HIGHLAND CITY

WASTEWATER IMPACT FEE FACILITY PLAN

(HAL Project No.: 314.15.300)

Adopted - April 21, 2015

HANSEN ALLEN & LUCE inc
ENGINEERS

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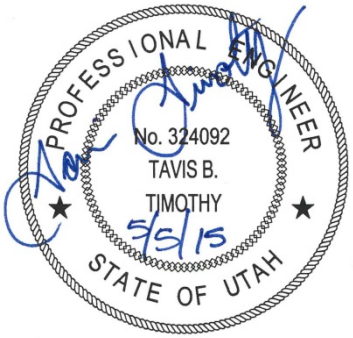

Tavis B. Timothy, P.E.
Project Engineer

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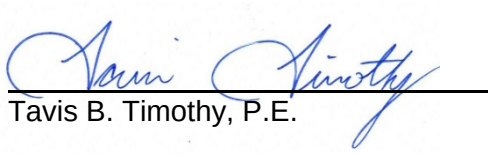
ENGINEERS

April 2015

CERTIFICATION OF IMPACT FEE FACILITY PLAN

I certify that, to the best of my knowledge, 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;
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.

Prepared by: 

Tavis B. Timothy, P.E.

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CHAPTER 1 – EXECUTIVE SUMMARY

PURPOSE AND BACKGROUND

The purpose of this Impact Fee Facility Plan (IFFP) is to provide direction to Highland City regarding the impact of future growth on the wastewater system within the next ten years.

Highland City was incorporated in 1977 with one of the purposes of incorporation being "To provide for and assure adequate sewage disposal is available for future use" (LeBaron & Luntz, 2007). Highland City provides wastewater collection services for the residents of the City. Wastewater collected by the City is conveyed to pipes owned and managed by the Timpanogos Special Service District (TSSD). TSSD also implements impact fees to pay for future facilities separate from those fees collected by the City.

EXECUTIVE SUMMARY

Data from the City's 2007 Wastewater Collection System Master Plan and additional data provided by the City provide the basis for the IFFP. Growth projections were taken from the Governor's Office of Management and Budget (GOPB, 2012). The IFFP considers growth over the next ten years (2024) and does not include the facilities required for growth beyond 2024.

During the preparation of the IFFP, existing and proposed levels of service were evaluated for collection of the waste water collection system. In each case, it was determined that the proposed level of service should be the same as existing level of service. The average flow level of service was 350 gpd/ERC.

Existing excess capacity was also reviewed so that costs incurred to create the existing system could be factored into the impact fees. The computer model was utilized to assess the capacity of the pipelines and pump stations. Costs for remaining capacity in existing pipelines and pump stations constructed by the City were utilized in the Impact Fee Analysis.

The impact fee facilities projects were grouped into collection system and pump station facility classifications. The capacity of each project was provided in ERCs.

Impact Fees for the wastewater system will be split between the Central Service area of Highland and the Southeast Service area. The identified projects for the collection system and pumping facilities provide a total cost of $5,684,752. The ten year growth component total cost for the projects is $1,949,280.

CHAPTER 2 – IMPACT FEE FACILITY PLAN

EXISTING SYSTEM DESCRIPTION

Highland City provides wastewater collection services to approximately 8.6 square miles and approximately 17,090 residents in northeastern Utah County, Utah. The wastewater collection system contains over 60 miles of wastewater pipe ranging between 8 and 12 inches in diameter, and over 1,500 manholes. Highland City has 5 wastewater pumping stations that help convey all the wastewater collected by the system to the Timpanogos Special Service District (TSSD) trunk lines and to the TSSD treatment plant.

Hansen, Allen, & Luce Inc. completed a Wastewater Collection System Master Plan for Highland City in 2007. Information from the master plan was used in conjunction with data from Highland City to create this impact fee facility plan.

GROWTH

Growth rates were taken from the Governor's Office of Management and Budget (GOPB, 2012) for Highland City. The current population, of approximately 17,090, was estimated using 2014 building permit information, the vacancy rate, and the average household size as provided by Highland City. Growth projections were developed using the 2014 population estimate from the City, growth projections from the Utah State Developmental Center Properties Master Plan (USDC, 2013), and the growth rates from the Governor's Office of Management and Budget. It was assumed that the Equivalent Residential Connections (ERCs) for the Central service area will grow at the same rate as the general population. Non-residential connections were included in the estimate using non-residential square footage provided by the City, with 10,000 square feet of non-residential building being equal to one ERC. Table 2-1 shows the growth projections for Highland City. This IFFP accounts for growth over the next ten years (2024). Growth beyond 2024 is considered part of the build-out growth. Growth for the Central Service Area is anticipated to grow by 422 ERCs by 2024. It is estimated that for the Southeast Service Area (Utah State Developmental Center) buildout will be by 2024 with anticipated growth equaling 885 ERCs.

Table 2-1
Growth Projection

Year	ERCs
2010	3,812
2015	4,198
2024	5,505
2064 (Build-out)	7,504

LEVEL OF SERVICE

The level of service is the "defined performance standard or unit of demand for each capital component of a public facility within a service area" according to the Utah Impact Fees Act (Utah Division of Administrative Rules, 2011). The Highland City Wastewater Collection System was split into two service areas to reflect growth expected over the majority of the City (Central Service Area) and to account for an area in the southeast part of the City expected to see

significant development (Southeast Service Area). The two service areas can be seen on Figure 2-1.

Most individual features of a wastewater collection system only have a direct effect on a limited area. For example a pump station generally benefits connections that flow to the pump station. However, it is assumed that the overall system benefits the entire City to collect and convey wastewater.

Highland City's wastewater system is comprised of only the collection of wastewater flows. The existing and proposed levels of service for the wastewater system were determined. Generally, the existing level of service matches the proposed level of service. Impact fees may not be used to pay for any services above the existing level of service.

The level of service was based on the Wastewater Collection System Master Plan (Hansen, Allen, & Luce, Inc., 2007). Although the master plan was completed in 2007, the existing level of service does not appear to have changed significantly since the master plan was completed.

Collection

The collection system relies on pump stations and sewer piping to convey all the wastewater generated in the system to TSSD facilities. The level of service based on the actual average flow data, as reported in the Master Plan, is 350 gallons per day (gpd) per ERC (Equivalent Residential Connection). It is proposed that the level of service for future connections be equal to the existing **average flow level of service of 350 gpd per ERC**.

Flows were metered at 6 different locations for the Master Plan. The metered flow was used to determine the peaking factor at each location and to create an equation to estimate the peaking factor based on the number of ERCs tributary to the location. The equation to estimate peaking in the system is:

$$Peaking\ Factor = 2.1517 * (ERCs * \frac{350}{1{,}000{,}000})^{-0.156}$$

For comparison, the State of Utah Administrative Code requires new sewer systems be designed on the basis of an annual average daily rate of flow of 100 gallons per capita per day unless other data are available. The per capita flow rate includes infiltration and inflow. Using 4.37 persons per household, would have required an average day flow of 437 gpd/ERC if reliable data had not been available from the City. The State of Utah Administrative Code requires a design flow of 400 gallons per capita per day for lateral and collector sewers or a peaking factor of 4. A design flow of 250 gallons per capita per day is required for interceptor and outfall sewers or a peaking factor of 2.5. This would have required a peak flow of 1,748 gpd per ERC for collector sewers and 1092 gpd per ERC for the interceptor sewer.

The capacity of a wastewater pipe network is determined by the depth ratio in each pipe (depth of flow divided by diameter of pipe). Because pressurized gravity flow in wastewater systems is highly undesirable, Highland City determined that a depth ratio of 70% for their sewers 15 inches in diameter and larger is acceptable and a depth ratio of 50% for all pipes less than 15 inches in diameter is acceptable. These depth ratios are considered the level of service for the pipe network.

In order to prevent settling of solids, Highland City has also determined that in accordance with state law no pipe should be designed to carry loads with velocities less than 2 feet per second.

Summary

Table 2-2 provides a summary of the proposed level of service for existing and future ERCs.

Table 2-2
Level of Service Summary

	LOS	2014	2024	Build Out (2064)
Average Day Flow	350 gpd/ERC	1.47 MGD	1.93 MGD	2.6 MGD
Peak Day Flow	Ave. Day Flow x 2.1517 x (ERCs x 350 / 1,000,000)$^{-0.156}$			
Maximum Depth Ratio	70% for 15+" pipes, 50% for pipes smaller than 15"			
Minimum Velocity	2 fps			

EXCESS CAPACITY

The 2007 Wastewater Collection System Master Plan evaluated the capacity of the existing wastewater collection system using SewerCAD software. The model utilized criteria identical to the level of service listed in Table 2-1. Individual capacities of pipes and pump stations were determined and projects were recommended based on build-out loading. Two areas were recently modeled to reflect recent growth projections in the northwest and southeast areas of the City. The individual capacities were updated with growth projections collected for this IFFP.

The capacity of the existing system was compared to the loading of the existing system based on the level of service summarized above. In cases where the existing system's capacity is capable of handling future connections, costs incurred to create the existing system can be factored into the impact fees. In cases where the existing system does not have excess capacity, only costs for the future projects can be included in the impact fees.

Specific projects recommended in the Master Plan and planned for the next ten years were analyzed to determine how much of the future project will be utilized by existing connections versus future connections. The existing vs future utilization was determined by the loading of existing and build-out conditions in the model.

The majority of the pump stations in the system were determined to have excess capacity. The Master Plan analyzed average flow rates to each pump station and compared the flows to the peak flow rates. The build out peak flow rate was then compared to the pump station capacity. Table 2-3 shows the pump station capacities, excess capacity, and the contributions of flow from existing ERCs, future ERCs over the next 10 years, and ERCs beyond 2024. However, only the American Fork River and Dry Creek Bench Pump Stations were constructed by the City.

Table 2-3
Pump Station Capacity

Pump Station	Capacity	Build Out Peak Flow	Existing 2015		10-yr Growth		Growth Beyond 2024	
			ERC	%	ERC	%	ERC	%
Highland Hollow	225 gpm	175 gpm	235	66%	29	8%	91	26%
American Fork River	300 gpm	1,200 gpm	295	25%	885	75%	0	0%
The Greens on the Highlands	205 gpm	35 gpm	39	47%	11	13%	34	40%
Dry Creek Bench	850 gpm	850 gpm	578	46%	167	13%	517	41%
Victor's View	200 gpm	100 gpm	68	65%	9	8%	27	26%

FUTURE FACILITIES

Data for the proposed wastewater system projects and their associated costs were provided in the 2007 Master Plan. Highland City determined which projects they anticipate completing or starting before 2024. Additional projects were added based on altered growth projections in the southeast area due to the Utah State Developmental Center properties.

Many future projects will benefit existing residents. Therefore costs for each project were split into the ratio between existing and future ERCs. This method avoids burdening future connections with the entire cost of projects that will also benefit existing connections.

The projects required for future growth are listed in Table 2-4, with the Master Plan ID in parenthesis.

Table 2-4
Future Facility Projects

ID	Project Description	Service Area	2015 ERCs	2024 ERCs	Build Out 2064 ERCs
1	12" Pipe Replacement (MP#1)	Central	471	784	1,262
2	12" Pipe Replacement (MP#2)	Central	1023	1,173	1,402
3	12" Pipe Replacement (MP#3)	Central	541	630	765
4	12" Pipe Replacement (MP#4)	Central	614	711	859
5	15" Pipe Replacement	Southeast	368	1,276	1,311
6	15" Pipe Replacement	Southeast	570	1,535	1,658
7	12" Pipe Replacement (MP#7)	Central	844	988	1,209
8	Impact Fee Facility Plan and Master Plan Update	Central and Southeast	4,198	5,505	7,504
9	12" Forcemain Replacement	Southeast	295	1,180	1,180
10	New American Fork Lift Station with 1,200 gpm capacity	Southeast	295	1,180	1,180

IMPACT FEE FACILITY PLAN

Impact Fees for the Highland Wastewater Collection System will be split into the two service areas mentioned earlier. Table 2-5 contains the Highland Impact Fee Facility Plan for each service area. The projects in the IFFP can also be seen on Figure 2-1.

Table 2-5
Impact Fee Facility Plan

ID	Anticipated Year	Project Cost	ERC Utilization			Cost due to 10 yr Growth
			Existing	2015 - 2024	2024 - 2064	
Central Service Area						
1	Year 1	$300,000	37%	25%	38%	$74,389
2	Year 2	$605,000	73%	11%	16%	$64,718
3	Year 3	$738,000[1]	71%	12%	18%	$85,446
4	Year 6-10	$962,000	71%	11%	17%	$108,660
7	Year 6-10	$1,089,000	70%	12%	18%	$130,155
8	Year 1-5	$9,743[2]	0%	100%	0%	$9,743
Central Area Cost		**$3,703,743**	**Central Area 10 yr Growth Cost**			**$473,112**
Southeast Service Area						
5	Year 6-10	$535,000	28%	69%	3%	$370,434
6	Year 6-10	$638,000	34%	58%	7%	$371,345
8	Year 1-5	$20.433[2]	0%	100%	0%	$20,433
9	Year 6-10	$224,000	25%	75%	0%	$167,933
10	Year 6-10	$755,000	25%	75%	0%	$566,024
Southeast Area Cost		**$2,172,433**	**Southeast Area 10 yr Growth Cost**			**$1,496,168**
Highland Total Cost		**$5,876,176**	**Highland Total 10 yr Growth Cost**			**$1,969,280**

[1]Project 3 is expected to only be 50% completed over the next 10 years. Displayed cost is 50% of the projects total.
[2]Project 8 is proportional for each Area based on ERCs.

REVENUE OPTIONS

Revenue options for the recommended projects, in addition to use fees, could include the following options: general obligation bonds, revenue bonds, State/Federal grants and loans, and impact fees. In reality, the City may need to consider a combination of these funding options. The following discussion describes each of these options.

General Obligation Bonds through Property Taxes

This form of debt enables the City to issue general obligation bonds for capital improvements and replacement. General Obligation (G.O.) Bonds would be used for items not typically financed through the Water Revenue Bonds (for example, the purchase of water source to ensure a sufficient water supply for the City in the future). G.O. bonds are debt instruments backed by the full faith and credit of the City which would be secured by an unconditional pledge of the City to levy assessments, charges or ad valorem taxes necessary to retire the bonds. G.O. bonds are the lowest-cost form of debt financing available to local governments and can be combined with other revenue sources such as specific fees, or special assessment charges to form a dual security through the City's revenue generating authority. These bonds are supported by the City as a whole, so the amount of debt issued for the water system is limited to

a fixed percentage of the real market value for taxable property within the City. For growth related projects this type of revenue places an unfair burden on existing residents as they had previously paid for their level of service.

Revenue Bonds

This form of debt financing is also available to the City for utility related capital improvements. Unlike G.O. bonds, revenue bonds are not backed by the City as a whole, but constitute a lien against the water service charge revenues of a Water Utility. Revenue bonds present a greater risk to the investor than do G.O. bonds, since repayment of debt depends on an adequate revenue stream, legally defensible rate structure /and sound fiscal management by the issuing jurisdiction. Due to this increased risk, revenue bonds generally require a higher interest rate than G.O. bonds, although currently interest rates are at historic lows. This type of debt also has very specific coverage requirements in the form of a reserve fund specifying an amount, usually expressed in terms of average or maximum debt service due in any future year. This debt service is required to be held as a cash reserve for annual debt service payment to the benefit of bondholders. Typically, voter approval is not required when issuing revenue bonds. For growth related projects this type of revenue places an unfair burden on existing residents as they had previously paid for their level of service.

State/Federal Grants and Loans

Historically, both local and county governments have experienced significant infrastructure funding support from state and federal government agencies in the form of block grants, direct grants in aid, interagency loans, and general revenue sharing. Federal expenditure pressures and virtual elimination of federal revenue sharing dollars are clear indicators that local government may be left to its own devices regarding infrastructure finance in general. However, state/federal grants and loans should be further investigated as a possible funding source for needed water system improvements.

It is also important to assess likely trends regarding federal / state assistance in infrastructure financing. Future trends indicate that grants will be replaced by loans through a public works revolving fund. Local governments can expect to access these revolving funds or public works trust funds by demonstrating both the need for and the ability to repay the borrowed monies, with interest. As with the revenue bonds discussed earlier, the ability of infrastructure programs to wisely manage their own finances will be a key element in evaluating whether many secondary funding sources, such as federal/state loans, will be available to the City.

Impact Fees

An impact fee is a one-time charge to a new development for the purpose of raising funds for the construction of improvements required by the new growth and to maintain the current level of service. Impact fees in Utah are regulated by the Impact Fee Statute and substantial case law. Impact fees are a form of a development exaction that requires a fee to offset the burdens created by the development on existing municipal services. Funding the future improvements required by growth through impact fees does not place the burden on existing residents to provide funding of these new improvements.

User Fees

Similar to property taxes on existing residents, User Fees to pay for improvements related to new growth related projects places an unfair burden on existing residents as they had previously paid for their level of service.

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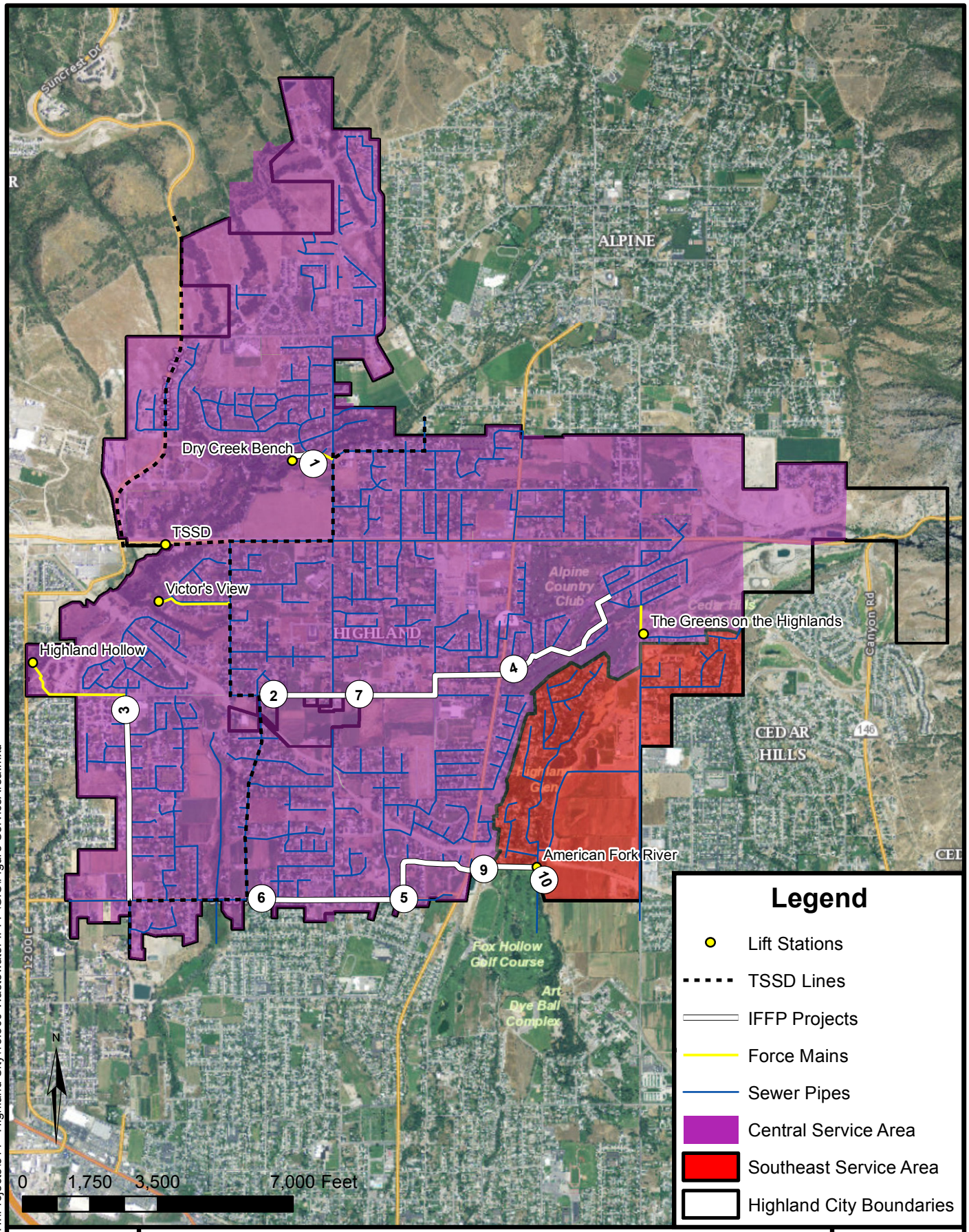

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HIGHLAND CITY WASTEWATER IFFP SERVICE AREA & IFFP PROJECTS

FIGURE 2-1