

## Impact Fee Facilities Plan Certification Page

I certify that the attached impact fee facilities plan:

1. Includes only the costs of public facilities that are:
  - a. allowed under the Impact Fees Act; and
  - b. actually incurred; or
  - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
  - d. existing deficiencies documented as such and not meant for inclusion in impact analysis.
2. Does not include:
  - a. costs of operation and maintenance of public facilities;
  - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents;
  - c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement; and
3. Complies in each and every relevant respect with the Impact Fees Act

---

Brent R. Ventura, P.E.

## Impact Fee Analysis Certification Page

I certify that the attached impact fee analysis:

1. includes only the costs of public facilities that are:
  - a. allowed under the Impact Fees Act; and
  - b. actually incurred; or
  - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. does not include:
  - a. costs of operation and maintenance of public facilities;
  - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents;
  - c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement;
3. offsets costs with grants or other alternate sources of payment; and
4. complies in each and every relevant respect with the Impact Fees Act.

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Brent R. Ventura, P.E.

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### Demographics

As demographics form the basis of all other projections in this report, the first study performed was a population study. Current population estimates are used to determine the Level of Service (LOS) for each of the following sub-facilities. Future population projections provide the basis for determining the future needs of the city based upon the current LOS. Currently, Bluffdale City has approximately 11,500 residents and is projected to grow to nearly 39,000 by the year 2045.

### Water

This study identifies the City's existing water system and its current deficiencies. The culinary and secondary water systems have been modeled to project future needs to maintain Bluffdale's current LOS. Specific projects have been identified that will be required for the City to service future population growth. In total, \$1.98 million and \$8.32 million (2015 dollars) respectively of culinary and secondary system capital improvements are identified for future construction.

An important part of the Bluffdale City Water Conservation Plan is the construction and implementation of a pressurized secondary water system. Major portions of the system have now been constructed including a 2 MG tank and five miles of trunkline. This study identifies several sources of water that are currently planned to energize the system, including recycled water from the Utah Data Center, reuse water from the Jordan Basin Water Reclamation Facility and from a well on the east side.

### Transportation

Population growth throughout Bluffdale will require roads to be upgraded to meet future needs. Part of the planning process includes corridor preservation. Corridor preservation allows a city to identify, and protect from development, land that will be needed for future roadway corridors. This will ultimately lower the cost of constructing future improvements.

The City currently provides a Level of Service "A"; however it will not be possible to maintain this LOS amid future growth. Therefore, transportation planning is critical to maintaining good circulation. Special attention has been given to Porter Rockwell Boulevard. The cost of future improvements that will be required throughout the City, identified in this study, is \$92.94 million (2015 dollars).

### Storm Water

Equivalent Residential Units (ERU's) for future storm water runoff are based on an average lot having 2,700 square feet of impervious surface. The current LOS is based on the City's current standards and ordinances. In order to meet the City's future needs, 22 projects have been identified that will be required to complete the master planned storm drain system. Three of the projects have been identified as needed to solve existing problems. Funding to complete the system is estimated at \$11.16 million in 2015 dollars.

### Public Safety

The City currently provides 1.18 square feet of emergency service facilities per resident. Bluffdale City has contracted with Saratoga Springs City to provide law enforcement. A conceptual plan for constructing new public safety facilities to maintain Bluffdale City's current level of service identifies \$8.75 million (2015 dollars) of future projects.

### Parks and Recreation

Bluffdale has previously provided \$1,349,789.86 of parks and recreational facilities per 1,000 residents. In order to maintain this LOS, a conceptual plan for constructing future parks and recreation facilities for the City identifies \$43.1 million (2015 dollars) of future projects including specific parks agreed upon in the Independence at the Point subdivision development agreement.

### Public Facilities

City staff and officials anticipate expanding city services as the population grows. In order to do so, new facilities will need to be constructed to facilitate expanded administration and storage. Future public facilities, including a city hall, public works building and animal control facility are estimated at \$12.08 million (2015 dollars).

### Impact Fee Analysis

Impact fees have been calculated based on detailed analysis of each element. The water impact fee is based on a single service area including a looped culinary system and a secondary system that provides common delivery and storage systems for use throughout the City. The transportation impact fee is calculated based on one city-wide service area and an additional Porter Rockwell service area. For the most part, the road system is accessible to every resident for trips to any destination, but the Porter Rockwell area depends heavily on Porter Rockwell for project success. The storm drain impact fee is calculated using one service area but varies with unit size and impervious surface. Finally, the public safety and parks/recreation facilities are planned to service all residents. Therefore, impact fees are based upon one service area.

Although Bluffdale is not required to enact impact fees exactly as outlined in this study, it may not impose fees higher than what is recommended. The following are the fees recommended to finance the required future infrastructure.

## EXECUTIVE SUMMARY

		City Wide Impact Fee	PRB SA Impact Fee
<b>Water</b>	<b>Units</b>		
Single Family Residential	Dwelling Units	\$1,133	\$1,133
Commercial	Connection	\$3,818	\$3,818
Institutional	Connection	\$9,019	\$9,019
<b>Transportation*</b>			
Single Family Detached	Dwelling Units	\$3,360	\$3,685
Condominium/Townhome	Dwelling Units	\$1,714	\$1,879
Apartment	Dwelling Units	\$2,050	\$2,248
Office Building	1,000 sq. ft.	\$5,208	\$5,712
Medical Office Building	1,000 sq. ft.	\$12,365	\$13,561
Less Intensive Retail	1,000 sq. ft.	\$363	\$398
Intensive Retail	1,000 sq. ft.	\$4,259	\$4,671
Quality Restaurant	1,000 sq. ft.	\$5,747	\$6,303
Fast Food	1,000 sq. ft.	\$18,144	\$19,899
Convenience Market w/ Gas Pumps	Pump Stations	\$2,458	\$2,696
Bank	1,000 sq. ft.	\$17,116	\$18,771
Industrial	1,000 sq. ft.	\$4,906	\$5,380
Manufacturing	1,000 sq. ft.	\$3,696	\$4,054
Warehousing	1,000 sq. ft.	\$2,352	\$2,580
Elementary School	Students (Max. Capacity)	\$941	\$1,032
Middle/Junior School	Students (Max. Capacity)	\$1,008	\$1,106
High School	Students (Max. Capacity)	\$941	\$1,032
Private School (K-8)	Students (Max. Capacity)	\$2,016	\$2,211
Private School (K-12)	Students (Max. Capacity)	\$1,814	\$1,990
Day Care	1,000 sq. ft.	\$8,770	\$9,618
Library	1,000 sq. ft.	\$11,794	\$12,934
Church	1,000 sq. ft.	\$2,184	\$2,395
Hotel/Motel	Rooms	\$1,848	\$2,027
<b>Storm Drain</b>	Dwelling Unit or 2,700 sf of imperv. surface	\$630	\$630
<b>Public Safety</b>	Dwelling Unit or Connection	\$1,200	\$1,200
<b>Parks and Recreation</b>			
Single Family Dwelling	Dwelling Unit or Connection	\$5,400	\$5,400
Multi-Family	Dwelling Unit or Connection	\$4,050	\$4,050

\*Definitions and explanations of development types can be found in the Appendix

Bluffdale City is a growing community located at the south end of Salt Lake County and lying at the base of the Oquirrh Mountains. It is bounded on the north and south by Riverton and Lehi, and on the east and west by Draper and Herriman, respectively. The Jordan River is a prominent feature cutting through the middle of the city. As established in 2012, Bluffdale had approximately 7,900 residents. As growth continues in the Salt Lake Valley, Bluffdale is projected to grow to approximately 40,000 by the year 2045 as discussed in the following chapter.

Because Bluffdale lies at the narrowest point between the Wasatch and Oquirrh mountain ranges, many utilities are located here, including the Union Pacific Railroad, seven canals and aqueducts, two major power corridors, two freeways and a major gas line corridor. Although these utilities create obstacles in Bluffdale's efforts to provide services to its residents, the Jordan River provides the greatest challenge.

This Capital Facilities Plan (CFP) analyzes Bluffdale's future growth patterns and its projected infrastructure needs as it grows. It contains separate chapters outlining the Impact Fee Facilities Plan (IFFP) and its analysis. Services addressed include culinary water, secondary water, transportation, storm drain, public safety, parks and recreation and administrative services. Further, it will provide a master plan for each utility. Each chapter includes a master plan that will lay the foundation for creating a Capital Facilities Plan, which in turn will provide the necessary data to create the Impact Fee Facilities Plan. These plans will provide a prioritized project schedule for construction, cost estimates (in planning year dollars) and recommended impact fee levels based upon the projects required to accommodate new growth in the next six years.

### *Proportionate Share*

This document attempts to assign only a proportionate share of costs for future improvements due to growth from future developments. It is evident that the cost of much of the existing infrastructure in many of the elements cannot be assigned a legitimate dollar value per resident since very little information is available as to how existing infrastructure was financed, what share the City financed, what agency constructed the improvement, and how much the improvements actually cost. Therefore, in accordance with the Utah Impact Fees Act, Title 11, Chapter 36a, every effort has been made to evaluate impact fees considering only those costs that are attributable to future growth. As such, a current Level of Service (LOS) has been defined for each element and master planning performed to maintain the existing standards. Impact fees have been evaluated assigning the costs associated with maintaining these standards to future development as Bluffdale City grows.

### *Impact Fee Adjustments*

Bluffdale City understands that future developments will each have individualized impacts on the City and therefore, in order to impose impact fees fairly, the City may adjust standard impact fees to meet unusual circumstances as allowed by State Code. Adjustments may be made for any of a number of reasons including studies or data submitted by the developer, land dedicated as a condition of development, and/or system improvements constructed by a new development.

The first step in updating any Capital Facilities Plan is to evaluate the City’s current demographics and future population projections. The following section discusses Bluffdale City’s population, growth trends, and projected build-out population. We have updated the population projections in this update since recent growth trends have far outpaced the 2012 projections.

## 2.1 Existing Conditions

### *Current Population*

In April 2010, Bluffdale’s population was estimated by the US Census Bureau to be 7,597 residents. We used actual residential building permits received since then to estimate the current population at 11,477. Detailed building permit information along with population calculations is available in Appendix “A”.

### *Average Residents per Household*

For purposes of this Capital Facilities Plan (CFP), the current average household density was estimated at 3.96 residents per household, per the 2010 Census.

### *Current Zoning and Land Use Plans*

Bluffdale City’s 2015 land use and zoning plans form the basis of evaluation for future facilities which will be built within City limits. They are illustrated in Figures 2-1 and 2-2.

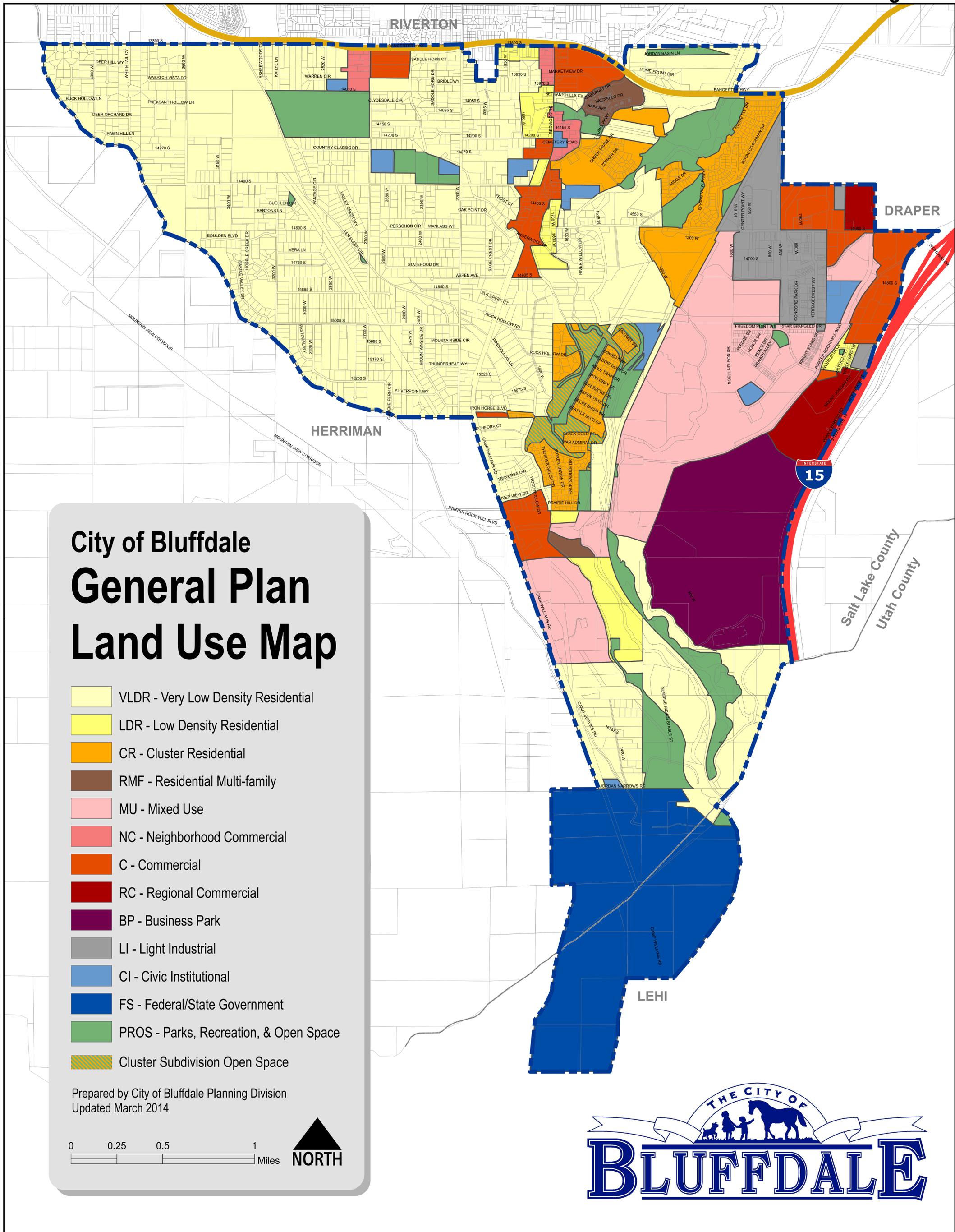
## 2.2 Build-out Population

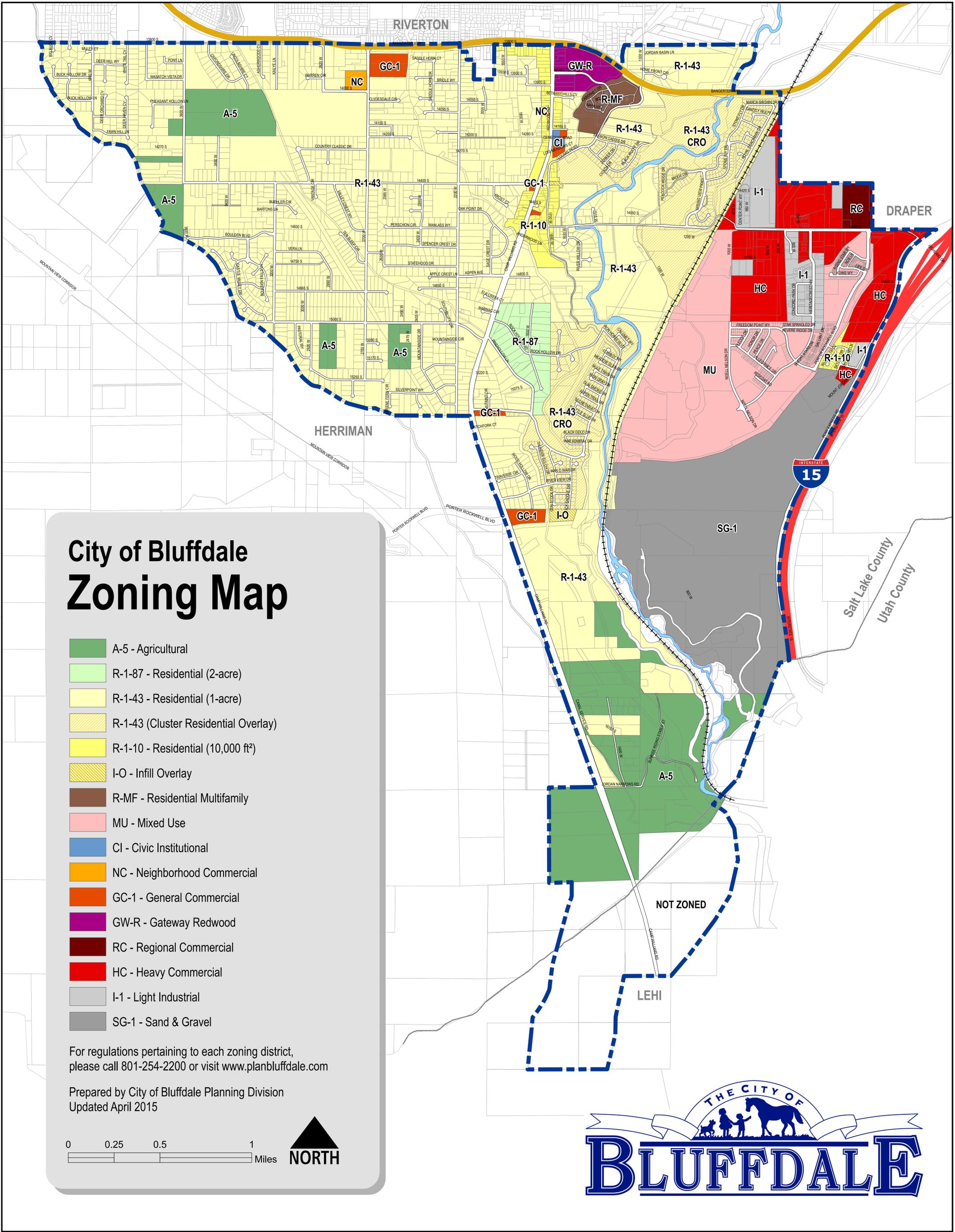
Total build-out for a city is reached when all vacant land within city boundaries has been developed to the current zoning and land use plans. Recently approximately 500 acres were added to the City near Camp Williams which added the Military Land Use Classification. Build-out population has been estimated at nearly 39,000 for Bluffdale City as illustrated below in Table 2-1.

**Table 2-1: Bluffdale Build-out Projection**

<b>Bluffdale City Build-Out Population Projections</b>					
<b>Land Use Classification</b>	<b>Area (Acre)</b>	<b>Density (units/acre)</b>	<b>Total Units</b>	<b>Residents* per Unit</b>	<b>Residents</b>
<b>Business Park</b>	472	0.00	0	0.00	0
<b>Civic Institutional</b>	82	0.00	0	0.00	0
<b>Commercial</b>	327	0.00	0	0.00	0
<b>Light Industrial</b>	215	0.00	0	0.00	0
<b>Mixed Use</b>	758	7.20	5,458	3.54	19,321
<b>Neighborhood Commercial</b>	48	0.00	0	0.00	0
<b>Park &amp; Recreation</b>	445	0.00	0	0.00	0
<b>Regional Commercial</b>	115	0.00	0	0.00	0
<b>Residential 1 acre Minimum</b>	3,693	1.01	3,730	3.96	14,771
<b>Residential 10,000 sq ft Minimum</b>	157	4.40	691	3.96	2,736
<b>Residential Multi-Family</b>	44	16.40	722	2.90	2,094
<b>Federal</b>	698	0.00	0	0.00	0
<b>Projected Build-Out Population</b>					<b>38,922</b>

\*Varying densities used are based on dwelling unit types as discussed in Section 2.3



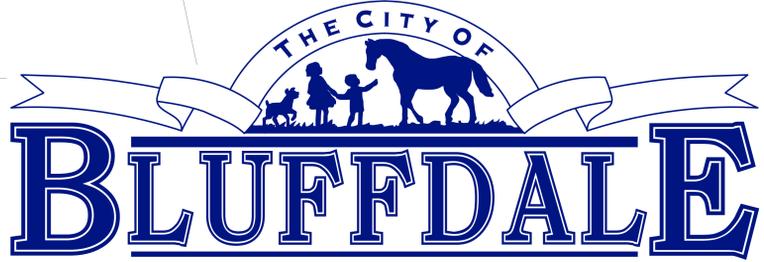
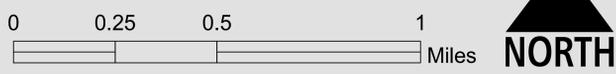


# City of Bluffdale Zoning Map

- A-5 - Agricultural
- R-1-87 - Residential (2-acre)
- R-1-43 - Residential (1-acre)
- R-1-43 (Cluster Residential Overlay)
- R-1-10 - Residential (10,000 ft<sup>2</sup>)
- I-O - Infill Overlay
- R-MF - Residential Multifamily
- MU - Mixed Use
- CI - Civic Institutional
- NC - Neighborhood Commercial
- GC-1 - General Commercial
- GW-R - Gateway Redwood
- RC - Regional Commercial
- HC - Heavy Commercial
- I-1 - Light Industrial
- SG-1 - Sand & Gravel

For regulations pertaining to each zoning district, please call 801-254-2200 or visit [www.planbluffdale.com](http://www.planbluffdale.com)

Prepared by City of Bluffdale Planning Division  
Updated April 2015



### 2.3 Current & Future Growth

#### *Current Growth Trends*

Forecasting the City’s future needs relies heavily upon projecting future population trends and economic growth. We have used the following data sources to project the near future’s growth rates for Bluffdale:

- Building Permits Issued
- 2010 Census Information
- Utah Governor’s Office of Management and Budget (Demographic and Economic Analysis)

One of the most significant areas of development currently under construction in Bluffdale is the Independence area, which will contribute significant growth over the next decade in the mixed-use zone. As such, an effort was made to evaluate what type of units would be built in the new developments. It is estimated that at least 50% of the newest developments in the mixed-use zones, throughout Bluffdale, will not have solely traditional single family dwellings, but will consist of units similar to townhomes and condominiums. Therefore, it is anticipated that these units will have a lower occupancy rate (3.57) than Bluffdale’s traditional rate (3.96) but higher than other multifamily units (2.90), like apartment complexes.

#### *Future Growth Trends*

In the past several years, the housing development market has far outpaced previous projections in Bluffdale City. As such, the population growth has arrived more quickly than anticipated in the previous impact fee study. Developments on the east side, such as Independence are responsible for the majority of Bluffdale’s current growth. Figure 2-3 illustrates the estimated population growth projections.

**Figure 2-3 Projected Population Growth**

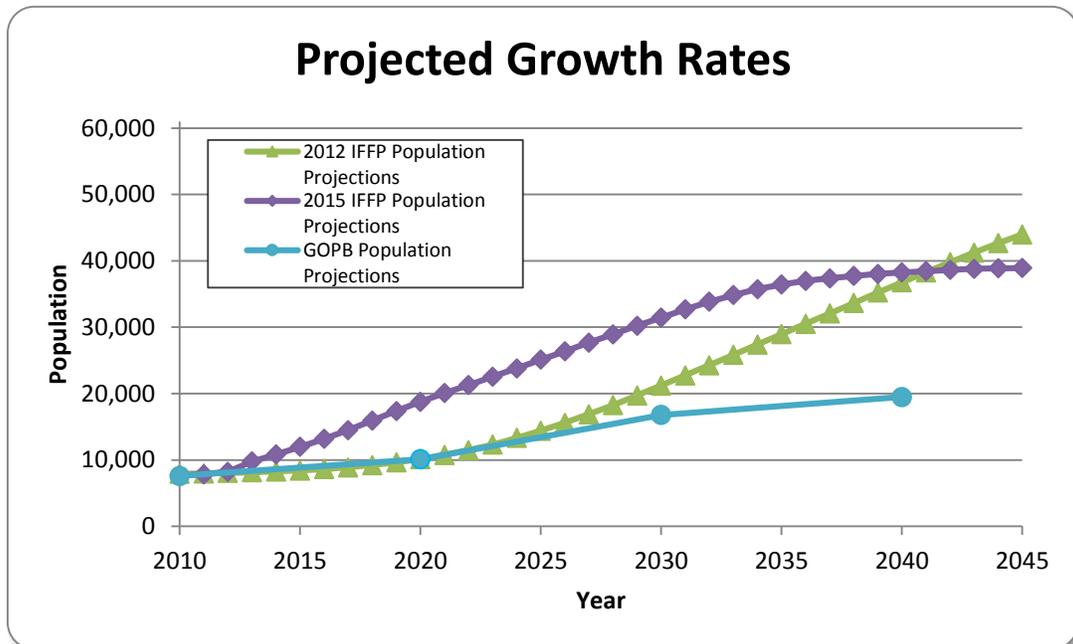


Table 2-2 gives the overall projected growth patterns as projected for this impact fee facilities plan compared to the previous projections and the Governor’s Office projections.

**Table 2-2: Growth Projections for Bluffdale City**

Fiscal Year	2012 Population Projections		2015 Population Projections		GOPB Population Projections
	Population	Change (%)	Population	Change (%)	
2010	7,916	0.00%	7,684	0.00%	7,598
2011	7,987	0.90%	7,839	2.01%	
2012	8,063	0.95%	8,227	4.95%	
2013	8,141	0.97%	9,774	18.81%	
2014	8,264	1.50%	10,839	10.90%	
2015	8,421	1.90%	11,977	10.50%	
2016	8,631	2.50%	13,175	10.00%	
2017	8,899	3.10%	14,492	10.00%	
2018	9,228	3.70%	15,942	10.00%	
2019	9,634	4.40%	17,376	9.00%	
2020	10,144	5.30%	18,766	8.00%	10,099
2021	10,753	6.00%	20,080	7.00%	
2022	11,474	6.70%	21,285	6.00%	
2023	12,334	7.50%	22,562	6.00%	
2024	13,321	8.00%	23,803	5.50%	
2025	14,413	8.20%	25,112	5.50%	
2026	15,609	8.30%	26,368	5.00%	
2027	16,905	8.30%	27,686	5.00%	
2028	18,274	8.10%	28,932	4.50%	
2029	19,718	7.90%	30,234	4.50%	
2030	21,217	7.60%	31,443	4.00%	16,777
2031	22,744	7.20%	32,701	4.00%	
2032	24,291	6.80%	33,846	3.50%	
2033	25,845	6.40%	34,861	3.00%	
2034	27,396	6.00%	35,732	2.50%	
2035	28,958	5.70%	36,447	2.00%	
2036	30,521	5.40%	36,994	1.50%	
2037	32,078		37,364	1.00%	
2038	33,650		37,737	1.00%	
2039	35,231		38,039	0.80%	
2040	36,782		38,267	0.60%	19,499
2041	38,290		38,459	0.50%	
2042	39,783		38,651	0.50%	
2043	41,255		38,806	0.40%	
2044	42,658		38,883	0.20%	
2045	43,980		38,918	0.09%	

Bluffdale purchases water from the Jordan Valley Water Conservancy District to meet the culinary water needs of its customers which include a majority of the residents, 17 institutional connections, 66 commercial customers, and 15 city connections. A few of the residents have private wells for their water use. Bluffdale City also provides water for the Utah Data Center, located near Camp Williams at the south end of the City. As Bluffdale grows and new services are added that require water, water efficiency and cost effective implementation become increasingly important. Currently many water users have no separate irrigation system so they use culinary water for landscape and garden watering. This culinary water master plan takes into account that Bluffdale is planning to implement a secondary water system. The secondary water system will allow Bluffdale to utilize alternative water sources and will alleviate stress on the existing culinary system. If the secondary system as currently planned in this section is not constructed, the City's culinary water model will need to be updated, consequently increasing pipe sizes, reservoirs, and water source requirements.

### 3.1 Definitions

ERC	Equivalent Residential Connection
gpm	gallons per minute
gpd	gallons per day
IFC	International Fire Code

#### *Equivalent Residential Connections (ERC)*

For the purposes of this study, flows generated by water users, such as businesses, schools, churches, and residents have been converted to common units called ERCs. ERCs compare a water user's use rate to that of a single family dwelling. In this case, a comparison of total water use including both culinary and secondary use.

As an example, the peak water use for a residential connection in Bluffdale was approximately 0.356 gallons per minute (gpm) during the average day of the peak month. By contrast, an average commercial connection used approximately 1.201 gpm. Therefore, to equate a typical commercial connection to a residential connection  $1.201/0.356 = 3.37$  ERC's. Detailed information regarding ERC calculations can be found in Appendix "B". The following ERCs were calculated from this analysis.

Single Family Residential:	1.00 ERC
Commercial:	3.37 ERC
Institutional:	7.96 ERC

The Bluffdale's past water use data and ERC calculations can be found in the Appendix.

### 3.2 Level of Service (LOS)

The current level of service that Bluffdale City applies to its water systems is governed by the minimum requirements dictated by the State of Utah Division of Drinking Water as well as the International Fire Code. Some of the requirements are as follows.

### Culinary water system requirements:

- Maintain 20 psi in all areas of the system during peak instantaneous usage.
- Maintain 20 psi in all areas of the water system during maximum day usage with imposed fire flows.
- New service areas added after January 1, 2007 are required to meet the following additional requirements:
  - a) 30 psi during peak instantaneous demand;
  - b) 40 psi during peak day demand.
- Maintain 1,000 gpm fire flows for all homes under 3,600 square feet.
- Maintain 1,750 gpm fire flows for all homes between 3,600 and 4,800 sq. ft.
- Maintain adequate fire flows for all other buildings according to IFC standards.
- Maintain adequate storage for fire flows according to IFC standards.
- Maintain 400 gallons of storage per indoor ERC serviced.
- Maintain 2,528 gallons of storage per irrigated acre if a drinking water system supplies outdoor use.
- Maintain 800 gpd of source capacity per indoor ERC serviced.
- Maintain 3.97 gpm of source capacity per irrigated acre if a drinking water system supplies outdoor use.
- Maintain 0.45 acre-ft of water right per ERC and 1.87 acre-ft per irrigated acre if a drinking water system supplies outdoor use.

### Secondary water systems requirements:

- Maintain 40 psi in all areas of the water system during peak instantaneous usage.
- Maintain an average source capacity of 1.87 acre-feet per irrigated acre.
- Maintain a peak day source capacity of 3.96 gpm per irrigated acre.

In order to ensure that Bluffdale can maintain this same level of service in the future, the master plan has been based upon water models generated using these requirements.

### 3.3 Existing Culinary System

The existing culinary water system (see Figure 3-1) was analyzed based on existing development. The system complies with state standards, except at a few minor locations. Implementation of the recommended improvements outlined below will bring the city into compliance with state standards. These improvements may not be calculated into the impact fees or paid for by impact fees.

#### *Improvements Required to Eliminate Existing Deficiencies*

- A. 1850 West Pipe Replacement – Replace approximately 1,150 feet of 2 inch water line with 8 inch to increase fire flows.
- B. 2055 West Pipe Replacement – Replace approximately 350 feet of 2 inch waterline with 8 inch to increase fire flow.

- C. Wood Hollow Trunkline Replacement – Replace approximately 3,000 feet of 6 inch waterline with 8 inch to increase fire flow.
- D. 14850 South Pipe Replacement - Replace approximately 1,150 feet of 6 inch waterline with 8 inch to increase fire flow.
- E. Silverpoint Way Pipeline – Install approximately 750 feet of 8 inch waterline from existing line on Silverpoint Way to the east end of 15250 South to increase fire flows.
- F. 2200 West Pipeline Extension – Install approximately 100 feet of 8 inch waterline from existing line on Silverpoint Way to the 12 inch line in Camp Williams Road to increase fire flow.
- G. 2700 West Pipeline - Install approximately 900 feet of 8 inch waterline from existing line in 14850 South to 15000 South to increase fire flows.

### East Side Storage Tank

In order to facilitate future growth on the east side of Bluffdale, the City purchased 3 million gallons of storage, in 2006, in the POMA storage facility. The City paid \$1.3 million for the storage facility. The outstanding balance has been included in the impact fee calculations.

### 3.4 Existing Secondary Facilities

Bluffdale City currently owns a limited secondary water system. However, approximately 30-40 small, privately owned systems exist throughout the city. More recently installed systems have been constructed to Bluffdale City standards per city ordinance.

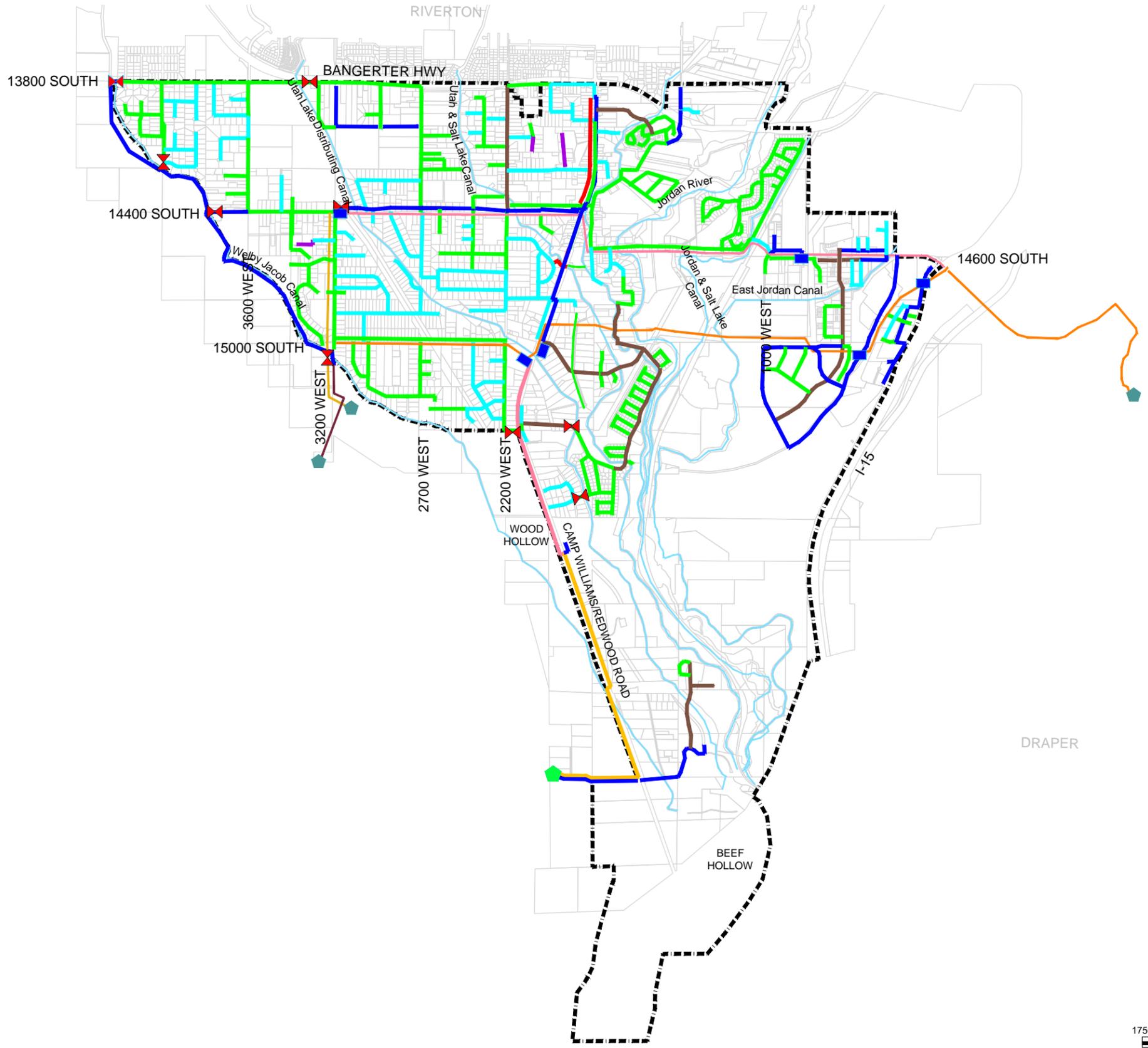
### City-wide System

Bluffdale City intends to eventually install several secondary sources and to construct trunklines. The main purpose of the system will be to provide City facilities with inexpensive secondary water. As the system is constructed, the City may also be able to accommodate some existing systems and some future developments with connections to the system. Developments will need to be evaluated on a case by case basis to determine the feasibility of connecting to the system. Figure 3-2 illustrates many of the larger privately owned systems.

Figure 3-1

**Legend**

- 2" Diameter Pipe
- 4" Diameter Pipe
- 6" Diameter Pipe
- 8" Diameter Pipe
- 10" Diameter Pipe
- 12" Diameter Pipe
- 16" Diameter Pipe
- 18" Diameter Pipe
- 8" Diameter Pipe - Webb Well Users
- 14" Diameter Pipe - JWCD
- 18" Diameter Pipe - JWCD
- 48" Diameter Pipe - JWCD
- 78" Diameter Pipe - JWCD
- ✕ Existing PRV
- Existing Meter
- ◆ Shared Water Tank
- ◆ Bluffdale Water Tank - 3MG
- Bluffdale City Boundary



DRAPER

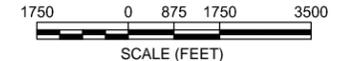
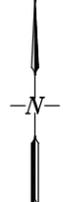
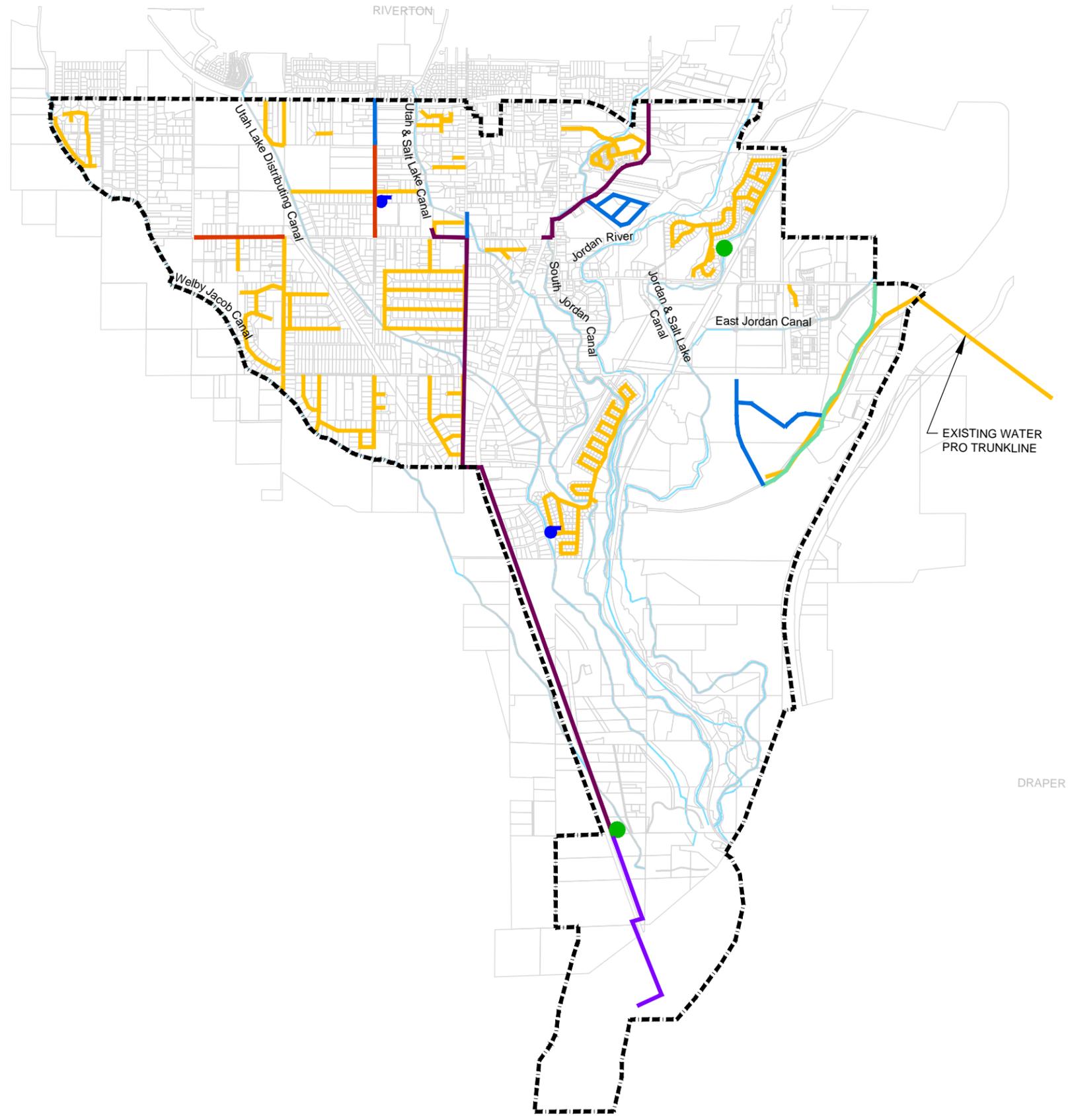


Figure 3-2

**Legend**

- Existing Neighborhood Systems
- Existing 8"
- Existing 10"
- Existing 12"
- Existing 14"
- Existing 16"
- Existing Reservoir
- Existing Irrigation Pump
- Bluffdale City Boundary



### 3.5 Future Culinary Facilities

The Bluffdale water model has been updated to reflect current conditions. Analysis for this section was performed using the City's approved zoning and land use maps. The resulting infrastructure requirements to service the City during the study period are illustrated in the following master plan. See Figure 3-3.

Implementing the projects required to resolve existing deficiencies will not complete the improvements required to bring the system up to the proposed master plan. New development will burden the system beyond its current capacity. The projects identified below will add the additional capacity required to service new developments provided that a secondary water system is implemented. If the secondary water system is not implemented the improvements described in this study will not be sufficient to service Bluffdale City's water needs. Further, the culinary system facilities improvements, outlined in this chapter are primarily distribution system improvements. Future water sources and water right requirements were not analyzed for this study.

#### *Improvements Needed for Future Growth*

1. Independence East Trunkline Phase II – Install approximately 3,450 feet of 12 inch trunkline to service future development.
2. Porter Rockwell Corridor Trunkline – Install approximately 2,200 feet of 12 inch trunkline and a PRV in the future Porter Rockwell corridor.
3. 2700 West Pipe Replacement – Replace approximately 3,550 feet of 8 inch water line (from Bangerter to 14400 South) with 10" as development occurs to meet new fire flow needs.
4. 1300 West Water Line – Install approximately 3,600 feet of new 8 inch water line along 1300 West from 14600 South to approximately 15100 South.
5. Webb Well Water Line – Install approximately 3,500 feet of new 8 inch water line to provide water to residents from the Webb Well.

### 3.6 Future Secondary Facilities

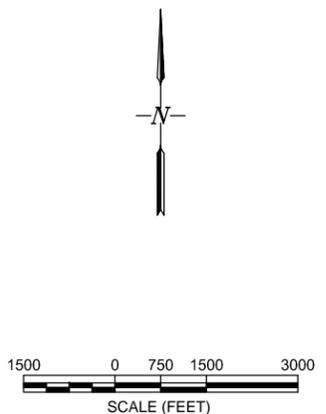
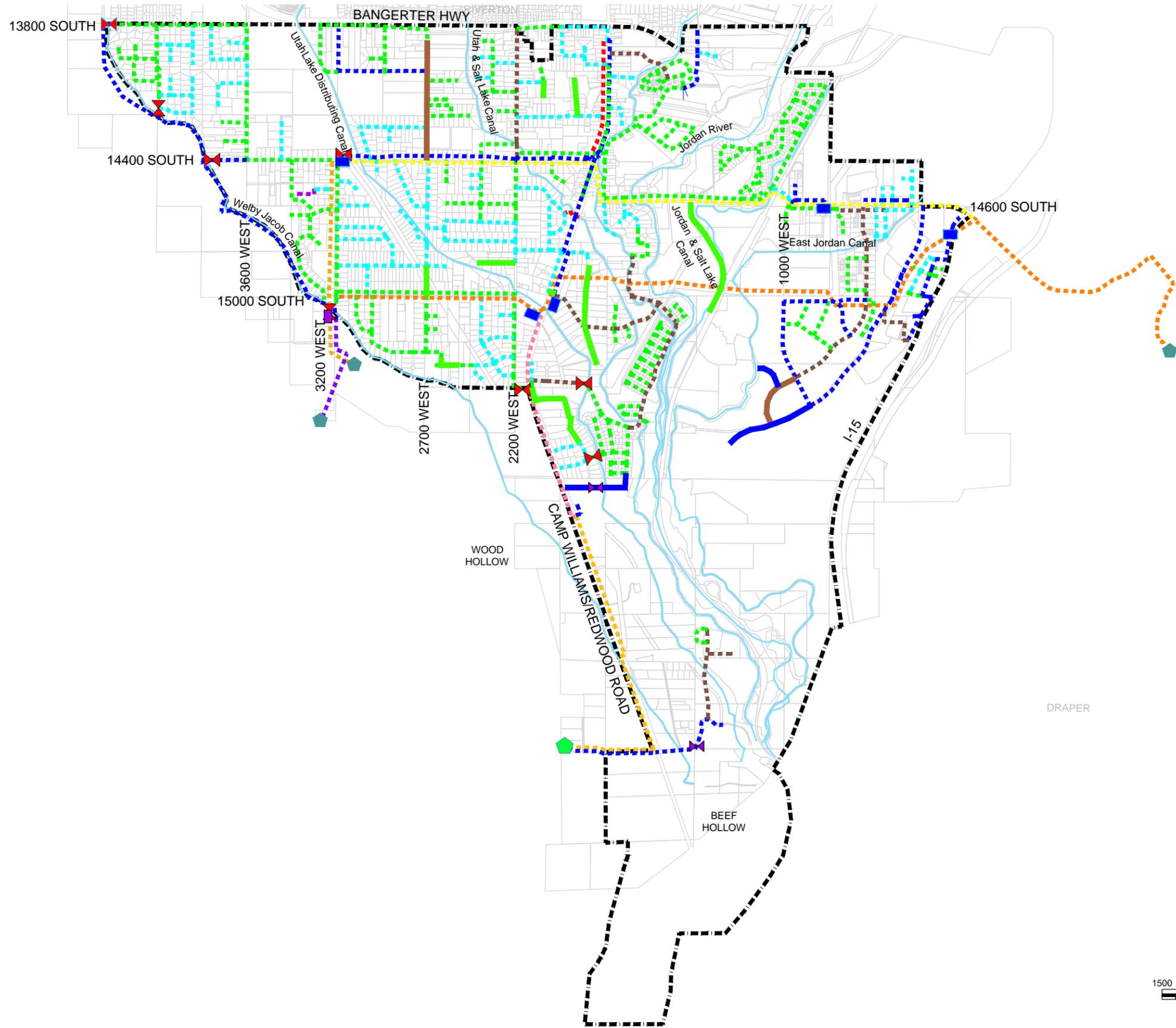
The South Valley Sewer District (SVSD) has recently completed construction of a new wastewater treatment facility north of Bluffdale City, between 1300 West and the Jordan River, which generates secondary water through its treatment process. Bluffdale City is planning on utilizing the treated water, that it has rights to, as a source of secondary water. The major service area planned for service from this system covers from approximately the Union Pacific Railroad to 2200 West and from Bangerter Highway to 14600 South.

Based on SVSD projections, Bluffdale currently provides approximately 635,000 gallons per day to the sewer district. Based on this study's demographics, Bluffdale is projected to provide approximately 3,050,000 gallons per day by the year 2025 based on the 2007 Feasibility Study performed by Epic Engineering. Bluffdale would have right to access at least this amount of effluent from the treatment plant through re-use application to the State.

Figure 3-3

**Legend**

- 8 Inch Proposed Culinary Water Changes
- 10 Inch Proposed Culinary Water Changes
- 12 Inch Proposed Culinary Water Changes
- Proposed PRV
- Proposed Meter
- Proposed Tank
- Existing 2" Diameter Pipe
- Existing 4" Diameter Pipe
- Existing 6" Diameter Pipe
- Existing 8" Diameter Pipe
- Existing 10" Diameter Pipe
- Existing 12" Diameter Pipe
- Existing 16" Diameter Pipe
- Existing 18" Diameter Pipe
- Existing 14" Diameter Pipe JVVCD
- Existing 18" Diameter Pipe JVVCD
- Existing 48" Diameter Pipe JVVCD
- Existing 78" Diameter Pipe JVVCD
- Existing PRV
- Existing Meter
- Existing Water Tank
- Bluffdale City Boundary



The east side of the city is planned to be serviced by Draper Irrigation. At this time, Draper Irrigation is planning on mixing its current canal water with reuse water from the SVSD expansion plant.

The south end and west side of the city are currently anticipated to be serviced by a new pressurized source, namely the treatment and reuse of the Utah Data Center's recycled blowdown water. This source is anticipated to provide approximately 238 gpm continually at full development of the source. The city receives the water, treats it, stores it in a 2 million gallon tank, and distributes it through a piped system from the tank to the City Park adjacent to the fire station. In order to service the most westerly portions of the city, a booster pump will be required.

Bluffdale is continually seeking additional sources of both culinary and secondary water. Options include surface water from canals and new water wells. These options could include a tank located in Herriman to achieve the needed elevation for a gravity-fed system. Coordination with Herriman City would be mandatory to implement this option.

Figure 3-4 illustrates the master plan for the secondary system.

### 3.7 Impact Fee Structure

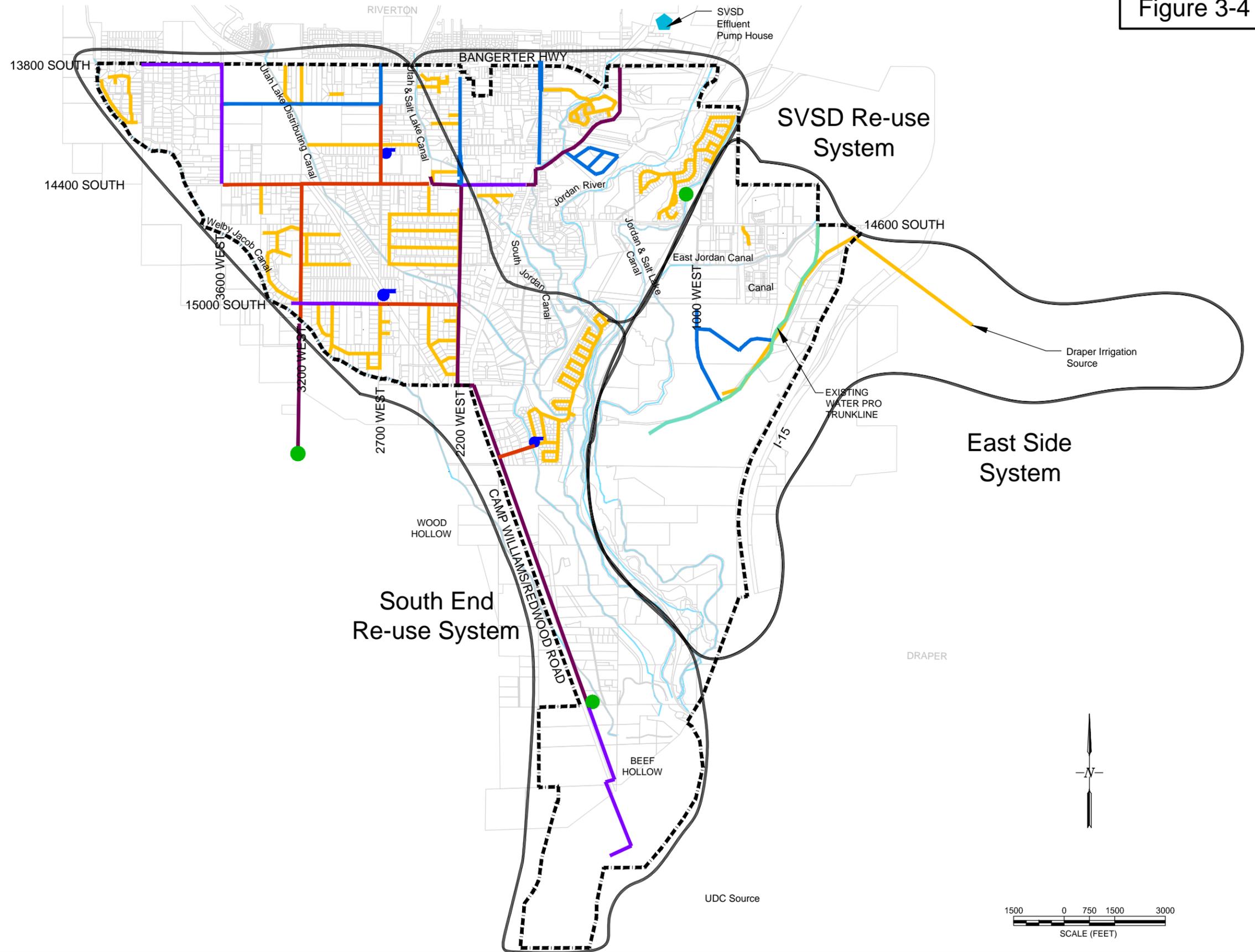
In order for Bluffdale City to supply its residents with sufficient water in the future, one of two approaches must be implemented. Either the existing culinary system must be upsized to meet all future demands or the existing system must be upsized to meet only future indoor demands, while a secondary system is implemented to supply outdoor demand. Both of these alternatives are feasible. Current economic analysis indicates that implementing a secondary system is a more cost effective alternative for the City. As the population along the Wasatch Front grows and drinking water regulations expand, culinary water will become more expensive.

The existing culinary system supplies both indoor and outdoor use for most of Bluffdale's residents. It provides the City with its current level of service. The City is currently planning on meeting the demands of future growth by implementing a secondary water system while upsizing the culinary system to meet the future demands of indoor water use. By implementing the secondary water system there will be less of a burden on the culinary system and, therefore, less need to improve and upsize the culinary system. Because the City's current indoor and outdoor needs are met, any future culinary or secondary addition to the water system is attributable to future growth and therefore should be funded by future growth.

Figure 3-4

**Legend**

- Existing Neighborhood Irrigation Systems
- 8" Proposed Irrigation
- 10" Proposed Irrigation
- 12" Proposed Irrigation
- 16" Proposed Irrigation
- 8" Existing Irrigation
- 10" Existing Irrigation
- 12" Existing Irrigation
- 14" Existing Irrigation
- 16" Existing Irrigation
- Pump
- Existing Tank/Reservoir
- Pump House
- Bluffdale City Boundary



### 3.8 Culinary Capital Facilities Plan

The culinary capital facilities plan (CFP) indicates which improvements will be needed in the future and provides a planning level cost estimate for each (see Appendix “B”). It provides important information relative to funding needed for future improvements and can be a valuable tool for the City in the budgeting and planning processes.

Recommended improvements to water facilities have been separated into short range (0-6 years), medium range (7-12 years) and long range (12+ years). Table 3-1 summarizes the anticipated projects, cost estimates and projected funding sources.

Cost estimates developed include acquiring sufficient right-of-way and installing new pipelines. Costs have also been included for design and construction engineering. Budgetary cost estimates for each improvement are shown in Figure 3-5 and Table 3-1.

**Table 3-1: Culinary Water Capital Facilities Estimates (2015 Dollars)**

Segment	Estimate (Millions)	Funding Source
<b>1-6Year Improvements</b>		
(A) 1850 West Pipe Replacement	\$0.09	City
(B) 2055 West Pipe Replacement	\$0.03	City
(C) Wood Hollow Trunk Line Replacement	\$0.23	City
(D) 14850 South Pipe Replacement	\$0.01	City
(E) Silverpoint Way Pipeline	\$0.06	City
(F) 2200 West Pipeline Extension	\$0.09	City
(G) 2700 West Pipeline	\$0.07	City
(1) Independence East Trunk Line Phase II	\$0.33	Development
(2) Porter Rockwell Corridor Trunk Line	\$0.29	Impact Fees
<b>Subtotal</b>	<b>\$1.20</b>	
<b>7-12 Year Improvements</b>		
(3) 2700 West Pipe Replacement	\$0.31	Impact Fees
<b>Subtotal</b>	<b>\$0.31</b>	
<b>12+ Year Improvements</b>		
(4) 1300 West Waterline	\$0.22	Impact Fees
(5) Webb Well Waterline	\$0.27	City
<b>Subtotal</b>	<b>\$0.47</b>	
<b>Total</b>	<b>\$1.98</b>	

### 3.9 Secondary Water Capital Facilities Plan

The secondary water CFP indicates which improvements will be needed in the future and also provides a planning level cost estimate referenced from Appendix “B”.

Recommended improvements to the secondary system have been separated into the following categories: short range (1-6 years) and medium range (7-12 years) and long range (12+ years)

Figure 3-6 illustrated the projects required to complete the secondary water system. Table 3-2 summarizes the recommended improvement projects, their projected funding sources and their anticipated costs.

**Table 3-2: Secondary Water Capital Facilities Estimates (2015 Dollars)**

Segment	Estimate (Millions)	Funding Source
<b>1-6 Year Improvements</b>		
(1) New Well and Water Rights	\$0.50	Impact Fees
(2) Independence System	\$1.44	Development
(3) SVSD Reuse Project	\$2.53	Impact Fees
<b>Subtotal</b>	<b>\$4.47</b>	
<b>7-12 Year Improvements</b>		
(5) 2200 West Trunkline Extension	\$0.27	City
(6) Redwood Road Trunkline	\$0.28	City
(7) 14400 South Trunkline	\$0.25	Impact Fees
(8) Secondary Water Storage Tank	\$1.00	Impact Fees
(9) 15000 South Trunkline	\$0.45	City
(10) 3600 West Trunkline	\$0.19	Impact Fees
<b>Subtotal</b>	<b>\$2.44</b>	
<b>12+ Year Improvements</b>		
(11) 13800 South Trunkline	\$0.53	City
(12) 15500 South Booster Pump	\$0.76	Impact Fees
<b>Subtotal</b>	<b>\$1.29</b>	
<b>Total</b>	<b>\$8.20</b>	

Figure 3-5

**Legend**

-  Proposed Culinary Water Projects
-  Proposed Tank
-  Proposed PRV
-  Proposed Meter
-  Existing Meter
-  Existing Culinary Water
-  Existing PRV/FCV
-  Existing Tank
-  Bluffdale City Boundary

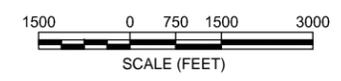
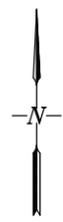
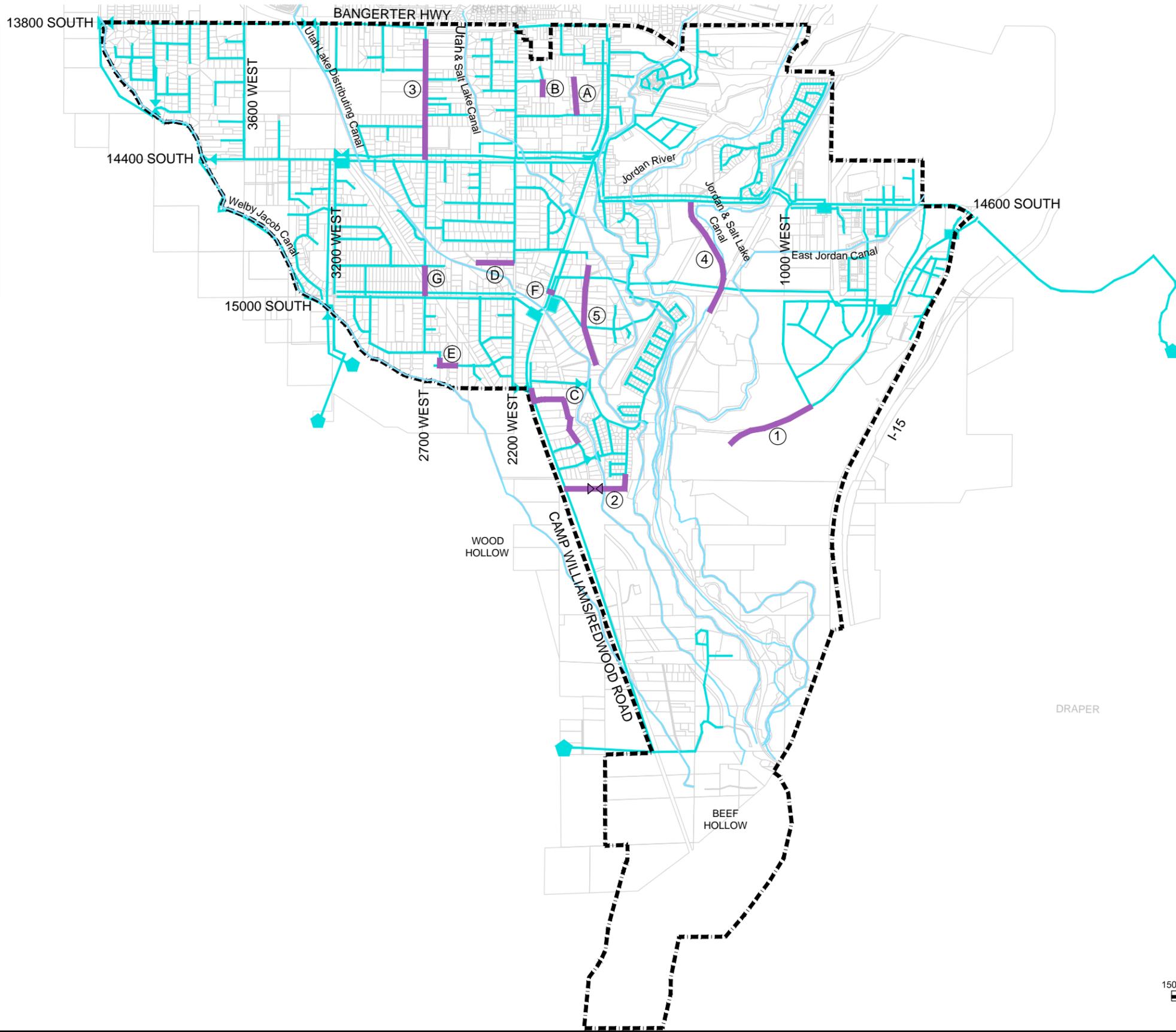
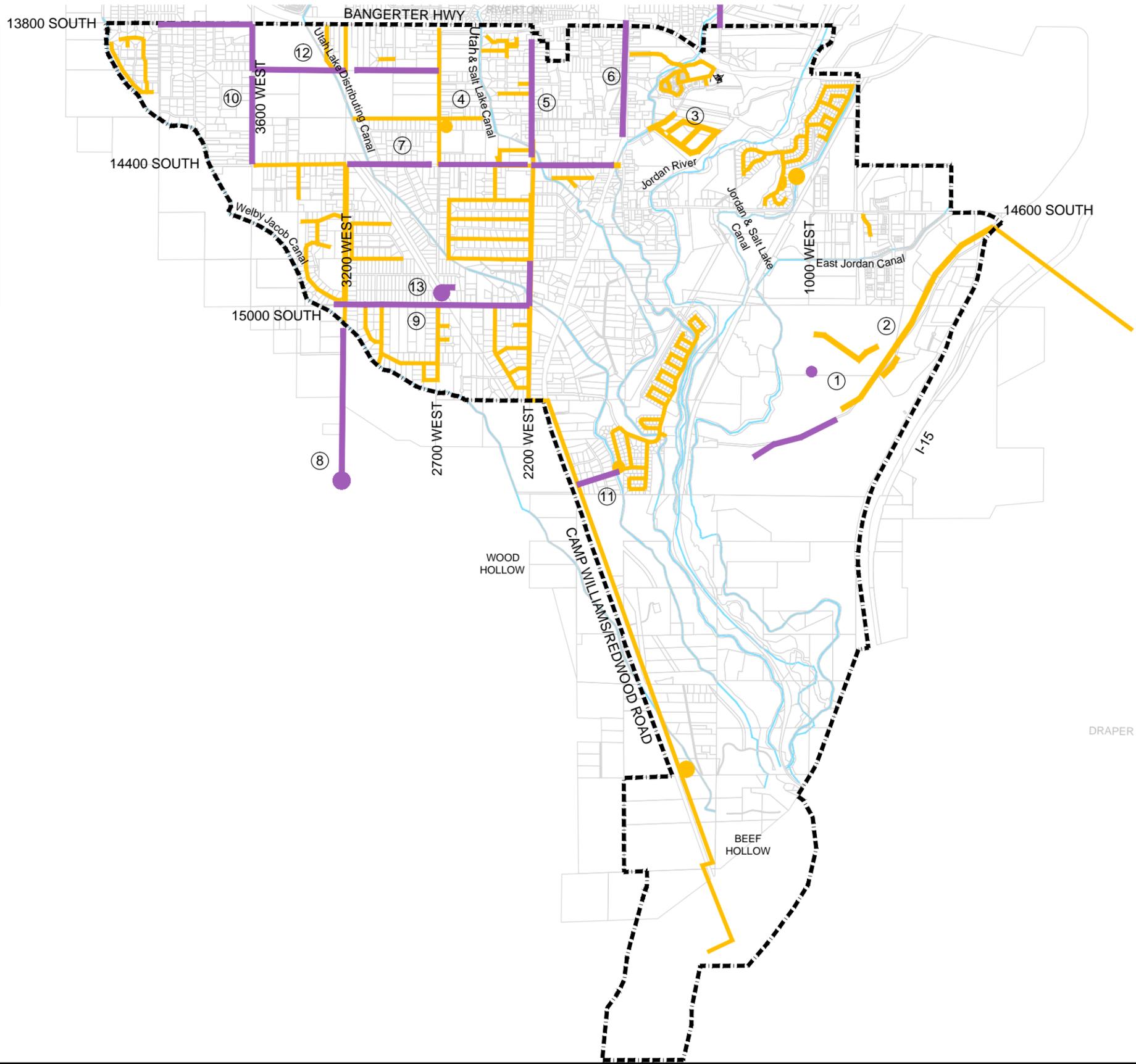


Figure 3-6

**Legend**

- Proposed Secondary Water Projects
- Proposed Well
- Existing Pump
- Existing Reservoir
- Existing Secondary Water
- Bluffdale City Boundary



The purpose of this section is to inventory the existing roadway facilities, identify possible future deficiencies and recommend a plan for installing scheduled improvements. Through modeling and review of existing and projected levels of service, areas of future concern in Bluffdale City's street system have been identified and planned for.

### 4.1 Level of Service (LOS)

Adequacy of an existing street system can be quantified by assigning Levels of Service (LOS) to major roadways and intersections. As defined in the *Highway Capacity Manual*, a special report published by the Transportation Research Board, LOS serves as the traditional measuring stick of a roadway's functionality. LOS is identified by reviewing elements such as the number of lanes assigned to a roadway, the amount of traffic using the roadway and amount of delay per vehicle at intersections. Levels of service range from A (free flow) to F (complete congestion).

### 4.2 Existing Facilities

Previous traffic counts were supplemented with the most recent modeling performed for the Porter Rockwell Blvd environmental study and UDOT's The Point Project. Figure 4-1 illustrates Bluffdale City's traffic volumes and levels of service. Figures 4-2 and 4-3 illustrate the projected traffic volumes for the study year 2040. Figure 4-2 projects future traffic volumes throughout Bluffdale if the Porter Rockwell Boulevard is not connected to Camp Williams Road by 2040, while Figure 4-3 illustrates future trips generated if it is connected.

As indicated in Figure 4-1, roads throughout Bluffdale currently have a level of service A. This is typical for a small community. However, as development occurs traffic loads will increase until levels of service become more typical for an urban setting (i.e. around LOS C). Figures 4-2 and 4-3 clearly illustrate how drastically traffic will increase throughout the city. In order to preserve the quality of life desired by the city's residents and to provide a sound street system that will support the City's growing population base, improvements will need to be made as growth occurs. A future LOS of C is recommendable.

### 4.3 Future Facilities

Based on the current land use, zoning, demographics, and growth patterns, Bluffdale's projected growth will have impacts on traffic volumes and roadways throughout the city. Projections are based upon accepted traffic modeling using Institute of Transportation Engineers (ITE) trip generations. Trip generation was based on Single Family Equivalents (SFE) figured using Bluffdale's land use plan. SFE data can be found in Appendix "C".

#### *Roadway Design*

The typical cross-sections and configurations for total right-of-way width, pavement width, number of traffic lanes, and side treatments such as sidewalk and park strip can be found in Figure 4-5.

Figure 4-1

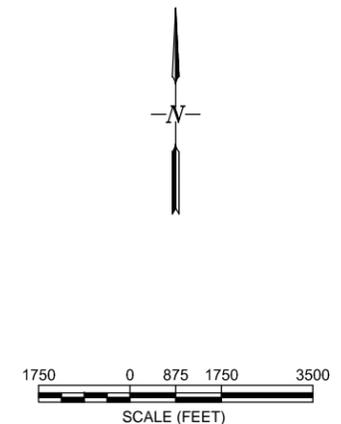
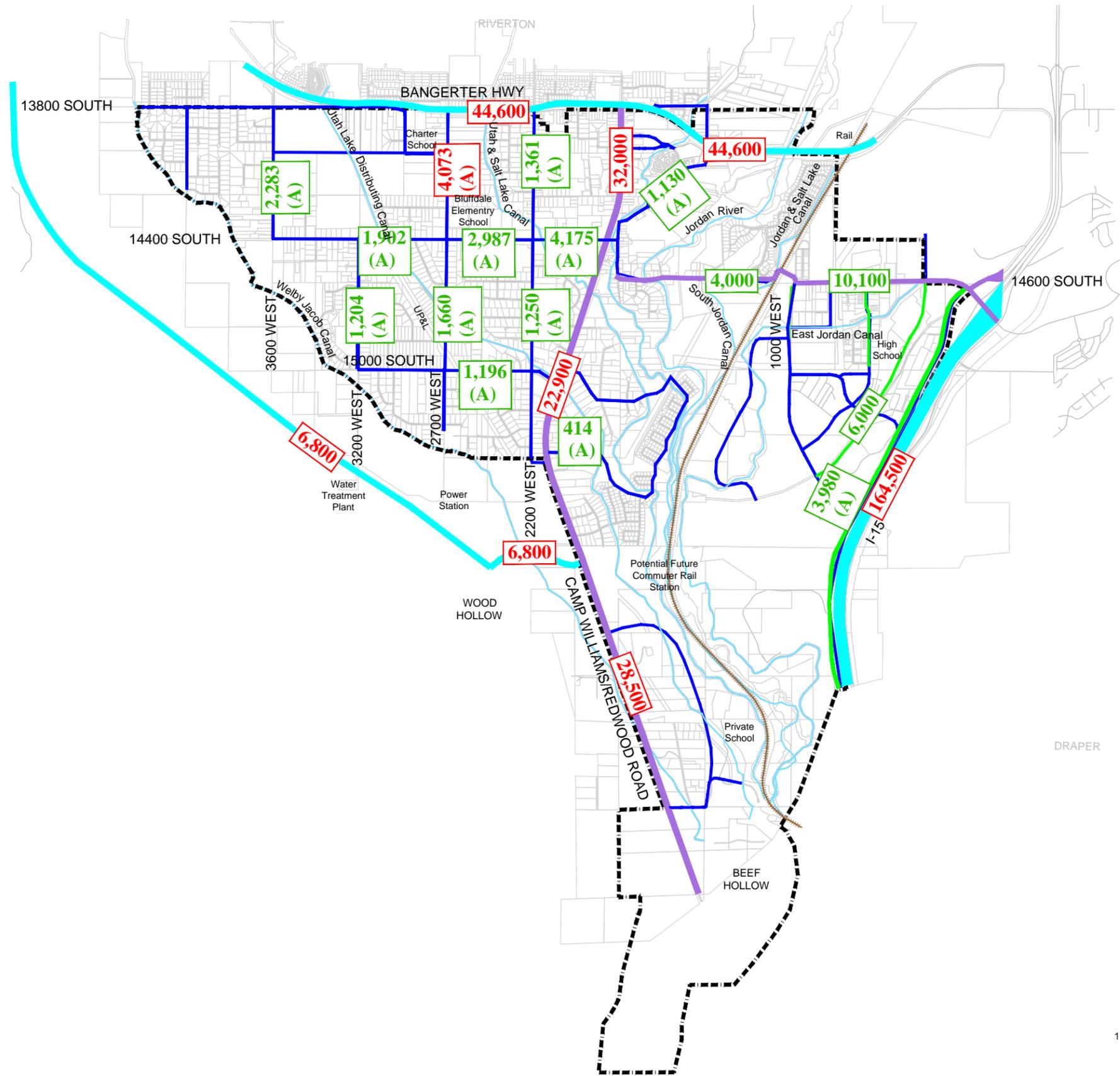
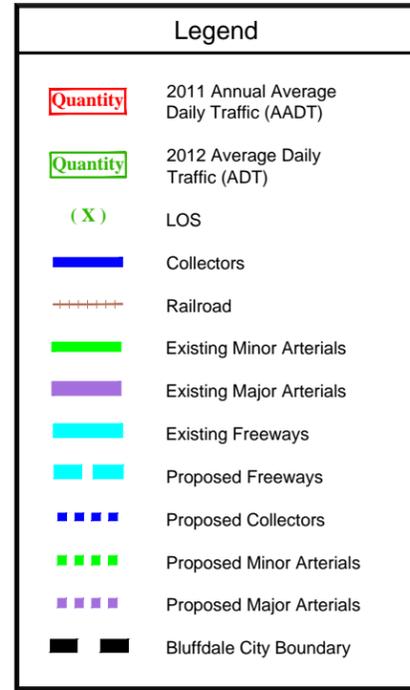


Figure 4-2

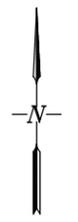
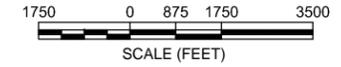
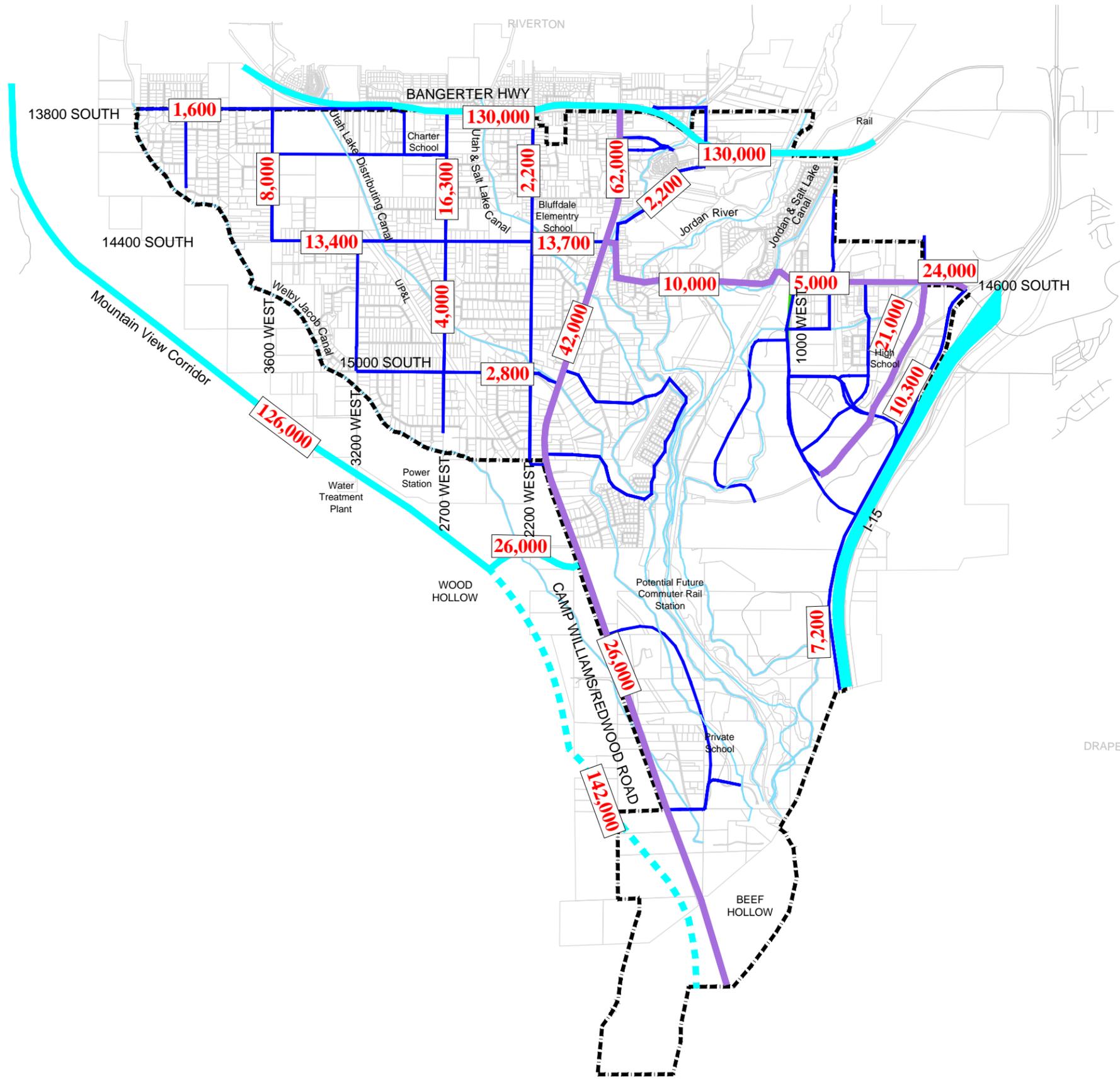
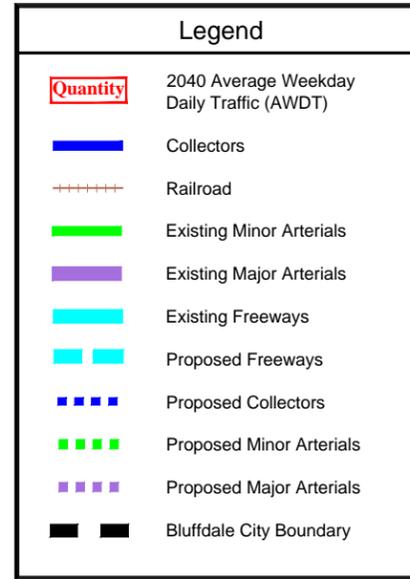
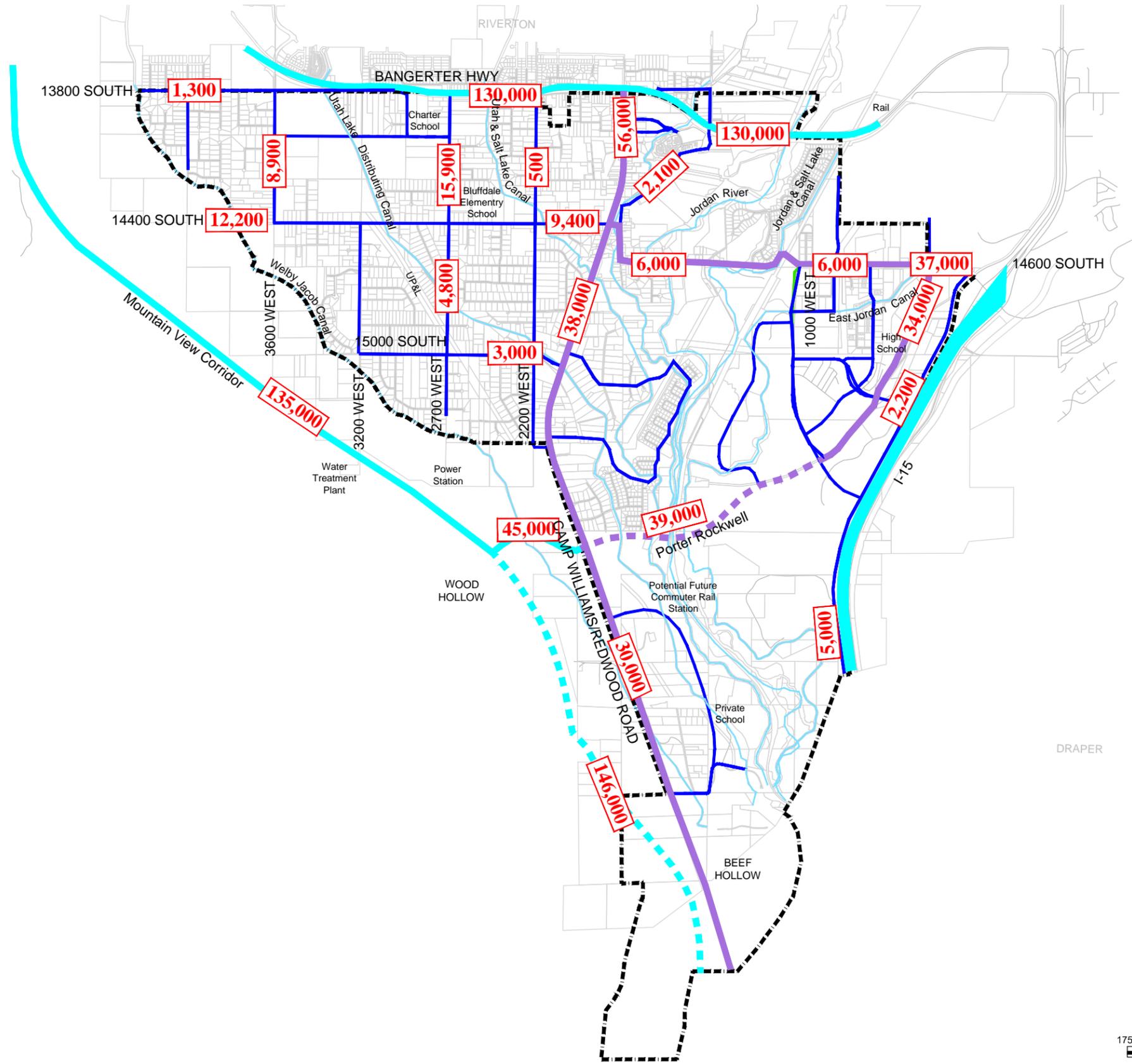


Figure 4-3

**Legend**

<b>Quantity</b>	2040 Average Weekday Daily Traffic (AWDT)
	Collectors
	Railroad
	Existing Minor Arterials
	Existing Major Arterials
	Existing Freeways
	Proposed Freeways
	Proposed Collectors
	Proposed Minor Arterials
	Proposed Major Arterials
	Bluffdale City Boundary



### *Redwood Road/Camp Williams Road*

It can be noted that SR-68 (Redwood Road/Camp Williams Road) was widened several years ago by the Utah Department of Transportation (UDOT). This roadway will continue to attract large volumes of traffic and it was designed to accommodate future growth. However, continued coordination with UDOT will help to ensure that future roadway improvements are constructed as needed.

### *Noell Nelson Drive (1000 West)*

Noell Nelson Drive has become critical to the future development of Bluffdale City. It is planned as the only major north-south collector connecting 14600 South to the future Porter Rockwell Boulevard through Independence. As such, it is critical to the entire transportation system of Bluffdale and the north end of it, where it ties into 14600 South to the East Jordan Canal will be analyzed as a system improvement. The north end of the project constitutes 53% of its length (2,650 linear feet) and includes a box culvert (\$210,000). In total, the costs eligible for impact fees are 58% of the estimated roadway costs. Estimates are detailed in the appendix and are discussed further in Chapter 9.

### *Porter Rockwell Boulevard (PRB)*

Porter Rockwell Boulevard is a planned regional facility that will connect the future Mountain View Corridor to I-15 alleviating traffic through residential areas of Bluffdale City. It is currently planned in the location shown in Figure 4-3. PRB is a critical facility to the Independence subdivision and surrounding properties. Therefore, a special service area has been created to calculate impact fees for PRB. The service area is defined in Chapter 9 as a part of the impact fee calculations.

### *Freedom Point Way*

Freedom Point Way is an internal collector to the Independence Subdivision. It provides internal circulation and routes for subdivision residents to access system roads. However, the city has recently identified a parcel for construction of a new fire station along Freedom Point Way. As such, the south end of Freedom Point Way has become critical to the City as a system improvement to provide public safety services to the entire east side of the City. Therefore, the southern portion (29%) of Freedom Point Way that will provide access to the new station is considered a system improvement and is impact fee eligible.

### *13970 South*

13970 South has recently become a vital component of the Bluffdale transportation system. With the recently completed Redwood Rd/Bangerter Highway interchange project adding revitalization to the north end of Bluffdale, a commercial center is in the process of developing. 13970 South is the access road to Bluffdale's first major commercial center. As a result, it will generate an extraordinary amount of traffic from every area of the city. The cost estimate includes installation of a new signal at 13970 South and Redwood Road.

### *Sand and Gravel Pits*

The sand and gravel pits located in the southeast corner of Bluffdale City are currently zoned for sand and gravel production. As discussed with City staff, the area will continue to operate as such into the foreseeable future. However, it is important to note that the area's current land use plan indicates business park and regional commercial (see Figure 2-1) and should be studied in future capital facilities plans for its impacts to each public utility as signs indicate that the areas land use may change.

### *Pedestrian Traffic*

Pedestrian safety is an important feature of transportation planning. Bluffdale's current city standards include a four-foot wide sidewalk with a six-foot wide parkstrip to provide buffer for pedestrians from vehicular traffic.

### *Corridor Preservation*

There are several facilities identified in this plan that will require improvements to meet future demands. In planning for these future facilities, corridor preservation techniques should be employed. The main purposes of corridor preservation are to:

- I. preserve the viability of future options
- II. reduce the cost of these options
- III. minimize environmental and socio-economic impacts of future implementation

Corridor preservation seeks to preserve the right-of-way needed for future roadway facilities and prevent development which might be incompatible with these facilities. This is primarily accomplished by the community's ability to apply land use controls such as zoning and approval of developments. Adoption of the CFP by Bluffdale City is a commitment to citizens and future leaders in the community that the identified future corridors will be the ultimate location for roadway facilities.

Perhaps, the most important elements of corridor preservation are ensuring that the corridors are preserved in the correct location and that they meet the applicable design and right-of-way standards for the type of facility being proposed. Major roadway corridors have been identified and classified in Figure 4-4. As this plan does not define the exact alignment of each future corridor, it becomes the responsibility of the City to make sure that the corridors are correctly preserved. This will have to be accomplished through the engineering and planning reviews done within the City as development and annexation requests are approved that involve properties within or adjacent to the future corridors.

Figure 4-4

**Legend**

- Existing Major Intersection - Traffic Light
- Proposed Major Intersection - Traffic Light as Warranted
- ▲ Bridge or Culvert Crossing
- Railroad
- Minor Collector
- Major Collector
- 5-Lane Arterial (UDOT)
- 7-Lane Arterial (UDOT)
- Freeways (UDOT)
- Bluffdale City Boundary

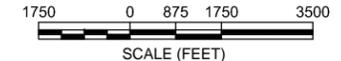
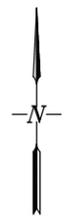
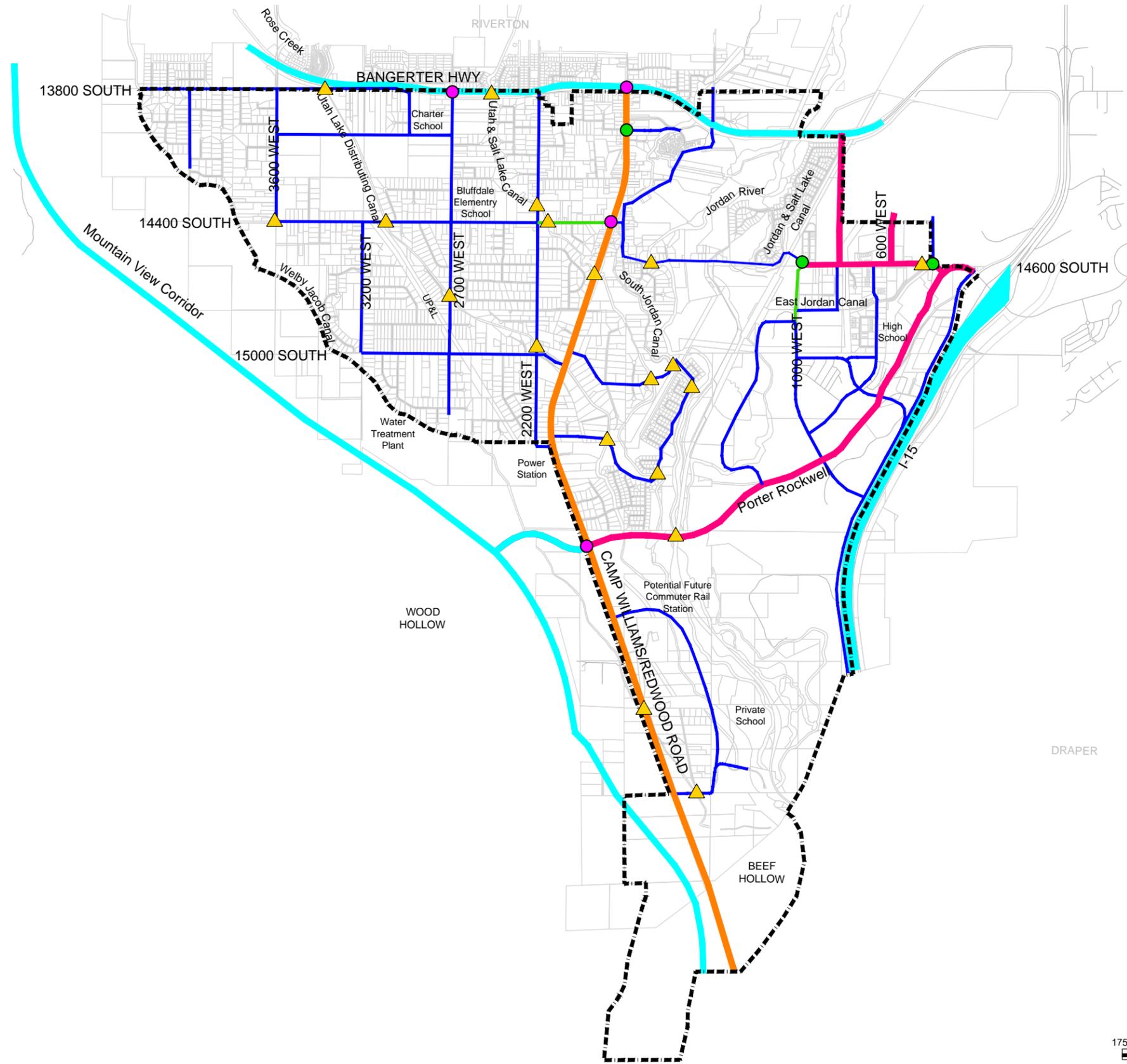
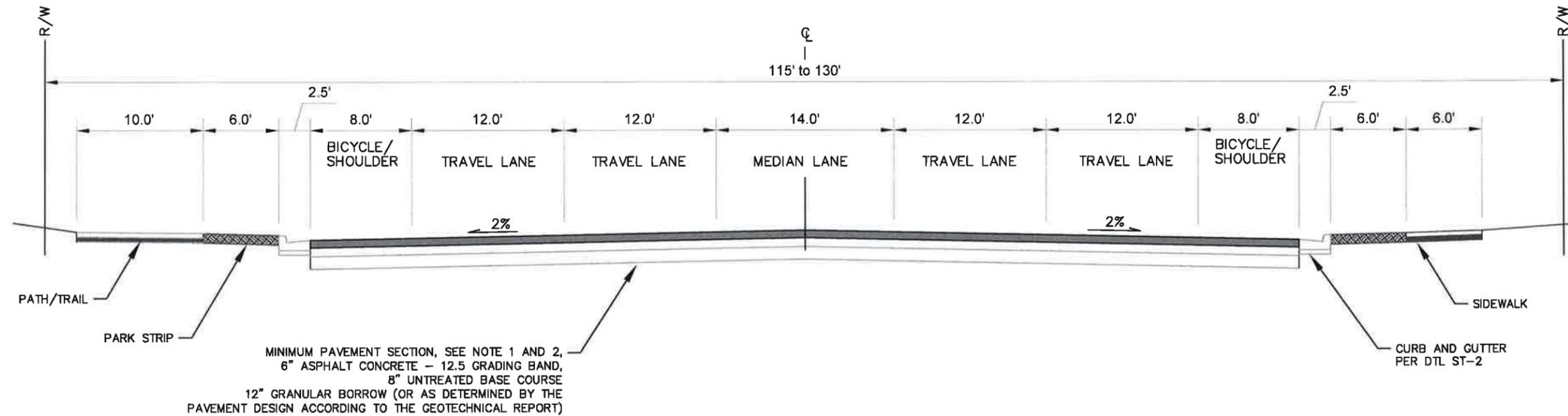


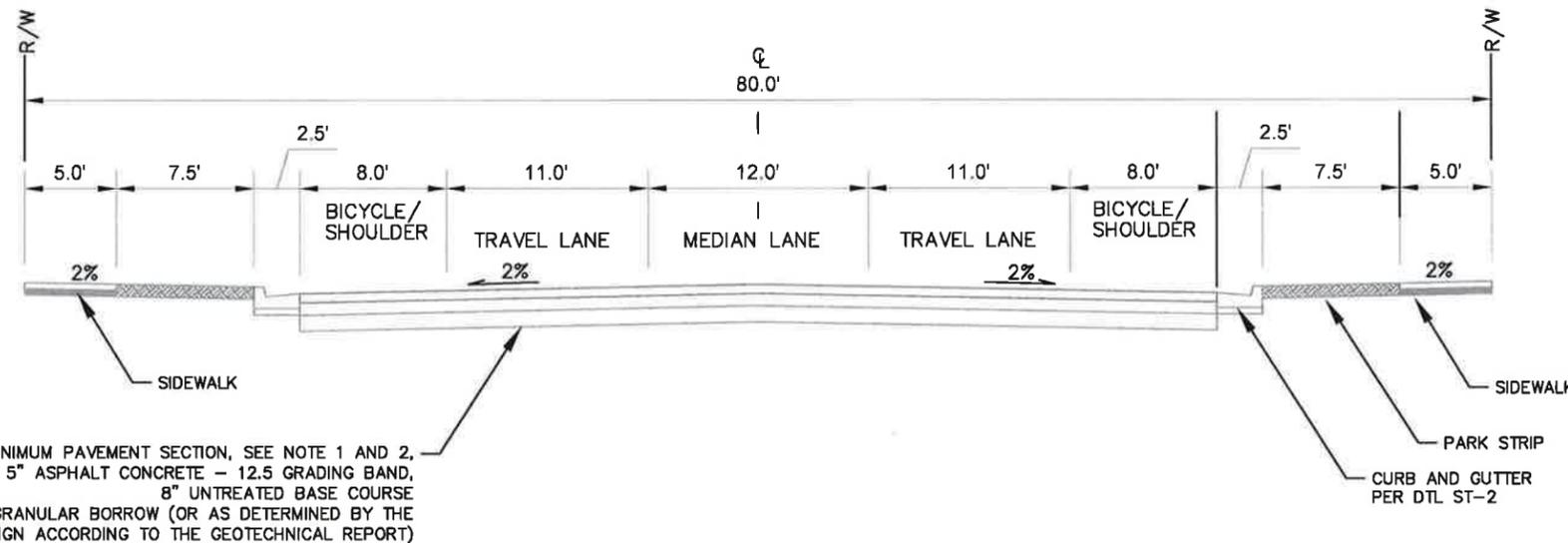
Figure 4-5



MAJOR ARTERIAL

NOTES:

1. ASPHALT CONCRETE: USE SUPERPAVE HMA IN ACCORDANCE WITH APWA 32 12 06 WITH THE FOLLOWING:
  - A. USE PG64-28 BINDER
  - B. DO NOT INCORPORATE MORE THAN 10% RAP
  - C. USE 12.5mm GRADATION UNLESS OTHERWISE NOTED
  - D. USE AIR VOID TARGET OF 3.5%
  - E. USE N(DSIGN) = 75 GYRATION
  - F. DO NOT HEAT MIX ABOVE 325 DEGREES FAHRENHEIT
2. INSTALL ASPHALT CONCRETE IN ACCORDANCE WITH APWA 32 12 16
3. PROVIDE THAT THE ROAD DRAINS PROPERLY AND IS FREE OF ANY STANDING WATER ON ANY PORTION OF THE PAVEMENT.
4. PROVIDE LANDSCAPING IN PARK STRIP IN ACCORDANCE WITH CITY ORDINANCES.
5. SEAL NEW PAVEMENT WITH A SAND SLURRY AFTER ONE YEAR OF PAVEMENT PLACEMENT.
6. THE CITY ENGINEER MAY APPROVE SPECIFIC DESIGNS WHEN VARIATIONS FROM THE STANDARDS ARE NEEDED DUE TO SITE CONDITIONS, UTILITY, OR TOPOGRAPHICAL CONSTRAINTS. ANY VARIANT OF THESE DETAILS MUST BE BASED UPON A DESIGN STAMPED BY A UTAH LICENSED PROFESSIONAL CIVIL ENGINEER.



MAJOR COLLECTOR

STANDARD DETAIL TITLE

TYPICAL STREET CROSS-SECTIONS Part 1

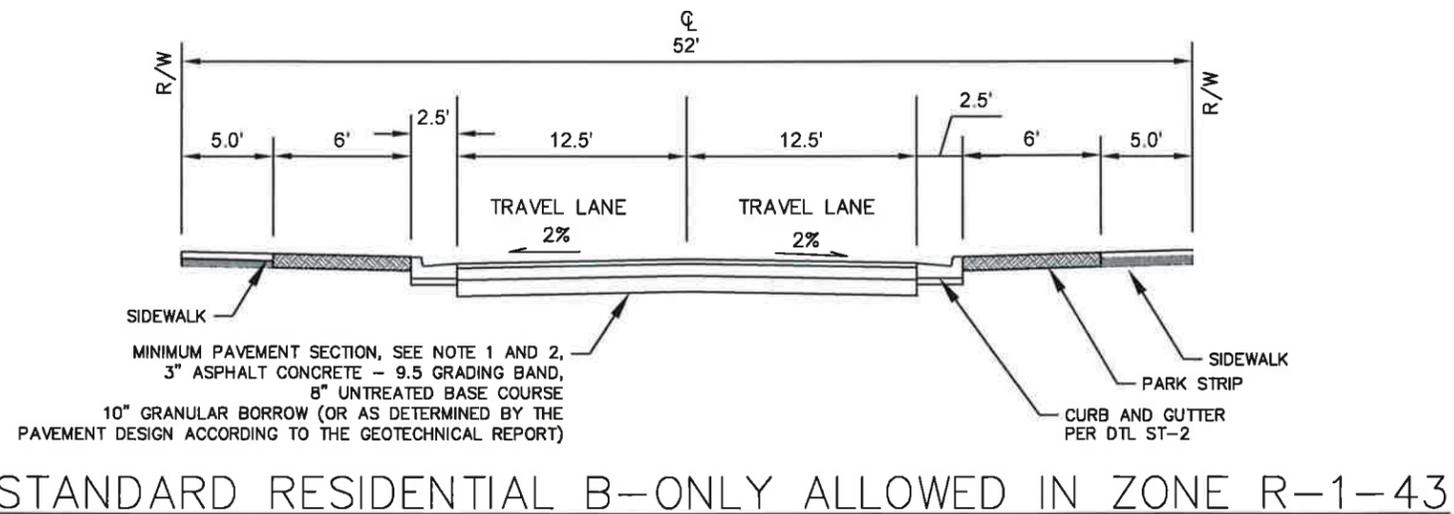
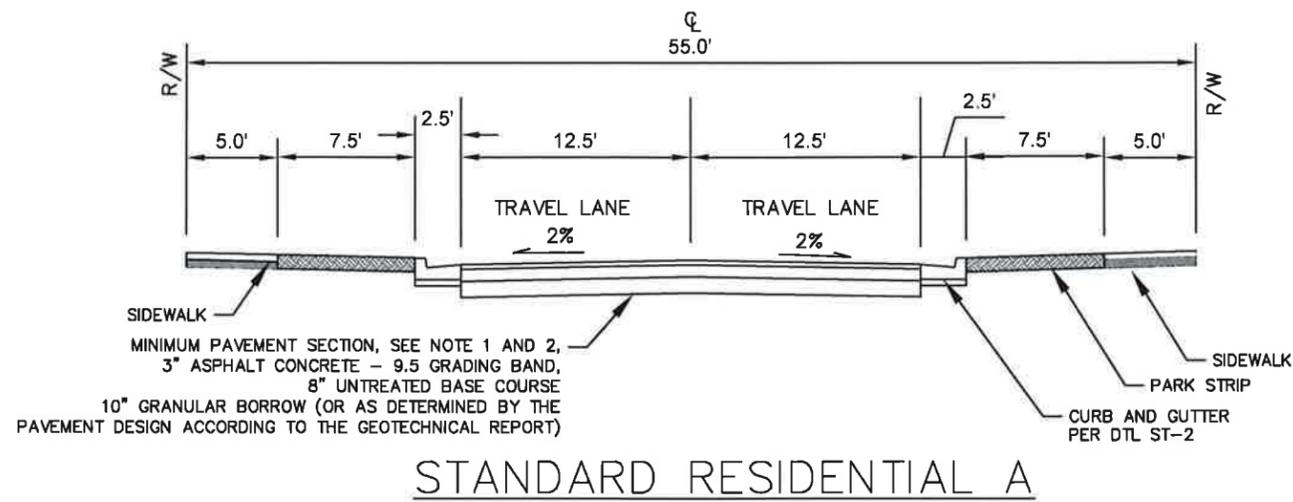
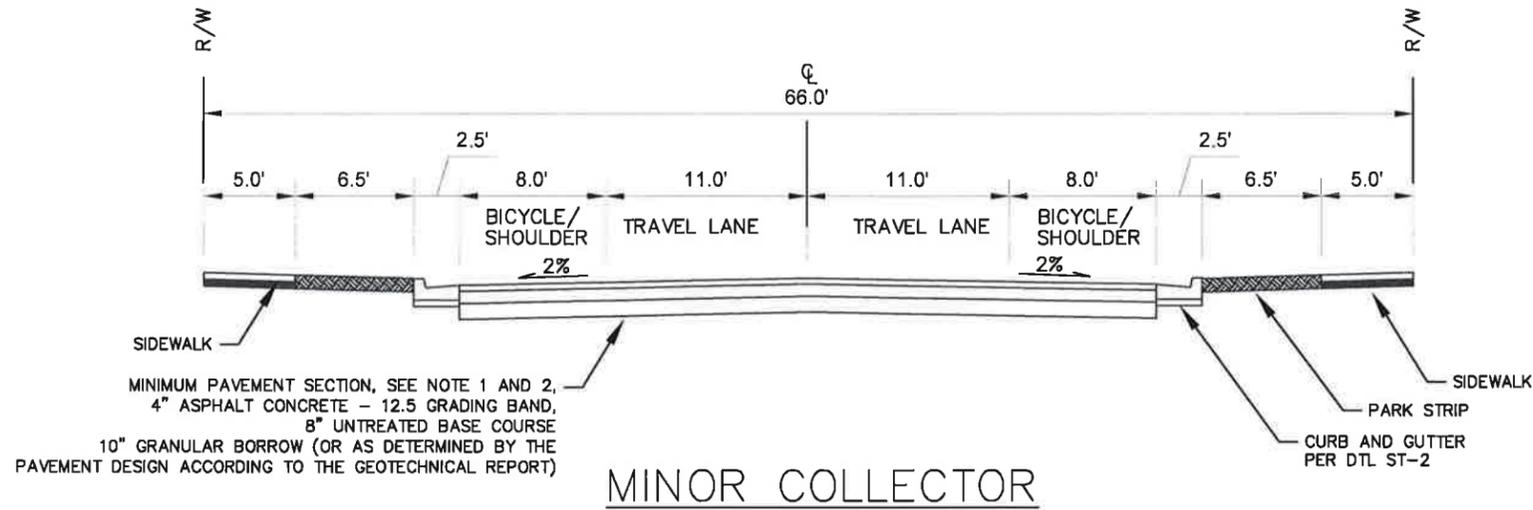


City of Bluffdale  
 Engineering Standards

Approved *Michael D'Agostino* City Engineer Date *6 JUNE 13*

DETAIL SERIES  
 STREET  
 DETAIL NO  
 ST-7A

Figure 4-6



**NOTES:**

1. ASPHALT CONCRETE: USE SUPERPAVE HMA IN ACCORDANCE WITH APWA 32 12 06 WITH THE FOLLOWING:
  - A. USE PG64-28 BINDER
  - B. DO NOT INCORPORATE MORE THAN 10% RAP
  - C. USE 12.5mm GRADATION UNLESS OTHERWISE NOTED
  - D. USE AIR VOID TARGET OF 3.5%
  - E. USE N(DSIGN) = 75 GYRATION
  - F. DO NOT HEAT MIX ABOVE 325 DEGREES FAHRENHEIT
2. INSTALL ASPHALT CONCRETE IN ACCORDANCE WITH APWA 32 12 16
3. PROVIDE THAT THE ROAD DRAINS PROPERLY AND IS FREE OF ANY STANDING WATER ON ANY PORTION OF THE PAVEMENT.
4. PROVIDE LANDSCAPING IN PARK STRIP IN ACCORDANCE WITH CITY ORDINANCES.
5. SEAL NEW PAVEMENT WITH A SAND SLURRY AFTER ONE YEAR OF PAVEMENT PLACEMENT.
6. USE RESIDENTIAL ASPHALT CONCRETE CRITERIA (SEE CROSS-SECTION) FOR PATHWAYS, SIDEWALKS AND PARKING LOTS.
7. THE CITY ENGINEER MAY APPROVE SPECIFIC DESIGNS WHEN VARIATIONS FROM THE STANDARDS ARE NEEDED DUE TO SITE CONDITIONS, UTILITY, OR TOPOGRAPHICAL CONSTRAINTS. ANY VARIANT OF THESE DETAILS MUST BE BASED UPON A DESIGN STAMPED BY A UTAH LICENSED PROFESSIONAL CIVIL ENGINEER.



City of Bluffdale  
Engineering Standards  
Approved *Michael J. Gioia* 6 JUNE 13  
City Engineer Date

STANDARD DETAIL TITLE

**TYPICAL STREET CROSS-SECTIONS Part 2**

DETAIL SERIES:  
STREET  
DETAIL NO.  
ST-7B

### 4.4 Transportation Capital Facilities Plan

The Transportation Capital Facilities Plan (CFP) indicates which improvements will be needed in the future and provides a planning level cost estimate for each improvement. It can provide important information relative to funding needed for future street improvements and can be a valuable tool for City officials in the budgeting and planning process.

Recommended improvements to roadway facilities have been separated into the following categories: short range (1-6 years); medium range (7-12 years); long range (12+ years). Figure 4-7 illustrates and Table 4-1 summarizes the recommended improvement projects, their projected funding sources and their anticipated costs.

Cost estimates developed include acquiring sufficient right-of-way and installing new roadbase, asphalt, curb and gutter, park strip, and sidewalk. Costs have also been included for design engineering, construction engineering, and contingencies. The costs in this update have been updated to reflect 2015 dollars and have also been projected with inflation costs to the years for which implementation is estimated.

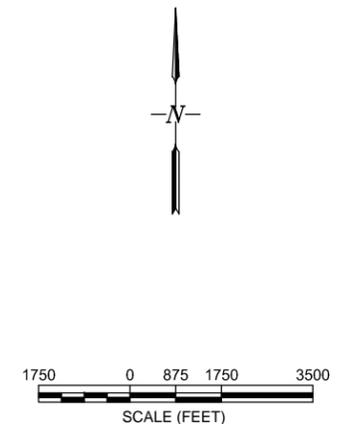
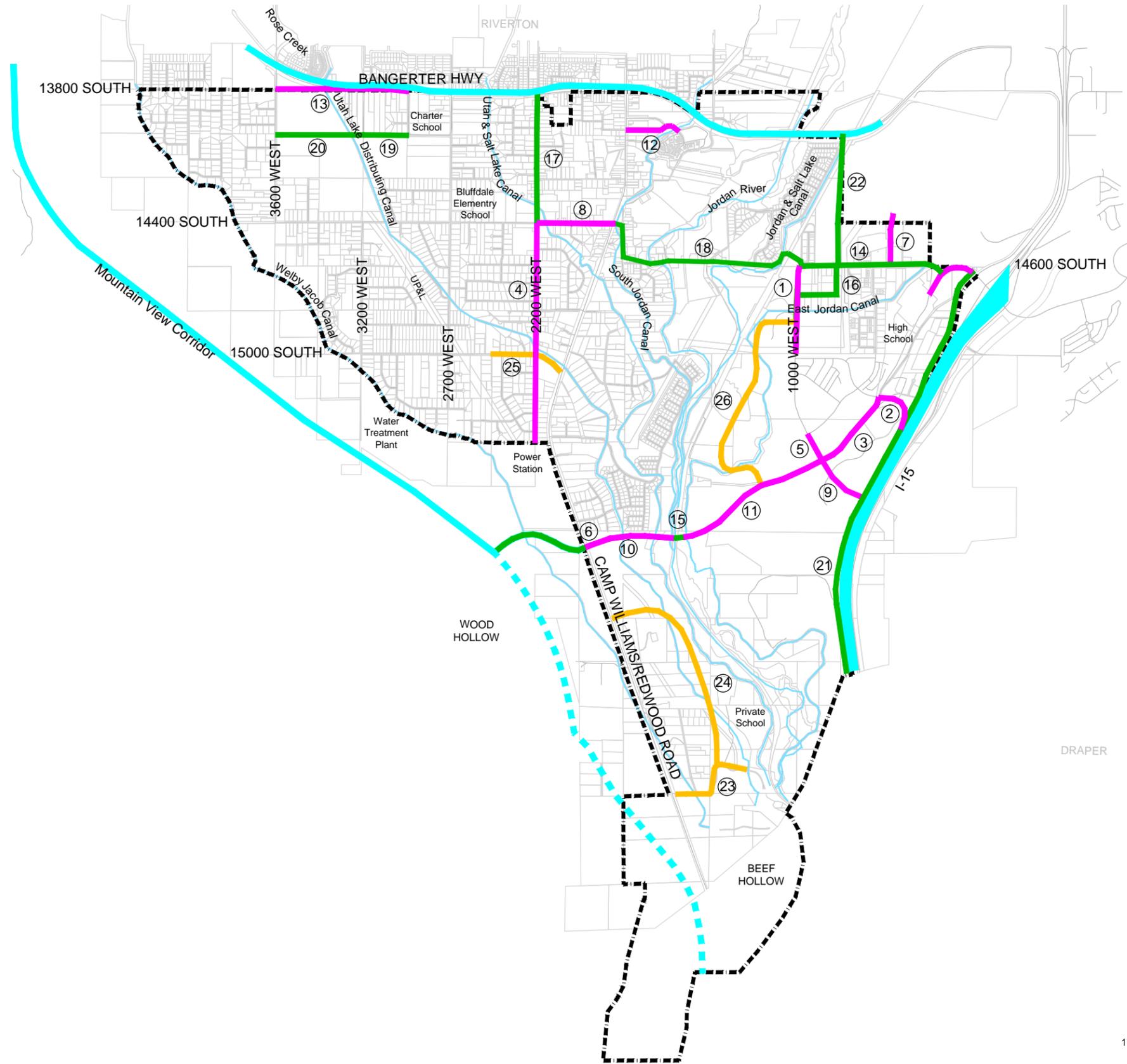
The Transportation CFP addresses improvements that are needed on the major streets. As this plan does not address individual local streets, improvements that may be required on these roads are not included in the CFP. Regular rehabilitation and maintenance costs are not included in the CFP. The CFP does make an attempt to address annual costs related to administration and implementation of items and programs such as coordination and oversight on UDOT projects and other programs.

As development continues throughout Bluffdale, this transportation plan should be consulted to identify improvements that may benefit from work or funds required of individual developers. This will ensure that the right-of-way is preserved, as well as identify projects that the developer should construct or contribute to as part of off-site improvements.

The CFP must be reviewed and updated regularly. The CFP should be modified to delete projects that have been completed or re-prioritized, add new projects that were not previously identified and adjust the costs of any projects that may have changed in scope or nature.

Figure 4-7

Legend	
	1 - 6 Years
	7 - 12 Years
	12 Plus Years
	Existing Roads
	Existing Freeways
	Bluffdale City Boundary



## CHAPTER 4 – TRANSPORTATION PLANNING

**Table 4-1: Transportation Capital Facilities Plan**

Segment	Estimate (millions)	Funding Source	Comments
<b>1-6 Year Improvements</b>			
1. Noell Nelson Dr, 14600 S to Freedom Point Way	\$2.18	Impact Fees (58%)/ Development	New Road
2. Freedom Point Way, Porter Rockwell to Pony Express	\$0.71	Impact Fees	New Road
3. Porter Rockwell Segment 3, 15200 S to 15650 S	\$2.95	Impact Fees	New Road
4. 2200 West, 15400 S to 14400 S	\$2.05	City	Road Reconstruct
5. Noell Nelson Dr, Heritage Crest Way to PRB	\$0.57	Development	New Road
6. Porter Rockwell Segment 5, Redwood Rd. Intersection	\$0.20	Impact Fees	New Road
7. 600 W, 14400 S to 14600 S	\$1.21	Development	New Road
8. 14400 South, 2200 W to Redwood Rd.	\$0.86	Impact Fees	Road Widening
9. Noell Nelson Dr, Porter Rockwell to Pony Express	\$1.07	Development	New Road
10. Porter Rockwell Segment 5, Bridge to Redwood Rd.	\$2.38	5% Impact Fees	New Road
11. Porter Rockwell Segment 4, Segment 3 to Bridge	\$3.24	6.77% Impact Fees	New Road
12. 13970 South	\$1.97	Impact Fees	Road Reconstruct
13. 13800 South, 2950 W to 3600 W	\$2.47	Impact Fees	Road Widening
<b>Subtotal</b>	<b>\$21.86</b>		
<b>7-12 Year Improvements</b>			
14. 14600 South, I-15 to UPRR	\$6.43	UDOT	Road Widening
15. Porter Rockwell Bridge Segment	\$24.69	Various	New Road
16. 850 West, 14600 S to 1000 W	\$1.22	Impact Fees	Road Widening
17. 2200 West, 14400 S to 13800 S	\$1.20	City	Road Reconstruct
18. 14600 South, UPRR to Redwood Road	\$10.47	UDOT	Road Widening
19. 14000 South, 2950 W to Utah Lake Distributing Canal	\$0.90	Impact Fees	New Road
20. 14000 South, Canal to 3600 West	\$1.97	Impact Fees	New Road
21. Pony Express Road, 14600 S to City Limits	\$7.16	Development	Road Widening
22. 850 West, 14600 South to Bangerter Hwy	\$2.54	Impact Fees	New Road
<b>Subtotal</b>	<b>\$59.05</b>		
<b>12+ Year Improvements</b>			
23. Jordan Narrows Rd, Camp Williams to AUB	\$2.25	Impact Fees	Road Widening
24. South Bluffdale Loop Road	\$5.10	Impact Fees	New Road
25. 15000 South, 2200 W to Camp Williams	\$1.60	City	Road Widening
26. PRB/Noell Nelson Drive Connector	\$5.55	Impact Fees	New Road
<b>Subtotal</b>	<b>\$14.50</b>		
<b>Total</b>	<b>\$92.94</b>		

A city's storm drain system plays a vital role in protecting life and property. Planning for Bluffdale's storm drainage system must consider major flooding that could occur from canals, the Jordan River and mountain drainages that pass through the City, as well as localized flooding that occurs from storm water runoff generated within the City. As Bluffdale City continues to grow, the potential for localized flooding increases, requiring improvements to the storm drain system to accommodate new development. Bluffdale is currently in the process of updating its Storm Drain Master Plan. Updates to storm drain elements in this document will be updated again at a later date to reflect the latest master plan.

## 5.1 Definitions

*ERU - Equivalent Residential Unit. Development contributes to storm water runoff based on the amount of impervious area it contains. For the purposes of this study, single family dwellings and multi-family residential units will each be considered one (1) ERU. ERU's for non-residential development including commercial, industrial, school and church buildings are based on their total impervious surface with one (1) ERU equalling 2,700 square feet of impervious surface area.*

<i>Single Family Units</i>	<i>= 1 ERU/home unit</i>
<i>Multi-Family Residential Units</i>	<i>= 1 ERU/dwelling unit</i>
<i>Non-Residential Units</i>	<i>= 1 ERU/2,700 SF of impervious area</i>

*cfs - Cubic feet per second (449 gallons per minute)*

*Ac-Ft - Acre foot (volume of water required to cover an acre of land to a depth of one foot)*

*Detention - Short term storage of runoff provided by a pond or similar facility. An outlet is provided that allows water to be released from the facility at a predetermined rate.*

*Retention - Long term storage of storm water provided by a pond or similar facility, but does not allow water to be discharged. Water will stay in a retention pond after a storm event until it either evaporates or soaks into the soil of the pond bottom.*

## 5.2 Level of Service (LOS)

Level of service of Bluffdale's current storm drain system is defined by the current city ordinances and construction standards. The following criteria establish conditions for which storm drainage facilities are currently designed.

- Design storm drains to keep water from ponding in streets and intersections during a 10 year storm event.
- Evaluate how storm drains will function during a 100 year storm event to identify areas where major flooding may occur.
- Require detention of other improvements that will limit discharge from a 100 year storm event.

These same standards are applied to future conditions to create a master plan.

### 5.3 Existing Facilities

The existing storm drain system is shown in Figure 5-1. It consists of small collection systems that were installed to correct specific problems and/or with recent developments. Some additional facilities are required to correct existing deficiencies within Bluffdale City as described below and shown in Figure 5-2. Projects that address these deficiencies have not be included in impact fee calculations, but cost estimates have been prepared and are included.

#### *Existing Deficiencies*

- A. 14600 South at Heritage Crest Way - there is flooding that occurs at this location due to insufficient detention facilities.
- B. Silver Point Way at Green Subdivision - a temporary underground sump exists due to a lack of connection to an existing storm drain.
- C. 1300 West 18" Transmission Line – currently storm drain water from the south side of Bangerter Highway is transmitted under the roadway and emptied into a small ditch on the north side. The ditch is not large enough to contain all of the water and much of the water reaches individual properties.

### 5.4 Future Facilities

Future growth in Bluffdale will require storm drain system improvements to be made in addition to those listed above. Proposed improvements to the system that will be required, due to future development, are described below and shown in Figure 5-2.

- 1. *14400 South Trunkline Extension and Pond* – This line will collect water from several different areas on the west side of Bluffdale and deliver it to a proposed detention pond near the proposed Vista Meadows Subdivision.
- 2. *Vista Meadows Trunkline* – A detention pond will be constructed near the proposed Vista Meadows Subdivision to accommodate storm water from the east.
- 3. *Eastside Regional Detention Pond* – Storm water from the 14600 South Trunkline will deliver water to this regional detention facility (includes 1,250' of pipe). Peak flows will be alleviated and storm water will be outlet to the Jordan River in a controlled flow. Bluffdale is only anticipated to pay \$100,000 of the cost due to co-sponsors.
- 4. *South Regional Detention Pond* – Storm water from the Jordan Narrows Trunkline will deliver water to this regional detention facility. Peak flows will be alleviated and storm water will be outlet to the Jordan River in a controlled flow.
- 5. *Independence Trunkline Phase I* – Trunkline of varying size to service the northeast area of the Independence area based on the concept plan.
- 6. *Independence North Trunkline* - Trunkline of varying size to service the north area of the Independence area based on the concept plan.

Figure 5-1

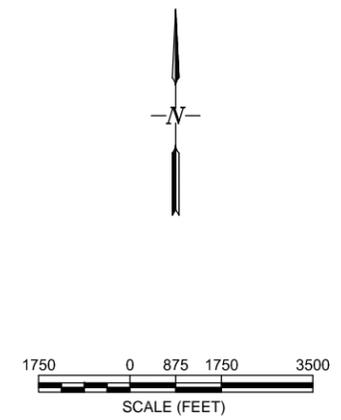
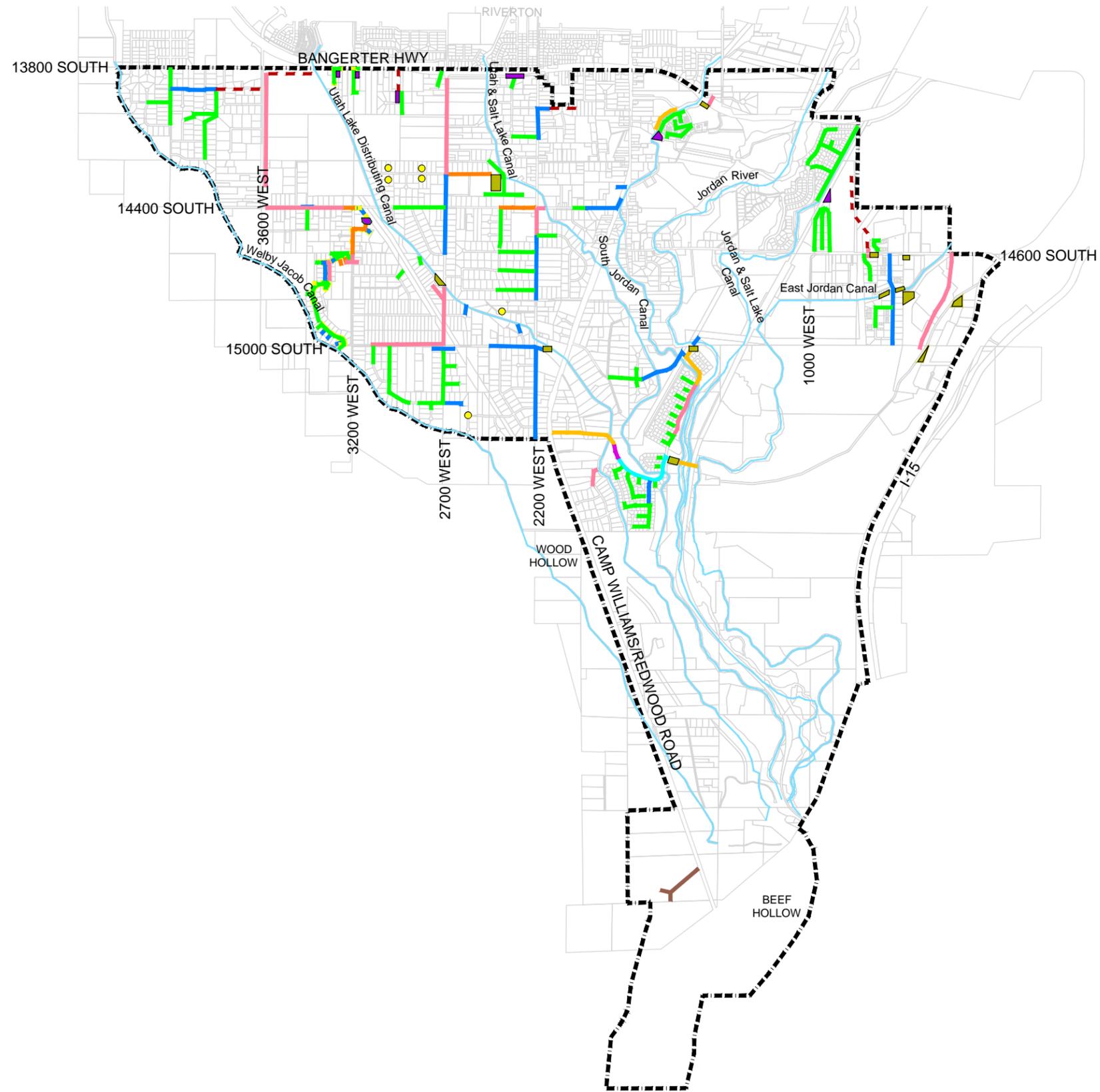
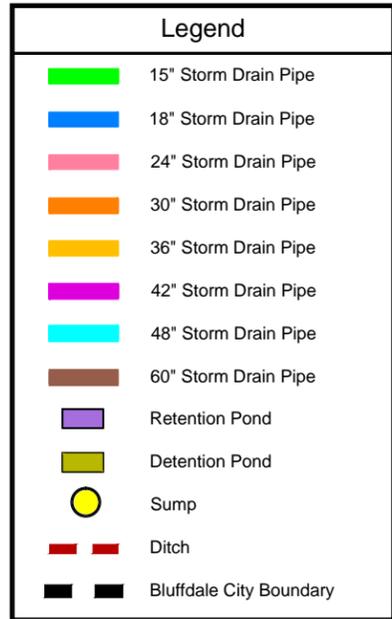
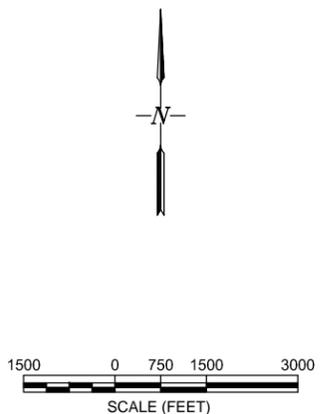
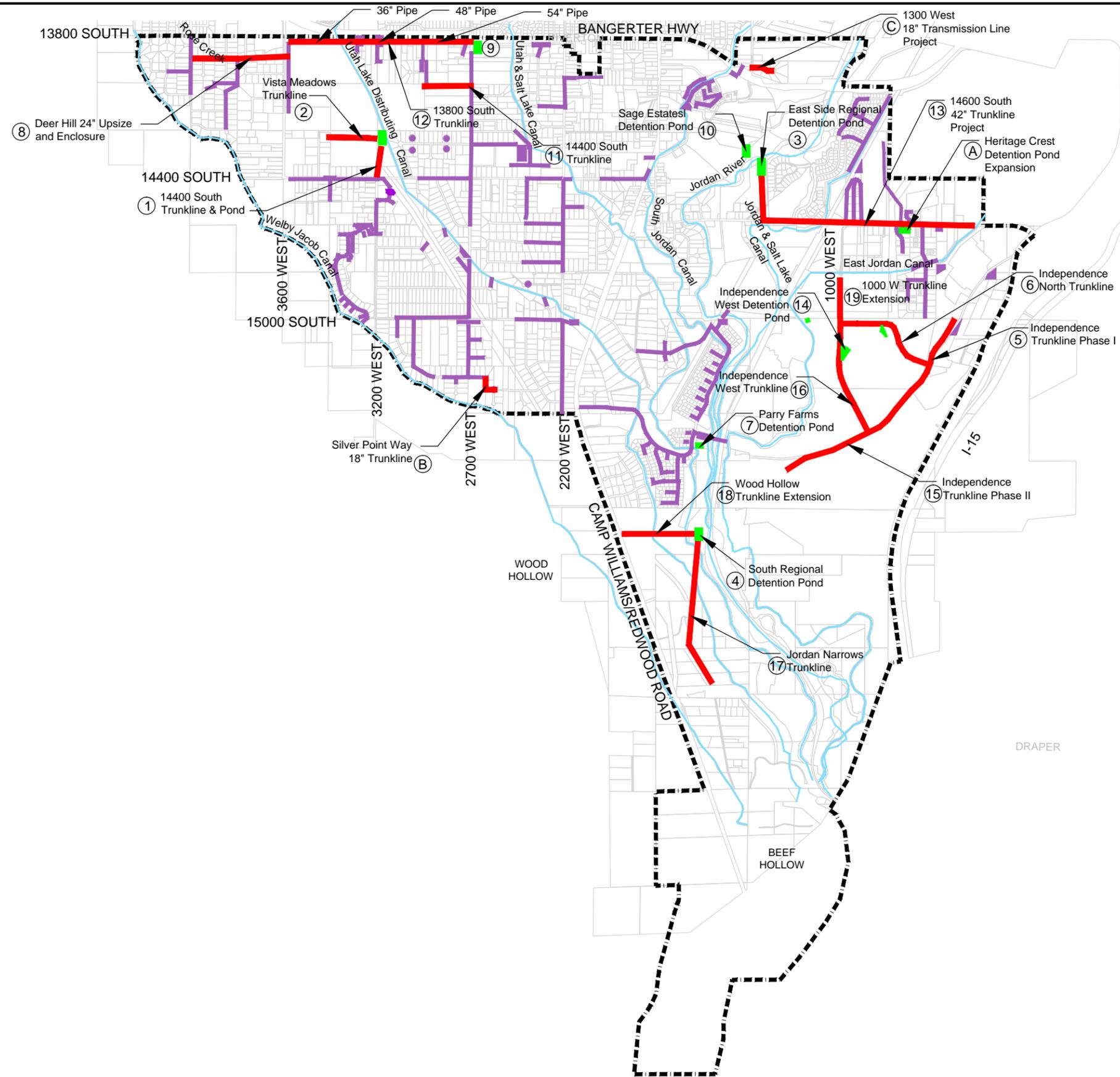


Figure 5-2

**Legend**

- Proposed Storm Drain
- Proposed Detention Pond
- Existing Storm Drains, Retention & Detention Ponds, and Sumps
- Bluffdale City Boundary



7. *Parry Farms Detention Pond* – The pond in the Parry Farms Subdivision will be expanded to accommodate greater flows.
8. *Deer Hill 24" Upsize and Enclosure* – As development occurs, the existing 18" line and ditch will exceed their capacities. As such, the 18" storm drain line will be upsized to a 24" and the ditch will be enclosed with a 24" pipe that connects into the 3600 West trunkline.
9. *13800 South Detention Pond* – This pond will be necessary to mediate the peaks and clean the storm runoff from the northwest corner of Bluffdale.
10. *Sage Estates Detention Pond* - A detention pond will be constructed near the Sage Estates Subdivision to accommodate storm water from the west.
11. *14000 South Trunkline* – A new 24" trunkline will be installed to accommodate storm water from new development.
12. *13800 South 36"- 54" Trunkline* – This line will service the northwest corner of Bluffdale. Flows from the western city boundary will be collected in 3600 West and 13800 South and will culminate in a detention pond before outletting into Rose Creek.
13. *14600 South 42" Trunkline* – This 42" storm drain trunkline will service the area adjacent to 14600 South from I-15 to the Jordan River. It will also accept drainage water from the north end of Pony Express Road and its adjacent parcels.
14. *Independence West Detention Pond* – Storm water from the Independence subdivision will be collected in this pond before being outlet into the Jordan River.
15. *Independence Trunkline Phase II* - Trunkline of varying size to service the southeast area of the Independence area based on the concept plan.
16. *Independence West Trunkline* - Trunkline of varying size to service the west area of the Independence area based on the concept plan.
17. *Jordan Narrows Trunkline* - Trunkline of varying size to service the Jordan Narrows area of Bluffdale.
18. *Wood Hollow Extension Trunkline* – This line will collect water from several different areas on the west side of Camp Williams Road and Bluffdale and deliver it to the South Regional detention pond.
19. *Noell Nelson Dr Trunkline Extension* – This trunkline extension will serve to connect the north end of 1000 West and the industrial zone to the Independence trunkline.

### 5.5 Storm Drain Capital Facilities Plan

The CIP indicates which improvements will be needed in the future and provides a planning level cost estimate for each improvement (see Appendix “D”). Recommended improvements to the storm drain system have been separated into the following categories: short range (1-6 years) and medium range (7-12 years). Table 5-1 summarizes the improvement projects, anticipated costs and projected funding sources.

**Table 5-1: Storm Drain Capital Facilities Estimates**

Segment	Estimate (Millions)	Funding Source
<b>1-6 Year Improvements</b>		
(A) Heritage Crest Detention Pond Expansion	\$0.07	City
(1) 14400 South Trunkline Extension & Pond	\$0.46	Impact Fees
(2) Vista Meadows Trunkline	\$0.11	Impact Fees
(3) Eastside Regional Detention Pond	\$0.76	Impact Fees (\$0.3)/NRCS
(B) Silver Point Way Storm Drain	\$0.10	City
(C) 1300 West 18” Transmission Line	\$0.09	City
(4) South Regional Detention Pond	\$0.35	Impact Fees
(5) Independence Trunkline Phase I	\$0.44	Development
(6) Independence North Trunkline	\$0.13	Development
(7) Parry Farms Detention Pond	\$0.19	City
(8) Deer Hill 24” Upsize and Enclosure	\$0.35	Impact Fees
(9) 13800 South Detention Pond	\$0.50	Impact Fees
(10) Sage Estates Detention Pond	\$0.50	Impact Fees
(11) 14000 South Trunkline	\$0.29	Impact Fees
<b>Subtotal</b>	<b>\$4.34</b>	
<b>7-12 Year Improvements</b>		
(12) 13800 South 36” to 52” Trunkline	\$1.44	Impact Fees
(13) 14600 South 42” Trunkline	\$1.74	Impact Fees
(14) Independence West Detention Pond	\$0.52	Impact Fees/Development
(15) Independence Trunkline Phase II	\$0.51	Impact Fees
(16) Independence West Trunkline	\$0.93	Development
(17) Jordan Narrows Trunkline	\$1.01	Impact Fees
(18) Wood Hollow Extension Trunkline	\$0.38	Impact Fees
(19) Noell Nelson Drive Trunkline Extension	\$0.29	Development
<b>Subtotal</b>	<b>\$6.82</b>	
<b>Total</b>	<b>\$11.16</b>	

Data supporting budgetary storm drain cost estimates are included in the Appendix “D”.

Bluffdale City has always provided a community of safety and security. In order to do so, it has contracted with the Saratoga Springs Police Department to provide 24-hour protection services for its citizens. Similarly fire, rescue, and emergency services are provided by the City Fire Department on a 24-hour basis. Continual accessibility to these necessities is vital to the quality of life, health, and safety of Bluffdale's citizens. The following planning recommendations assume that Bluffdale City safety facilities will be provided in the future at the same level of service as is currently provided.

### 6.1 Level of Service (LOS)

For the purposes of this plan, level of service for public safety facilities will be measured in units of square footage per 1,000 residents. The current LOS is defined below in Section 6.2 Existing Facilities.

### 6.2 Existing Facilities

#### *Fire Protection*

To determine a LOS for fire protection, the facilities presently provided by the Fire Department were used and are included in this study. In 2003, Bluffdale built a 12,900 square foot facility to house the Fire Department. A portion of this building was constructed for future expansion and is currently being used to house City Administrative Offices (about 3,435 square feet or 27%). The remaining 73% (9,465 square feet) of the building is being used by the Fire Department and defines the existing Level of Service.

Therefore, the current LOS (as previously calculated) is 9,465 s.f. for 7,990 residents or 1.18 square feet per resident.

#### *Law Enforcement*

Bluffdale City contracts with the Saratoga Springs Police Department for law enforcement officers. Required law enforcement forces are generally proportional to the population of a city, although many other factors, such as crime rate, determine the number of forces needed.

The Saratoga Springs Police Department works with the Bluffdale City to determine the level of service which at this time is 0.81 officers per 1,000 residents or 6.5 officers providing round the clock law enforcement protection. The City provides two office cubes at the city offices for the police officers to use. Other Law Enforcement Facilities are currently owned by Saratoga Springs; therefore these facilities were not used as a determination for the LOS.

### 6.3 Future Facilities

To assist Bluffdale in its future planning of emergency services, we recommend the guidelines in the National Fire Protection Association Standards (NFPA) 1720 for all-career fire departments for review and possible implementation.

According to NFPA 1710, the fire department's fire suppression resources shall be deployed to provide for the arrival of an engine company within a 4-minute response time and the initial full alarm assignment within an 8-minute response time to 90 percent of the incidents that require a full assignment of apparatus. In the future, and as Bluffdale grows, it will become important to perform an in-depth evaluation of response times to determine future facility locations.

With respect to emergency medical service calls (EMS), NFPA 1710 calls for the arrival of a first responder with an automatic external defibrillator (AED) to arrive on scene with a 4-minute response time to 90 percent of the incidents. Additionally, the fire department's EMS for providing advanced life support (ALS) shall be deployed to provide for the arrival of an ALS company within an 8-minute response time to 90 percent of the incidents.

As Bluffdale City's population reaches the estimated build-out population, an additional 37,700 square feet of new fire protection and emergency medical facilities will be required to maintain the current LOS. The required future total is approximately 47,200 square feet of facility or  $1.18 \text{ sq ft per resident} \times 40,000 \text{ residents} = 47,200 \text{ square feet}$ .

Additionally, as the growth of the city reaches the extents of the city boundaries it will become necessary to locate fire and EMT services farther away from the city center. This is most apparent on the east side where the single lane railroad underpass inhibits travel between the east and west sides of the City. Two likely locations for new EMT and Fire Facilities are near the proposed Independence subdivision on the east and near Camp Williams on the south. Bluffdale may provide its own law enforcement facilities sometime in the future and has, therefore, substituted some police station square footage for fire station square footage in the capital facilities plan.

Finally, as the population grows, additional public safety equipment will be necessary. It is anticipated that an additional fire truck, ladder truck and ambulance will be required within the next 5-15 years.

### 6.4 Capital Facilities Plan

As identified in Section 6.2, the City currently owns 3,435 s.f. of additional building that will be converted to fire station in the future. However, Bluffdale does not own any other property for future facilities. Therefore, the following plan is conceptual in nature, recommending future facilities. As development continues, properties will need to be identified and acquired to preserve recommendable future locations. The conceptual plan for future growth is provided below in Table 6-1.

CHAPTER 6 – PUBLIC SAFETY PLANNING

**Table 6-1 Conceptual Public Safety Capital Facilities Estimates**

<b>Future Facility</b>	<b>Area (sf)</b>	<b>2013 Cost</b>	<b>Construction Year</b>	<b>Funding Source</b>
New Fire/Police Station (East Side)	13,000	\$2,600,000	2017	Impact Fees
New Ladder Truck	-	\$1,000,000	2019	Impact Fees
Fire Station Expansion (West side)	3,450	\$100,000	2020	Impact Fees
New Fire Truck	-	\$650,000	2020	Impact Fees
New Fire Station (South Side)	11,700	\$2,340,000	2024	Impact Fees
New Ambulance	-	\$150,000	2025	City
New Fire Station (West Side)	9,550	\$1,910,000	2030	Impact Fees
<b>Total</b>	<b>37,700</b>	<b>\$8,750,000</b>		

Note: Estimates provided in 2015 dollars

Bluffdale City provides high quality of life and health to the community through their parks and recreation facilities. To maintain this quality of life the city must continue to provide new parks and recreation facilities as the population grows.

### 7.1 Previous Level of Service (LOS)

In August of 2002, Bluffdale City adopted the level of service policy of 7 acres of improved park facilities per 1,000 residents to offset the loss of undeveloped open space caused by new development. The National Parks and Recreation Association has suggested that a recommended minimum LOS should be between 5 and 10 acres per 1,000 residents. Bluffdale has been providing this recommended Level of Service.

As Bluffdale has grown, it has become apparent that the City will need to provide its citizens with recreation facilities that are not all measurable by acreage. Therefore, Bluffdale will define its level of service in terms of value. In the 2013 update, the previous level of service was equated to a dollar value of improvements. Therefore, future improvements may be installed and measured on their value and not simply acreage.

Currently, the City provides approximately 150 acres of open space throughout the city. Of that acreage, the City has developed 60.2 acres of recreational space including 11 city parks, a rodeo facility and 6.8 miles of developed trails. Therefore, Bluffdale provides:

$$60.2 \text{ acres} / 11,977 \text{ residents} = 5.0 \text{ acres of per } 1000 \text{ residents.}$$

Since parks are constructed on a large scale basis and not per person, and new development has increased rapidly in the past couple of years, Bluffdale City has continued to construct recreational facilities. At each update of this document, the acreage per 1,000 residents that is currently available will depend on how recently a park was constructed, at times calculating to greater than seven and at other times less than seven. Currently, due to the large amounts of multifamily housing that has been constructed as well as the construction of different types of recreational facilities, the acreage per 1,000 residents is lower than in past years.

### 7.2 Current Level of Service (LOS)

The currently defined LOS is based on Bluffdale's historic expenditures on recreation facilities. As defined in the 2013 IFFP the value of the existing parks and recreation facilities, their land, facilities and amenities is documented in Appendix "F". Their values added up to \$10,784,821. At that time, there were 7,990 residents in Bluffdale as a result, the historic LOS calculates to be:

$$\$10,784,821.00 \text{ (facilities value)} / 7,990 \text{ (residents)} = \$1,349,789.86 / 1,000 \text{ residents}$$

### 7.3 Existing Facilities

Table 7-1 shows a current inventory of trails in Bluffdale City and their present day value. Table 7-2 summarizes the current inventory of parks within the city as illustrated in Figure 7-1. Cost estimates include land, infrastructure and amenities, but no operation, personnel or maintenance costs.

**Table 7-1: Existing Trails Inventory**

Trails	Area (acres)	Value*
Bluffdale City Park Trail (included in park acreage)	1.3	\$212,784
Spring View Farms Trail	2.3	\$376,464
Parry Farms Trail	3.2	\$523,776
<b>TOTAL</b>	<b>6.8</b>	<b>\$1,113,024</b>

**Table 7-2: Existing Parks Inventory**

Parks	Area (acres)	Owner	Value*
Ponderosa Park	1.12	City	\$191,414*
Parry Farms Park/Detention Pond	2.91	City	\$456,602*
Parry Farms Baseball Fields	7.22	City	\$1,827,422*
Bluffdale City Park/Rodeo Grounds	31.92	City	\$6,125,618*
Phillip Gates Memorial Park	4.79	City	\$996,899*
Ten Sleep Circle Park	0.44	City	\$73,842*
Mount Jordan Park (A)	3.69	City	Not Yet Completed
North Pocket Parks & Trail	3.28	City	Not Yet Completed
Center Pocket Park & Trail	0.43	City	Not Yet Completed
West Pocket Park & Trail	2.71	City	Not Yet Completed
Trail Corridor	1.10	City	Not Yet Completed
<b>TOTAL</b>	<b>59.61</b>		<b>\$9,671,797</b>

\*Note: Values for these facilities are based on 2013 cost estimates to construct similar infrastructure. Cost estimates can be found in Appendix "F". However, no finance charges were evaluated.

### 7.4 Future Facilities

This chapter analyzes the growth period of 2015 to 2045 when the projected population will be approximately 40,000. In order to maintain the existing LOS, Bluffdale will need to continue to provide recreational facilities valuing approximately \$1,349,789.86 per 1,000 residents. In other words, to provide the necessary facilities, Bluffdale will need to construct facilities valuing approximately \$43,206,773.49 (i.e. 32,010 x \$1,349,789.86/1,000) to provide for the build-out population.

Bluffdale is aware that as the population grows, different types of facilities will be required to serve the community. In the future, Bluffdale will need more than just pocket and neighborhood parks. Therefore, as new development occurs and reimbursements are negotiated with individual developments, a minimum of 15% of all impact fees will be collected and spent on regional parks and recreational facilities. As such,

## CHAPTER 7- PARKS AND RECREATION PLANNING

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developers must recognize that not every impact fee dollar will be spent in their development. However, the City will make every effort to utilize impact fees to construct recreational facilities in residential areas such that all residents will have access to neighborhood and regional facilities in their general area.

The City has identified some of the future facilities that will need to be constructed to maintain its current LOS. They include both new acreage and additional infrastructure in existing facilities. They are as follows.

### *Independence*

The Independence at the Point subdivision has adopted a development agreement with the City. Some of the parks and trails have been constructed as of summer 2015. The development agreement was recently updated to include the latest park plan. Those parks are referenced in Table 7-3, by name, including their estimated construction costs as provided by the developer. They can be reviewed in more detail in the Master Plan for Independence at the Point. The parks master plan and developer generated cost estimates have been provided in Appendix F.

### *City Park Improvements*

Bluffdale's main city park is located on the northwest corner of the 14400 South/2200 West intersection. This facility is the location used for many City activities including Movie in the Park, car shows, portions of the annual city days, sports team practices, etc. As Bluffdale grows, addition and varied activities will be held at the park. As such, the City Park will require additional facilities from time to time. Some the currently planned additions to the park include a pavilion and additional parking stalls.

### *Rodeo Grounds Upgrades*

In addition to park improvements, the City recognizes that the rodeo has drawn more attendance each year. Therefore, it plans to expand the rodeo grounds to facilitate continued growth. Some of the currently contemplated improvements include additional restrooms, a concession stand, additional bleachers and parking lot expansion.

### *Parry Farms Park Expansion*

As new development occurs in the south part of Bluffdale, demand for parks in that area will increase. Bluffdale plans to expand the Parry Farms Park to accommodate more residents than just Parry Farms residents. The expansion will include grading, landscaping and an irrigation system.

### *Parry Farms Park Improvements*

In addition to expanding the Parry Farms Park, addition features will be added such as athletic field including possibly soccer, tennis, and/or pickleball. Also, restrooms, a snack shack and other possible amenities will be constructed.

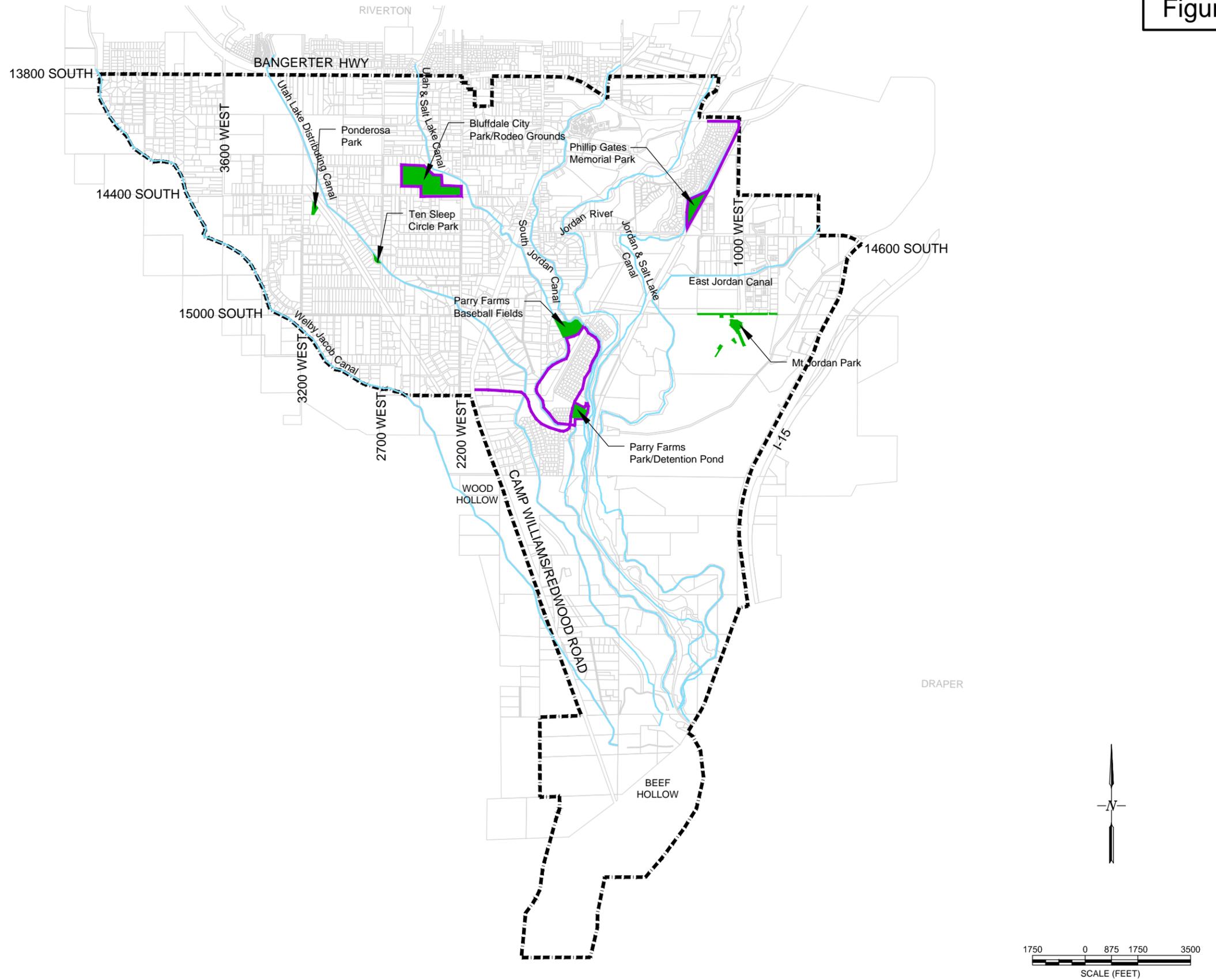
### *Vintage Park*

The City owns 5 acres adjacent to Loumis Parkway just south of Vintage on the Bluffs. This area is scheduled to be graded and possibly landscaped in 2014 and improved several years later with amenities.

Figure 7-1

**Legend**

- Existing Parks
- Existing Trails
- Bluffdale City Boundary



## CHAPTER 7- PARKS AND RECREATION PLANNING

### 7.5 Capital Facilities Plan

The city already has plans to develop additional parks and trails to help maintain its unique position as a leader in recreational properties and activities. Salt Lake County currently owns land in Bluffdale and plans on building a regional park. As Bluffdale grows, it will need additional facilities like these to help meet the needs of a growing population. Figure 7-2 and Table 7.3 illustrate a conceptual plan for developing the required future parks to maintain its current LOS.

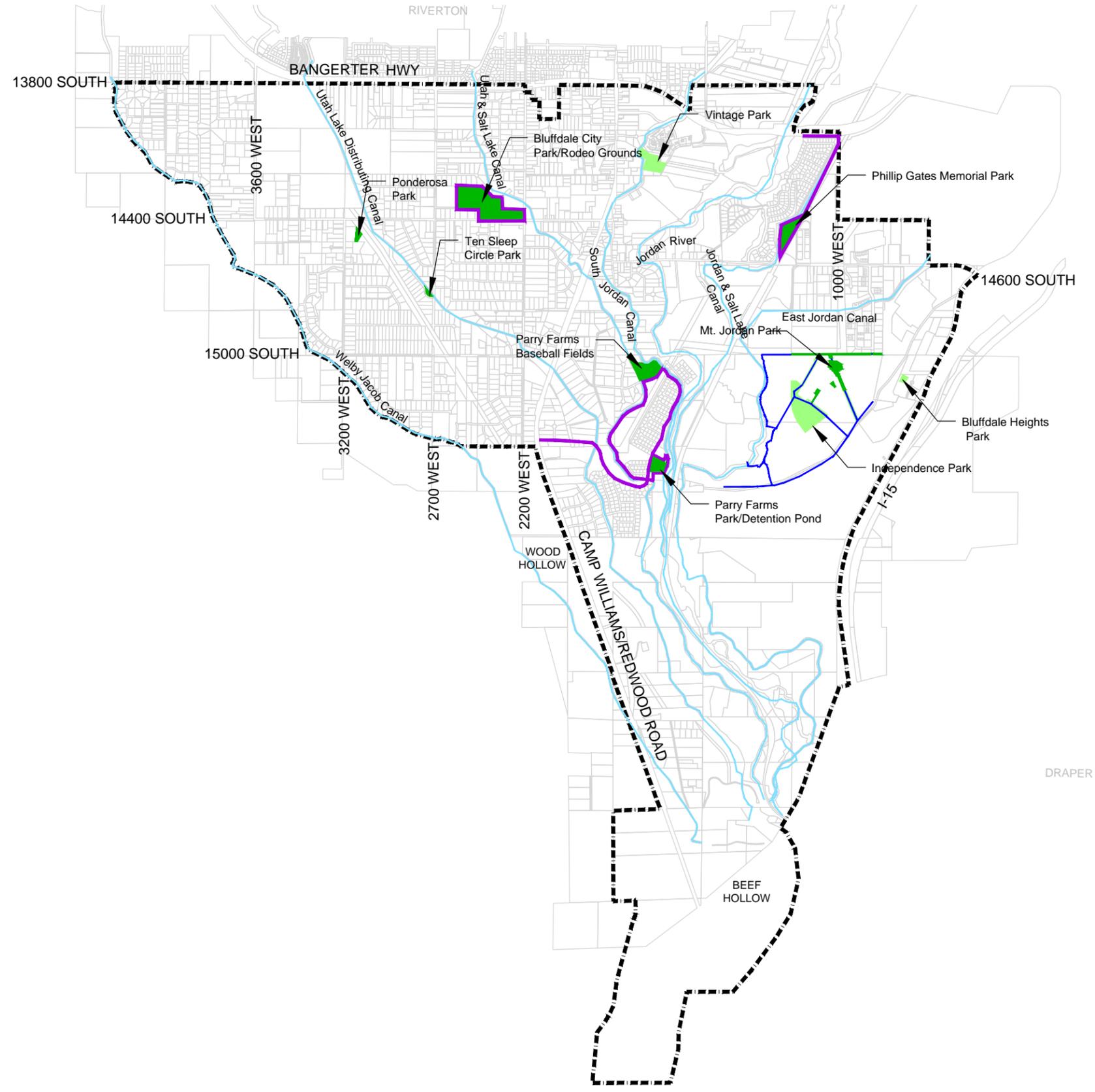
**Table 7-3 – Conceptual Parks and Recreation Capital Facilities Estimates**

Project	Area (acres)	Constr. Year	Cost (2015)	Source
Independence				
Trail Corridor (E2)	1.15	2018	\$231,100	Impact Fees
Park (F)	4.02	2016	\$688,140	Impact Fees
Porter Rockwell Trail (G)	2.11	2018	\$0.00	w/ PRB
Park and Trail (N)	1.82	2017	\$477,480	Impact Fees
Independence Park	5.75	2015-17	\$3,108,890	Impact Fees
Trail Corridor (H)	6.80	2018	\$1,025,200	Impact Fees
Trail Corridor (I)	3.37	2018	\$514,180	Impact Fees
Trail Corridor (J)	2.89	2019	\$419,460	Impact Fees
Trail Corridor (K)	10.59	2019	\$1,457,260	Impact Fees
<i>Subtotal</i>	<i>38.50</i>		<i>\$7,921,710</i>	
Other Planned Recreational Facilities				
City Park Improvements		2014	\$224,000	Impact Fees
Rodeo Grounds Improvements		2014	\$698,000	Impact Fees
Parry Farms Park Expansion	2.5	2014	\$106,060	Impact Fees
Vintage Park Grading	5	2014	\$100,000	Impact Fees
New 25 Acre Park	25	2016	\$4,200,000	Impact Fees
Parry Farms Park Improvements		2017	\$110,000	Impact Fees
Vintage Park Improvements		2020	\$280,000	Impact Fees
Recreational Trail	4	2021	\$655,000	Impact Fees
New 25 Acre Park	25	2021	\$4,200,000	Impact Fees
Recreational Trail	4	2024	\$655,000	Impact Fees
New 25 Acre Park	25	2024	\$4,200,000	Impact Fees
Recreational Trail	2	2027	\$328,000	Impact Fees
New 35 Acre Park	35	2028	\$6,250,000	Impact Fees
Various small Parks	57	Ave 2028	\$11,177,928	Impact Fees
<i>Subtotal</i>	<i>184.5</i>		<i>\$35,183,988</i>	
<b>Total</b>	<b>222.28</b>		<b>\$43,105,698</b>	

Figure 7-2

**Legend**

- Proposed Parks
- Proposed Trails
- Existing Parks
- Existing Trails
- Bluffdale City Boundary



As Bluffdale City grows, it will become necessary to expand the offices and public facilities to include new administrative facilities. These facilities will not be eligible for impact fee funding.

### 8.1 Existing Facilities

Currently, the City operates out of two buildings, the old city hall on Redwood Road, which is used as the Public Works building and the new fire station on 2200 West, which operates as the new administration building. The Public Works building is currently lacking in office space and storage space. The fire station is nearly out of space for new administrative offices, while storage space is lacking in this building as well. In order to alleviate the shortage of office and storage space, the City should plan to construct new facilities in the future.

### 8.2 Future Facilities

As contemplated by City staff and administration, Bluffdale will need a Public Works building, a City Hall and an Animal Control facility. No locations have been selected for future construction, but a summary of the budgetary estimates for the new facilities are included in Table 8-1 below. Cost estimates can be found in Appendix “G”.

**Table 8-1 – Public Facilities Capital Facilities Estimates**

<b>Project</b>	<b>Area (s.f.)</b>	<b>Construction Year</b>	<b>Cost (2012)</b>	<b>Cost (Construction year)</b>
City Hall	23,000	2015	\$5,980,000	\$5,980,000
Public Works Building	15,000	2018	\$3,660,000	\$4,631,100
Animal Control Facility	10,000	2022	\$2,440,000	\$3,611,800
		Total	\$12,080,000	\$14,222,800

Impact fees provide communities with a legal means to obtain funds from new developments to finance the construction of infrastructure improvements that are needed to serve new growth. State law requires that impact fees be used only for projects made necessary by new growth and not for existing deficiencies. Throughout this study, existing conditions have been analyzed as well as future needs due to development and growth. This section defines the financial impact that new development will have on Bluffdale City in the next six years and recommends impact fees for each element analyzed in this study. These fees will be needed to maintain the existing level of service throughout the City. It does not include existing deficiencies.

Impact fees charged for new development are based on the ERC, ERU, or trip generations of proposed developments. Calculations for the impact fees are included in this chapter for each section of the capital facilities plan. According to the current state law, impact fees must use a six year planning window to encumber the funds. Therefore, the calculations in this chapter consider only those projects that are planned to be constructed or encumbered within the next six years. Budgetary costs were evaluated in future dollars (proposed project planning year dollars), assuming an inflation rate of 6% per year. They consider and assume current and future projects can be financed by 10 year loans with a 4% interest rate.

Most of the infrastructure in Bluffdale City is interconnected and has been evaluated as a single service area. The transportation system provides the only exception. Porter Rockwell Boulevard is critical to the Independence Subdivision and surrounding area and portions of it are required to be constructed by the subdivision in accordance with the binding development agreement. Therefore, most impact fees have been calculated based on a single service area. However, a separate transportation impact fee has been calculated for the Porter Rockwell Service Area, to be charged in place of the city-wide transportation impact fee.

### 9.1 Water Impact Fees

The water system capital facilities plan indicates scheduled improvements that should be implemented to upgrade Bluffdale's culinary water system. Table 3-1 and 3-2 outline the proposed projects and their costs in 2015 dollars. Projects that are projected to be constructed within the next six years and are eligible to be funded by impact fees total \$879,000 are detailed below and summarized in Table 9-1.

#### Eligible Projects

*New Well and Water Rights* – is project number 1 on the CFP list of necessary projects. Bluffdale's secondary system is being constructed slowly and steady from the ground up. As development occurs, the City is constantly seeking new secondary water sources to develop in order to alleviate pressure on and create new capacity in the culinary water system. Currently, the most likely site for a new secondary well is in Independence, as illustrated in Figure 9-2.

*Porter Rockwell Corridor Trunkline* – is project number 4 on the culinary water CFP. This project is made necessary as new development begins in the previously

**CHAPTER 9 – 2013 IMPACT FEE PLAN & ANALYSIS**

undeveloped south end of Bluffdale. Developers have begun approaching the City with development concepts for this area in the past year.

*SVSD Reuse Project* – is project number 3 on the secondary water CFP. This project is necessary to continue to create new capacity in the culinary system for new development.

**Table 9-1: Water Impact Fee Facilities Estimates**

<b>Segment</b>	<b>2015 Estimate (Millions)</b>	<b>Projected Constr. Year</b>	<b>Constr. Year Estimate</b>
New Well and Water Rights (secondary (1))	\$0.50	2016	\$530,000
SVSD Reuse Project	\$1.98	2017	\$2,222,000
Porter Rockwell Corridor Trunkline (culinary (2))	\$0.32	2018	\$349,000
<b>Total</b>	<b>\$2.80</b>		<b>\$3,101,000</b>

Figures 9-1 and 9-2 depict the water projects graphically.

*3 Million Gallon Storage Debt*

In addition, the City has an outstanding balance on 3 million gallons of storage in the POMA 25 MG tank in Draper, Utah. Bluffdale purchased the 3 MG of storage for future growth mainly on the east side of Bluffdale, but as a method of generally enabling future development in Bluffdale. The tank is intended to service an approximately 14,100 ERC's of new development of which 310 have already paid impact fees towards completion of the tank. Therefore, the remaining balance on the project \$1,152,500 should be financed by the remaining 12,375 ERC's of excess capacity.

As a result, the 3 MG portion of the impact fee can be calculated as follows:

$$\text{\$1,152,500} / 12,375 \text{ ERC's} = \text{\$93.13/ERC (Use \$93)}$$

This fee is calculated as a portion of the impact fee and will be added to the base impact fee calculated in the Table 9-2.

Table 9-2									
Base Water Impact Fee Analysis									
Proposed Impact Fee =		\$1,040.00					Interest Rate	4.00%	
Fiscal Year Ending	New ERC's*	Impact Fee Revenue	Impact Fee Analysis	New Well & Rights (Financed for 10 Years)	SVSD Reuse Project (Financed for 10 Years)	Porter Rockwell Corridor Trunkline	Year End Net Income	Cumulative Balance	
			\$30,000.00	\$530,000.00	\$2,222,000.00	\$349,000.00			
								\$520,910.00	
2015	225	\$234,000.00	-\$5,000.00				\$229,000.00	\$749,910.00	
2016	477	\$496,080.00	-\$5,000.00	-\$65,344.20			\$425,735.80	\$1,175,645.80	
2017	530	\$551,200.00	-\$5,000.00	-\$65,344.20	-\$273,952.48		\$206,903.32	\$1,382,549.12	
2018	589	\$612,560.00	-\$5,000.00	-\$65,344.20	-\$273,952.48	-\$43,028.54	\$225,234.78	\$1,607,783.90	
2019	582	\$605,280.00	-\$5,000.00	-\$65,344.20	-\$273,952.48	-\$43,028.54	\$217,954.78	\$1,825,738.68	
2020	563	\$585,520.00	-\$5,000.00	-\$65,344.20	-\$273,952.48	-\$43,028.54	\$198,194.78	\$2,023,933.47	
2021	265	\$275,600.00		-\$65,344.20	-\$273,952.48	-\$43,028.54	-\$106,725.22	\$1,917,208.25	
2022		\$0.00		-\$65,344.20	-\$273,952.48	-\$43,028.54	-\$382,325.22	\$1,534,883.03	
2023		\$0.00		-\$65,344.20	-\$273,952.48	-\$43,028.54	-\$382,325.22	\$1,152,557.81	
2024		\$0.00		-\$65,344.20	-\$273,952.48	-\$43,028.54	-\$382,325.22	\$770,232.59	
2025		\$0.00		-\$65,344.20	-\$273,952.48	-\$43,028.54	-\$382,325.22	\$387,907.37	
2026		\$0.00			-\$273,952.48	-\$43,028.54	-\$316,981.02	\$70,926.36	
2027		\$0.00				-\$43,028.54	-\$43,028.54	\$27,897.82	
2028		\$0.00					\$0.00	\$27,897.82	
Totals	3231	\$3,360,240.00	-\$30,000.00	-\$653,442.00	-\$2,739,524.78	-\$430,285.40			
Portion of Impact Fee			\$8.10	\$176.37	\$739.40	\$116.13			
Total Revenue:		\$3,360,240.00					Total Finance Costs:	\$3,853,252.18	
							Total Costs:	\$3,131,000.00	
*Notes:	1) Project costs are in future dollars (assuming 6% inflation)							Total Interest:	\$722,252.18
	2) ERC's are projected for half of 2015 and half of 2021								

Figure 9-1

**Legend**

-  Proposed Culinary Water Projects
-  Proposed Tank
-  Proposed PRV
-  Proposed Meter
-  Existing Meter
-  Existing Culinary Water
-  Existing PRV/FCV
-  Existing Tank
-  Bluffdale City Boundary

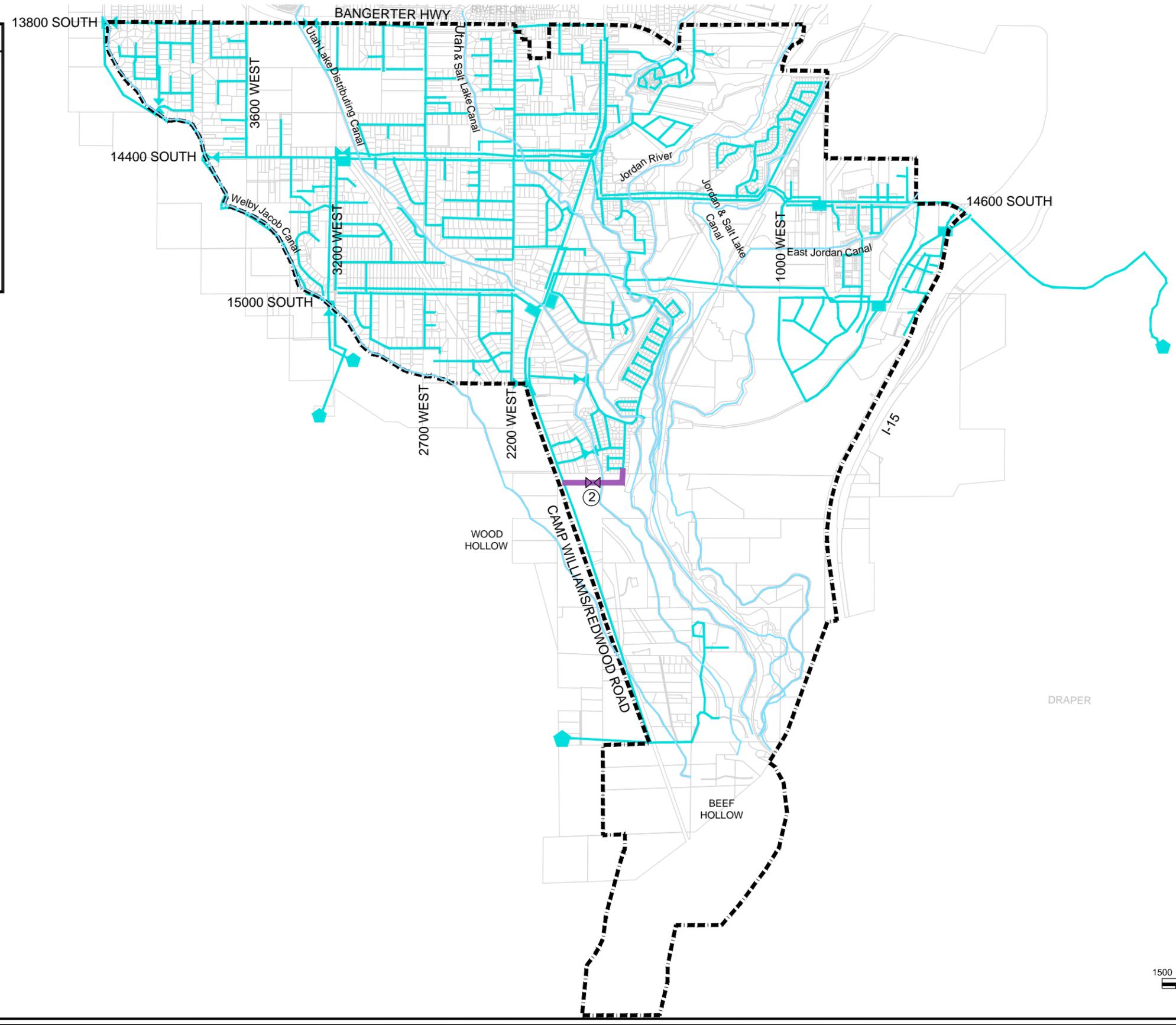
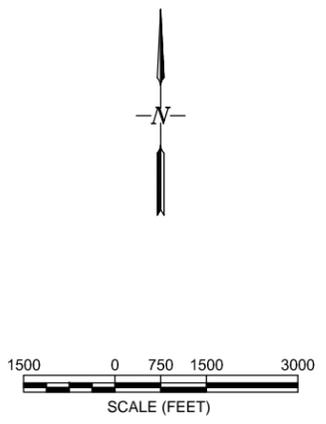
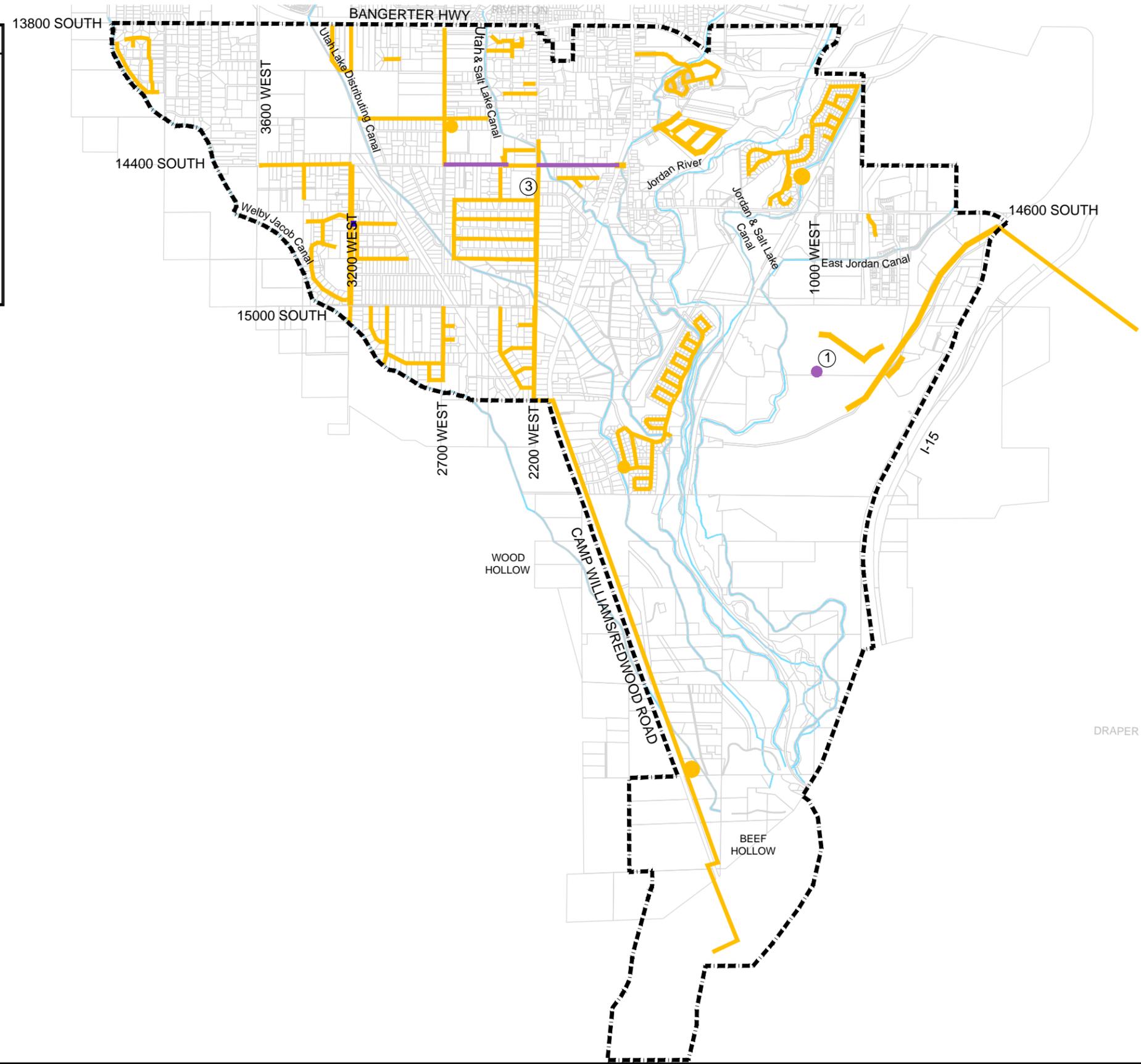


Figure 9-2

**Legend**

- Proposed Secondary Water Projects
- Existing Secondary Water
- Proposed Well
- Bluffdale City Boundary



Impact Fee Calculation

As illustrated in Table 9-2, the required financing for the three eligible projects is \$3,853,252.18. With the current water impact fee balance of \$520,910, these projects can be completed for \$1,040 per ERC and will serve 3,231 ERC's. Therefore, the total water impact fee will be:

$$\$1,040 + \$93 = \underline{\$1,133 \text{ per ERC}}$$

ERC

This study considers one ERC to be a culinary water connection. Every unit that is built in Bluffdale will have a culinary water connection and, therefore, the water impact fee will be charged per culinary water connection as indicated in the fee schedule.

Therefore, the following **water impact fees** are recommended:

**Table 9-3: Recommended Water Impact Fee Schedule**

	<b>Units</b>	<b>Impact Fee</b>
<b>Single Family Residential (1.00)</b>	Dwelling Unit	\$1,133
<b>Commercial (3.37 ERC's)</b>	Connection	\$3,818
<b>Institutional (7.96 ERC's)</b>	Connection	\$9,019

**9.2 Transportation Impact Fees**

The transportation capital facilities plan indicates scheduled improvements that should be implemented to upgrade the transportation system. Table 4-1, Transportation Capital Facilities Plan outlines the proposed projects and their costs in 2015 dollars. It also identifies which projects are eligible for impact fees and which projects are projected to be completed in the next six years. A project description for each eligible project follows and is summarized in Table 9-4. More details on the specifics of each project can be found in the cost estimates in Appendix "C". Figure 9-3 illustrates the projects graphically. These project costs will be used to calculate fees for the Transportation Impact Fee Facilities Plan.

Eligible Projects

*Porter Rockwell Segment 1* – has been completed and is eligible for reimbursement continuing from the previous IFFP. It included widening the existing roadway at the north end of Porter Rockwell Road. It was required to accommodate new traffic generated by the construction of Independence at the Point and other projects currently under design in the area.

*Porter Rockwell Segment 2* – has been completed and is eligible for reimbursement continuing from the previous IFFP. It included new right of way and all new improvements. This project was also required to accommodate new traffic generated by the construction of Independence at the Point and other projects currently under design in the area.

*Noell Nelson Drive, 14600 S to Freedom Point Way* – is project number 1 on the transportation CFP. It includes new right of way and all new improvements. This project is required to accommodate new traffic generated by Independence and through traffic from 14600 South to Porter Rockwell Boulevard. The project is significant to the City's traffic circulation, particularly the intersection of 1000 West and 14600 South.

*Freedom Point Way, Porter Rockwell to Pony Express* – is project number 2 on the transportation CFP. It includes new right of way and all new improvements. This project include only the south end of Freedom Point Way where the City plans to construct a new fire station. The portion of this project (approximately 29%) that is impact fee eligible is the portion across the frontage of the new fire station and connecting to Porter Rockwell Blvd.

*Porter Rockwell Segment 3* – is project number 3 on the transportation CFP. It includes new right of way and all new improvements. This project is required to accommodate new traffic generated by the construction of Independence at the Point and other projects currently under design in the area.

*Porter Rockwell Segment 5* – is project numbers 6 and 10 on the transportation CFP. It includes new right of way and all new improvements. These projects are required to accommodate new traffic generated by the construction of new developments on the west side of the river and eventually pass through traffic continuing to I-15. The intersection improvements are scheduled to be completed first to enable development of the area directly adjacent to Redwood Road. The rest of the planned road is scheduled for WFRC funding in 2019 with a 5% (\$350,000) match by Bluffdale City.

*14400 South, 2200 West to Redwood Road* - is project number 10 on the transportation CFP. It includes widening the road from intersection to intersection. The project is made necessary by new development. Increased traffic has created the need construct sidewalks for pedestrian safety, to lengthen left turn queuing and to provide a median turn lane to facilitate access to homes without blocking through traffic.

*Porter Rockwell Segment 4* – is project number 13 on the transportation CFP. It includes new right of way and all new improvements. This project is required to accommodate new traffic generated by the construction of Independence at the Point and other projects currently under design in the area as well as eventual pass through traffic from I-15. The project is scheduled for WFRC funding in 2021 with a 6.77% (\$440,000) match by Bluffdale City.

*13970 South* – is project number 12 on the transportation CFP. It includes demolition of the temporary infrastructure installed for the Bangerter Interchange project, construction of a new road and improvements on Redwood Road to facilitate the new storm water.

*13800 South Street Widening, 2950 W to 3600 W* – is project number 13 on the transportation CFP. It includes widening the road to include a median turn lane, concrete sidewalks and curb and gutter for storm drain collection.

CHAPTER 9 – IMPACT FEE ANALYSIS

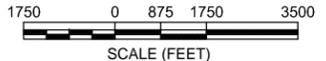
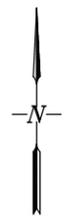
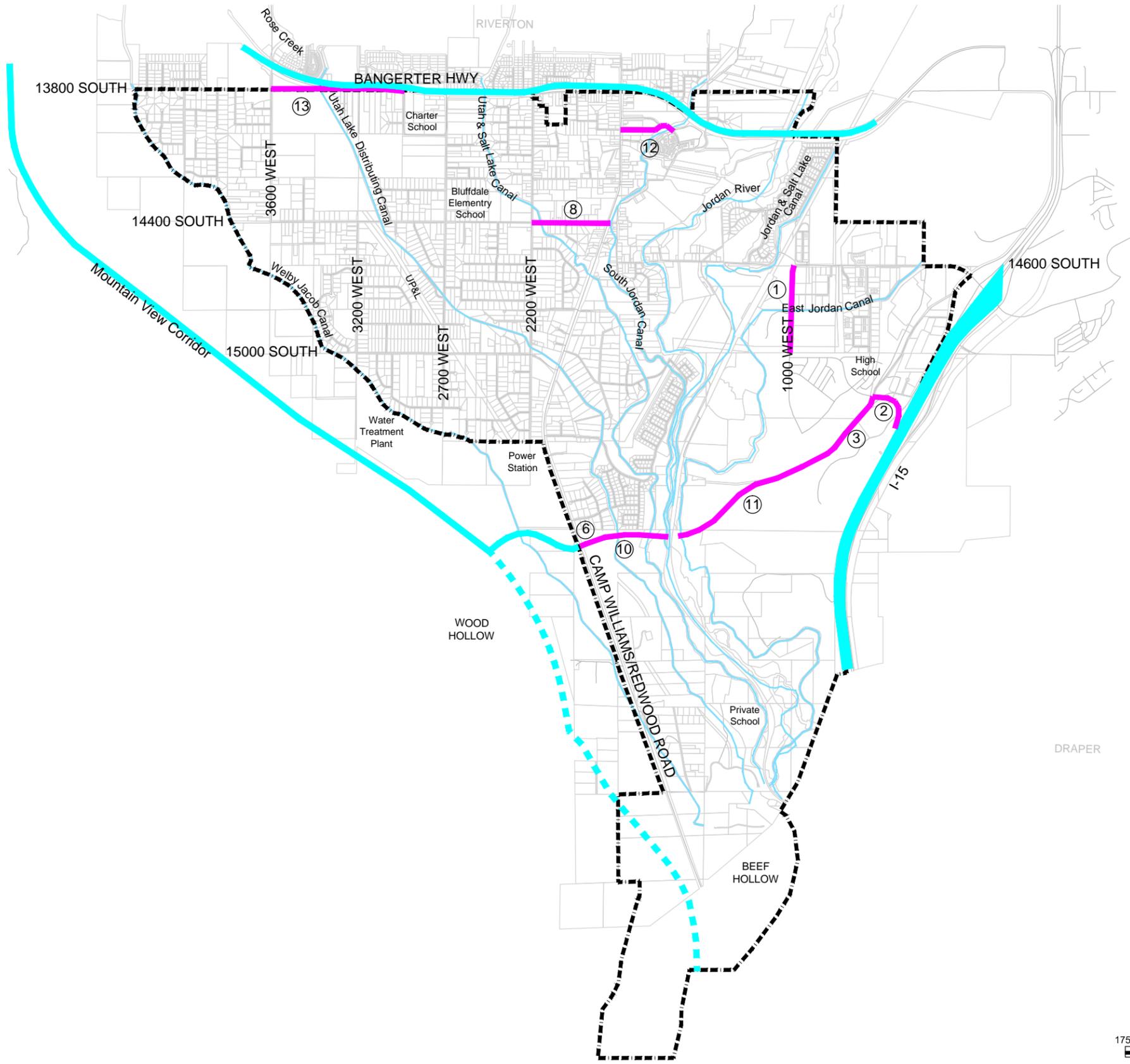
**Table 9-4: Transportation Impact Fee Facilities Estimates**

<b>Segment</b>	<b>2015 Estimate (Millions)</b>	<b>Projected Constr. Year</b>	<b>Constr. Year Estimate (Millions)</b>
Porter Rockwell Segment 1	Completed (See reimburse calcs)		
Porter Rockwell Segment 2	Completed (See reimburse calcs)		
(1) Noell Nelson Dr, 14600 S to PRB (58%)	\$1.26	2016	\$1.34
(2) Freedom Point Way, PRB to Pony Express	\$0.67	2016	\$0.71
(3) Porter Rockwell Segment 3	\$2.95	2016	\$3.13
(6) Porter Rockwell Segment 5, Intersection	\$0.20	2016	\$0.21
(8) 14400 South, 2200 West to Redwood Rd	\$0.86	2018	\$1.02
(10) Porter Rockwell Segment 5, Bridge to Redwood	\$0.35	2019	\$0.35
(11) Porter Rockwell Segment 4, 15650 S to Bridge	\$0.44	2021	\$0.44
(12) 13970 South	\$1.97	2016	\$1.97
(13) 13800 South, 2950 W to 3600 W	\$2.47	2020	\$3.31
<b>Total</b>	<b>\$11.17</b>		<b>\$12.48</b>

Figure 9-3

**Legend**

- 1 - 6 Years
- 7 - 12 Years
- 12 Plus Years
- Railroad
- Existing Roads
- Existing Freeways
- Bluffdale City Boundary



Although the City’s transportation system functions as essentially one service area, Porter Rockwell Boulevard is a critical transportation corridor for the Independence subdivision and other surrounding areas. Therefore, a city-wide impact fee will be calculated as well as a an additional Porter Rockwell Service Area Impact Fee to be charged in addition to the city-wide fee for new developments in the service area as defined in Figure 9-4. This impact fee will serve to finance the portion of Porter Rockwell Boulevard that new developments within the designated service area require for their developments.

Porter Rockwell Service Area

Porter Rockwell Boulevard is currently a Bluffdale City road. The City is working with UDOT to ensure that the road is built to State standards in an effort to encourage UDOT to eventually assist in construction, financing and future ownership of the road. As such, the transportation impact fee analysis considers three cost factors: cost of the road required by the PRB service area, cost of the built-out PRB and the cost of improving the road from PRB service area needs to build out.

In a traffic study performed by Hales Engineering and published in September 2012, traffic modeling was performed to define PRB service area trip generation as well as build-out trip generation. The study illustrated that PRB service area contributes 68% of the traffic that will utilize the Porter Rockwell Boulevard. Therefore, impact fees will be calculated for the PRB service area to pay for 70% of the costs to build PRB to Bluffdale City standards. All other costs will be distributed throughout the city-wide impact fee including 30% of the PRB costs and UDOT upgrades. Segments 1 & 2 have now been constructed and the estimated costs in the previous IFFP can be replaced with actual costs for reimbursement. Table 9-5 defines the actual costs by segment.

**Table 9-5: PRB Cost Distribution by Segment**

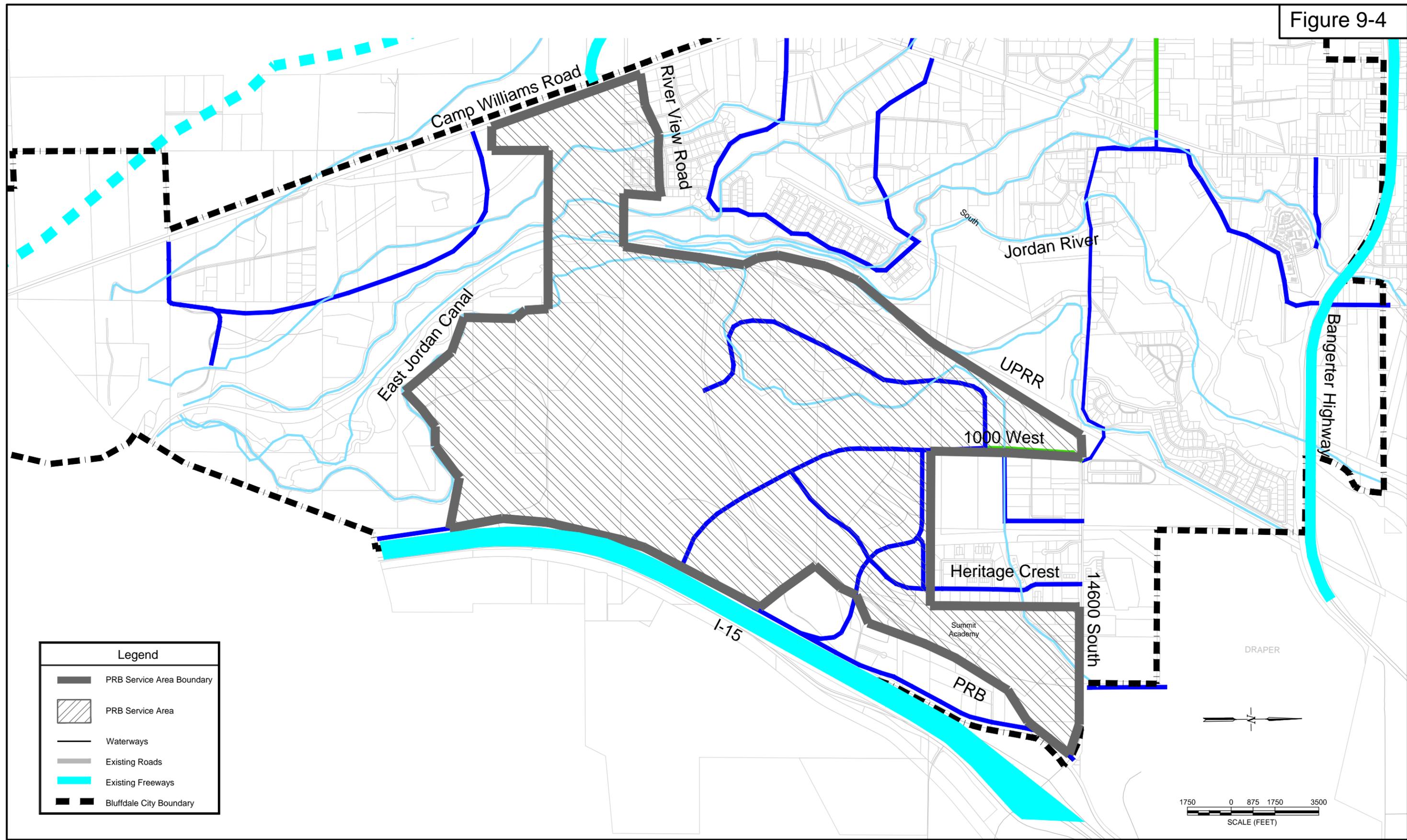
<b>Segment</b>	<b>City Standard Estimate</b>	<b>PRB SA Portion (70%)</b>	<b>City-wide Portion</b>	<b>UDOT Standard Estimate</b>	<b>Upgrade to UDOT Standards</b>
Porter Rockwell Segment 1	\$0.97	<b>\$0.68</b>	<b>\$0.29</b>	\$1.43	<b>\$0.46</b>
Porter Rockwell Segment 2	\$2.82	<b>\$1.97</b>	<b>\$0.85</b>	\$3.63	<b>\$0.81</b>
<b>Total</b>	<b>\$3.79</b>	<b>\$2.65</b>	<b>\$1.14</b>	<b>\$5.06</b>	<b>\$1.27</b>

Note: Estimates are in millions.

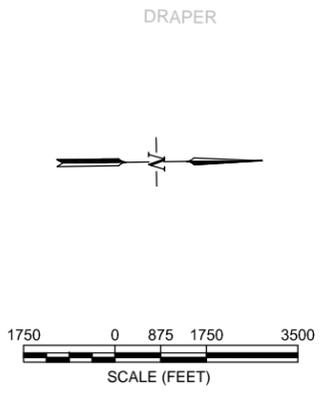
The City’s approved demographics project new build-out SFE’s at 17,397 with 8,122 attributable to the PRB SA (SFE projections can be found in Appendix “C”). Therefore, the PRB impact fees (city-wide and SA) are calculated as follows:

PRB SA:  $\$2,650,000/8,122 \text{ SFE} = \underline{\underline{\$326.27/\text{SFE}}}$   
 City-wide:  $(\$1,140,000+1,270,000)/17,397 \text{ SFE} = \underline{\underline{\$138.53/\text{SFE}}}$

Figure 9-4



Legend	
	PRB Service Area Boundary
	PRB Service Area
	Waterways
	Existing Roads
	Existing Freeways
	Bluffdale City Boundary



## CHAPTER 9 – IMPACT FEE ANALYSIS

Table 9-7 illustrates the impact fee calculations for the city-wide transportation base impact fee without the city-wide fee for Porter Rockwell. Total recommended impact fees for a residence are therefore calculated as follows.

PRB SA:      \$326.27/SFE + \$138.53/SFE+\$3,220/SFE = \$3,684.80 (use \$3,685)  
 City-wide:    \$138.53/SFE + \$3,220/SFE = \$3,358.53 (use \$3,360)

Since the City’s projected new SFE’s are expected to fall into a variety of categories, with varying amounts of impact to the transportation system, the following fees are recommended.

**Table 9-6 – Recommended Transportation Impact Fee Schedule**

Category	Land Use	Unit	Applicable ITE Code(s)	Demand Index (single family equivalent)	Pass-by Trip Reductions	Impact Fee Cost Per Unit	PRB SA Impact Fee Cost Per Unit
Residential	Single Family Detached	Dw elling Units	210	1	0%	\$3,360	\$3,685
	Condominium/Tow nhome	Dw elling Units	230	0.51	0%	\$1,714	\$1,879
	Apartment	Dw elling Units	220	0.61	0%	\$2,050	\$2,248
Office	Office Buiding	1,000 sq. ft.	710	1.55	0%	\$5,208	\$5,712
	Medical Office Building	1,000 sq. ft.	720	3.68	0%	\$12,365	\$13,561
Retail	Less Intensive Retail	1,000 sq. ft.	890	0.24	55%	\$363	\$398
	Intensive Retail	1,000 sq. ft.	820	1.95	35%	\$4,259	\$4,671
Services	High Turnover (sit dow n) Restaurant	1,000 sq. ft.	932	3.11	45%	\$5,747	\$6,303
	Fast Food	1,000 sq. ft.	934	10.80	50%	\$18,144	\$19,899
	Gas Station w / Convience Market	Pump Stations	945	2.09	65%	\$2,458	\$2,696
	Bank	1,000 sq. ft.	912	11.32	55%	\$17,116	\$18,771
Industrial	Industrial	1,000 sq. ft.	110	1.46	0%	\$4,906	\$5,380
	Manufacturing	1,000 sq. ft.	140	1.10	0%	\$3,696	\$4,054
	Warehousing	1,000 sq. ft.	150	0.70	0%	\$2,352	\$2,580
Institutional	Elementary School	Students	520	0.28	0%	\$941	\$1,032
	Middle/Junior School	Students	522	0.30	0%	\$1,008	\$1,106
	High School	Students	530	0.28	0%	\$941	\$1,032
	Private School (K-8)	Students	534	0.60	0%	\$2,016	\$2,211
	Private School (K-12)	Students	536	0.54	0%	\$1,814	\$1,990
	Day Care	1,000 sq. ft.	565	2.61	0%	\$8,770	\$9,618
	Library	1,000 sq. ft.	590	3.51	0%	\$11,794	\$12,934
	Church	1,000 sq. ft.	560	0.65	0%	\$2,184	\$2,395
Ldg	Hotel/Motel	rooms	310/320	0.55	0%	\$1,848	\$2,027

CHAPTER 9 - IMPACT FEE ANALYSIS

Proposed Impact													Interest Rate	4.00%
Fiscal Year Ending	New SFE's*	Impact Fee Revenue	Impact Fee Analysis	Noell Nelson Dr 14600 S to Freedom Point Way (financed for 10 years)	Freedom Point Way, PRB to Pony Express (financed for 10 years)	Porter Rockwell, Segment 3 (financed for 10 years)	Porter Rockwell, Segment 5 Intersection (financed for 10 years)	13970 South (financed for 10 years)	14400 South, 2200 West to Redwood Rd (financed for 10 years)	Porter Rockwell, Segment 5, Redwood Rd to Bridge	13800 South, 2950 W to 3600 W (financed for 10 years)	Porter Rockwell, Segment 4, 15650 S to Bridge	Year End Net Income	Cumulative Balance*
			\$30,000.00	\$1,337,587.88	\$711,500.00	\$3,126,461.00	\$212,786.00	\$1,968,217.17	\$1,021,736.00	\$350,000.00	\$3,311,307.00	\$440,000.00		
													\$0.00	\$1,176,930.16
2015	248	\$798,560.00	-\$5,000.00										\$793,560.00	\$1,970,490.16
2016	631	\$2,031,820.00	-\$5,000.00	-\$164,912.47	-\$87,721.51	-\$385,464.33	-\$212,786.00						\$1,175,935.69	\$3,146,425.85
2017	701	\$2,257,220.00	-\$5,000.00	-\$164,912.47	-\$87,721.51	-\$385,464.33							\$1,371,458.34	\$4,517,884.19
2018	779	\$2,508,380.00	-\$5,000.00	-\$164,912.47	-\$87,721.51	-\$385,464.33		-\$242,663.35	-\$125,970.80				\$1,496,647.54	\$6,014,531.73
2019	770	\$2,479,400.00	-\$5,000.00	-\$164,912.47	-\$87,721.51	-\$385,464.33		-\$242,663.35	-\$125,970.80	-\$350,000.00			\$1,117,667.54	\$7,132,199.27
2020	744	\$2,395,680.00	-\$5,000.00	-\$164,912.47	-\$87,721.51	-\$385,464.33		-\$242,663.35	-\$125,970.80		-\$408,254.17		\$975,693.37	\$8,107,892.65
2021	350	\$1,127,000.00		-\$164,912.47	-\$87,721.51	-\$385,464.33		-\$242,663.35	-\$125,970.80		-\$408,254.17	-\$440,000.00	-\$727,986.63	\$7,379,906.02
2022		\$0.00		-\$164,912.47	-\$87,721.51	-\$385,464.33		-\$242,663.35	-\$125,970.80		-\$408,254.17		-\$1,414,986.63	\$5,964,919.39
2023		\$0.00		-\$164,912.47	-\$87,721.51	-\$385,464.33		-\$242,663.35	-\$125,970.80		-\$408,254.17		-\$1,414,986.63	\$4,549,932.77
2024		\$0.00		-\$164,912.47	-\$87,721.51	-\$385,464.33		-\$242,663.35	-\$125,970.80		-\$408,254.17		-\$1,414,986.63	\$3,134,946.14
2025		\$0.00		-\$164,912.47	-\$87,721.51	-\$385,464.33		-\$242,663.35	-\$125,970.80		-\$408,254.17		-\$1,414,986.63	\$1,719,959.52
2026		\$0.00						-\$242,663.35	-\$125,970.80		-\$408,254.17		-\$776,888.32	\$943,071.20
2027		\$0.00							-\$125,970.80		-\$408,254.17		-\$534,224.96	\$408,846.24
2028		\$0.00									-\$408,254.17		-\$408,254.17	\$592.07
2029		\$0.00									-\$408,254.17		-\$408,254.17	\$592.07
<b>Totals</b>	<b>4223</b>	<b>\$13,598,060.00</b>	<b>\$30,000.00</b>	<b>\$1,649,124.73</b>	<b>\$877,215.07</b>	<b>\$3,854,643.29</b>	<b>\$212,786.00</b>	<b>\$2,426,633.54</b>	<b>\$1,259,707.96</b>	<b>\$350,000.00</b>	<b>\$4,082,541.67</b>	<b>\$440,000.00</b>		
<b>Portion of Impact Fee</b>			<b>\$6.36</b>	<b>\$349.75</b>	<b>\$186.04</b>	<b>\$817.51</b>	<b>\$45.13</b>	<b>\$514.65</b>	<b>\$267.16</b>	<b>\$74.23</b>	<b>\$865.84</b>	<b>\$93.32</b>		
<b>Total Revenue:</b> \$13,598,060.00													<b>Total Costs:</b>	<b>\$15,182,652.26</b>
													<b>Total Principal:</b>	<b>\$12,509,595.05</b>
													<b>Total Interest:</b>	<b>\$2,673,057.21</b>

\*Notes: 1) Project costs are in future dollars (assuming 6% inflation).  
 2) Initial balance is calculated using the actual balance minus the amount allocated for Loumis Parkway/2700 West/PRB that are currently under construction  
 3) SFE's include half of 2015 and half of 2021

### 9.3 Storm Drain Impact Fees

The storm drain capital facilities plan identifies \$3.16 million (2013 dollars) of improvements that need to be made to the system in the next 6 years. However, several of the improvements are due to existing deficiencies as identified in Chapter 5. Storm drain impact fees can only supplement system improvements due to growth within the City. Therefore, this analysis has identified approximately \$2,140,000 of improvements (2013 dollars) that can be classified as system improvements.

The projects eligible for impact fees and projected to be constructed in the next six years are outlined below and summarized in Table 9-8.

*14400 South Trunkline Extension and Detention Pond* – is project number one in the storm drain capital facilities plan. The project includes a detention pond and a collection pipe delivering water from 14400 South and surrounding subdivisions. Recent developments such as the Falls at Boulden Ridge and Ponderosa have increased demand not only on the storm drain system in this area but also on the roads. Therefore, as new homes are constructed, the increased impervious surface creates the need for larger collection facilities and a detention pond.

*Vista Meadows Trunkline* – is project number two in the storm drain capital facilities plan. It includes a collection line on the south side of the proposed 80 acre park. New construction of an 80 acre park and potential development of the property directly south of the park (formerly platted as Vista Meadows) creates the need for a storm drain collection line in this area. This line will convey flows to the proposed 14400 South Detention Pond.

*East Side Regional Detention Pond* – is project number three in the storm drain capital facilities plan. It includes a detention pond north of 14600 South near the Jordan River. There are many new developments in the planning process and beginning construction on the east side along 14600 South. Independence is the most prominent, but there are many smaller ones as well including the property east of Center Point and the northeast corner of the old Independence plan. Further, UDOT has awarded the design contract for The Point project which will reconstruct the 14600 S/I-15 interchange and increase growth in the area. This will be the first of several projects to provide storm drain facilities to the new developments.

*Sage Estates Regional Detention Pond* - is project number ten in the storm drain capital facilities plan. It includes a regional detention pond in the Sage Estates Subdivision. The project is made necessary by growth that continues on the west side of the Jordan River and east of Redwood Road.

*South Regional Detention Pond* – is project number four in the storm drain capital facilities plan. It includes a detention pond that will serve the south end of Bluffdale. Several properties have begun the planning process and have prepared concept plans for developing in this area. The construction of the UDC and Bluffdale's new water line in the area have increase the desire for many to develop in this area.

*14000 South Trunkline* – is project number eleven in the storm drain capital facilities plan. It includes installing a new 24” trunkline in 14000 South to accommodate new development in the area including Salt Lake County’s new park.

*13800 South Detention Pond* - is project number nine in the storm drain capital facilities plan. It includes construction a new regional detention pond to detain storm water from new developments before they are outlet into Rose Creek.

**Table 9-8: Storm Drain Impact Fee Facilities Estimates**

<b>Segment</b>	<b>2013 Estimate (Millions)</b>	<b>Projected Constr. Year</b>	<b>Constr. Year Estimate (Millions)</b>
(1) 14400 South Trunkline Extension and Pond	\$0.46	2016	\$0.48
(2) Vista Meadows Trunkline	\$0.11	2016	\$0.11
(3) East Side Regional Detention Pond	\$0.30	2016	\$0.30
(4) South Regional Detention Pond	\$0.35	2014	\$0.39
(8) Deer Hill Upsize and Enclosure	\$0.35	2018	\$0.42
(10) Sage Estates Detention Pond	\$0.50	2016	\$0.53
(11) 14000 South Trunkline	\$0.29	2017	\$0.32
(12) 13800 South Detention Pond	\$0.50	2018	\$0.59
<b>Total</b>	<b>\$2.86</b>		<b>\$3.14</b>

Table 9-9 illustrates how these improvements will be financed and paid for by the projected 5,695 new ERC’s in the next 6 years. ERC’s were projected using the demographic projections. Figure 9-5 illustrates the IFFP projects graphically.

As illustrated on the following pages, a **storm drain impact fee of \$630** is recommended for each new residence or per 2,700 square feet of impervious surface.

Figure 9-5

**Legend**

- Proposed Storm Drain
- Proposed Retention Pond
- Existing Storm Drains, Retention & Detention Ponds, and Sumps
- Bluffdale City Boundary

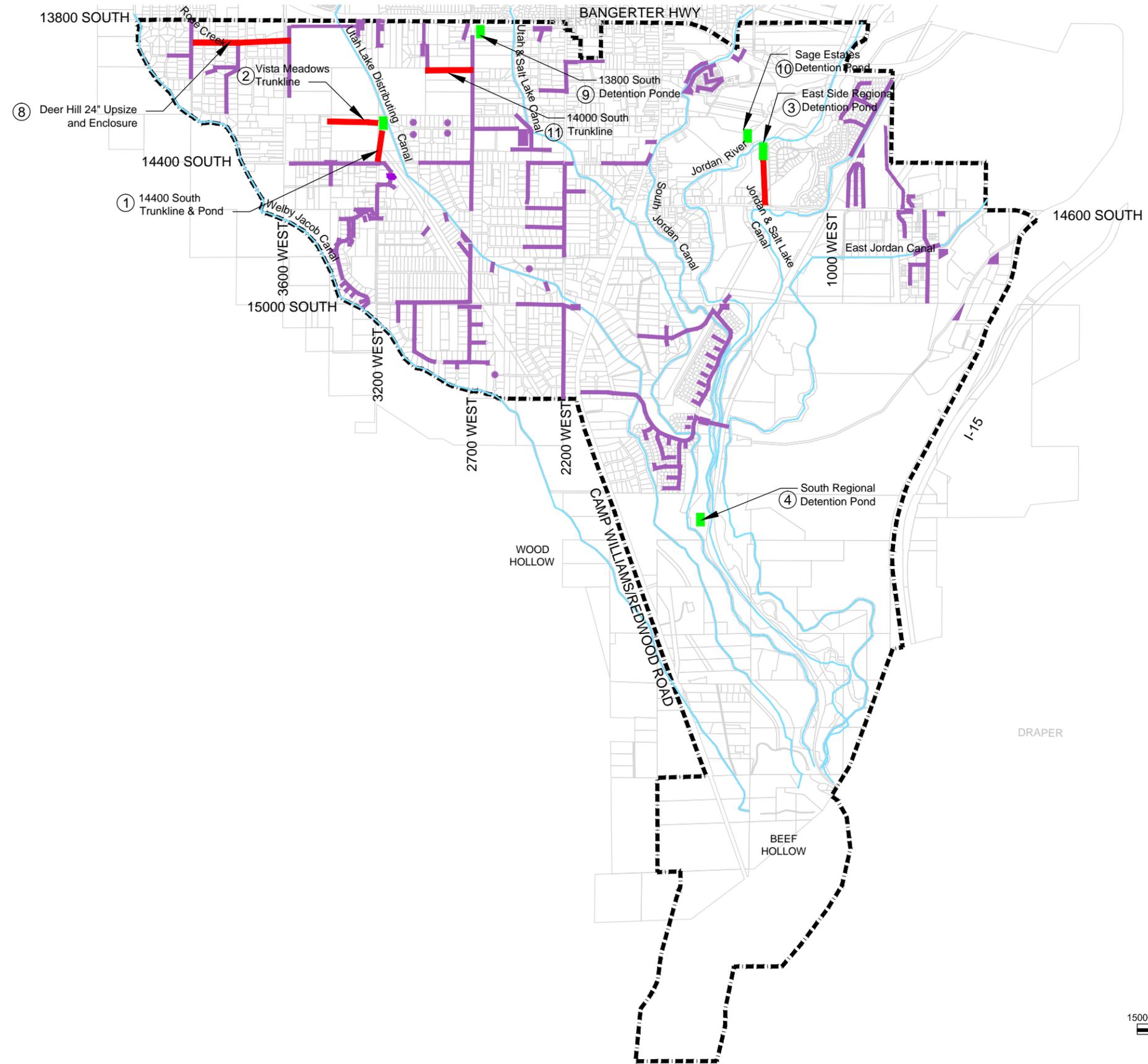


Table 9-9

**Storm Drain Impact Fee Analysis**

Proposed Impact		\$630.00											4.00%	
Fiscal Year Ending	New ERU's	Impact Fee Revenue	14400 South Trunkline and Detention Pond (financed for 10 years)	Vista Meadows Trunkline (financed for 10 years)	Eastside Regional Detention Pond (cash)	Yearly Impact Fee Update (cash)	Sage Estates Detention Pond (financed for 10 years)	South Regional Detention Pond (cash)	14000 South Trunkline	Deer Hill 24" Upsize and Enclosure (financed for 10 years)	13800 So Detention Pond (financed for 10 years)	Year End Net Income	Cumulative Balance	
			\$483,105.60	\$112,757.50	\$300,000.00	\$30,000.00	\$525,108.10	\$389,338.64	\$320,495.66	\$416,755.85	\$593,630.66			
													\$157,207.41	
2015	478	\$301,140.00				-\$5,000.00						\$296,140.00	\$453,347.41	
2016	1012	\$637,560.00	-\$59,562.55	-\$13,901.98	-\$300,000.00	-\$5,000.00	-\$64,741.07					\$194,354.40	\$647,701.81	
2017	1124	\$708,120.00	-\$59,562.55	-\$13,901.98		-\$5,000.00	-\$64,741.07	-\$389,338.64	-\$39,514.21			\$136,061.55	\$783,763.37	
2018	1249	\$786,870.00	-\$59,562.55	-\$13,901.98		-\$5,000.00	-\$64,741.07		-\$39,514.21	-\$51,382.22	-\$73,189.28	\$479,578.68	\$1,263,342.05	
2019	1235	\$778,050.00	-\$59,562.55	-\$13,901.98		-\$5,000.00	-\$64,741.07		-\$39,514.21	-\$51,382.22	-\$73,189.28	\$470,758.68	\$1,734,100.73	
2020	597	\$376,110.00	-\$59,562.55	-\$13,901.98		-\$5,000.00	-\$64,741.07		-\$39,514.21	-\$51,382.22	-\$73,189.28	\$68,818.68	\$1,802,919.41	
2021		\$0.00	-\$59,562.55	-\$13,901.98			-\$64,741.07		-\$39,514.21	-\$51,382.22	-\$73,189.28	-\$302,291.32	\$1,500,628.09	
2022		\$0.00	-\$59,562.55	-\$13,901.98			-\$64,741.07		-\$39,514.21	-\$51,382.22	-\$73,189.28	-\$302,291.32	\$1,198,336.77	
2023		\$0.00	-\$59,562.55	-\$13,901.98			-\$64,741.07		-\$39,514.21	-\$51,382.22	-\$73,189.28	-\$302,291.32	\$896,045.46	
2024		\$0.00	-\$59,562.55	-\$13,901.98			-\$64,741.07		-\$39,514.21	-\$51,382.22	-\$73,189.28	-\$302,291.32	\$593,754.14	
2025		\$0.00	-\$59,562.55	-\$13,901.98			-\$64,741.07		-\$39,514.21	-\$51,382.22	-\$73,189.28	-\$302,291.32	\$291,462.82	
2026		\$0.00							-\$39,514.21	-\$51,382.22	-\$73,189.28	-\$164,085.72	\$127,377.10	
2027		\$0.00								-\$51,382.22	-\$73,189.28	-\$124,571.51	\$2,805.59	
	5695	\$3,587,850.00	-\$595,625.46	-\$139,019.79	-\$300,000.00	-\$30,000.00	-\$647,410.74	-\$389,338.64	-\$395,142.13	-\$513,822.23	-\$731,892.85			
	Portion of Impact Fee		\$100.27	\$23.40	\$50.50	\$5.05	\$108.99	\$65.54	\$66.52	\$86.50	\$123.21			
<b>Total Revenue:</b>		\$3,587,850.00												
												Total Financed Cost	<b>\$3,742,251.82</b>	
												Total Principle	<b>\$3,171,192.01</b>	
												Total Interest	<b>\$571,059.81</b>	

Note: Project costs are in future dollars (assuming 6% inflation).

## 9.4 Public Safety Impact Fees

As with each previous section, a study of Bluffdale’s public safety facilities indicates that improvements will be needed during the planning period in order to maintain the City’s current level of service to its current and future residents. The conceptual plan provided in Chapter 6 – Public Safety Planning was used as the basis for analyzing impact fees required to finance future public safety projects.

### *Fire Station Expansion*

An integral part of the concept plan is the expansion into the existing 27% (3,450 s.f.) of the fire station currently serving as City Hall. This portion of the building was built for future use and, therefore, qualifies for impact fee funding. In 2003, the fire station was constructed for \$2,110,000. Therefore,

$$\$2,110,000 \times 0.27 = \$569,700 \text{ (eligible for impact fees)}$$

Furthermore, upon construction in 2003, the 9,465 s.f. was being utilized at half capacity. Therefore, half of the remaining cost for the building was impact fee eligible as well.

$$(\$2,110,000 - \$569,700)/2 = \$770,150 \text{ (eligible for impact fees)}$$

The total impact fee eligible portion of the fire station is therefore:

$$\$569,700 + \$770,150 = \$1,339,850$$

Of this amount, approximately \$835,000 (39.6% of the total) remains to be reimbursed by impact fees and is shown in Table 9-11 in the existing balance.

The proportionate share of ERC’s that will be serviced by the remaining \$835,000 portion of the fire station can be calculated as follows:

West side build-out Emergency Services = 22,465 s.f. (i.e. 5,673 ERC’s)  
 Existing Fire Station = 12,915 s.f. (or 57.5% of build-out needs)  
 Existing Fire Station serves:  $0.575 \times 5,673 \text{ ERC’s} = 3,262 \text{ ERC’s}$   
 Proportion remaining to be reimbursed (39.6%) =  $3,262 \times 0.396 = 1,292 \text{ ERC’s}$

Therefore, impact fee calculations in Table 9-11 include not only the ERC’s for the illustrated projects (4,121 ERC’s), but also the ERC’s that will be serviced by fully utilizing the existing fire station (1,292 ERC’s).

### *Conceptual Plan*

As illustrated in Chapter 6, it is projected that in the next six years, Bluffdale will need to construct a fire station on the east side including a ladder truck for the new types of development anticipated in Independence. The station and truck will cost a projected \$3.6 million (2015 dollars). They are intended to serve approximately one third of the

remaining build-out develop. Therefore, 4,121 new ERC’s will serve to finance the new facilities and 1,292 new ERC’s will serve to finance expansion of the existing facilities.

For this Impact Fee Facilities Plan, Table 9-10 lists the eligible infrastructure that will be needed in the next six years to provide the current level of service to new residents. The table also shows budgetary costs.

**Table 9-10: Public Safety Impact Fee Facilities Estimates**

<b>Future Facility</b>	<b>2015 Estimate (Millions)</b>	<b>Projected Constr. Year</b>	<b>Constr. Year Estimate (Millions)</b>
New Fire/Police Station (East Side)	\$2.60	2017	\$2.81
New Ladder Truck	\$1.00	2019	\$1.00
Fire Station Expansion	\$0.10	2020	\$0.10
New Fire Truck	\$0.65	2020	\$0.65
<b>Total</b>	<b>\$4.35</b>		<b>\$4.56</b>

Table 9-11 provides impact fee calculations for the required improvements.

Maintaining the current LOS will require a **public safety impact fee** of **\$1,200** for each new unit.

CHAPTER 9 – IMPACT FEE ANALYSIS

<b>Table 9-11</b>									
<b>Bluffdale City Safety Impact Fee Analysis</b>									
<b>Proposed Impact Fee</b>		\$1,200						<b>Interest Rate</b>	4.00%
<b>Year</b>	<b>New ERU's</b>	<b>Impact Fee Revenue</b>	<b>New Fire/Police Station (financed for 10 years)</b>	<b>New Ladder Truck (financed for 5 years)</b>	<b>Fire Station Expansion (financed for 10 years)</b>	<b>New Fire Truck (financed for 5 years)</b>	<b>Impact Fee Analysis (cash)</b>	<b>Year End Net Income</b>	<b>Cumulative Balance</b>
			<b>\$2,704,000.00</b>	<b>\$1,000,000.00</b>	<b>\$100,000.00</b>	<b>\$650,000.00</b>	<b>\$30,000.00</b>		
2015		\$0.00						\$0.00	-\$1,116,079.32
2016	29	\$34,800.00					-\$5,000.00	\$29,800.00	-\$1,086,279.32
2017	102	\$122,400.00	-\$333,378.71	-\$224,627.11			-\$5,000.00	-\$440,605.83	-\$1,526,885.15
2018	139	\$166,800.00	-\$333,378.71	-\$224,627.11			-\$5,000.00	-\$396,205.83	-\$1,923,090.97
2019	181	\$217,200.00	-\$333,378.71	-\$224,627.11			-\$5,000.00	-\$345,805.83	-\$2,268,896.80
2020	225	\$270,000.00	-\$333,378.71	-\$224,627.11	-\$12,329.09	-\$146,007.62	-\$5,000.00	-\$451,342.55	-\$2,720,239.35
2021	272	\$326,400.00	-\$333,378.71	-\$224,627.11	-\$12,329.09	-\$146,007.62	-\$5,000.00	-\$394,942.55	-\$3,115,181.89
2022	329	\$394,800.00	-\$333,378.71		-\$12,329.09	-\$146,007.62		-\$96,915.43	-\$3,212,097.32
2023	387	\$464,400.00	-\$333,378.71		-\$12,329.09	-\$146,007.62		-\$27,315.43	-\$3,239,412.75
2024	450	\$540,000.00	-\$333,378.71		-\$12,329.09	-\$146,007.62		\$48,284.57	-\$3,191,128.19
2025	502	\$602,400.00	-\$333,378.71		-\$12,329.09			\$256,692.19	-\$2,934,435.99
2026	560	\$672,000.00	-\$333,378.71		-\$12,329.09			\$326,292.19	-\$2,608,143.80
2027	604	\$724,800.00			-\$12,329.09			\$712,470.91	-\$1,895,672.90
2028	650	\$780,000.00			-\$12,329.09			\$767,670.91	-\$1,128,001.99
2029	698	\$837,600.00			-\$12,329.09			\$825,270.91	-\$302,731.09
2030	285	\$342,000.00						\$342,000.00	\$39,268.91
2031		\$0.00						\$0.00	\$39,268.91
2032		\$0.00						\$0.00	\$39,268.91
	5,413	\$6,495,600.00	-\$3,333,787.13	-\$1,123,135.57	-\$123,290.94	-\$730,038.12	-\$30,000.00		
		Portion of Impact Fee	\$749.13	\$252.38	\$27.70	\$164.05	\$6.74		
	<b>Total Revenue:</b>	\$6,495,600.00						<b>Total Finance Costs:</b>	<b>\$5,340,251.77</b>
								<b>Total Costs:</b>	<b>\$4,484,000.00</b>
								<b>Total Interest:</b>	<b>\$856,251.77</b>
Notes:	1. Project costs are in future dollars (assuming 6% inflation). 2. The initial balance is attributable to the impact fee eligible portion of the existing fire station. 3. This fire station and ladder truck are anticipated to serve 34% of new developments (4,121 ERU's). 4. The fire station expansion and new fire truck will serve 1,292 ERU's).								

### 9.5 Parks and Recreation Impact Fees

Chapter 7 - Parks and Recreation Planning outlines the parks anticipated to be constructed in the Independence at the Point subdivision and conceptually throughout the rest of Bluffdale to maintain its current level of service for parks and recreational facilities.

As shown in Table 9-12, in the next six years, many parks will be constructed. The parks are illustrated in the Independence at the Point master plan. A recent illustration of the planned parks can be found in Appendix “F”.

**Table 9-12: Parks and Recreation Impact Fee Facilities Estimates**

<b>Future Facility</b>	<b>2013 Estimate (Millions)</b>	<b>Projected Constr. Year</b>
Mount Jordan Park	\$967,000	2013
Trail Way 1	\$277,669	2014
Trail Way 2	\$403,094	2014
City Park Improvements	\$224,000	2014
Rodeo Grounds Improvements	\$698,000	2014
Parry Farms Park Expansion	\$106,060	2014
North Pocket Parks	\$87,050	2015
Trail Way 3	\$540,117	2016
Trail Way 4	\$219,808	2016
New 25 Acre Park	\$4,200,000	2016
West Pocket Park	\$363,526	2017
East Pocket Park	\$42,520	2017
Center Pocket Park	\$96,612	2017
Parry Farms Park Improvements	\$110,000	2017
Independence Park	\$3,814,080	2019
<b>Total</b>	<b>\$12,149,536</b>	

Ultimately, new development will require \$43,206,773.49. As calculated in Chapter 7, LOS for parks and recreation facilities is \$1,349.78986 of new recreation facilities per resident. Therefore, these planned facilities will serve 9,001 new residents (i.e. \$12,149,536 / \$1,349.78986).

Since the parks and recreation impact fees are calculated per resident and it is apparent that new types of development are coming to Bluffdale, the following schedule of impact fees is currently recommended based on typical occupancy rates of different types of housing.

**Single Family** (4 residents/unit) = 4 x \$1,349.78986 = **\$5,399.16 (use 5,400)**

**Multi-Family** (3 residents/unit) = 3 x \$1,349.78986 = **\$4,049.37 (use 4,050)**

Since this impact fee is based upon the 2013 value of existing infrastructure, it is also recommended that the parks impact fee be adjusted on a yearly basis to reflect changes in the Construction Cost Index (CCI) published by the Engineering News-Record (ENR). The current CCR is 9551.58.

Appendix “A”

**Demographics**

Figure A.2

<b>Bluffdale City Build-Out Population Projections</b>										
<b>Land Use Classification</b>	<b>Area (acre)</b>	<b>Eastside Area (acre)</b>	<b>Westside Area (acre)</b>	<b>Residential Density (units/acre)</b>	<b>Eastside Units</b>	<b>Westside Units</b>	<b>Residents per Unit</b>	<b>Eastside Residents</b>	<b>Westside Residents</b>	<b>Total Residents (rounded)</b>
<b>Business Park</b>	472	422	50	0.00	0	0	0.00	0	0	0
<b>Civic Institutional</b>	82	42	40	0.00	0	0	0.00	0	0	0
<b>Commercial</b>	327	270	57	0.00	0	0	0.00	0	0	0
<b>Light Industrial</b>	215	215	0	0.00	0	0	0.00	0	0	0
<b>Mixed Use</b>	758	738	20	7.20	5,314	144	3.54	18,810	510	19,320
<b>Neighborhood Commercial</b>	48	-12	60	0.00	0	0	0.00	0	0	0
<b>Parks &amp; Recreation</b>	445	421	24	0.00	0	0	0.00	0	0	0
<b>Regional Commercial</b>	115	115	0	0.00	0	0	0.00	0	0	0
<b>Residential 1 acre minimum</b>	3,693	93	3,600	1.01	94	3,636	3.96	372	14,399	14,771
<b>Residential 10,000 sq ft minimum</b>	157	47	110	4.40	207	484	3.96	819	1,917	2,736
<b>Residential Multi-Family</b>	44	24	20	16.40	394	328	2.90	1,141	951	2,092
<b>Federal</b>	698	198	500	0.00	0	0	0.00	0	0	0
<b>Total Acreage</b>	<b>7,054</b>	<b>2,573</b>	<b>4,481</b>		<b>6,008</b>	<b>4,592</b>		<b>21,142</b>	<b>17,777</b>	<b>38,919</b>

Appendix “B”

**Water**

**Culinary Water Capital Facilities Projects  
Cost Estimates**

August 2015

**(A) 1850 WEST PIPE REPLACEMENT**

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$3,312	1	\$3,312.00
Traffic Control (6%)	LS	\$3,312	1	\$3,312.00
8" PVC Installed	LF	\$48	1150	\$55,200.00
<b>Subtotal:</b>				<b>\$61,824.00</b>
Contingency (25%)				\$15,456.00
<b>Total Construction Cost</b>				<b>\$77,280.00</b>
Land Acquisition				
Design & Construction Engineering (15%)				\$11,592.00
<b>Total Project Cost</b>				<b>\$88,872.00</b>
			2016	<b>Cost</b>
				<b>\$94,000.00</b>

**(B) 2055 WEST PIPE REPLACEMENT**

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$1,008	1	\$1,008.00
Traffic Control (6%)	LS	\$1,008	1	\$1,008.00
8" PVC Installed	LF	\$48	350	\$16,800.00
<b>Subtotal:</b>				<b>\$18,816.00</b>
Contingency (25%)				\$4,704.00
<b>Total Construction Cost</b>				<b>\$23,520.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$3,528.00
<b>Total Project Cost</b>				<b>\$27,048.00</b>
			2016	<b>Cost</b>
				<b>\$29,000.00</b>

**(C) WOOD HOLLOW TRUNKLINE REPLACEMENT**

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$8,640	1	\$8,640.00
Traffic Control (6%)	LS	\$8,640	1	\$8,640.00
8" PVC Installed	LF	\$48	3000	\$144,000.00
<b>Subtotal:</b>				<b>\$161,280.00</b>
Contingency (25%)				\$40,320.00
<b>Total Construction Cost</b>				<b>\$201,600.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$30,240.00
<b>Total Project Cost</b>				<b>\$231,840.00</b>
			2016	<b>Cost</b>
				<b>\$246,000.00</b>

(D) 14850 SOUTH PIPE REPLACEMENT

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$288	1	\$288.00
Traffic Control (6%)	LS	\$288	1	\$288.00
8" PVC Installed	LF	\$48	100	\$4,800.00
<b>Subtotal:</b>				<b>\$5,376.00</b>
Contingency (25%)				\$1,344.00
<b>Total Construction Cost</b>				<b>\$6,720.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$1,008.00
<b>Total Project Cost</b>				<b>\$7,728.00</b>
2016			<b>Cost</b>	<b>\$8,000.00</b>

(E) SILVERPOINT WAY PIPELINE

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$2,160	1	\$2,160.00
Traffic Control (6%)	LS	\$2,160	1	\$2,160.00
8" PVC Installed	LF	\$48	750	\$36,000.00
<b>Subtotal:</b>				<b>\$40,320.00</b>
Contingency (25%)				\$10,080.00
<b>Total Construction Cost</b>				<b>\$50,400.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$7,560.00
<b>Total Project Cost</b>				<b>\$57,960.00</b>
2016			<b>Cost</b>	<b>\$61,000.00</b>

(F) 2200 WEST PIPELINE EXTENSION

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$3,312	1	\$3,312.00
Traffic Control (6%)	LS	\$3,312	1	\$3,312.00
8" PVC Installed	LF	\$48	1,150	\$55,200.00
<b>Subtotal:</b>				<b>\$61,824.00</b>
Contingency (25%)				\$15,456.00
<b>Total Construction Cost</b>				<b>\$77,280.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$11,592.00
<b>Total Project Cost</b>				<b>\$88,872.00</b>
2016			<b>Cost</b>	<b>\$94,000.00</b>

(G) 2700 WEST PIPELINE

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$2,592	1	\$2,592.00
Traffic Control (6%)	LS	\$2,592	1	\$2,592.00
8" PVC Installed	LF	\$48	900	\$43,200.00
<b>Subtotal:</b>				<b>\$48,384.00</b>
Contingency (25%)				\$12,096.00
<b>Total Construction Cost</b>				<b>\$60,480.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$9,072.00
<b>Total Project Cost</b>				<b>\$69,552.00</b>
			<b>2016 Cost</b>	<b>\$74,000.00</b>

(1) INDEPENDENCE EAST TRUNKLINE PHASE II

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$12,420	1	\$12,420.00
Traffic Control (6%)	LS	\$12,420	1	\$12,420.00
12" PVC Installed	LF	\$60	3450	\$207,000.00
<b>Subtotal:</b>				<b>\$231,840.00</b>
Contingency (25%)				\$57,960.00
<b>Total Construction Cost</b>				<b>\$289,800.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$43,470.00
<b>Total Project Cost</b>				<b>\$333,270.00</b>
			<b>2016 Cost</b>	<b>\$353,000.00</b>

(2) PORTER ROCKWELL CORRIDOR TRUNKLINE

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$10,920	1	\$10,920.00
Traffic Control (6%)	LS	\$10,920	1	\$10,920.00
12" PVC Installed	LF	\$60	2200	\$132,000.00
Pressure Reducing Valve	LF	\$50,000	1	\$50,000.00
<b>Subtotal:</b>				<b>\$203,840.00</b>
Contingency (25%)				\$50,960.00
<b>Total Construction Cost</b>				<b>\$254,800.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$38,220.00
<b>Total Project Cost</b>				<b>\$293,020.00</b>
			<b>2018 Cost</b>	<b>\$349,000.00</b>

(3) 2700 WEST PIPE REPLACEMENT

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$11,715	1	\$11,715.00
Traffic Control (6%)	LS	\$11,715	1	\$11,715.00
10" PVC Installed	LF	\$55	3,550	\$195,250.00
<b>Subtotal:</b>				<b>\$218,680.00</b>
Contingency (25%)				\$54,670.00
<b>Total Construction Cost</b>				<b>\$273,350.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$41,002.50
<b>Total Project Cost</b>				<b>\$314,352.50</b>
			<b>2022 Cost</b>	<b>\$473,000.00</b>

(4) 1300 WEST WATERLINE

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$10,368	1	\$10,368.00
Traffic Control (6%)	LS	\$10,368	1	\$10,368.00
8" PVC Installed	LF	\$48	3600	\$172,800.00
<b>Subtotal:</b>				<b>\$193,536.00</b>
<b>Total Construction Cost</b>				<b>\$193,536.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$29,030.40
<b>Total Project Cost</b>				<b>\$222,566.40</b>
			<b>2017 Cost</b>	<b>\$250,000.00</b>

(5) WEBB WELL WATERLINE

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$10,080	1	\$10,080.00
Traffic Control (6%)	LS	\$10,080	1	\$10,080.00
8" PVC Installed	LF	\$48	3500	\$168,000.00
<b>Subtotal:</b>				<b>\$188,160.00</b>
Contingency (25%)				\$47,040.00
<b>Total Construction Cost</b>				<b>\$235,200.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$35,280.00
<b>Total Project Cost</b>				<b>\$270,480.00</b>
			<b>2030 Cost</b>	<b>\$648,000.00</b>

<b>Improvements</b>				
<b>Total (Planning Year)</b>				<b>\$2,005,560.90</b>
<b>Total (Construction Year)</b>				<b>\$2,679,000.00</b>

**Secondary Water Capital Facilities Projects  
Cost Estimates**

August 2013

(1) NEW WELL AND WATER RIGHTS

Description	Unit	Unit Price	Quantity	Total Cost
New Well Construction	LS	\$350,000	1	\$350,000.00
Water Rights	LS	\$50,000	1	\$50,000.00
<b>Subtotal:</b>				<b>\$400,000.00</b>
Contingency (25%)				\$100,000.00
<b>Total Construction Cost</b>				<b>\$500,000.00</b>
Land Acquisition				\$0.00
Design & Construction Engineering (15%)				\$0.00
<b>Total Project Cost</b>				<b>\$500,000.00</b>
2016			<b>Cost</b>	<b>\$530,000.00</b>

(2) INDEPENDENCE SYSTEM

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$53,784	1	\$53,784.00
Traffic Control (6%)	LS	\$53,784	1	\$53,784.00
10" PVC Installed	LF	\$54	16,600	\$896,400.00
<b>Subtotal:</b>				<b>\$1,003,968.00</b>
Contingency (25%)				\$250,992.00
<b>Total Construction Cost</b>				<b>\$1,254,960.00</b>
Land Acquisition				\$0.00
Design & Construction Engineering (15%)				\$188,244.00
<b>Total Project Cost</b>				<b>\$1,443,204.00</b>
2017			<b>Cost</b>	<b>\$1,622,000.00</b>

(3) SVSD REUSE PROJECT

Description	Unit	Unit Price	Quantity	Total Cost	
Mobilization (6%)	LS	\$73,710	1	\$73,710.00	
Traffic Control (6%)	LS	\$73,710	1	\$73,710.00	
12" PVC Installed	LF	\$60	1,700	\$102,000.00	
10" PVC Installed	LF	\$55	2,300	\$126,500.00	
Pump Station	EA	\$1.00	1,000,000	\$1,000,000.00	
<b>Subtotal:</b>				<b>\$1,375,920.00</b>	
Contingency (25%)				\$343,980.00	
<b>Total Construction Cost</b>				<b>\$1,719,900.00</b>	
Land Acquisition					
Design & Construction Engineering (15%)				\$257,985.00	
<b>Total Project Cost</b>				<b>\$1,977,885.00</b>	
			2017	<b>Cost</b>	<b>\$2,222,000.00</b>

(5) 2200 WEST TRUNKLINE EXTENSION

Description	Unit	Unit Price	Quantity	Total Cost	
Mobilization (6%)	LS	\$10,080	1	\$10,080.00	
Traffic Control (6%)	LS	\$10,080	1	\$10,080.00	
8" PVC Installed	LF	\$48	3,500	\$168,000.00	
<b>Subtotal:</b>				<b>\$188,160.00</b>	
Contingency (25%)				\$47,040.00	
<b>Total Construction Cost</b>				<b>\$235,200.00</b>	
Land Acquisition					
Design & Construction Engineering (15%)				\$35,280.00	
<b>Total Project Cost</b>				<b>\$270,480.00</b>	
			2021	<b>Cost</b>	<b>\$384,000.00</b>

(6) REDWOOD ROAD TRUNKLINE

Description	Unit	Unit Price	Quantity	Total Cost	
Mobilization (6%)	LS	\$10,368	1	\$10,368.00	
Traffic Control (6%)	LS	\$10,368	1	\$10,368.00	
8" PVC Installed	LF	\$48	3,600	\$172,800.00	
<b>Subtotal:</b>				<b>\$193,536.00</b>	
Contingency (25%)				\$48,384.00	
<b>Total Construction Cost</b>				<b>\$241,920.00</b>	
Land Acquisition					
Design & Construction Engineering (15%)				\$36,288.00	
<b>Total Project Cost</b>				<b>\$278,208.00</b>	
			2022	<b>Cost</b>	<b>\$418,000.00</b>

(7) 14400 SOUTH TRUNKLINE

Description	Unit	Unit Price	Quantity	Total Cost	
Mobilization (6%)	LS	\$9,360	1	\$9,360.00	
Traffic Control (6%)	LS	\$9,360	1	\$9,360.00	
12" PVC Installed	LF	\$60	2,600	\$156,000.00	
<b>Subtotal:</b>				<b>\$174,720.00</b>	
Contingency (25%)				\$43,680.00	
<b>Total Construction Cost</b>				<b>\$218,400.00</b>	
Land Acquisition					
Design & Construction Engineering (15%)				\$32,760.00	
<b>Total Project Cost</b>				<b>\$251,160.00</b>	
			2023	<b>Cost</b>	<b>\$400,000.00</b>

(8) SECONDARY WATER STORAGE TANK

Description	Unit	Unit Price	Quantity	Total Cost	
Mobilization (6%)	LS	\$60,000	1	\$60,000.00	
Traffic Control (6%)	LS	\$60,000	1	\$60,000.00	
2 MG Tank	LF	\$1,000,000	1	\$1,000,000.00	
<b>Subtotal:</b>				<b>\$1,120,000.00</b>	
Contingency (25%)				\$280,000.00	
<b>Total Construction Cost</b>				<b>\$1,400,000.00</b>	
Land Acquisition					
Design & Construction Engineering (15%)				\$210,000.00	
<b>Total Project Cost</b>				<b>\$1,610,000.00</b>	
			2024	<b>Cost</b>	<b>\$2,720,000.00</b>

(9) 15000 SOUTH TRUNKLINE

Description	Unit	Unit Price	Quantity	Total Cost	
Mobilization (6%)	LS	\$9,180	1	\$9,180.00	
Traffic Control (6%)	LS	\$9,180	1	\$9,180.00	
10" PVC Installed	LF	\$55	2,630	\$144,650.00	
12" PVC Installed	LF	\$60	2,550	\$153,000.00	
<b>Subtotal:</b>				<b>\$316,010.00</b>	
Contingency (25%)				\$79,002.50	
<b>Total Construction Cost</b>				<b>\$395,012.50</b>	
Land Acquisition					
Design & Construction Engineering (15%)				\$59,251.88	
<b>Total Project Cost</b>				<b>\$454,264.38</b>	
			2025	<b>Cost</b>	<b>\$814,000.00</b>

( 1 0 ) 3 6 0 0 W E S T T R U N K L I N E

Description	Unit	Unit Price	Quantity	Total Cost	
Mobilization (6%)	LS	\$7,142	1	\$7,142.40	
Traffic Control (6%)	LS	\$7,142	1	\$7,142.40	
8" PVC Installed	LF	\$48	2480	\$119,040.00	
<b>Subtotal:</b>				<b>\$133,324.80</b>	
Contingency (25%)				\$33,331.20	
<b>Total Construction Cost</b>				<b>\$166,656.00</b>	
Land Acquisition					
Design & Construction Engineering (15%)				\$24,998.40	
<b>Total Project Cost</b>				<b>\$191,654.40</b>	
			2026	<b>Cost</b>	<b>\$364,000.00</b>

( 1 1 ) R I V E R V I E W T R U N K L I N E

Description	Unit	Unit Price	Quantity	Total Cost	
Mobilization (6%)	LS	\$4,290	1	\$4,290.00	
Traffic Control (6%)	LS	\$4,290	1	\$4,290.00	
10" PVC Installed	LF	\$55	1,300	\$71,500.00	
<b>Subtotal:</b>				<b>\$80,080.00</b>	
Contingency (25%)				\$20,020.00	
<b>Total Construction Cost</b>				<b>\$100,100.00</b>	
Land Acquisition					
Design & Construction Engineering (15%)				\$15,015.00	
<b>Total Project Cost</b>				<b>\$115,115.00</b>	
			2027	<b>Cost</b>	<b>\$232,000.00</b>

( 1 2 ) 1 3 8 0 0 S O U T H T R U N K L I N E

Description	Unit	Unit Price	Quantity	Total Cost	
Mobilization (6%)	LS	\$13,101	1	\$13,101.00	
Traffic Control (6%)	LS	\$13,101	1	\$13,101.00	
8" PVC Installed	LF	\$48	2,630	\$126,240.00	
10" PVC Installed	LF	\$55	3,970	\$218,350.00	
<b>Subtotal:</b>				<b>\$370,792.00</b>	
Contingency (25%)				\$92,698.00	
<b>Total Construction Cost</b>				<b>\$463,490.00</b>	
Land Acquisition					
Design & Construction Engineering (15%)				\$69,523.50	
<b>Total Project Cost</b>				<b>\$533,013.50</b>	
			2027	<b>Cost</b>	<b>\$1,073,000.00</b>

(13) 15500 SOUTH BOOSTER PUMP

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$28,500	1	\$28,500.00
Traffic Control (6%)	LS	\$28,500	1	\$28,500.00
Booster Pump	Each	\$475,000	1	\$475,000.00
<b>Subtotal:</b>				<b>\$532,000.00</b>
Contingency (25%)				\$133,000.00
<b>Total Construction Cost</b>				<b>\$665,000.00</b>
Land Acquisition				
Design & Construction Engineering (15%)				\$99,750.00
<b>Total Project Cost</b>				<b>\$764,750.00</b>
			2027	<b>Cost</b>
				<b>\$1,539,000.00</b>

Total Improvements				
<b>Total (Planning Year)</b>				<b>\$7,509,869.28</b>
<b>Total (Construction Year)</b>				<b>\$10,547,000.00</b>

Appendix “C”  
**Transportation**

**Figure C.2**

Category	Land Use	Unit	Definition
Residential	Single Family Detached	Dwelling Units	All single-family detached home on individual lots
	Condominium/Townhome	Dwelling Units	Ownership units that have at least one other owned unit within the same building structure.
	Apartment	Dwelling Units	Units that are located within the same building with at least three other dwelling units, for example quadraplexes and all types of apartment buildings.
Office	Office Building	1,000 sq. ft.	Building houses multiple tenants; it is a location where affairs of businesses, commercial or industrial organizations, or professional person or firms are conducted
	Medical Office Building	1,000 sq. ft.	Building is a facility that provides diagnoses and outpatient care on a routine basis, but is unable to provide prolonged in-house medical and surgical care.
Retail	Less Intensive Retail	1,000 sq. ft.	Full service retail facility that specializes in a certain product. Generally large and may include storage areas.
	Intensive Retail	1,000 sq. ft.	Integrated group of commercial establishments that is planned, developed, owned and managed as a unit.
Services	High Turnover (sit down) Restaurant	1,000 sq. ft.	Sit-down, full-service eating establishment with turnover rates of approximately one hour or less.
	Fast Food	1,000 sq. ft.	This type of restaurant is characterized by a large carryout clientele; long hours of service and high turnover rates for eat-in customers.
	Gas Station w/ Convenience Market	Pump Stations	Stations with convenience markets where the primary business is the fueling of motor vehicles. These service station may also have ancillary facilities for servicing and repairing motor vehicles.
	Bank	1,000 sq. ft.	Free-standing building with their own parking lots and may or may not provide drive-in lanes.
Industrial	Industrial	1,000 sq. ft.	Contain a number of industrial or related facilities. They are characterized by a mix of manufacturing, service and warehouse facilities with a wide variation in the proportion of each type of use from one location to another.
	Manufacturing	1,000 sq. ft.	Areas where the primary activity is the conversion of raw materials or parts into finished products.
	Warehousing	1,000 sq. ft.	Primarily devoted to the storage of materials, but they may also include office and maintenance areas.
Institutional	Elementary School	Students	School typically serve students attending kindergarten through the fifth or sixth grade
	Middle/Junior School	Students	Schools serving student who have completed elementary school and have not yet entered high school.
	High School	Students	Schools serving students who have completed middle or junior high school
	Private School (K-8)	Students	Primarily serve students attending kindergarten through the eight grade, but may also include students beginning with pre-K classes
	Private School (K-12)	Students	Primarily serve students attending kindergarten through the 12th grade, but may also include those beginning with pre-K classes.
	Day Care	1,000 sq. ft.	Free-standing facility where care for pre-school aged children is provided, normally during the daytime hours.
	Library	1,000 sq. ft.	Can be either a public or private facility that consists of shelved books, reading rooms or areas, and sometimes meeting rooms.
	Church	1,000 sq. ft.	Building in which public worship services are held.
Ldg	Hotel/Motel	rooms	Places of lodging that provide sleeping accommodations and may or may not include supporting facilities.

Figure C.3

SFE CALCULATIONS													
Land Use	Unit	Applicable ITE Code(s)	ITE Trip Ends per Unit (PM peak Hour)	Heavy Vehicle %	Heavy Vehicle Adjustment*	Primary Trip Adjustment	Effective Trip Ends per Unit	Effective Trips per Unit	Demand Index (single family equivalent)	Porter Rockwell Service Area # of Units	City-wide # of Units	Porter Rockwell Service Area # of SFE Units	City-wide # of SFE Units
Single Family Detached	Dwelling Units	210	1.01	0%	1	1.00	1.0100	0.5050	0.9902	1990	6998	1970	6929
Single Family Attached	Dwelling Units	220/230	0.57	0%	1	1.00	0.5700	0.2850	0.5588	1990	2378	1112	1329
Office	1,000 sq. ft.	710/720	0.76	0%	1	1.00	0.7600	0.3800	0.7451	4730	5280	3524	3934
Institutional	1,000 sq. ft.	520-590	2.08	0%	1	1.00	2.0800	1.0400	2.0392	110	440	224	897
Retail	1,000 sq. ft.	820/890	2.11	5%	1.05	0.50	1.1078	0.5539	1.0861	1190	5076	1292	5513
Industrial	Employees	110/140/150	0.42	50%	1.5	1.00	0.6300	0.3150	0.6176	0	2200	0	1359
											2040 SFE's	8122	19961
											2012 SFE's	0	2564
											New SFE's	8122	17397

**Figure C.4**

**ITE RECOMMENDED IMPACT FEE UNIT EQUIVILANCIES**

Category	Land Use	Unit	Applicable ITE Code(s)	Demand Index (single family equivalent)	Pass-by Trip Reductions	Impact Fee Cost Per Unit	PRB SA Impact Fee Cost Per Unit
Residential	Single Family Detached	Dwelling Units	210	1	0%	\$3,360	\$3,685
	Condominium/Townhome	Dwelling Units	230	0.51	0%	\$1,714	\$1,879
	Apartment	Dwelling Units	220	0.61	0%	\$2,050	\$2,248
Office	Office Buiding	1,000 sq. ft.	710	1.55	0%	\$5,208	\$5,712
	Medical Office Building	1,000 sq. ft.	720	3.68	0%	\$12,365	\$13,561
Retail	Less Intensive Retail	1,000 sq. ft.	890	0.24	55%	\$363	\$398
	Intensive Retail	1,000 sq. ft.	820	1.95	35%	\$4,259	\$4,671
Services	High Turnover (sit down) Restaurant	1,000 sq. ft.	932	3.11	45%	\$5,747	\$6,303
	Fast Food	1,000 sq. ft.	934	10.80	50%	\$18,144	\$19,899
	Gas Station w/ Convience Market	Pump Stations	945	2.09	65%	\$2,458	\$2,696
	Bank	1,000 sq. ft.	912	11.32	55%	\$17,116	\$18,771
Industrial	Industrial	1,000 sq. ft.	110	1.46	0%	\$4,906	\$5,380
	Manufacturing	1,000 sq. ft.	140	1.10	0%	\$3,696	\$4,054
	Warehousing	1,000 sq. ft.	150	0.70	0%	\$2,352	\$2,580
Institutional	Elementary School	Students	520	0.28	0%	\$941	\$1,032
	Middle/Junior School	Students	522	0.30	0%	\$1,008	\$1,106
	High School	Students	530	0.28	0%	\$941	\$1,032
	Private School (K-8)	Students	534	0.60	0%	\$2,016	\$2,211
	Private School (K-12)	Students	536	0.54	0%	\$1,814	\$1,990
	Day Care	1,000 sq. ft.	565	2.61	0%	\$8,770	\$9,618
	Library	1,000 sq. ft.	590	3.51	0%	\$11,794	\$12,934
	Church	1,000 sq. ft.	560	0.65	0%	\$2,184	\$2,395
Ldg	Hotel/Motel	rooms	310/320	0.55	0%	\$1,848	\$2,027

Bluffdale City - Transportation Capital Facilities Plan Cost Estimates

Unit Prices	Unit	Unit Price	Assume 1ft for full ROW	Unit	Unit Price
Description					
Roadway Excavation	CY	\$10.00	Assume 1ft for full ROW	SF	\$0.37
3" Asphalt	TON	\$70.00	Assume 155 lbs/ft <sup>3</sup>	SF	\$1.36
8" UBC	CY	\$25.00		SF	\$0.62
Curb and Gutter (30")	LF	\$15.00		LF	\$15.00
Sidewalk (4')	SF	\$6.50		LF	\$26.00
ROW	SF	\$4.00		Acre	\$174,240.68
Storm Drain Pipe (18")	LF	\$50.00		LF	\$50.00
Catchbasin	Each	\$3,500.00		Each	\$3,500.00
Combo Box	Each	\$4,500.00		Each	\$4,500.00
Roadway Fill	CY	\$16.00		CY	\$16.00

Plan #

Project Description	Quantity	Roadway Length (ft)	Asphalt Width	Existing Asphalt Width	Required ROW Width (ft)	Existing ROW Width (ft)	Mobilization (6%)	Construction Surveying (3%)	Roadway Excavation (SF)	Roadway Fill (CY)	3" Asphalt (SF)	8" UBC (SF)	30" Curb and Gutter (LF)	4' Sidewalk (LF)	Drainage (LF)	30" Curb and Gutter Island (LF)	Structures	Traffic Control (%/6)	Contingency (20%)	Total Construction Cost	ROW Acquisition (Acres)	Design Engineering (7%)	Construction Engineering (5%)	Total Project Cost	Project Year	Cost		
1 Noell Nelson Dr, 14600 S to Freedom Point Way	Quantity	2,650	41	0	66	0			174,900		108,650	174,900	5,300	5,300	2,937	0	1				4.02				2016	\$2,306,186		
	Cost						\$60,500	\$30,300	\$64,778		\$147,357	\$107,963	\$79,500	\$137,800	\$202,850	\$0	\$210,000	\$57,100	\$219,700	\$1,317,847	\$699,600	\$92,300	\$65,900	\$2,175,647				
2 Freedom Point Way, PRB to Pony Express	Quantity	1,550	41	0	66	66			\$102,300		\$63,550	\$102,300	\$3,100	\$3,100	\$1,714	\$0					\$0				2016	\$711,500		
	Cost						\$27,500	\$13,800	\$37,889		\$86,190	\$63,148	\$46,500	\$80,600	\$117,700	\$0			\$26,000	\$99,900	\$599,227	\$0	\$42,000	\$30,000	\$671,227			
3 Porter Rockwell Segment 3, 15200 to 15650 S	Quantity	4,600	75	0	120	120			552,000		345,000	552,000	9,200	9,200	5,500	9,200					0.00				2016	\$3,126,461		
	Cost						\$120,800	\$60,400	\$204,444		\$467,906	\$340,741	\$138,000	\$239,200	\$371,000	\$138,000				\$114,000	\$438,900	\$2,633,391	\$0	\$184,400	\$131,700	\$2,949,491		
4 2200 West, 15400 S to 14400 S	Quantity	6,650	41	34	66	66			\$212,800		\$46,550	\$212,800	\$13,300	\$13,300	\$7,347	\$0					0.00				2016	\$2,176,452		
	Cost						\$84,100	\$42,100	\$78,815		\$63,133	\$131,358	\$199,500	\$345,800	\$503,350	\$0			\$79,400	\$305,600	\$1,833,156	\$0	\$128,400	\$91,700	\$2,053,256			
5 Noell Nelson Dr, Heritage Crest Way to PRB	Quantity	900	41	0	66	0			59,400		36,900	59,400	900	900	982	0					1.36				2016	\$599,231		
	Cost						\$13,500	\$6,800	\$22,000		\$50,046	\$36,667	\$13,500	\$23,400	\$65,100	\$0			\$12,700	\$48,800	\$292,512	\$237,600	\$20,500	\$14,700	\$565,312			
6 Porter Rockwell Segment 5, Redwood Rd. Intersection	Quantity	400	75	0	60	60			24,000		30,000	24,000	800	800	475	0					0.00				2016	\$212,786		
	Cost						\$8,300	\$4,200	\$8,889		\$40,688	\$14,815	\$12,000	\$20,800	\$31,750	\$0			\$7,800	\$29,900	\$179,141	\$0	\$12,600	\$9,000	\$200,741			
7 600 West, 14400 S to 14600 S	Quantity	1,200	75	0	100	0			120,000		90,000	120,000	2,400	2,400	1,425	2,400					2.75				2018	\$1,442,000		
	Cost						\$30,000	\$15,000	\$44,444		\$122,063	\$74,074	\$36,000	\$62,400	\$95,250	\$36,000			\$28,300	\$108,800	\$652,331	\$480,000	\$45,700	\$32,700	\$1,210,731			
8 14400 South, 2200 West to Redwood Rd	Quantity	2,370	41	25	66	66			97,170		37,920	97,170	2,370	2,370	2,616	0					1.00				2018	\$1,021,736		
	Cost						\$27,000	\$13,500	\$35,989		\$51,429	\$59,981	\$35,550	\$61,620	\$178,800	\$0			\$25,500	\$97,900	\$587,269	\$200,000	\$41,200	\$29,400	\$857,869			
9 Noell Nelson Dr, Porter Rockwell to Pony Express	Quantity	1,700	41	0	66	0			112,200		69,700	112,200	1,700	1,700	1,864	0					2.58				2018	\$1,275,275		
	Cost						\$25,500	\$12,800	\$41,556		\$94,531	\$69,259	\$25,500	\$44,200	\$125,200	\$0			\$24,100	\$92,600	\$555,245	\$448,800	\$38,900	\$27,800	\$1,070,745			
10 Porter Rockwell Segment 5, Bridge to Redwood Rd.	Quantity	2,400	75	0	120	100			288,000		180,000	288,000	4,800	4,800	2,850	4,800					1.10				2019	\$3,002,889		
	Cost						\$89,600	\$44,800	\$106,667		\$244,125	\$177,778	\$72,000	\$124,800	\$190,500	\$72,000	\$420,000		\$84,500	\$325,400	\$1,952,169	\$192,000	\$136,700	\$97,700	\$2,378,569			
11 Porter Rockwell Segment 4, Segment 3 to the Bridge	Quantity	2,900	75	0	120	0			348,000		217,500	348,000	5,800	5,800	3,425	5,800					7.99				2020	\$4,337,641		
	Cost						\$75,800	\$37,900	\$128,889		\$294,984	\$214,815	\$87,000	\$150,800	\$227,250	\$87,000			\$71,500	\$275,200	\$1,651,138	\$1,392,000	\$115,600	\$82,600	\$3,241,338			
12 13970 South Estimate included separately)	Quantity																								2016	\$2,351,310		
	Cost																		\$250,000		\$1,968,217					\$2,218,217		
13 14600 South, I-15 to UPRR	Quantity	5,850	105	24	129	24			614,250		473,850	614,250	11,700	11,700	7,425	11,700	1				14.10				2021	\$9,115,511		
	Cost						\$162,600	\$81,300	\$227,500		\$642,659	\$379,167	\$175,500	\$304,200	\$491,250	\$175,500	\$160,000		\$153,400	\$590,700	\$3,543,776	\$2,457,000	\$248,100	\$177,200	\$6,426,075			
14 13800 South, 2950 W to 3600 W	Quantity	4,020	41	0	66	20			265,320		164,820	265,320	8,040	8,040	4,430	0					4.25				2022	\$3,720,585		
	Cost						\$71,100	\$35,600	\$98,267		\$223,537	\$163,778	\$120,600	\$209,040	\$301,500	\$0			\$67,100	\$258,200	\$1,548,722	\$739,680	\$108,500	\$77,500	\$2,474,401			
15 Porter Rockwell Bridge Segment	Quantity								0		0	0	0	0	0	0	1				0.00				2022	\$37,125,684		
	Cost						\$1,011,300	\$505,700	\$0		\$0	\$0	\$0	\$0	\$0	\$0	#####		\$954,000	\$3,674,200	\$22,045,200	\$0	\$1,543,200	\$1,102,300	\$24,690,700			
16 850 West, 14600 S to 1000 W	Quantity	2,200	41	18	66	20			105,600		50,600	105,600	4,400	4,400	2,446	0					2.32				2023	\$1,941,980		
	Cost						\$33,400	\$16,700	\$39,111		\$68,626	\$65,185	\$66,000	\$114,400	\$170,300	\$0			\$31,500	\$121,100	\$726,323	\$404,800	\$50,900	\$36,400	\$1,218,423			
17 2200 West, 14400 S to 13800 S	Quantity	3,900	41	34	66	66			124,800		27,300	124,800	7,800	7,800	4,310	0					0.00				2024	\$2,035,290		
	Cost						\$49,400	\$24,700	\$46,222		\$37,026	\$77,037	\$117,000	\$202,800	\$295,500	\$0			\$46,600	\$179,300	\$1,075,585	\$0	\$75,300	\$53,800	\$1,204,685			
18 14600 South, UPRR to Redwood Rd.	Quantity	5,830	75	24	100	24			443,080		297,330	443,080	11,660	11,660	6,955	11,660	2				10.17				2024	\$17,716,879		
	Cost						\$356,900	\$178,500	\$164,104		\$403,254	\$273,506	\$174,900	\$303,160	\$467,750	\$174,900	\$3,650,000		\$336,700	\$1,296,800	\$7,780,474	\$1,772,320	\$544,700	\$389,100	\$10,486,594			
19 14000 South, 2950 W to ULD Canal	Quantity	1,300	41	0	66	0			85,800		53,300	85,800	2,600	2,600	1,423	0					1.97				2025	\$1,613,158		
	Cost						\$22,900	\$11,500	\$31,778		\$72,288	\$52,963	\$39,000	\$67,600	\$95,150	\$0			\$21,600	\$83,000	\$497,779	\$343,200	\$34,900	\$24,900	\$900,779			
20 14000 South, Canal to 3600 West	Quantity	2,600	41	0	66	0			171,600		106,600	171,600	5,200	5,200	2,887	0	1				3.94				2025	\$3,531,386		
	Cost						\$52,700	\$26,400	\$63,556		\$144,576	\$105,926	\$78,000	\$135,200	\$200,350	\$0	\$100,000		\$49,700	\$191,300	\$1,147,708	\$686,400	\$80,400	\$57,400	\$1,971,908			
21 Pony Express Road, 14600 S to City Limits	Quantity	13,200	41	20	66	20			607,200		277,200	607,200	26,400	26,400	14,553	0					13.94				2026	\$13,600,941		
	Cost						\$194,000	\$97,000	\$224,889		\$375,953	\$374,815	\$396,000	\$686,400	\$991,650	\$0			\$183,000	\$704,800	\$4,228,506	\$2,428,800	\$296,000	\$211,500	\$7,164,806			
22 Jordan Narrows Rd, Camp Williams to AUB	Quantity	2,850	41	0	66	20			188,100		116,850	188,100	5,700	5,700	3,137	0	2				3.01				2028	\$4,798,674		
	Cost						\$70,700	\$35,400	\$69,667		\$158,478	\$116,111	\$85,500	\$148,200	\$212,850	\$0	\$320,000		\$66,700	\$256,800	\$1,540,406	\$524,400	\$107,900	\$77,100	\$2,249,806			
23 South Bluffdale Loop Road	Quantity	6,600	41	0	66	0			435,																			

Appendix “D”

**Storm Drain**

**Storm Drain Capital Facilities Projects  
Cost Estimates**

August 2015

**(A) HERITAGE CREST DETENTION POND EXPANSION PROJECT**

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$2,664	1	\$2,664.00
Traffic Control (6%)	LS	\$2,664	1	\$2,664.00
Inlet/Outlet Structures	Each	\$5,000	2	\$10,000.00
Pond Excavation	CY	\$10	3440	\$34,400.00
<b>Subtotal:</b>				<b>\$49,728.00</b>
Contingency (25%)				\$12,432.00
<b>Total Construction Cost</b>				<b>\$62,160.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$9,324.00
<b>Total Project Cost</b>				<b>\$71,484.00</b>
<b>2016 Cost</b>			<b>\$75,773.04</b>	

**(B) SILVER POINT WAY 18" STORM DRAIN PROJECT**

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$3,780	1	\$3,780.00
Traffic Control (6%)	LS	\$3,780	1	\$3,780.00
18" RCP Installed	LF	\$52	750	\$39,000.00
Catch Basin	Each	\$2,500	6	\$15,000.00
60" Storm Drain Manhole Assembly	Each	\$3,000	3	\$9,000.00
<b>Subtotal:</b>				<b>\$70,560.00</b>
Contingency (25%)				\$17,640.00
<b>Total Construction Cost</b>				<b>\$88,200.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$13,230.00
<b>Total Project Cost</b>				<b>\$101,430.00</b>
<b>2016 Cost</b>			<b>\$107,515.80</b>	

(C) 1300 WEST 18" TRANSMISSION LINE

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$3,456	1	\$3,456.00
Traffic Control (6%)	LS	\$3,456	1	\$3,456.00
18" RCP Installed	LF	\$52	800	\$41,600.00
Catch Basin	Each	\$2,500	4	\$10,000.00
60" Storm Drain Manhole Assembly	Each	\$3,000	2	\$6,000.00
<b>Subtotal:</b>				<b>\$64,512.00</b>
Contingency (25%)				\$16,128.00
<b>Total Construction Cost</b>				<b>\$80,640.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$12,096.00
<b>Total Project Cost</b>				<b>\$92,736.00</b>
<b>2016</b>			<b>Cost</b>	<b>\$98,300.16</b>

(1) 14400 SOUTH TRUNKLINE EXTENSION & DENTION POND (2 ACRE)

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$5,460	1	\$5,460.00
Traffic Control (6%)	LS	\$5,460	1	\$5,460.00
Inlet/Outlet Structures	EA	\$5,000	2	\$10,000.00
30" RCP	LF	\$90	800	\$72,000.00
Soil Removal	CY	\$10	6000	\$60,000.00
Landscaping	LS	\$25,000	1	\$25,000.00
<b>Subtotal:</b>				<b>\$177,920.00</b>
Contingency (25%)				\$44,480.00
<b>Total Construction Cost</b>				<b>\$222,400.00</b>
Land Acquisition				\$200,000.00
Design & Construction Engineering (15%)				\$33,360.00
<b>Total Project Cost</b>				<b>\$455,760.00</b>
<b>2016</b>			<b>Cost</b>	<b>\$483,105.60</b>

Note: It is assumed that a 2 foot deep pond can be constructed on a 2.5 acre parcel.

(2) VISTA MEADOWS TRUNKLINE PROJECT

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$4,440	0	\$0.00
Traffic Control (6%)	LS	\$4,440	0	\$0.00
21" RCP Installed	LF	\$57	1200	\$68,400.00
60" Storm Drain Manhole Assembly	Each	\$700	8	\$5,600.00
<b>Subtotal:</b>				<b>\$74,000.00</b>
Contingency (25%)				\$18,500.00
<b>Total Construction Cost</b>				<b>\$92,500.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$13,875.00
<b>Total Project Cost</b>				<b>\$106,375.00</b>
			<b>2016 Cost</b>	<b>\$112,757.50</b>

Note: This estimate is based upon Bluffdale participating in pipe upsizing through the Vista Meadows Subdivision and not upon construction of an entire storm drain project.

(3) EASTSIDE REGIONAL DETENTION POND PROJECT (10 ACRE-FT)

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$14,265	1	\$14,265.00
Inlet/Outlet Structures	Each	\$10,000	2	\$20,000.00
42" RCP Installed	LF	\$135	1250	\$168,750.00
Pond Excavation	CY	\$10	4900	\$49,000.00
<b>Subtotal:</b>				<b>\$252,015.00</b>
Contingency (25%)				\$63,003.75
<b>Total Construction Cost</b>				<b>\$315,018.75</b>
Land Acquisition				\$400,000.00
Design & Construction Engineering (15%)				\$47,252.81
<b>Total Project Cost</b>				<b>\$762,271.56</b>
			<b>2016 Cost</b>	<b>\$808,007.86</b>

Notes:

- 1) It is assumed that a 1' deep pond can be constructed on a 10 acre parcel due to high groundwater.
- 2) It is estimated that other agencies will participate in this project and that Bluffdale City will only contribute \$300,000.

(4) SOUTH REGIONAL DETENTION POND (5 ACRE)

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$5,460	1	\$5,460.00
Traffic Control (6%)	LS	\$5,460	1	\$5,460.00
Inlet/Outlet Structures	EA	\$5,000	2	\$10,000.00
Soil Removal	CY	\$10	8100	\$81,000.00
<b>Subtotal:</b>				<b>\$101,920.00</b>
Contingency (25%)				\$25,480.00
<b>Total Construction Cost</b>				<b>\$127,400.00</b>
Land Acquisition				\$200,000.00
Design & Construction Engineering (15%)				\$19,110.00
<b>Total Project Cost</b>				<b>\$346,510.00</b>
			<b>2017 Cost</b>	<b>\$389,338.64</b>

Note: It is assumed that a 2 foot deep pond can be constructed on a 2.5 acre parcel.

(5) INDEPENDENCE TRUNKLINE PHASE I

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$16,260	1	\$16,260.00
Traffic Control (6%)	LS	\$16,260	1	\$16,260.00
24" RCP Installed	LS	\$70	3400	\$238,000.00
Catch Basin	Each	\$2,500	6	\$15,000.00
60" Storm Drain Manhole Assembly	Each	\$3,000	6	\$18,000.00
<b>Subtotal:</b>				<b>\$303,520.00</b>
Contingency (25%)				\$75,880.00
<b>Total Construction Cost</b>				<b>\$379,400.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$56,910.00
<b>Total Project Cost</b>				<b>\$436,310.00</b>
			<b>2017 Cost</b>	<b>\$550,831.32</b>

(6) INDEPENDENCE NORTH TRUNKLINE

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$4,884	1	\$4,884.00
Traffic Control (6%)	LS	\$4,884	1	\$4,884.00
36" RCP Installed	LF	\$110	740	\$81,400.00
42" RCP Installed	LF	\$135	560	\$75,600.00
48" RCP Installed	LF	\$155	500	\$77,500.00
54" RCP Installed	LF	\$175	1440	\$252,000.00
Catch Basin	Each	\$2,500	14	\$35,000.00
60" Storm Drain Manhole Assembly	Each	\$3,000	14	\$42,000.00
<b>Subtotal:</b>				<b>\$91,168.00</b>
Contingency (25%)				\$22,792.00
<b>Total Construction Cost</b>				<b>\$113,960.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$17,094.00
<b>Total Project Cost</b>				<b>\$131,054.00</b>
			<b>2021 Cost</b>	<b>\$208,880.17</b>

(7) PARRY FARMS DETENTION POND (3 ACRE)

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$5,460	1	\$5,460.00
Traffic Control (6%)	LS	\$5,460	1	\$5,460.00
Inlet/Outlet Structures	EA	\$5,000	2	\$10,000.00
Soil Removal	CY	\$10	8100	\$81,000.00
Landscaping	LS	\$30,000	1	\$30,000.00
<b>Subtotal:</b>				<b>\$131,920.00</b>
Contingency (25%)				\$32,980.00
<b>Total Construction Cost</b>				<b>\$164,900.00</b>
Land Acquisition				\$0.00
Design & Construction Engineering (15%)				\$24,735.00
<b>Total Project Cost</b>				<b>\$189,635.00</b>
			<b>2017 Cost</b>	<b>\$213,073.89</b>

Note: It is assumed that a 2 foot deep pond can be constructed on a 2.5 acre parcel.

(8) DEER HILL UPSIZE AND ENCLOSURE

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$5,460	1	\$5,460.00
Traffic Control (6%)	LS	\$5,460	1	\$5,460.00
24" Storm Drain	EA	\$70	2750	\$192,500.00
Catch Basin	CY	\$2,500	10	\$25,000.00
Storm Drain Manhole	LS	\$3,000	5	\$15,000.00
<b>Subtotal:</b>				<b>\$243,420.00</b>
Contingency (25%)				\$60,855.00
<b>Total Construction Cost</b>				<b>\$304,275.00</b>
Land Acquisition				\$0.00
Design & Construction Engineering (15%)				\$45,641.25
<b>Total Project Cost</b>				<b>\$349,916.25</b>
<b>2018</b>			<b>Cost</b>	<b>\$416,755.85</b>

(9) 13800 SOUTH DETENTION POND (5 ACRE-FT)

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$4,860	1	\$4,860.00
Traffic Control (6%)	LS	\$4,860	0	\$0.00
Soil Removal	CY	\$10	8100	\$81,000.00
<b>Subtotal:</b>				<b>\$85,860.00</b>
Contingency (25%)				\$21,465.00
<b>Total Construction Cost</b>				<b>\$107,325.00</b>
Land Acquisition				\$375,000.00
Design & Construction Engineering (15%)				\$16,098.75
<b>Total Project Cost</b>				<b>\$498,423.75</b>
<b>2018</b>			<b>Cost</b>	<b>\$593,630.66</b>

Note: It is assumed that a 2 foot deep pond can be constructed on a 2.5 acre parcel.

(10) SAGE ESTATES DETENTION POND (3 ACRE)

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$5,460	1	\$5,460.00
Traffic Control (6%)	LS	\$5,460	1	\$5,460.00
Inlet/Outlet Structures	EA	\$5,000	2	\$10,000.00
Soil Removal	CY	\$10	9000	\$90,000.00
Landscaping	LS	\$25,000	1	\$25,000.00
<b>Subtotal:</b>				<b>\$135,920.00</b>
Contingency (25%)				\$33,980.00
<b>Total Construction Cost</b>				<b>\$169,900.00</b>
Land Acquisition				\$300,000.00
Design & Construction Engineering (15%)				\$25,485.00
<b>Total Project Cost</b>				<b>\$495,385.00</b>
<b>2016</b>			<b>Cost</b>	<b>\$525,108.10</b>

Note: It is assumed that a 2 foot deep pond can be constructed on a 2.5 acre parcel.

( 1 1 ) 1 4 0 0 0 S O U T H T R U N K L I N E

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$5,040	1	\$5,040.00
Traffic Control (6%)	LS	\$5,040	1	\$5,040.00
24" RCP Installed	LS	\$70	1200	\$84,000.00
<b>Subtotal:</b>				<b>\$94,080.00</b>
Contingency (25%)				\$23,520.00
<b>Total Construction Cost</b>				<b>\$117,600.00</b>
Land Acquisition				\$150,000.00
Design & Construction Engineering (15%)				\$17,640.00
<b>Total Project Cost</b>				<b>\$285,240.00</b>
			<b>2017</b>	<b>Cost</b>
				<b>\$320,495.66</b>

( 1 2 ) 1 3 8 0 0 S O U T H 3 6 " T O 5 4 " T R U N K L I N E P R O J E C T

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$53,836	1	\$53,835.60
Traffic Control (6%)	LS	\$53,836	1	\$53,835.60
36" RCP Installed	LS	\$110	1480	\$162,800.00
48" RCP Installed	LS	\$155	1932	\$299,460.00
54" RCP Installed	LF	\$175	1800	\$315,000.00
Catch Basin	Each	\$2,500	30	\$75,000.00
60" Storm Drain Manhole Assembly	Each	\$3,000	15	\$45,000.00
<b>Subtotal:</b>				<b>\$1,004,931.20</b>
Contingency (25%)				\$251,232.80
<b>Total Construction Cost</b>				<b>\$1,256,164.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$188,424.60
<b>Total Project Cost</b>				<b>\$1,444,588.60</b>
			<b>2022</b>	<b>Cost</b>
				<b>\$2,172,127.13</b>

(13) 14600 SOUTH 42" TRUNKLINE PROJECT

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$64,680	1	\$64,680.00
Traffic Control (6%)	LS	\$64,680	1	\$64,680.00
42" RCP Installed	LF	\$135	6800	\$918,000.00
Catch Basin	Each	\$2,500	40	\$100,000.00
60" Storm Drain Manhole Assembly	Each	\$3,000	20	\$60,000.00
<b>Subtotal:</b>				<b>\$1,207,360.00</b>
Contingency (25%)				\$301,840.00
<b>Total Construction Cost</b>				<b>\$1,509,200.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$226,380.00
<b>Total Project Cost</b>				<b>\$1,735,580.00</b>
			<b>2025 Cost</b>	<b>\$3,108,159.45</b>

(14) INDEPENDENCE WEST DETENTION POND (5 ACRE-FT)

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$5,460	1	\$5,460.00
Traffic Control (6%)	LS	\$5,460	1	\$5,460.00
Inlet/Outlet Structures	EA	\$5,000	2	\$10,000.00
Soil Removal	CY	\$10	8100	\$81,000.00
<b>Subtotal:</b>				<b>\$101,920.00</b>
Contingency (25%)				\$25,480.00
<b>Total Construction Cost</b>				<b>\$127,400.00</b>
Land Acquisition				\$375,000.00
Design & Construction Engineering (15%)				\$19,110.00
<b>Total Project Cost</b>				<b>\$521,510.00</b>
			<b>2021 Cost</b>	<b>\$739,771.90</b>

Note: It is assumed that a 2 foot deep pond can be constructed on a 2.5 acre parcel.

( 1 5 ) INDEPENDENCE TRUNKLINE PHASE II

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$19,068	1	\$19,068.00
Traffic Control (6%)	LS	\$19,068	1	\$19,068.00
24" RCP Installed	LS	\$70	1640	\$114,800.00
36" RCP Installed	LS	\$110	1300	\$143,000.00
Catch Basin	Each	\$3,000	8	\$24,000.00
60" Storm Drain Manhole Assembly	Each	\$4,500	8	\$36,000.00
<b>Subtotal:</b>				<b>\$355,936.00</b>
Contingency (25%)				\$88,984.00
<b>Total Construction Cost</b>				<b>\$444,920.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$66,738.00
<b>Total Project Cost</b>				<b>\$511,658.00</b>
			<b>2021</b>	<b>Cost</b>
				<b>\$725,796.65</b>

( 1 6 ) INDEPENDENCE WEST TRUNKLINE PROJECT

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$34,680	1	\$34,680.00
Traffic Control (6%)	LS	\$34,680	1	\$34,680.00
36" RCP Installed	LS	\$110	1680	\$184,800.00
48" RCP Installed	LS	\$155	1040	\$161,200.00
54" RCP Installed	LS	\$175	980	\$171,500.00
Catch Basin	Each	\$2,500	11	\$27,500.00
60" Storm Drain Manhole Assembly	Each	\$3,000	11	\$33,000.00
<b>Subtotal:</b>				<b>\$647,360.00</b>
Contingency (25%)				\$161,840.00
<b>Total Construction Cost</b>				<b>\$809,200.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$121,380.00
<b>Total Project Cost</b>				<b>\$930,580.00</b>
			<b>2018</b>	<b>Cost</b>
				<b>\$1,108,335.67</b>

( 17 ) JORDAN NARROWS TRUNKLINE PROJECT

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$37,698	1	\$37,698.00
Traffic Control (6%)	LS	\$37,698	1	\$37,698.00
30" RCP Installed	LS	\$90	800	\$72,000.00
36" RCP Installed	LS	\$110	550	\$60,500.00
42" RCP Installed	LS	\$135	2340	\$315,900.00
48" RCP Installed	LS	\$155	780	\$120,900.00
Catch Basin	Each	\$2,500	8	\$20,000.00
60" Storm Drain Manhole Assembly	Each	\$3,000	13	\$39,000.00
<b>Subtotal:</b>				<b>\$703,696.00</b>
Contingency (25%)				\$175,924.00
<b>Total Construction Cost</b>				<b>\$879,620.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$131,943.00
<b>Total Project Cost</b>				<b>\$1,011,563.00</b>
			<b>2022</b>	<b>Cost</b>
				<b>\$1,521,016.74</b>

( 18 ) WOOD HOLLOW EXTENSION TRUNKLINE

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$13,239	1	\$13,239.00
Traffic Control (6%)	LS	\$13,239	1	\$13,239.00
18" RCP Installed	LS	\$52	350	\$18,200.00
24" RCP Installed	LS	\$70	350	\$24,500.00
30" RCP Installed	LS	\$90	440	\$31,500.00
36" RCP Installed	LS	\$110	350	\$48,400.00
42" RCP Installed	LS	\$135	300	\$47,250.00
48" RCP Installed	LS	\$145	400	\$43,500.00
Catch Basin	Each	\$2,500	3	\$7,500.00
60" Storm Drain Manhole Assembly	Each	\$3,000	6	\$18,000.00
<b>Subtotal:</b>				<b>\$265,328.00</b>
Contingency (25%)				\$66,332.00
<b>Total Construction Cost</b>				<b>\$331,660.00</b>
Land Acquisition				\$ -
Design & Construction Engineering (15%)				\$49,749.00
<b>Total Project Cost</b>				<b>\$381,409.00</b>
			<b>2024</b>	<b>Cost</b>
				<b>\$644,382.48</b>

(19) 1000 WEST TRUNKLINE EXTENSION

Description	Unit	Unit Price	Quantity	Total Cost
Mobilization (6%)	LS	\$5,040	1	\$5,040.00
Traffic Control (6%)	LS	\$5,040	1	\$5,040.00
24" RCP Installed	LS	\$70	1200	\$84,000.00
<b>Subtotal:</b>				<b>\$94,080.00</b>
Contingency (25%)				\$23,520.00
<b>Total Construction Cost</b>				<b>\$117,600.00</b>
Land Acquisition				\$150,000.00
Design & Construction Engineering (15%)				\$17,640.00
<b>Total Project Cost</b>				<b>\$285,240.00</b>
			<b>2020 Cost</b>	<b>\$381,715.46</b>

Planning Year Total \$11,144,659.16

2013 Cost Total \$15,304,879.72

Appendix “E”

**Public Safety**

**Figure E-1**

<b>Bluffdale City LOS Analysis Projected Public Safety Facilities Needs</b>				
<b>August 2013</b>				
Current Population			7990 residents	
2045 Population			40000 residents	
Total Existing Facilities:	Fire/ambulance		9,465 sf	
	LOS		1.18 sf per resident	
Total Required 2045 Facilities:	Fire/Ambulance		47,200 sf	
	LOS		1.18 sf per resident	
<b>New Facilities Required:</b>	Buildings		<b>37,700 sf</b>	
<b>Conceptual Plan for Meeting Growth Demands</b>				
Project	Planning Year	Area (s.f.)	2013	Future Cost
New Fire/Police Station	2014	13,000	\$2,600,000.00	\$2,704,000.00
Fire Station Expansion	2020	3,450	\$100,000.00	\$100,000.00
New Fire Station and EMS	2024	11,700	\$2,340,000.00	\$3,602,000.00
New Fire Station and EMS	2030	9,550	\$1,910,000.00	\$3,720,000.00
	<b>Total</b>	<b>37,700</b>	<b>\$6,950,000.00</b>	<b>\$10,126,000.00</b>
	<b>Cost for New Facility</b>	<b>\$200.00</b>	<b>per sq ft</b>	
<b>Notes:</b>				
1. Impact fees for Public Safety are calculated as a combined impact fee. However, determination of future facilities was based on maintaining the current combined LOS.				
2. Level of Service was calculated in the 2013 IFFP. Although the population has increased since that time, no new facilities have been constructed. However, the planned facilities from 2013 are underway to be constructed in 2016. Therefore, the LOS has not changed.				

Appendix “F”

**Parks and Recreation**

Appendix “G”

**Public Facilities**

Figure G.1

**Future Public Facilities Projects**  
**Cost Estimates**  
 August 2015

	Units	Quantity	Unit Price	Cost (2012)	Year	Cost (construction year)
City Hall	SF	23,000	260	\$5,980,000	2015	\$5,980,000
<i>City Hall Subtotal</i>				\$5,980,000		\$5,980,000
Public Works Building	SF	15,000	220	\$3,300,000	2019	\$3,860,533
Land (2 acres/10,000 s.f.)	Acres	3	120,000	\$360,000	2019	\$421,149
<i>Public Works Building Subtotal</i>				\$3,660,000		\$4,281,682
Animal Control Facility	SF	10,000	220	\$2,200,000	2022	\$2,895,050
Land (2 acres/10,000 s.f.)	Acres	2	120,000	\$240,000	2022	\$315,824
<i>Animal Control Facility Subtotal</i>				\$2,440,000		\$3,210,874
<b>Total Cost</b>				<b>\$12,080,000</b>		<b>\$13,472,556</b>

Appendix “H”

**Applicable State Codes**