



HIGHLAND CITY

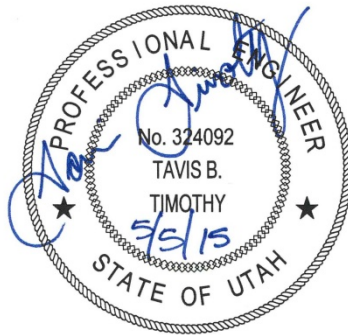
**PRESSURIZED IRRIGATION
IMPACT FEE FACILITY PLAN**

(HAL Project No.: 314.15.200)

HIGHLAND CITY

PRESSURIZED IRRIGATION IMPACT FEE FACILITY PLAN

(HAL Project No.: 314.15.200)



Tavis B. Timothy, P.E.
Project Engineer



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:

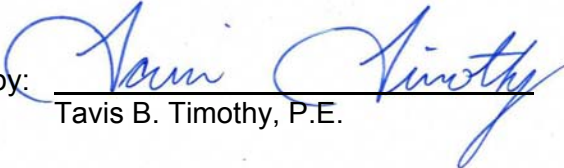

Tavis B. Timothy, P.E.

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IMPACT FEE FACILITY PLAN

EXECUTIVE SUMMARY

The purpose of this Impact Fee Facility Plan (IFFP) is to provide direction to Highland City regarding pressurized irrigation facilities required for future growth within the next ten years.

Highland City provides irrigation water to its residents through a city-wide pressurized irrigation system. Construction of the system began in 1997. Improvements to the system have been constructed to accommodate growth over the past seventeen years.

Data from the 2009 Pressurized Irrigation System Master Plan and additional data, provided by the City, is the basis for the IFFP. The IFFP considers growth over the next ten years (2015-2024) and does not include the facilities required for growth beyond 2024.

During the preparation of the IFFP, existing and proposed levels of service were determined for distribution, storage and source of the Pressurized Irrigation system (see Table 2) for a single irrigated acre. In each case, it was determined that the proposed level of service should be the same as the existing level of service.

Impact Fees for the Pressurized Irrigation system will be uniform per irrigated acre across the impact fee area. The impact fee facility plan projected costs totaling \$2,624,997.50.

PURPOSE AND BACKGROUND

The purpose of this Impact Fee Facility Plan (IFFP) is to provide direction to Highland City regarding pressurized irrigation facilities required for growth within the next ten years.

Highland City is located on a bench near American Fork, Lehi, and Alpine in northern Utah County. According to City information the Pressurized Irrigation System provides service to a population of approximately 17,090 residents.

EXISTING SYSTEM DESCRIPTION

Highland City owns, operates, and maintains the Pressurized Irrigation system. The Pressurized Irrigation system provides outdoor water for irrigating landscaped areas and gardens.

Highland City provides pressurized irrigation water to residents within the City Limits of Highland. Construction on the Highland Pressurized Irrigation (PI) System began in 1997. The PI system contains over 80 miles of pipe ranging between 2 and 30 inches in diameter. The Highland City Secondary Water System relies on 8 different sources for its water.

HAL completed a Pressurized Irrigation System Master Plan for Highland City in 2009 (HAL 2009). Information from the master plan was used in conjunction with data from Highland City to create this impact fee facility plan.

GROWTH

The 2009 Pressurized Irrigation System Master Plan estimated the build out irrigated acres based on zoning for anticipated developed areas. For the purpose of this IFFP it was assumed that the growth in irrigated acres will match the growth in population projections. This assumption allows irrigated acres per ERC to be calculated. 2014 population was estimated using data provided by Highland City. Population and ERC projections were estimated using the Governor's Office of Management and Budget Projections (GOMB 2013). A review of typical R-1-40 developments and the 2009 Master Plan provided an average irrigated acreage per lot equal to 0.38 acres. It is recommended for non-R-1-40 developments that actual irrigated acreage be calculated during the Plat Approval Process.

Table 1
Growth Projections

Characteristic	2009	2015	2020	2024	2053 Build-out
Irrigated Acres	1,489	1,594	1,730	1,838	2,564

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 service area for the level of service in this plan is the City Boundary including areas expected to be annexed into the City.

There are three components to Highland City's secondary water system that were analyzed: source, distribution, and storage. The existing and proposed levels of service for each component of the secondary 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 Pressurized Irrigation System Master Plan (HAL 2009). Although the master plan was completed in 2009, the level of service is not expected to have significantly changed since the master plan was completed.

Source and Pumping

The existing level of service for the system's sources and pump stations (that pump into a pond) was based on the findings in the Consumptive Use of Irrigated Crops in Utah report (Hill 1998) and a review of source records during the Master Plan development. The peak day demand is used to determine the source requirement for a system. The 2009 Master Plan determined that the level of service for peak day demands is 5.29 gpm per irrigated acre.

Distribution

The level of service for a distribution system is limited by the peak instantaneous demand. The required peak instantaneous demand determined in the Master Plan is 12.74 gpm per irrigated acre. The peak instantaneous demand is also utilized in the capacity determination for pump stations that do not pump into a pond.

As part of the Mater Planning effort in 2009, a hydraulic model was created to determine the effect the demands have on the distribution system. The level of service determined for operations was to maintain pressures between 50 psi and 120 psi.

Storage

The level of service for storage has been developed to provide the average day use for the system. This level of service for storage also matches the most recently constructed northwest pond's capacity for the buildout projection. The storage requirement is 8,500 gallons per irrigated acre for the entire service area.

Summary

Table 2 shows the determined level of service for existing and future irrigated acres.

Table 0
Level of Service Summary

Attribute	LOS
Peak Day Demand	5.29 gpm/irrigated acre
Peak Instantaneous Demand	12.74 gpm/irrigated acre
Minimum Storage	8,500 gallons/irrigated acre
Water Connection Pressure Range	50 psi – 120 psi
Maximum Connection Pressure Change	30 psi

EXCESS CAPACITY

The existing system has excess capacity within its storage, sources and distribution facilities to provide new growth with pressurized Irrigation. The only storage component that has excess capacity is the northwest pond. Only costs incurred to create the existing system, which was paid for by the City, can be included in impact fees. Actual water rights or shares are provided to the City during the development process and are not included in the impact fees.

Storage

Saratoga Springs currently operates three water storage ponds serving the City. Storage requirements are determined on a per irrigable acre basis. The total storage capacity is 50.4 acre-feet. All ponds were constructed since 1997 and are in good condition.

The capacity of each pond was analyzed in respect to the zone it serves. The storage was analyzed as requiring 8,500 gallons per irrigable acre. Table 3 summarizes the storage facility information and Table 4 summarizes the excess storage capacity by Zone. The Upper/Lower storage ponds do not have existing capacity, but the northwest pond has sufficient excess capacity to build out conditions.

**Table 3
Existing Storage Pond Summary**

Service Zone	Pond ID	Volume (Ac-ft)
Upper/Lower	Upper Pond	26
Upper/Lower	Lower Pond	5.4
Northwest	Northwest Pond	19
Total		44.7

**Table 4
Excess Storage Summary**

Service Zone	Existing Volume (Ac-ft)	Existing Storage Demand (Ac-ft)	Existing Excess Capacity (Ac-ft)	2024 Storage Demand (Ac-ft)	Buildout Storage Demand (Ac-ft)
Upper/Lower	31.4	35.5	-4.1	40.9	48.6
Northwest	19.0	6.0	13.0	6.9	18.2
Total	50.4	41.5	N/A	47.8	66.8

Source and Pump Stations

The system's secondary water sources are provided by groundwater wells and irrigation shares. An extensive list is described in the 2009 Master Plan. The City sources and pump stations have excess capacity for growth projected in the next ten years. A table of the pump station capacities is shown in Table 5.

**Table 5
Pump Station Capacity Summary**

Pump Station	Pressure Zones Served	Capacity (gpm)	Critical Demand	
			Existing gpm	Future gpm
Upper	Upper Pressure Zone	6,000	Peak Instantaneous	
			3,577	6,014
11800 North	Northwest Area	2,800	Peak Day	
			1,125	3,700
Hog Hollow	Hog Hollow above Northwest Zone	690	Peak Instantaneous	
			217	556

Distribution System

Pipe diameters range from 4-inches to 30-inches, with the majority being 8 inches within the individual subdivision developments. The larger pipes in the system were provided as transmission lines to deliver water from storage ponds during peak scenarios and to deliver water from sources. All pipes are in good condition as they have been constructed since 1997. The Master Plan provided that there is excess capacity in the Distribution System for new growth through build out conditions.

FUTURE FACILITIES

Data for the proposed distribution projects and their associated costs were provided within the 2009 Master Plan and recent storage planning efforts. Storage projects were determined by the City to meet the LOS. The projects were estimated to be completed in the next ten years. The distribution projects are those required to increase the capacity of the distribution system in order to serve the future growth. Table 3 provides a summary of the recommended facilities.

**Table 6
Recommended Future Facilities**

TYPE	PROJECTED YEAR	RECOMMENDED PROJECT	TOTAL COST EST.
Distribution – Growth Project	YEAR 6-10	Portion of Master Plan #12 Project – Provide a new connection to the CUP pipeline at 4800 West. The connection will provide water to new growth in the lower zone without pumping. (The Master Plan project included a new pump station which was not included in the IFFP).	\$272,550
Distribution – Growth Project	YEAR 6-10	Master Plan #13 Project – Provide a new PRV Station at 10100 North and extend a new 10-inch pipeline to growth area in the southeast corner of the City.	\$249,952
Storage – Growth Project	YEAR 6-10	Upper Pond Storage Expansion – Expand the Upper Pond by adding 11.5 acre*feet of capacity to meet future growth at LOS.	\$1,437,500
Storage – Existing Deficiency & Growth Project	YEAR 3-5	Lower Pond Storage Expansion – Expand the Lower Pond by adding 5.0 acre*feet of capacity to meet future growth at LOS and existing storage deficiency.	\$625,000
		TOTAL	\$2,624,997

IMPACT FEE FACILITY PLAN

Impact Fees for the City Pressurized Irrigation system will be uniform per each irrigable acre across the service area. Table 4 contains the City's 2015-2024 Impact Fee Facility Plan. Each project is listed with the estimated cost in 2015 dollars. All of the projects are planned only for the ERCs in the service area. The impact fee facility plan projects total \$2,624,997.

Table 7
Impact Fee Facility Plan

Project	Cost Attributed to System Deficiencies	Cost Attributed to Growth for Next 10 Yrs	Cost Attributed to Buildout Growth
Master Plan Project #12	\$0	\$67,579.18	\$204,970.82
Master Plan Project #13	\$0	\$61,946.09	\$187,976.41
Upper Pond Expansion of 11.5 Acre*Feet	\$0	\$562,500.00	\$875,000.00
Lower Pond Expansion of 5 Acre*Feet	\$512,500.00	\$112,500.00	\$0
Master Plan and IFFP	\$0	\$39,995.00	\$0
Overall Total	\$512,500.00	\$844,550.27	\$1,267,947.23

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.

REFERENCES

Hansen, Allen, & Luce, Inc. 2012. *Highland City Pressurized Irrigation System Master Plan*. Midvale, UT: Hansen, Allen, & Luce, Inc.

Utah Division of Administrative Rules. 2011. *Utah Administrative Code, Title 11 36a Impact Fees Act*. The Department of Administrative Services.