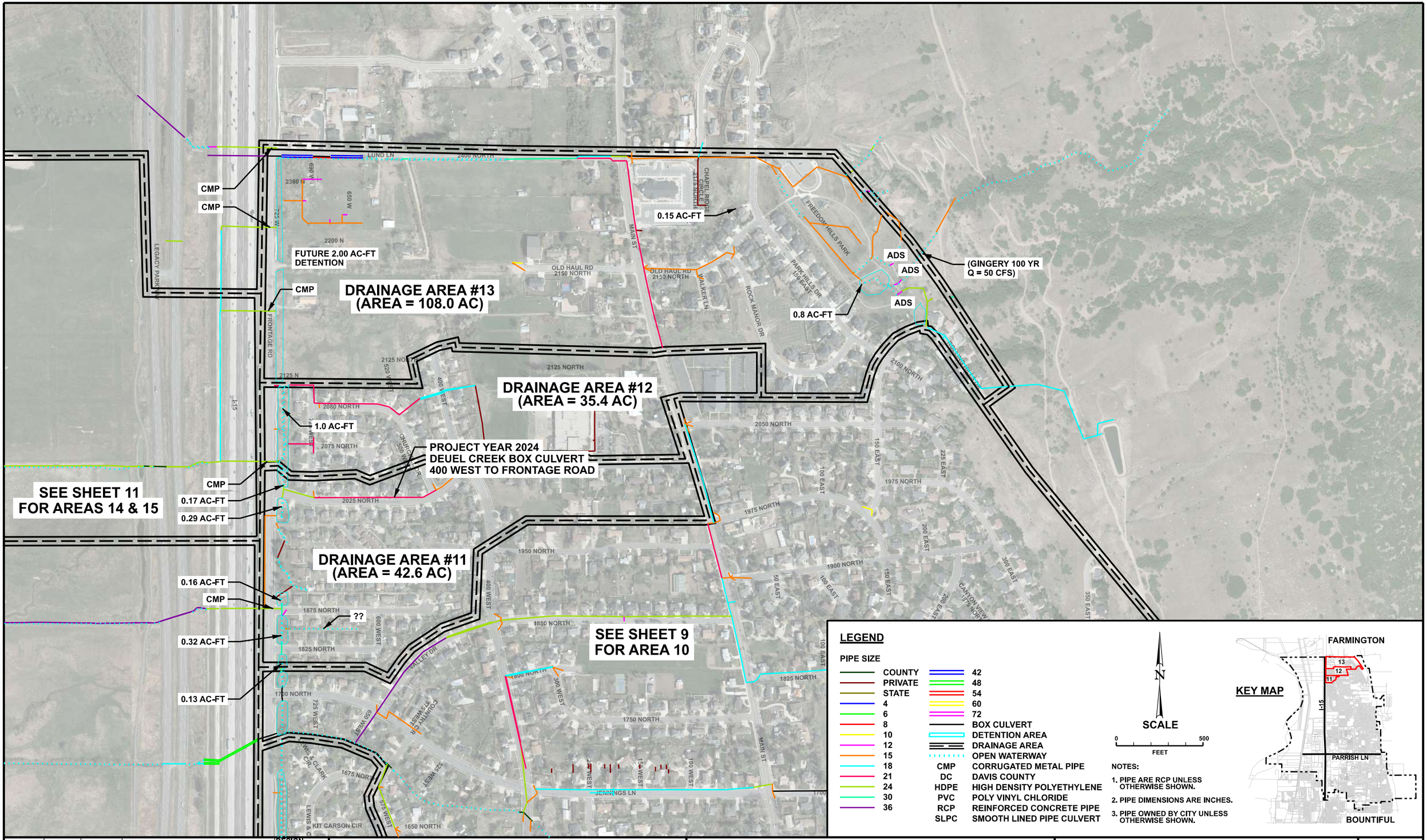
SHEET 9
OF 18

PROJECT NO.
20-131



LEGEND

PIPE SIZE

COUNTY	42
PRIVATE	48
STATE	54
4	60
6	72
8	BOX CULVERT
10	DETENTION AREA
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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

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CHECKED	KLC
DATE	06/05/2023

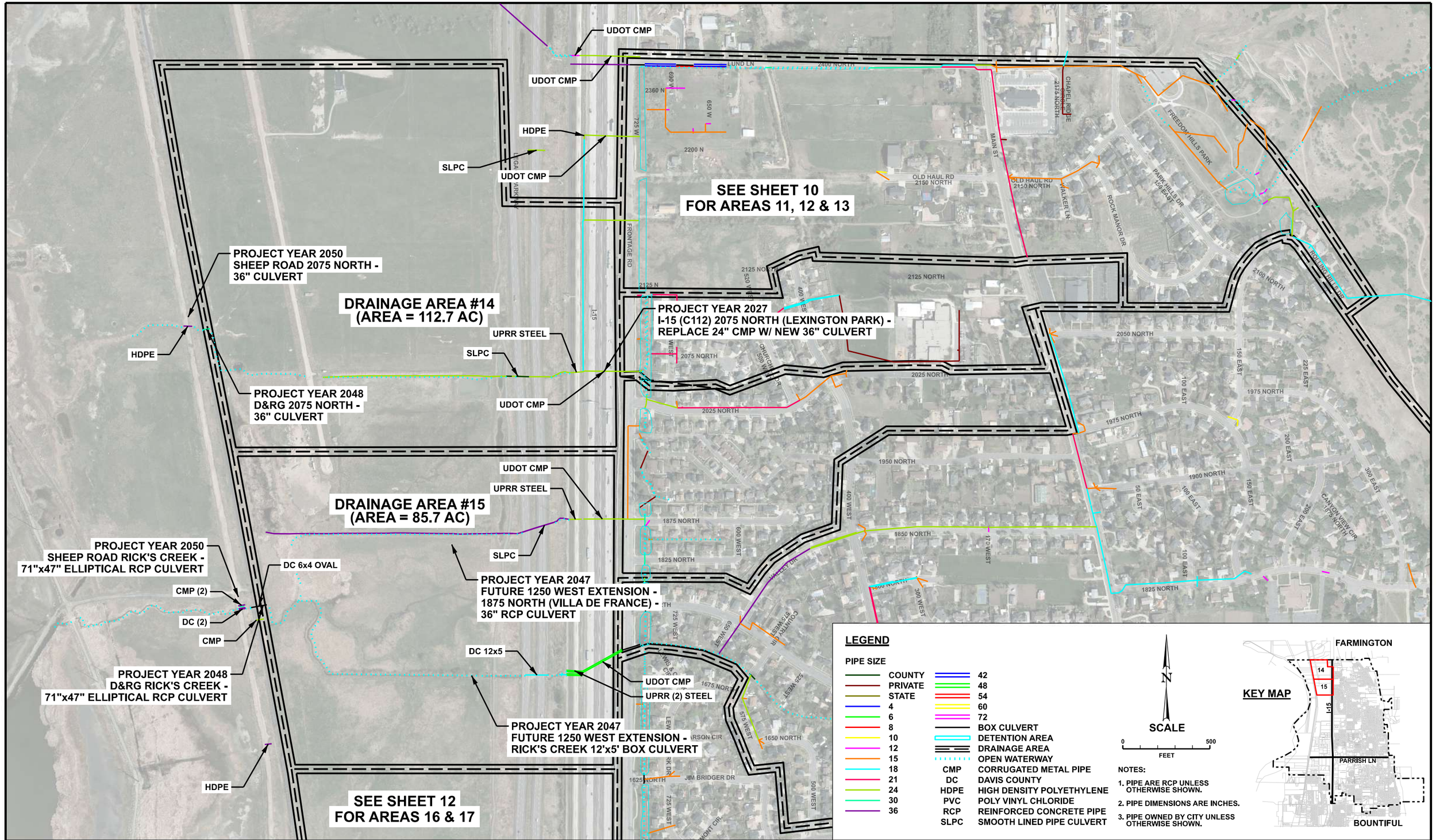
STORM DRAINAGE AREAS 11, 12, & 13

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



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

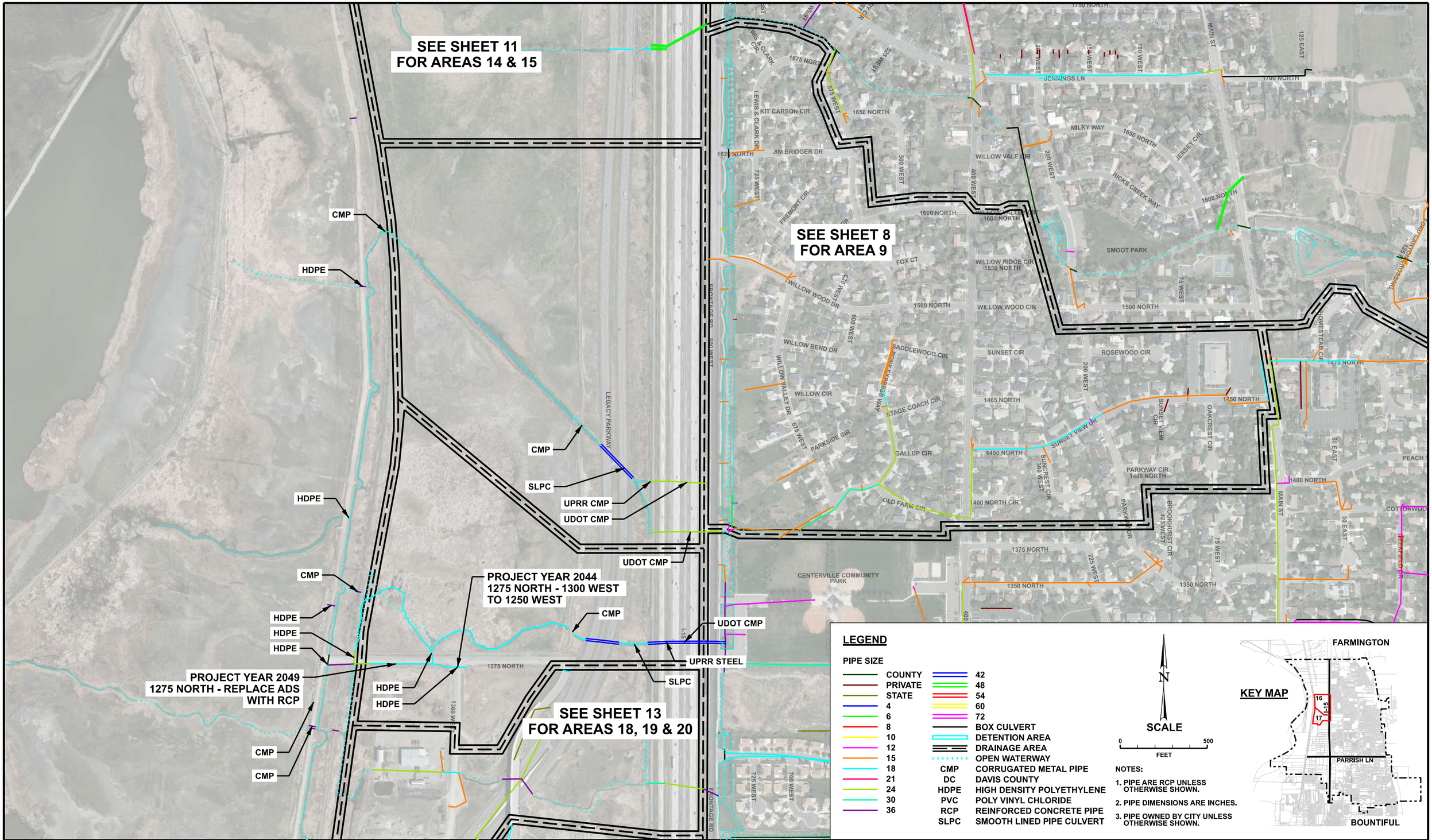
STORM DRAINAGE AREAS 14 & 15

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



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

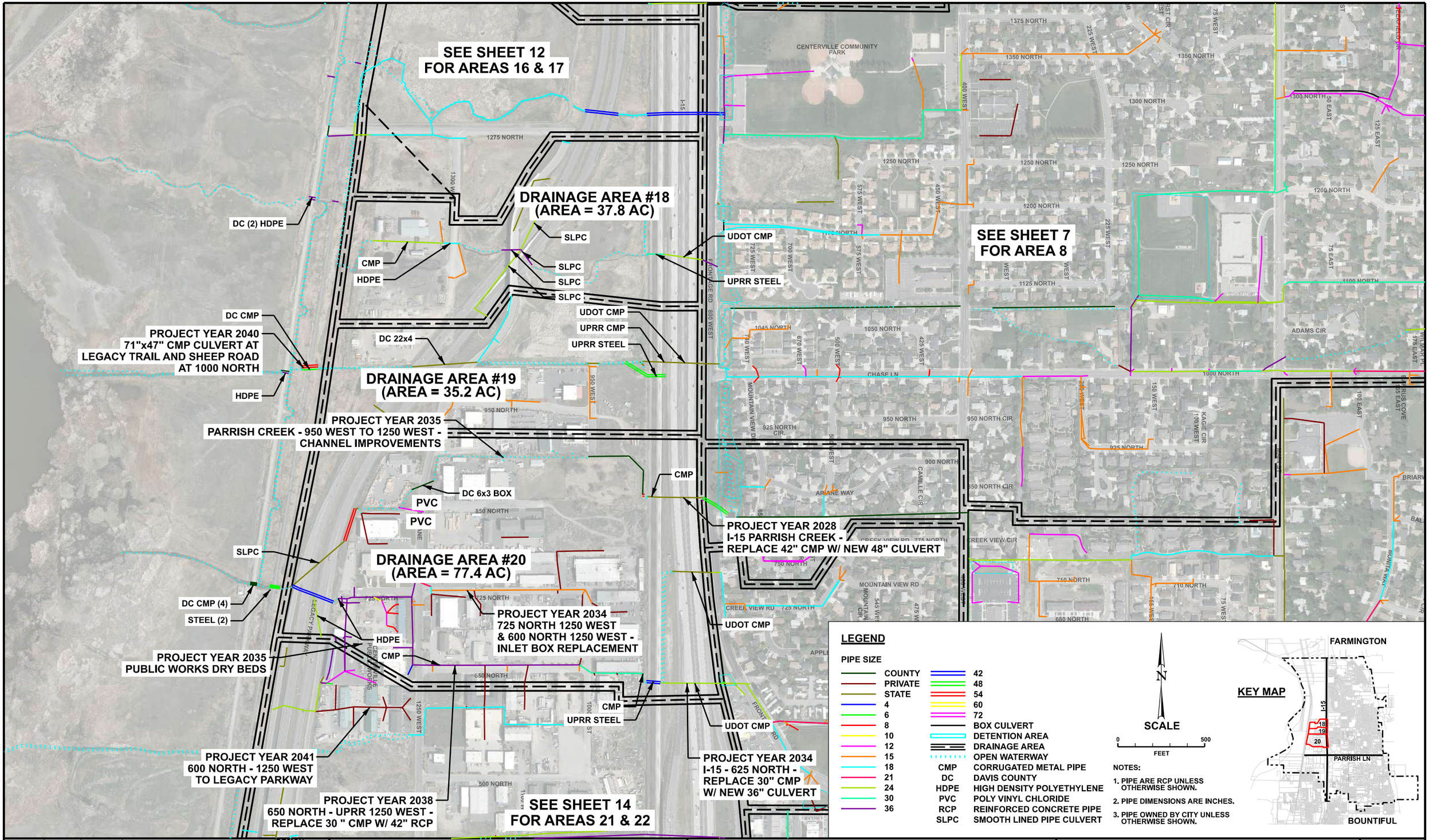
STORM DRAINAGE AREAS 16 & 17

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

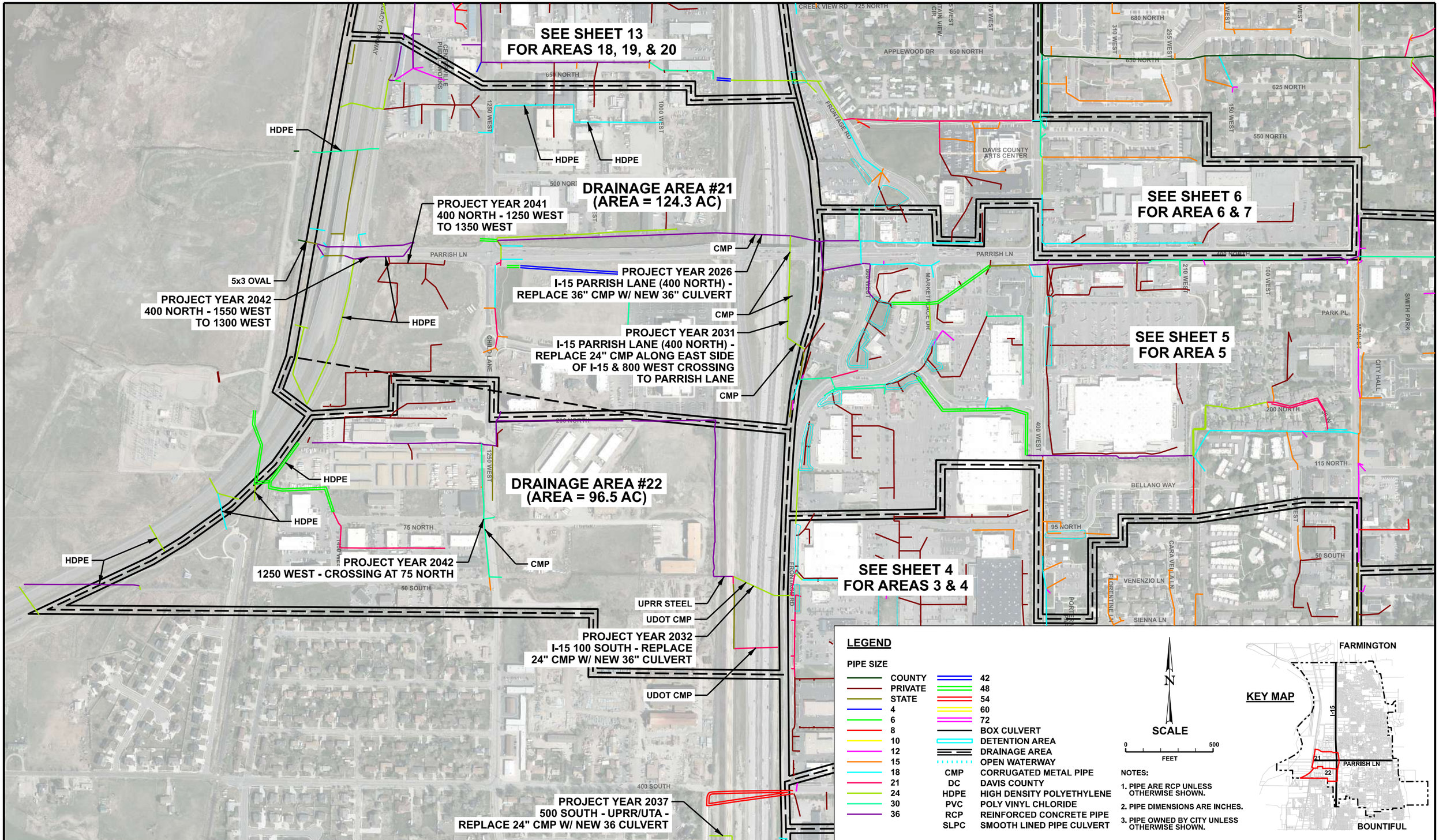
STORM DRAINAGE AREAS 18, 19, & 20

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



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

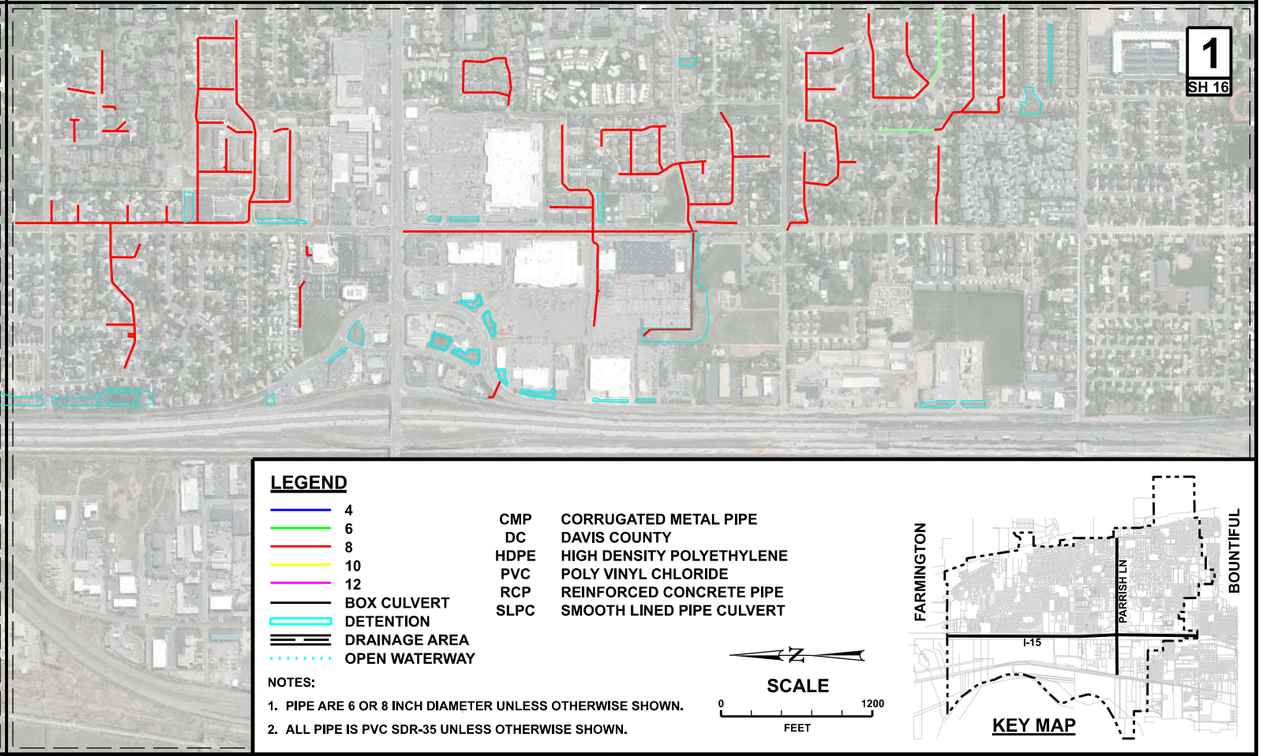
STORM DRAINAGE AREAS 21 & 22

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

PROJECT YEAR 2045
850 SOUTH / 780 SOUTH
- 150 WEST (SLIP-LINE)

PROJECT YEAR 2049
150 WEST - 845 SOUTH
TO 780 SOUTH

PROJECT YEAR 2024
PITFORD - 550 SOUTH
TO TOBE DRIVE

PROJECT YEAR 2037
TOBE DRIVE - 350 WEST
TO 400 WEST

PROJECT YEAR 2026
ARIANE WAY - 450 WEST
TO 650 WEST

PROJECT YEAR 2039
MOUNTAIN VIEW DRIVE &
CREEK VIEW DRIVE

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
FARMINGTON
BOUNTIFUL
PARRISH LN
I-15

REVISION	DATE	BY	DESCRIPTION

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

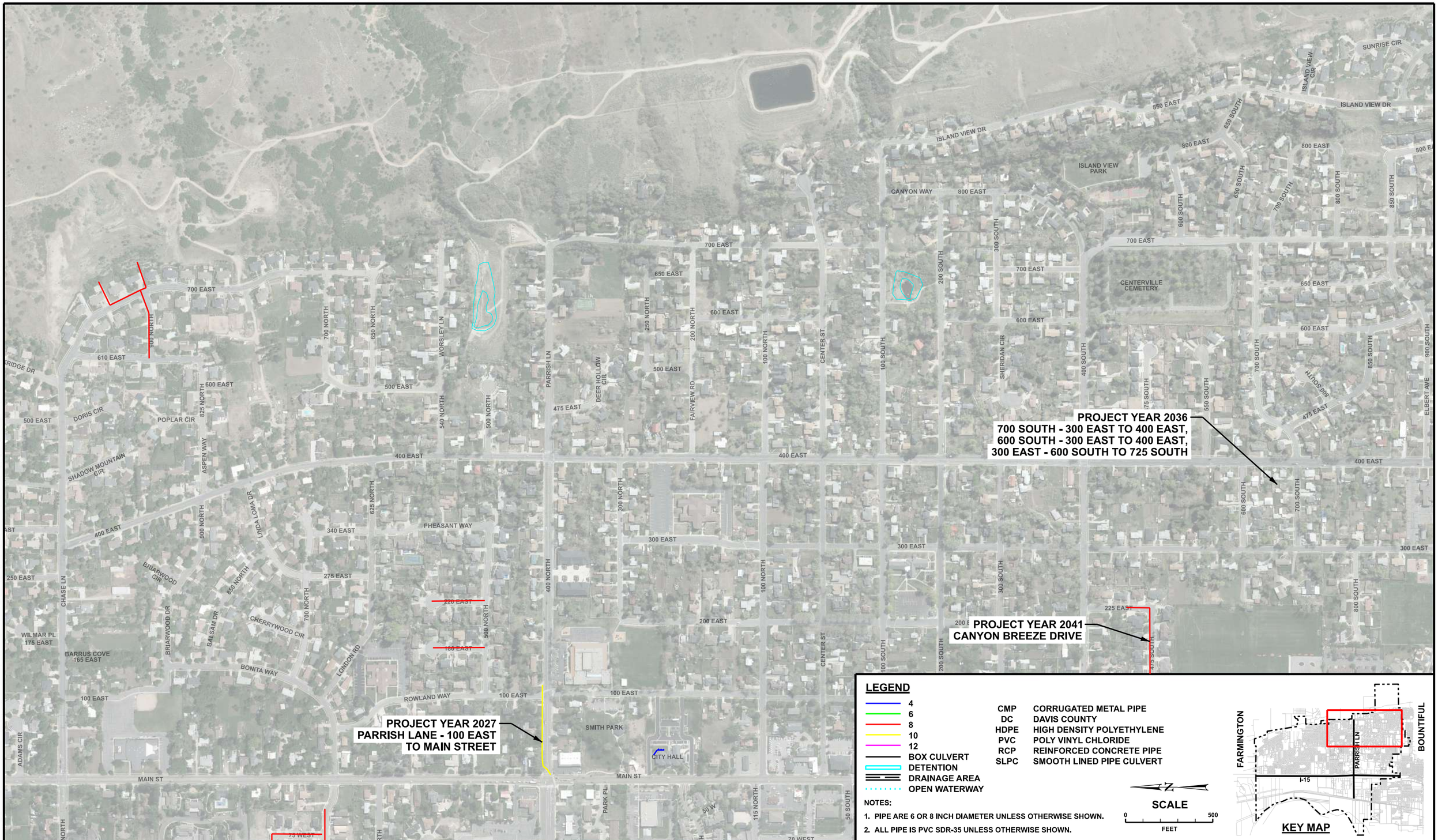
SUB-DRAIN DRAINAGE AREA 1

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



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

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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
FARMINGTON
BOUNTIFUL
PARRISH LN
I-15

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
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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.

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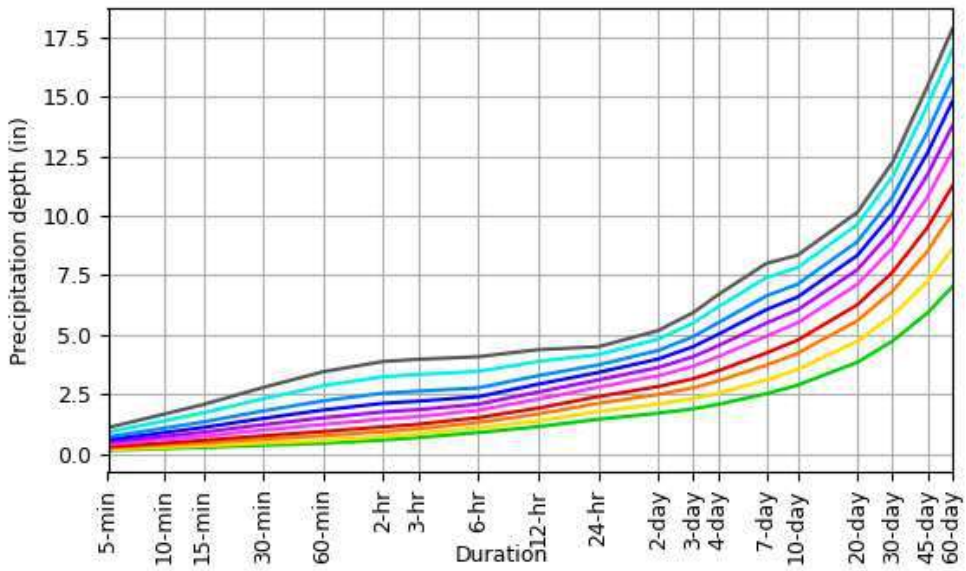
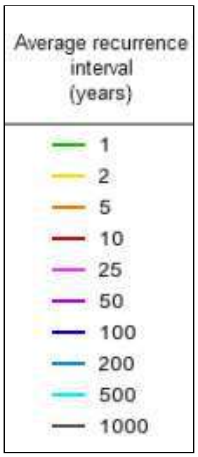
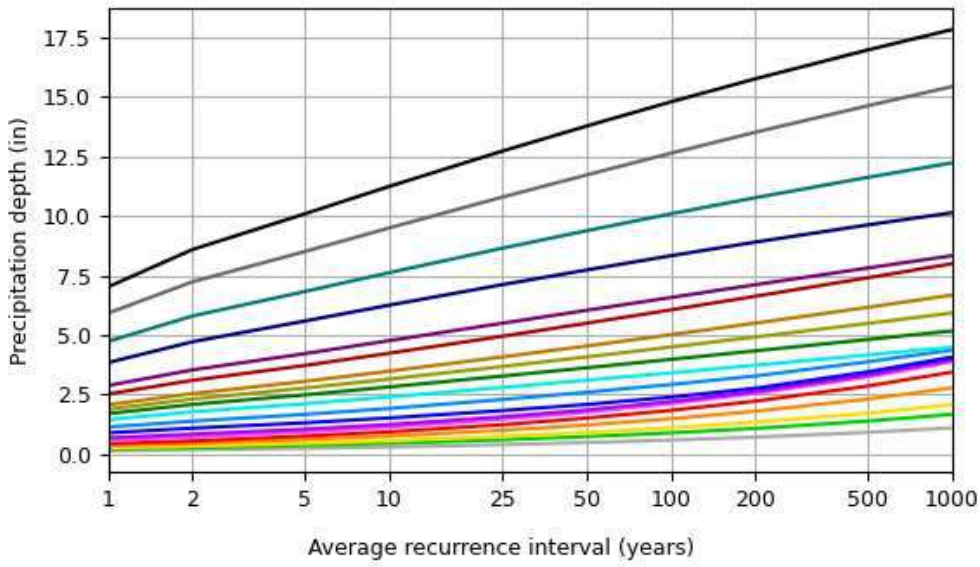
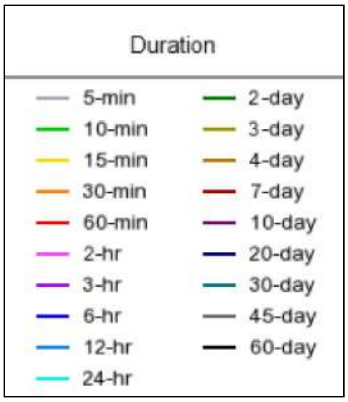
PF graphical

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









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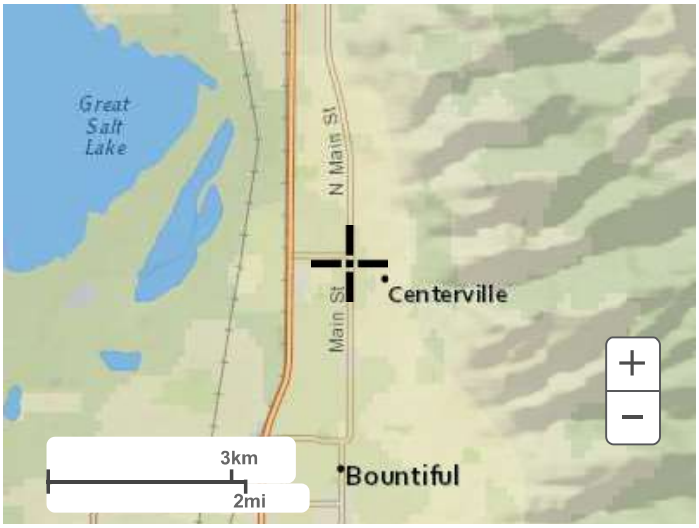
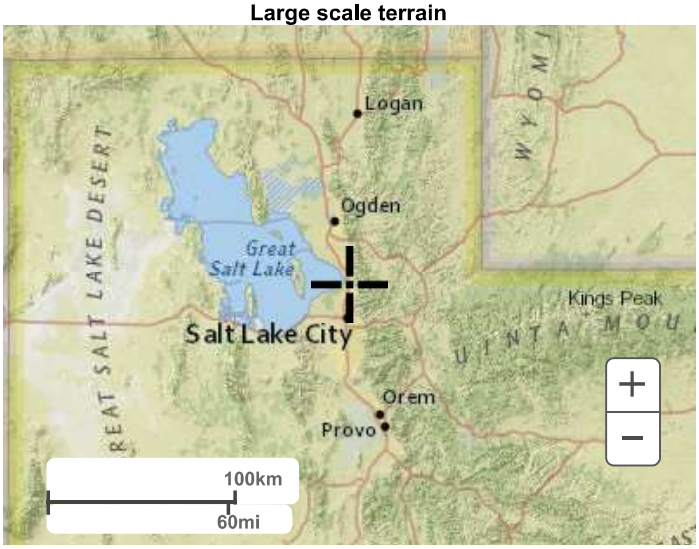
Maps & aerials

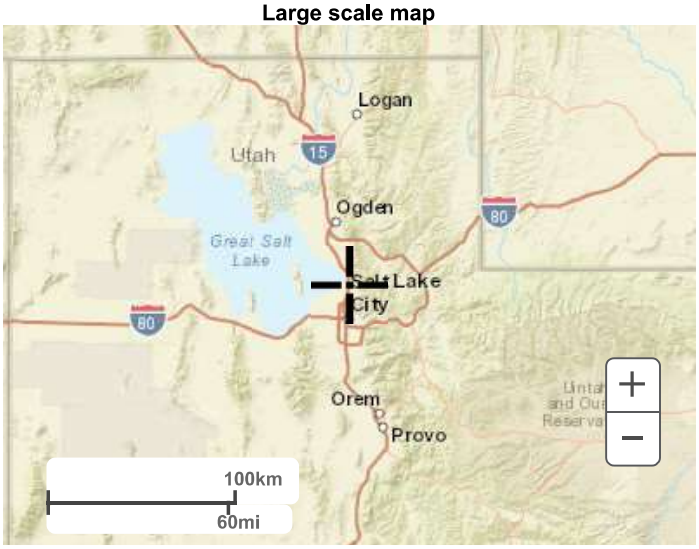
Small scale terrain



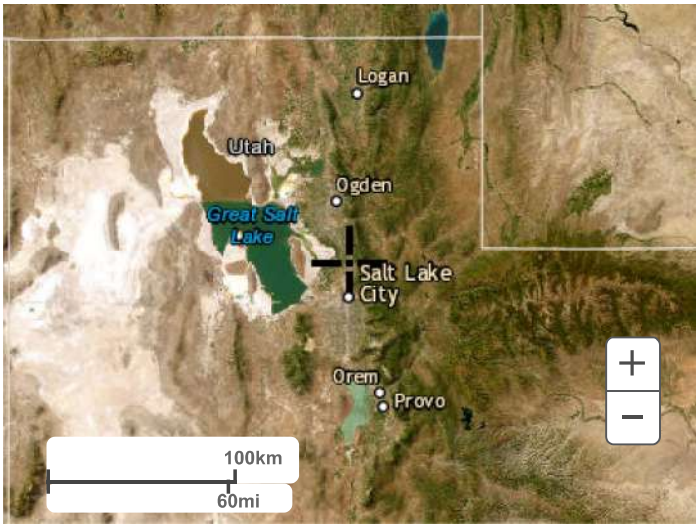
Large scale terrain



Large scale map



Large scale aerial



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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 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 - 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: Checked by:			Project No. 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:			Project No.
		Checked by:			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		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 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: Checked by:			Project No. 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: Checked by:			Project No. 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 Owner: **Centerville City**		Sheet No. 1 of 1
	Estimated by:		Project No.
	Checked by:		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: Checked by:			Project No. 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: Checked by:			Project No. 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		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			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: Checked by:			Project No. 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		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			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		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			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 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 - 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**		Sheet No. 1 of 1
	Estimated by:		Project No.
	Checked by:		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 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 - 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		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 - 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		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 - 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		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 - 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**		Sheet No. 1 of 1
	Estimated by:		Project No.
	Checked by:		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**		Sheet No. 1 of 1
	Estimated by:		Project No.
	Checked by:		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 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 - 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: Checked by:			Project No. 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		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 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		Sheet No. 1 of 1
		Owner:	**Centerville City**		
		Estimated by: Checked by:			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	Sheet No. 1 of 1
	Owner:	**Centerville City**	
	Estimated by: Checked by:		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 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 - 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 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 - 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 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 - 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 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 - 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**

Additional staff request for Drainage Utility Department

Centerville City's Drainage Utility Department currently oversees the maintenance and repair of 1,413 manholes, 973 catch basins, 29.87 miles of storm drain, 18.22 miles of sub drain, 1.14 miles of culvert, 1.04 miles of swale, 5.49 miles of open ditches, and at least 133 outfalls (connections to the county creeks). The Drainage Utility Department is also charged with overseeing maintenance of these systems, either in-house or by a contractor. The Drainage Department coordinates and supervises street sweeping and storm/sub drain cleaning throughout the city.

The Department is in charge of compliance with the State of Utah UPDES MS4 permit. This is where we are struggling the most. The Drainage Utility program was audited by the State of Utah in 2015 and we still have several things that we have not corrected solely because of time needed to make corrections. Standards are becoming tighter every year, and more requirements are handed down from the EPA. There are many things that were not required when the one-person Drainage Utility Department was created in 1999. We are falling behind. Section 4.1.2.2 of the UPDES General Permit for Discharges from Small Municipal Separate Storm Sewer Systems (MS4) states, in part that *"Each Permitee must secure the resources necessary to meet all requirements of this permit"*. I believe we are at the point that another person is needed to help meet the requirements of the State as I am unable to do so by myself.

Below is a list of items that are overseen by the Drainage Utility Department that were not required when the Department was created in 1999. Currently we are completing the major requirements and are working on implementing the others as time permits.

a. Treating water before discharging into city system
b. Retaining stormwater onsite for sites over 1 acre (LID)
c. Detaining stormwater on smaller sites and slowly releasing into city system
d. Mapping of storm drain and sub drain system
e. Operations and maintenance program for city owned and operated facilities
f. Davis County Storm Water Coalition member and involvement
g. Ordinance Enforcement and penalties for storm water violations

Below are items that are recurring, and will, for the most part, be required to be done at least annually. Most of these were not required in 1999.

Implementation/updating of Storm Water Management Plan, or SWMP, (currently, our biggest deficiency), which includes, among other things:

6 Minimum control measures

1. Public Education and Outreach on Stormwater Impacts
2. Public Involvement/Participation
3. Illicit Discharge Detection and Elimination (IDDE)

4. Construction Site Stormwater Runoff Control
5. Long-Term Stormwater Management in New Development and Redevelopment (Post-Construction Stormwater Management)
6. Pollution Prevention and Good Housekeeping for Municipal Operations

1. Public Education and Outreach on Stormwater Impacts

"The educational program must include documented education and outreach efforts for the following four audiences: (1) residents, (2) institutions, industrial, and commercial facilities, (3) developers and contractors (construction), and (4) MS4-owned or operated facilities."

Part of this requirement is fulfilled by membership in the Davis County Storm Water Coalition, but we have not been able to target all of these audiences each year. Last year, a mailer was sent to residents that have pools. This mailer included tips on caring for their pool while complying with stormwater ordinances and requirements.

2. Public Involvement/Participation

"The Permittee must implement a program that complies with applicable State and Local public notice requirements. The SWMP shall include ongoing opportunities for public involvement and participation, but at a minimum two (2) times annually. Permittees can meet this requirement through advisory panels, public hearings, watershed committees, stewardship programs, environmental activities, volunteer opportunities, or other similar activities."

We have struggled to find any interest in these activities. A significant amount of time is required to coordinate and implement volunteer efforts required to meet this measure. The SWMP is available for review on the Centerville City website.

3. Illicit Discharge Detection and Elimination (IDDE)

"All Permittees shall revise (as necessary), implement and enforce an Illicit Discharge and Elimination (IDDE) program to systematically find and eliminate sources of non-storm water discharges from the MS4 and to implement defined procedures to prevent illicit connections and discharges according to the minimum performance measures listed below. The IDDE program must be described in writing, incorporated as part of the Permittee's SWMP document, and contain the elements detailed in this part of the Permit."

I am happy to report that we meet most of these requirements. This area has been given much attention as keeping pollutants out of our waterways is the ultimate goal of the program.

4. Construction Site Stormwater Runoff Control

"All Permittees shall revise (as necessary), implement and enforce a program to reduce pollutants in any storm water runoff to the MS4 from construction sites with a land disturbance of greater than or equal to one acre. This includes projects less than one acre that are part of a larger common plan of

development or sale which collectively disturbs land greater than or equal to one acre according to the minimum performance measures listed below. Public and private projects, including projects proposed by the Permittee's own departments and agencies, shall comply with these requirements."

We are compliant with the most of these requirements. It is important to note that a lot of time is required to ensure compliance is met. All building permits are reviewed by the Department. All construction projects that break ground are required to obtain, at a minimum, a Centerville City storm water permit for construction. Other sites are required to obtain coverage through the State. Even with State permitting, the local MS4 (City) is required to review, inspect and enforce the permit.

5. **Long-Term Stormwater Management in New Development and Redevelopment (Post-Construction Stormwater Management)**

"The Permittee shall revise (as necessary), implement, and enforce a program to address post-construction storm water runoff to the MS4 from private and public new development and redevelopment construction sites meeting the thresholds below. The water quality considerations of this minimum control measure do not replace or substitute for water quantity or flood management requirements implemented on the local level for new development or redevelopment sites. The water quality controls may be incorporated into the design of structures intended for flow control; or water quality control may be achieved with separate control measures. The program must apply to private and public development sites."

Centerville City has water quality standards for water released into the city-owned storm drain system. We have implemented Low Impact Development (LID) standards and requirements. We do not have a program in place to inventory and inspect ALL public and private long-term Best Management Practices (BMP's) as required in this section.

6. **Pollution Prevention and Good Housekeeping for Municipal Operations**

"All Permittees must implement a program for Permittee-owned or operated facilities, operations and structural storm water controls that includes Standard Operating Procedures (SOPs), pollution prevention BMPs, storm water pollution prevention plans or similar type of documents, and a training component that have the ultimate goal of preventing or reducing the runoff of pollutants to the MS4 and waters of the state. All components of the program shall be included in the SWMP document and must identify the department responsible for performing each activity described in this section. The Permittee shall develop an inventory of all such Permittee-owned or operated facilities. The Permittee must review this inventory annually and update as necessary."

We are adequate with this requirement but lack many SOP's and other documentation.

Other recurring items include:

a. Catch basin cleaning
b. Extensive State permitting and inspections. These permits are inspected and enforced by the local jurisdiction
c. Facility requirements for city owned and operated facilities
d. Inspections and inventory of permanent long-term BMP's, such as retention basins, snouts, oil water separators, and orifice plates

e. Outfall inspections
f. Staff trainings
g. SOP's for almost all activities, reviewed and assessed yearly
h. Industrial permit holder inspections
i. GIS mapping and updating
j. Construction permitting and inspections
k. Enforcing City ordinances unrelated to construction
l. Updating

Without further help in the Department, drainage utility will continue to fall behind in the ever-increasing requirements of the EPA and State Department of Environmental Quality. I am concerned that another audit from the State will yield disappointing results. As stated above, I ask that you consider that *"Each Permitee must secure the resources necessary to meet all requirements of this permit"* and that, currently, with a single person department, we are not able to meet requirements. I ask that you consider allocating the required necessary resources to add another full-time position to the Drainage Utility Department to ensure compliance with local, state, and federal regulations and requirements.

Cameron Woodbury

Drainage Utility Supervisor

Centerville City

CITY COUNCIL

Staff Report

2/6/2024

Item No. 2.
Title: Discussion - Pickleball Courts
Initiated By: Bruce Cox, Parks and Recreation Director
Staff Representative: Bruce Cox, Parks and Recreation Director

SUBJECT:

Update on Pickleball Courts progress

RECOMMENDATION:

BACKGROUND:

Staff will be meeting with the contractor on the morning of February 6th and will have more information to share regarding Pickleball courts following the meeting.

ATTACHMENTS:

1. Pickleball_Grading Model

4220

4220.00 4220.00 4220.25 4220.00 4220.00 4220.00 4220.00 4220.68

4219.38 4219.50 4219.75 4219.38 4219.38 4219.38 4219.50 4219.75 4219.38 4219.38

4220.25 4220.00 4219.75 4219.50 4219.06 4219.09 4219.13 4219.25 4219.17 4219.50 4219.75 4220.00 4220.25 4220.31

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SCALE 1:20

CITY COUNCIL

Staff Report

2/6/2024

Item No. 1.
Title: Finance Department Report
Initiated By: Nate Plaizier, Finance Director
Staff Representative: Nate Plaizier, Finance Director

SUBJECT:

Preview the FY 2025 budget process and report on the Finance Department

RECOMMENDATION:

BACKGROUND:

Staff has started work on the FY 2025 budget. Each department has been working on compiling their budget requests. Over the next couple of months, Department Heads will meet with the City Manager and Finance Director to review their requests. We are requesting a budget retreat with Mayor and City Council to be held on March 26 & 28, 2024. (Dates subject to change.)

The Finance Director will also give an update and review of the Finance Department.

ATTACHMENTS:

1. FY 2025 Proposed Budget Process

FY 2025 Proposed Budget Process

January 2024	Budget Request Worksheets sent to Departments.
February 2024	Department Requests Due Back to Finance. City Manager, Finance Director, and Department Heads Meet to Review Each Departments Budget Requests.
March 26 & 28, 2024	Budget Retreat with City Council.
May 7, 2024	Presentation of the Tentative Budget. Hold Public Hearing and Adopt the Tentative Budget.
June 4, 2024	1) Public Hearing on Tentative Budget and adoption of the Final Budget; 2) Public Hearing on Compensation Schedule and Judge's Salary.
June 18, 2024	1) Adoption of Final Budget (or Operational Budget if TNT) (tabled from June 4, 2024); 2) Adoption of Compensation Schedule and Judge's Salary (tabled from June 4, 2024); 3) Adopt Final Property Tax Rate or Set Proposed Tax Rate; 4) Set Date of Truth-In-Taxation Public Hearing and Adoption of Final Budget (must be held before September 1st).*
*August 2024**	1) Truth-In-Taxation Public Hearing;* 2) Adoption of Final Budget.*

**if necessary*