IMPACT FEE FACILITIES PLAN

Originally Prepared by GSBS Jan 26, 2015

Updated by SPANISH FORK CITY

05/05/2016

Certification

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.
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; or
    c. An expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted 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.

For Power:

(Signed by:) ICPE

For Storm Water:

(Signed by:) BC & A

For Drinking Water:

(Signed by:) HAL

For Pressurized Irrigation:

(Signed by:) HAL

For Waste Water:

(Signed by:) BC A

For Public Safety:

(Signed by:) GSBS

For Transportation:

(Signed by:)

For Parks, Trails & Recreation:

(Signed by:) GSBS

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INTRODUCTION

1.1 OVERVIEW

Impact fees are based on the cost of capital facilities needed to meet the demand from new development. Impact fee eligible facility costs are defined by the Impact Fee Facilities Plan (IFFP). This IFFP identifies the capital facilities projects required to serve new development in Spanish Fork City through 2025. Power, transportation, stormwater, drinking water, pressurized irrigation, wastewater, public safety, and parks, trails and recreation facilities are included in this plan.

DEMOGRAPHICS

Current population and nonresidential development estimates were used to determine the current level of service (LOS) for each facility type. Future population and nonresidential development projections were used to determine future service needs to achieve the proposed LOS. For all facility types the proposed LOS is the current LOS. The Spanish Fork City 2016 population estimate is 38,313 residents with an estimated 7.430 million square feet[1] of nonresidential development. Spanish Fork's 10-year projection is 49,153 people and 9.420 million square feet of nonresidential development by 2025. The new 10,840 people living in 2,833 households and 1,041,390 square feet of nonresidential development will require infrastructure. This analysis identifies available infrastructure to serve anticipated new development and, when necessary, new facilities required to be built within the planning horizon.

POWER

Spanish Fork City provides electrical power to all residential and non-residential development within the City's boundaries. Spanish Fork City's current and proposed LOS for municipal power is determined based on the design criteria Spanish Fork City has used in designing and expanding the system over the past several years. Using the established design criteria, the current system was evaluated to determine if there is existing excess capacity or existing deficiencies. This report identifies the need for and cost of required new facilities to maintain the current and achieve the proposed LOS. Spanish Fork City's power LOS is to provide necessary system-wide capacity of at least 80 percent of designed total capacity. This LOS ensures that system capacity is adequate to maintain service during peak periods.

According to analysis completed by Intermountain Consumer Professional Engineers (ICPE), of the seven substations in the Spanish Fork system, three have adequate existing excess capacity to accommodate expected growth through 2025, one exceeded existing base capacity in 2014 and was upgraded, and one will exceed existing base capacity in 2019. The remaining three substations currently exceed base capacity. The projects were identified in the Capital Facilities Plan completed by Intermountain Consumer Professional Engineers for the Spanish Fork power system. System-wide, a total of $23 million in projects are required. The portion of the plan attributable to anticipated new development was estimated by identifying the portion of growth in demand attributable to existing users and deducting that amount from the growth in overall demand. Table 1-1 is the Power IFFP.

[1] Calculated using a standardized floor area ratio of 0.26 for general commercial and 0.22 for industrial uses as identified by Dr. A.C. Nelson, Center for Metropolitan Studies, University of Utah.

TABLE 1-1: POWER IMPACT FEE FACILITIES PLAN

Map ID	Project	Approx. Time Frame	Estimated Cost	IFFP	% to New Develop.
3718	Masterplan & Impact Fee Studies **	2012-2015	$74,772	$51,684	69.12%
3718	Masterplan & Impact Fee Studies	2016-2025	$220,000	$220,000	100.00%
5102	1700 W 1400 S Substation Land **	2011	$328,548	$112,484	34.24%
73 (5)	Dry Creek Sub Transformer (SUVPS) **	2011	$431,164	$147,616	34.24%
61 (11)	600 Amp Overhead Distribution Line from US6 to the Oaks **	2012-2013	$219,340	$66,127	30.15%
77	Nebo Sub 46kV Str/Bss/Mtr (SUVPS) **	2012	$85,180	$34,536	40.54%
(4)	Woodhouse/Bonner Sub Trans **	2012	$31,866	$12,920	40.54%
75 (1A)	46 kV 2700 N Dry Creek to Whitehead Tran Line **	2012-2015	$389,537	$246,654	63.32%
75 (A)	46 kV 2700 N Dry Creek to Whitehead Tran Line	2016-2018	$500,000	$404,400	80.88%
63 (1C)	2000 N 200 E Railroad Casing **	2012	$13,043	$3,590	27.52%
79 (4)	Woodhouse Substation Bussing **	2013	$54,852	$28,617	52.17%
82	Recond. 200E 2000N-2700N FY13-14 **	2013-2014	$117,477	$30,469	25.94%
83	North Dist. Overhead FY13-14 **	2013-2014	$230,593	$38,729	16.80%
86	UAMPS 1600N 138/46kV Trans. Line Ease. **	2013	$23,470	$15,139	64.50%
	Legacy Farms 11/1/2012 Electric Devepment Reimbursement Agreement **	2013	$406,939	$45,998	11.30%
3853	SUVPS Substation Upgrades **	2014-2015	$1,088,805	$760,296	69.83%
3853	SUVPS Substation Upgrades	2016-2017	$984,900	$796,587	80.88%
3853	SUVPS Line Rebuild & Upgrades	2018-2022	$2,706,316	$459,662	16.98%
88 (3A-D)	West Dist. Overhead **	2014	$391,390	$67,501	17.25%
90 (4)	Woodhouse Substation Expansion **	2014-2015	$1,274,175	$865,747	67.95%
	Joint Property Ventures 6/16/2015 Reimbursement Agreement **	2015	$25,805	$23,583	91.39%
	Muhlstein Meadows, LLC 11/17/2015 Electric Devepment Reimbursement Agreement **	2015	$46,617	$22,621	48.53%
98 (1C)	IHC Distribution Line Relocation UG Williams Ln	2016	$90,000	$39,308	43.68%
(8)	Bonner Substation	2017-2018	$1,575,000	$1,273,860	80.88%

TABLE 1-1: POWER IMPACT FEE FACILITIES PLAN (continued)

Map ID	Project	Approx. Time Frame	Estimated Cost	IFFP	% to New Develop.
(6)	Leland Area Rebuild	2018	$20,000	$3,397	16.98%
74 (11)	US-6 600A Powerhouse Rd to Canyon Rd SR198	2018	$250,000	$109,188	43.68%
63	Upgrade Bonner to Canyon Rd Sub Tran Line	2019	$1,100,000	$186,833	16.98%
94	46 kV Reconductor Argyle to Bonner	2019	$675,000	$114,647	16.98%
55	350 E Tap Line Rebuild	2020	$250,000	$42,462	16.98%
58	50 E Tap Line Rebuild	2020	$250,000	$42,462	16.98%
62	46 kV Reconductor Industrial to Woodhouse	2021	$830,000	$140,974	16.98%
(5)	Future Leland Substation	2022-2023	$2,177,334	$1,761,028	80.88%
64	46 kV Reconductor 900 N. to Whitehead	2022	$550,000	$93,416	16.98%
66	600 amp Circuit Tie 100 S.	2022	$600,000	$101,909	16.98%
65	46 kV Reconductor Industrial to Argyle	2023	$450,000	$76,432	16.98%
68 (9)	Reconductor 1100 East	2023	$200,000	$33,970	16.98%
71 (10)	Reconstructed 2300 East	2023	$250,000	$42,462	16.98%
72 (11)	Reconductor US-6	2023	$215,000	$36,517	16.98%
	46 kV Reconductor Woodhouse to Canyon Rd	2024	$1,100,000	$186,833	16.98%
	Total Through	2025	$19,677,124	$8,647,241	43.95%

Source: Intermountain Consumer Professional Engineers, Inc., GSBS Richman

* Cost estimate from existing 10 CFP spreadsheet from Spanish Fork City

** Actual cost from Spanish Fork City

STORM WATER

The Spanish Fork City Storm Water System current and proposed level of service (LOS) is to provide a storm drain system designed and installed to the criteria identified below:

MINOR SYSTEM

Minor system facilities shall be designed to collect and convey storm water runoff from a 3 hour design storm that has a 10 percent chance of occurring in any given year (commonly referred to as a 10-year design storm, see the SDMP Report). Minor system facilities include the following:

- Catch basins
- Storm drain pipes
- Manholes

Storm drain pipes shall not to be smaller than 12 inches in diameter.

MAJOR SYSTEM

Major system facilities shall be designed to collect and convey storm water runoff from a 3 hour design storm that has a 1 percent chance of occurring in any given year (commonly referred to as a 100-year design storm, see the SDMP Report). Major system facilities include:

- Streets
- Open channels
- Culverts and bridges
- Retention basins

DETENTION FACILITIES

Detention facilities shall be designed to attenuate peak runoff rates from tributary areas associated with a design storm to a level that meets level of service criteria for existing or planned major and minor system facilities as identified in the SDMP. In an effort to mitigate for increased impacts on storm water facilities from large areas of impervious area, commercial and industrial developments must provide project or local detention facilities that will reduce peak runoff rates from associated development to 0.15 cfs per acre. Public roads in and around commercial and industrial developments typically freely discharge into the storm drain system and are not detained. The combined total peak discharge rates from detained commercial and industrial developments and undetained roads in and around those developments will be similar in magnitude to discharge rates from undetained residential developments.

According to the analysis completed by Bowen and Collins, the total cost of improvements to achieve the proposed LOS in 2025 is $3.0 million. Of this amount, $1.3 million is attributable to new demand from new development. The remaining $1.7 million is needed to address existing deficiencies in the system and will be funded through utility system rates or other funding sources. Table 1-2 is the Storm Water IFFP.

TABLE 1-2: STORM WATER IMPACT FEE FACILITIES PLAN - 2014-2023

Project	Total Estimated Cost[2]	Percentage Attributable to: Existing Deficiency[1]	Percentage Attributable to: New Development	Cost Attributable to: Repairing Existing Deficiency[1]	Cost Attributable to: New Development
CFP-R320 White Rail Trunk Line	$201,255	16.0%	84.0%	$32,201	$169,054
CFP-2550E DF Canyon Rd	$175,050	82.0%	18.0%	$143,541	$31,509
CFP-FG DF Fairgrounds	$175,998	84.0%	16.0%	$147,838	$28,160
CFP-R43 Sunset Park Trunk Line	$191,441	83.0%	17.0%	$158,896	$32,545
CFP-DB5 Legacy Farms West	$80,842	0.0%	100.0%	$0	$80,842
CFP-R260 Volunteer Dr to 500 S	$466,163	53.0%	47.0%	$247,066	$219,097
CFP-R259 500 S 200 W to Main St	$403,283	58.0%	42.0%	$233,904	$169,379
CFP-R255 Main St Fairgrounds Trunk Line	$278,081	67.0%	33.0%	$186,314	$91,767
CFP-R266 Fairgrounds Trunk Line	$170,088	80.0%	20.0%	$136,070	$34,018
CFP-R267 Fairgrounds to Cemetery Trunk Line	$123,105	85.0%	15.0%	$104,639	$18,466
CFP-R262 Cemetery Trunk Line / LID	$250,000	65.0%	35.0%	$162,500	$87,500
CFP-400S DF 700 E	$135,845	71.0%	29.0%	$96,450	$39,395
CFP-R270 Cemetery Trunk Line / LID	$150,000	68.0%	32.0%	$102,000	$48,000
Planning and Impact Fee Analysis	$200,000	0.0%	100.0%	$0	$200,000
Totals	**$3,001,151**	**58.0%**	42.0%	**$1,751,419**	**$1,249,732**

Source: BC&A

[1] Existing Deficiencies will not be paid for using impact fees.

[2] 2012 dollars

DRINKING WATER

Spanish Fork City provides drinking water facilities for the benefit of residents in all areas of the community. The current and proposed level of service (LOS) for drinking water facilities is determined by establishing the 2013 drinking water capacity, including identification of existing deficiencies and existing excess capacity in the system.

Hansen Allen & Luce, Inc. ("HAL") completed a Drinking Water System Master Plan in May 2012 that forms the basis for this IFFP. The master plan addresses the components necessary to a system capable of providing drinking water to system users based on City demand data and standards established by the Utah Division of Drinking Water. HAL modeled Spanish Fork's drinking water system to evaluate the performance of existing facilities under current and future demands. Recommendations for system improvements are based on this model.

The current and proposed LOS for drinking water in Spanish Fork City is to provide adequate water rights, source, storage and delivery to serve users at 286 gallons per day (gpd) per single family residence. This is based on actual usage of existing households in Spanish Fork City. In addition to user consumption, the water system must have adequate capacity to meet fire flows. The fire flow current and proposed LOS is 120,000 gallons.
The cost of facilities required to serve new development total $8.0 million. Many of the projects required to ensure the system achieves the proposed LOS will serve growth beyond the 2025 planning horizon, however, they will be built prior to 2025. Table 1-3 identifies the projects needed to serve anticipated new development and achieve the proposed LOS. The cost of the portion of the improvements required to serve the anticipated new 3,697 ERC (Equivalent Residential Connections) in Spanish Fork City by 2025 is approximately $3.5 million.

TABLE 1-3: DRINKING WATER IMPACT FEE FACILITIES PLAN, 2015-2025

Project	Total Cost (Actual or Estimated)		Total ERCs	Cost/ERC	New Development ERCs	IFFP Cost
Source						
Cold Springs Development	$2,017,502	E	6,667	$302.61	3,697	$1,118,6
Crab Creek Transmission Line (77%)	$1,505,457	A	9,000	$167.27	3,697	$618,3
Storage						
5 MG Water Tank - Sterling Hollow	$3,215,705	A	9,400	$342.10	3,697	$1,264,6
Crab Creek Transmission Line (23%)	$449,682	A	9,400	$47.84	3,697	$176,8
Distribution						
2550 E. Trunk Line (MM High School)	$174,347	A	22,300	$7.82	3,697	$28,9
400 N. Trunk Line (Legacy Farms)	$52,898	A	22,300	$2.37	3,697	$8,7
Muhlestein Meadows, LLC 11/17/2015	$2,780	A	22,300	$0.12	3,697	$4
750 South 2550 East Trunk Line	$133,480	A	22,300	$5.99	3,697	$22,1
Main St. 1400 N to 1600 N Trunk Line	$215,000	A	22,300	$9.64	3,697	$35,6
Planning						
Model, Master Plan, & Impact Fee Updates	$250,000	E	4,155	$60.17	3,697	$248,0
Total IFFP	$8,016,851			$945.93		$3,522,3

Source: Spanish Fork Drinking Water System Master Plan, 2012, Hansen, Allen & Luce; GSBS

E - Estimated Cost

A - Actual Cost

PRESSURIZED IRRIGATION

Spanish Fork City provides irrigation water to residents of the City via a pressurized irrigation ("PI") water system. The system reduces demand on the drinking water system particularly during the summer by providing irrigation water for outdoor watering. The City's current and proposed LOS is based on current utilization and system design. The LOS is based on demand of 6 gallons per minute for each irrigated acre.

The projects required to serve new development total $23.2 million. All of the projects required to ensure the system achieves the proposed LOS will serve growth beyond the 2025 planning horizon, however, they will be built prior to 2025. Table 1-4 identifies the projects needed to serve anticipated new development and achieve the proposed LOS. The cost of the portion of the improvements needed to serve the anticipated 2,994 new ERCs in the Pressurized Irrigation system by 2025 is $7.9 million.

Table 1-4: Impact Fee Facilities Plan, 2015–2025

Project	Total Cost (Actual or Estimated)	Total ERCs Served	Cost/ERC Served	New Development ERCs	IFFP Cost
SOURCE					

Golf Course Pl Pond	$319,215	A				
4,000 gpm Pump Station	$1,200,000	E				
Source Total	*$1,519,215*		*4,100*	*$370.54*	*2,994*	*$1,109,311*
WATER RIGHTS						
Summit Energy Water Right Purchase	$450,588	A	173	*$2,604.55*	173	$450,588
Wash Creek Water Right Purchase	$60,000	A	23	*$2,608.70*	23	$60,000
Spring Creek Water Right Purchase	$678,708	A	1,120	*$605.99*	1,120	$678,708
Butler Springs Water Right Purchase	$1,275,000	A	1,308	*$974.77*	1,308	$1,275,000
Additional Water Rights	$432,895	E	370	*$1,170.72*	370	$432,895
Water Rights Total	*$2,897,191*		*2,994*	*$967.74*	*2,994*	*$2,897,191*
DISTRIBUTION AND STORAGE						
2550 E. Trunk Line (MM High School)	$110,554	A				
400 N. Trunk Line (Legacy Farms)	$52,898	A				
Citywide Pressurized Irrigation System	$17,315,139	A				
2000 N 200 E. Railroad Casing	$13,043	A				
Canyon Road Transmission Line/Crab Creek	$993,000	A				
Mill Rd (Muhlestein Meadows)	$47,883					
DISTRIBUTION TOTAL	*$18,532,517*		*15,393*	*$1,203.96*	*2,994*	*$3,604,377*
PLANNING						
Model, Master Plan & Impact Fee Updates	*$250,000*	*E*	*2,994*	*$83.51*	*2,994*	*$250,000*
	$23,198,192			**$2,625.75**		**$7,860,878**

Source: Spanish Fork Pressurized Irrigation System Master Plan, 2012, Hansen, Allen & Luce; GSBS

WASTE WATER

Spanish Fork City provides waste water collection and treatment facilities for the benefit of most residents in Spanish Fork City with the exception of a small service area that is collected by the City of Salem. Spanish Fork City and Mapleton City jointly own waste water treatment facilities and some waste water trunk lines that run through Spanish Fork City as part of a number of interlocal agreements. The City's current and proposed LOS is based on current utilization and system design. The LOS is based on domestic production of 174 gpd per single family residential equivalent unit (ERU) with approximately 24 gpd of infiltration per ERU into newly installed pipes (older pipes have a higher infiltration rate) for a total of approximately 200 gpd per ERU.

The cost of facilities required to provide the current and proposed LOS to current and future users cost $14 million. Table 1-5 identifies the projects needed to serve current and anticipated new development and achieve the proposed LOS. The cost of the portion of the improvements needed to serve the anticipated new ERCs in the waste water system by 2025 is $3.8 million.

TABLE 1-5: WASTE WATER SYSTEM IMPACT FEE FACILITIES PLAN

Project Name	Project Year	Cost Estimate[1]	Percent Attributable to Existing Users	Percent Attributable to 10-Year Growth	Percent Attributable to Growth Beyond 10-Years	IFFP Cost
Williams Lane	2020	$623,900	0%	15.90%	84.10%	$99,200
1850 N to WWTP	2019	$912,100	0%	15.90%	84.10%	$145,024
Southeast Trunk Line[2]	2016	$5,664,000	0%	24.54%	75.46%	$1,389,946
Collection System Costs Sub-total		**$7,200,000**				**$1,634,170**
Phosphorous Removal[3]	2018	$352,000	51.57%	15.23%	33.20%	$522,100
UV Disinfection[3]	2018	$895,000	69.73%	20.59%	9.69%	$184,242
Anoxic Basins[3]	2024	$1,386,000	58.08%	17.15%	24.77%	$237,666
Aeration Basins[3]	2024	$4,522,000	69.73%	20.59%	9.69%	$930,883
Treatment Costs Sub-total		**$7,155,000**				**$1,874,891**
Model, Master Plan & Impact Fee Updates	2014 - 2023	$250,000	0%	100%	0%	$250,000
Total Costs		**$14,605,000**				**$3,759,061**

[1] – Cost estimates are in 2016 dollars. Inflation is not included.

[2] – See Project 3 in 2011 Waste water Master Plan. Project has been modified to exclude Mapleton City flows. Percent attributable to 10-year growth based on City estimate of 10-year growth for service area of trunk line.

[3] – Improved level of service project.

Source: Bowen, Collins & Associates; GSBS Richman

PUBLIC SAFETY

Spanish Fork City provides police and fire facilities for the benefit of residents and property owners in all areas of the community. The current and proposed level of service (LOS) for public safety facilities is determined by establishing the 2013 number of square feet of fire and police buildings per capita for residential development and per sf for non-residential development. The City's current 15,720 square foot fire/EMS station, located in the historic center of the community, and 28,060 square foot police station serve the City's approximately 5,600 developed acres. As the City grows and develops, additional fire and police services will be required to maintain the current and achieve the proposed LOS. The proposed LOS is based on the current LOS as defined by square feet of fire/EMS and police facilities per 1,000 population and 1,000 square feet of nonresidential development. The current police facility is sized for build-out

of the community. Additional police facilities will not be required. The current fire/EMS facility is sized to achieve the current LOS.

In addition to the physical size of fire/EMS facilities, there is an added consideration to the LOS for fire/EMS facilities based on geographic distribution. Standards for fire response are based on time to reach the incident or area of need. A fire service's rating will be downgraded if the distance between the nearest station and a potential fire or emergency is more than five miles. Beyond this, the rating services use a combination of location, level of training, water system availability, etc. to establish the City's fire service rating[2]. Some newly developed areas are more than five miles from the existing station. As Spanish Fork continues to grow to the east and to the west of the current station location, new stations should be located to ensure appropriate response times and proximity to structures.

The Public Safety Impact Fee Facilities Plan assumes that future development will "buy-in" to the existing police station and that two new fire/EMS facilities will be built on the east and west sides of the City. The two stations will supplement the existing station and the City will be served by a total of 30,000 new square feet of fire/EMS facilities as of 2023. The total projected need for fire/EMS facilities by 2023 is 19,855 square feet. Table 1-6 identifies the public safety impact fee facilities needed through 2023 for a total estimated cost of $0.9 million.

TABLE 1-6: PUBLIC SAFETY IMPACT FEE FACILITIES PLAN

Future Facility	Area (sf)	Cost/SF	Impact Fee Funded SF	Impact Fee Funded Cost
East Side Fire/EMS Station	15,000	$215.30	1,550.0	$333,715
West Side Fire/EMS Station	15,000	$215.30	1,550.0	$333,715
Police Facility Buy-In	28,060	$323.71	2,890.0	$935,517

Source: GSBS Richman

TRANSPORTATION

Spanish Fork City's current and proposed transportation LOS is to provide adequate lane mile and intersection capacity to maintain current and proposed LOS C according to the Mountainland Association of Governments (MAG) regional travel model [3]

Spanish Fork City's system-wide Transportation Capital Facilities Plan is a comprehensive plan with a total cost of approximately $36 million in road and intersection projects. Approximately $15.6 million of the projects that increase capacity, will achieve the proposed LOS for new development, and will be built between 2015 and 2025. The $15.6 million IFFP includes several projects that are already built and have existing excess capacity. Table 1-7 is the Transportation Impact Fee Facilities Plan.

[2] The fire service rating is used in establishing individual property owner property insurance rates and therefore are important for residential and nonresidential property owners.
[3] The travel demand model is the accepted model of the Mountainland Association of Governments (MAG), which represents an appropriate planning tool for estimating existing congestion levels and forecasting future congestion levels based on the impacts of growth.

TABLE 1-7: TRANSPORTATION IMPACT FEE FACILITIES PLAN

Project #	Project Location	Total Cost	Impact Fee Percentage	% Attr. To 10-Yr Growth	Impact Fee Amount
57	Widen & Signalize 1000 North	$2,230,976	57%	100.0%	$1,271,656
94	New signal 1600 N Main St	$138,000	59%	100.0%	$81,420
0	Muhlestein Meadows, LLC 11/17/2015 Reimbursement Agreement	$114,368	34%	100.0%	$38,885
95	Widen Cut Bridge***	$3,191,050	0%	100.0%	$0
5	New Signal & Intersection Rebuild Center St 1150 E	$637,010	80%	100.0%	$509,608
2	New Signal Center St 800 E	$180,000	80%	100.0%	$144,000
46	Spanish Fork Parkway	$9,968,409	43.1%	100.0%	$4,291,643
15	Spanish Fork Parkway S.R. 51 Signal**	$180,000	0%	100.0%	$0
96	Spanish Fork Parkway Railroad Crossing Design & Permitting	$125,000	100%	100.0%	$125,000
53	New Alignment from 2550 E Canyon Rd to US-6	$769,098	48.3%	52.8%	$196,140
54-1	920 S 2550 E to 2300 E	$1,346,592	100%	43.5%	$585,768
54-2	2300 E Canyon Rd to 920 S	$329,613	100%	43.5%	$143,382
54-3	2300 E 920 S to 2000 E 750 S	$1,016,308	100%	43.5%	$442,094
54-4	2000 E 750 S to US-6	$1,089,214	100%	100.0%	$1,089,214
54-5	2550 E 920 S Roundabout	$200,000	100%	100.0%	$200,000
54-6	2300 E 920 S Roundabout	$110,000	100%	100.0%	$110,000
54-7	2000 E 750 S Roundabout	$160,000	100%	100.0%	$160,000
6	New Signal at US-6 2000 E**	$240,000	0%	100.0%	$0
37	New Signal 2600 East and Canyon**	$180,000	0%	100.0%	$0
43	Canyon Creek Parkway**	$10,205,924	45.9%	100.0%	$4,685,164
47	Market Place Dr from Expressway Ln to Chappel Rd	$3,186,645	41.3%	96.3%	$1,266,130
38	New Signal Kirby Lane and Chappel Dr	$180,000	80%	100.0%	$144,000
39	New Signal 1150 North and Chappel Dr	$180,000	80%	100.0%	$144,000
Total		$35,958,207			$15,628,104

Source: Horrocks & Spanish Fork City
*Project Numbers Correspond to Figure 9-5
**UDOT Facility not Eligible for Impact Fees
*** Project is funded by grants

PARKS, TRAILS, AND RECREATION

Spanish Fork City provides park, trail, and recreation facilities for the benefit of residents in all areas of the community. The current and proposed level of service (LOS) for parks, trails, and recreation facilities is determined by establishing

the 2015 number of acres for parks and linear feet for trails, the level of improvement (landscaping, parking, etc.) per acre or linear foot, and the average number of recreation facilities provided per acre.

Table 1-8 provides the Spanish Fork Parks and Trails IFFP. The list includes projects needed to achieve the proposed LOS. The IFFP also includes grant and other funding for projects. This is comparable to past projects.

TABLE 1-8: PARKS IMPACT FEE FACILITIES PLAN

Project		TOTAL
Community Parks	*Acres*	
Hansen Park	9	$1,043,892
NE Bench Park Final Phase	13.3	$1,542,640
Urban Forest Park Development	16	$1,855,808
River Park	6.1	$235,842
Legacy Farms East	8	$1,567,904
Legacy Farms West	15.5	$1,012,605
Park Land Purchase	20	$800,000
Subtotal Community Parks		*$8,058,691*
Trails		
North Park Main St Connector Trail		$68,800
Arrowhead Connector Trail		$150,000
US-6 Cut Bridge to Maple Mountain Sub		$236,500
Justice Center Connector Trail		$91,900
River Connector Trail		$3,400,000
Trail Development based on Master Plan		$300,000
Subtotal Trails		$4,247,200
Total		$12,305,891
Grants & Other Funding		$2,201,140
IFFP TOTAL		$10,104,751

1.2 FUNDING SOURCES

The City may fund the infrastructure in the IFFP through a combination of different revenue sources.

FEDERAL AND STATE GRANTS AND DONATIONS

Impact fees cannot reimburse costs funded or expected to be funded through federal grants and other funds that the City has received for capital improvements without an obligation to repay. Grants and donations are not currently contemplated in this analysis. If grants become available for construction of facilities, impact fees will be recalculated and an appropriate credit given. Any existing infrastructure funded through past grants has been removed from the system value in the analysis.

BONDS

None of the costs contained in the IFFP include the cost of bonding. The cost of bonding required to finance impact fee eligible improvements identified in the IFPP may be added to the calculation of the impact fee. This will be considered in the impact fee analysis.

INTERFUND LOANS

Because infrastructure must generally be built ahead of growth, there often arise situations in which projects must be funded ahead of expected impact fee revenues. In some cases, the solution to this issue is bonding. In others, funds

from existing user rate revenue will be loaned to the impact fee fund to complete initial construction of the project and will be reimbursed later as impact fees are received. Consideration of potential interfund loans will be included in the impact fee analysis and should also be considered in subsequent accounting for impact fee expenditures.

IMPACT FEES

It is recommended that impact fees be used to fund growth-related capital projects as they help to achieve the proposed level of service and prevent existing users from subsidizing the capital needs for new growth. Based on this IFFP, an Impact Fee Analysis will be able to calculate a fair and legal fee that new growth should pay to fund the portion of the existing and new facilities that will benefit new development.

DEVELOPER DEDICATIONS AND EXACTIONS

Developer exactions are not the same as grants. Developer exactions may be considered in the inventory of current and future infrastructure. If a developer constructs a facility or dedicates land within the development for system-level infrastructure on the IFFP, the value of the dedication is credited against that particular developer's impact fee liability.

If the value of the dedication/exaction is less than the development's impact fee liability, the developer will owe the balance of the liability to the City. If the value of the improvements dedicated is worth more than the development's impact fee liability, the City must reimburse the difference to the developer from impact fee revenues collected from other developments.

It should be emphasized that the concept of impact fee credits pertains to system level improvements only. For project level improvement (i.e. projects not identified in the impact fee facility plan), developers will be responsible for the construction of the improvements without credit against the impact fee.

1.3 CERTIFICATION

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.
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; or
    c. An expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted 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.

For Power:

_____
(Signed by:)

For Storm Water:

_____
(Signed by:)

For Drinking Water:

_____
(Signed by:)

For Pressurized Irrigation:

_____
(Signed by:)

For Waste Water:

_____
(Signed by:)

For Public Safety:

_____
(Signed by:)

For Transportation:

_____
(Signed by:)

For Parks, Trails & Recreation:

_____
(Signedby:)

DEMOGRAPHICS & GROWTH

2.1 EXISTING CONDITIONS

Spanish Fork City, Utah's 2015 estimated population is 37,600 people living in 9,738 households. This is an increase of 2,661 people and 669 households since the 2010 Census. Spanish Fork's population is projected to continue to grow by approximately 2.4 percent per year through 2025. Total anticipated population in Spanish Fork in 2025 is 49,153 people living in 13,107 households (assuming household size remains relatively constant). This projected increase of almost 11,000 residents will affect levels of service in all Spanish Fork facilities.

Population and household growth is one source of the need for increased infrastructure capacity. Another, growth-related source is the anticipated increase in the number of stores, businesses, and other nonresidential uses in the City. Spanish Fork's total land area is 10,219 acres. Approximately twelve percent of the land area is unassigned or in right-of-ways, the remaining developed or developable 9,289 acres are identified in Table 2-1.

TABLE 2-1: LAND USE SUMMARY - 2013

Land Use	Acres	Percent Total	HH	SF (1000s)
Residential/Mixed Use	2,527	24.73%	10,274	
General Commercial	264	2.58%		2,615
Industrial	571	5.59%		5,764
Exempt/Civic	2,696	26.38%		
Vacant	3,231	31.62%		
ROW	930	9.10%		
Total	10,219	100%		
Total Developed	6,988	68.4%	10,274	8,379

Source: Utah County Assessor, U.S. Census, GSBS Richman

Sixty-Eight percent of the City's land area is currently developed. Residential uses currently represent 25 percent of Spanish Fork's approximately 7,000 developed acres. Nonresidential land uses, including exempt or civic uses such as parks, trails, and public buildings, occupy 26 percent of the City's developed land area. Private commercial land uses represent 8 percent of Spanish Fork's current developed area. Industrial land uses currently occupy 68 percent of all private commercial land area and 6 percent of total developed acreage in the City. There are an estimated 8.4 million square feet of buildings on Spanish Fork's developed commercial and industrial acreage. This estimate is based on regional standards established by the University of Utah's Metropolitan Studies Center.

Table 2-2 is a breakdown of current zoning for the City's estimated 9,288 acres of developed and developable land. Of the City's 3,231 currently vacant acres, 26 percent are zoned for industrial development, seven percent for retail uses and four percent for other commercial uses.

TABLE 2-2: 2015 USE BY DEVELOPED/DEVELOPABLE ZONING (ACRES)

Zone	Zone Description	Residential / Mixed Use	Com	Ind	Exempt/ Civic	Vacant	Total	% of Total
A-E	Exclusive Agriculture	51	0	0	0	86	136	1.5%
BP	Business Park	0	1	0	33	84	118	1.3%
C-1	Neighborhood Commercial	1	5	0	0	7	14	0.1%
C-2	General Commercial	4	160	0	26	116	306	3.3%
C-D	Downtown Commercial	0	11	0	1	0	12	0.1%
C-O	Commercial Office	0	14	0	10	18	42	0.5%
I-1	Light Industrial	37	0	528	576	1,128	2,270	24.4%
I-2	Medium Industrial	2	0	43	1	45	90	1.0%
I-3	Heavy Industrial	0	0	0	100	0	100	1.1%
P-F	Floodplain Hazard Overlay	0	0	0	849	13	862	9.3%
R-1-12	Medium Density Residential	609	2	0	413	290	1,314	14.1%
R-1-15	Medium Density Residential	28	0	0	11	109	148	1.6%
R-1-20	High Density Residential	0	0	0	0	3	3	0.0%
R-1-30	High Density Residential	34	0	0	32	38	104	1.1%
R-1-6	Low Density Residential	500	5	0	85	93	684	7.4%
R-1-8	Low Density Residential	291	3	0	136	17	447	4.8%
R-1-9	Low Density Residential	476	0	0	224	151	851	9.2%
R-3	Low Density Residential	96	2	0	25	73	197	2.1%
R-O	Residential Office	22	7	0	2	3	33	0.4%
R-R	Rural Residential	375	3	0	170	898	1,446	15.6%
S-C	Shopping Center	0	50	0	1	6	56	0.6%
UV-C	Urban Village Commercial	0	0	0	1	54	55	0.6%
	Total	2,675	2,527	264	571	2,696	3,231	9,288
Percent of Total		31%	27%	3%	6%	29%	35%	100%

Source: Spanish Fork City, Utah County Assessor's Office, AGRC

Figure 2-1 illustrates the distribution of vacant land relative to current zoning in the city.

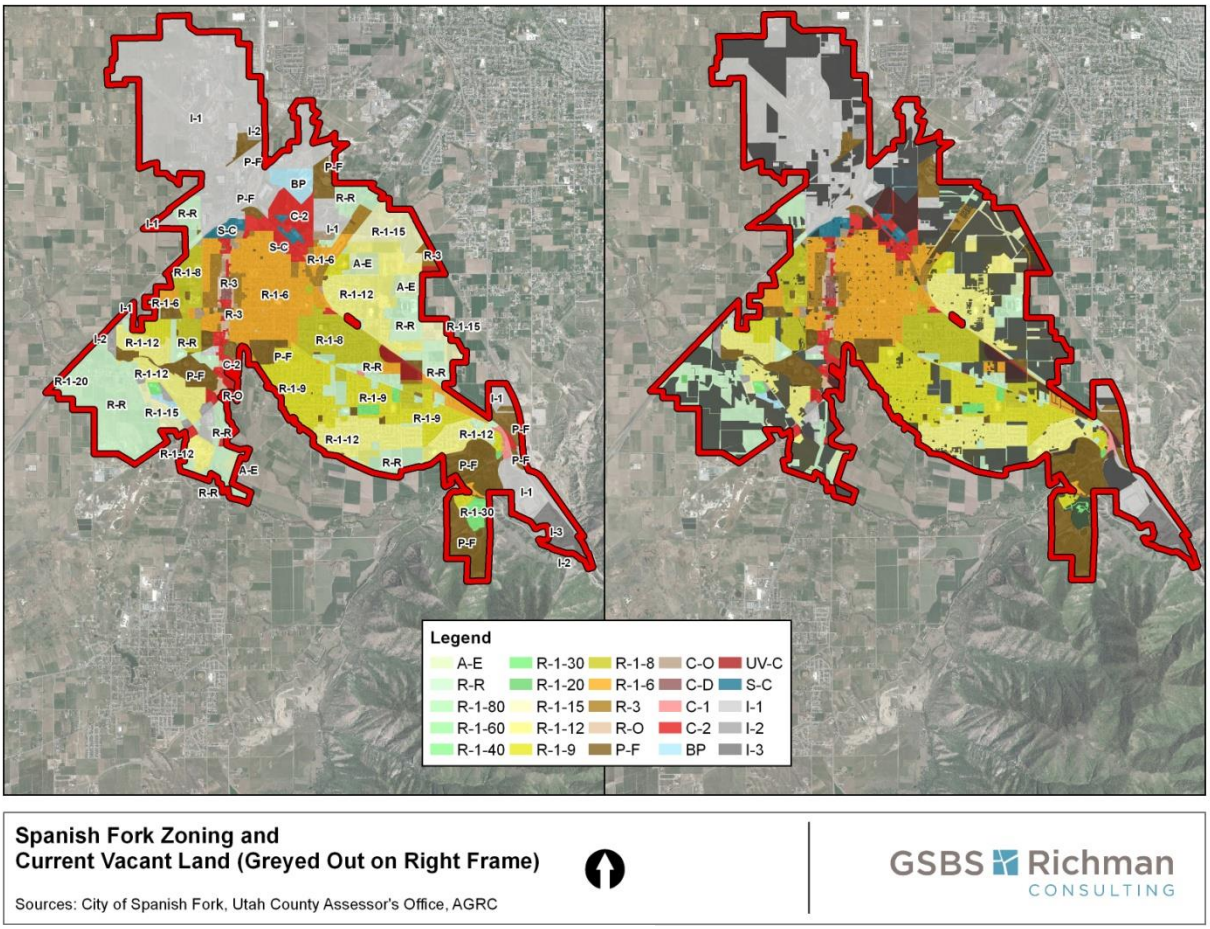


Figure 2-1: Developable land by zoning designation

The developed area of Spanish Fork is projected to increase from 57 percent of the City's land area to approximately 66 percent of the land area by 2025, an increase of 907 acres. Table 2-3 identifies the projected development by land use in the City through 2025.

TABLE 2-3: PROJECTED NEW DEVELOPMENT 2015-2025

Land Use	Acres	Percent Total	HH	SF (1000s)
Residential/Mixed Use	722	80%	2,625	
General Commercial	55	6%		
Industrial	124	14%		
Exempt/Civic	7	1%		
Total Developed	907	100%	2,625	1,041.39

Source: Spanish Fork City, GSBS Richman

Residential uses continue to represent the largest percentage of land use in the City. 80 percent of the acreage consumed by development in the next ten years is expected to be developed into residential neighborhoods, six percent into general commercial uses, and 14 percent into industrial uses. General commercial uses remain at nine percent of the developed area and exempt/civic uses decrease from 41 percent to 35 percent. Industrial uses are projected to increase from three percent to four percent of the developed area.

The projected 27 percent increase in population and households and 24 percent increase in nonresidential square footage will place increasing demands on Spanish Fork's power, irrigation, sewer, water, parks, and transportation systems.

2.2 POPULATION

Spanish Fork City's estimated 2015 population is 38,528 persons living in 10,274 households. As seen in Table 2-4, this is an increase of 3,589 people and 834 households in the five-year period since the 2010 Census. Spanish Fork's population increased by almost 23,700 people in the 20 year period 1990 to 2010. This is a 210 percent increase. Although Spanish Fork is projected to continue to grow through 2025, the annual rate of increase is projected to decrease from 5.8 percent to 2.4 percent for the ten-year period 2015 to 2025. Population projections from the Governor's Office of Management and Budget, Demographics and Economic Analysis division, reflect an estimated 49,153 people in Spanish Fork in 2025.

TABLE 2-4: POPULATION 1990 – 2030

	1990	2000	2010	2015	2020	2025	2030
Spanish Fork	11,272	20,246	34,939	38,528	44,623	49,153	54,143
Utah County	263,590	368,536	516,564	587,670	668,564	746,312	833,101
Spanish Fork as % of Utah County		3.35%	3.38%	2.58%	2.58%	2.20%	2.20%

Source: Census, Utah State Governor's Office of Management & Budget

There will be an estimated 13,107 households in 2025, assuming an average household size of 3.75. The average household size used in this analysis is equal to the average household size in the 2010 Census. Changes in household size are difficult to predict. Nationally, in the State of Utah and in Utah County average household size has been decreasing (0.4, 1.0, and 0.6 percent respectively) and is projected to continue to decrease. In Spanish Fork, the average household size increased by 5 percent between 2000 and 2010.

2.3 EMPLOYMENT

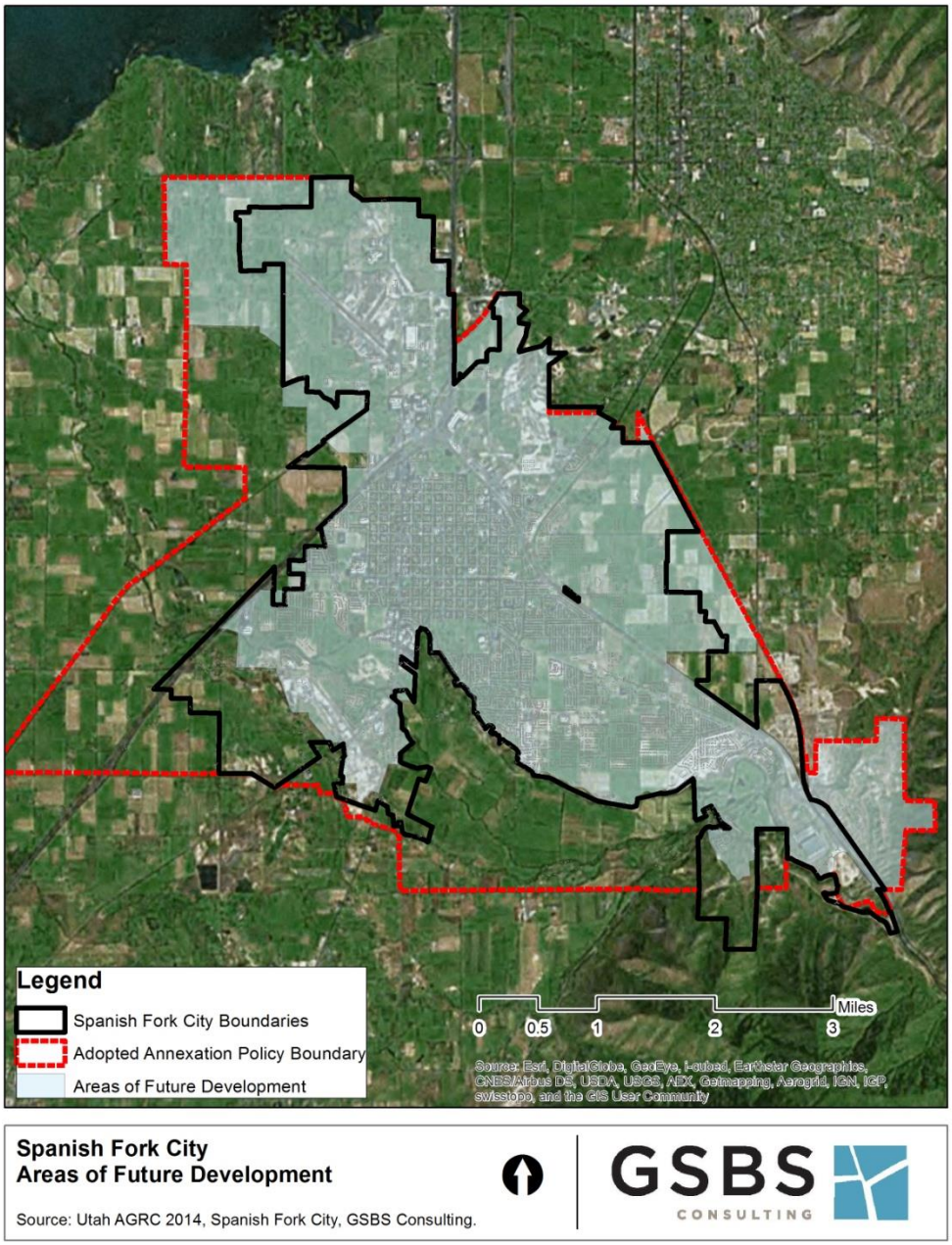
There are currently an estimated 11,624 jobs in Spanish Fork. These employees work for businesses located in an estimated 8.38 million square feet of private, nonresidential space. Estimated average gross square footage per employee is 721. This estimate blends industrial, retail, and office uses.

In the ten-year period between 2000 and 2010, Spanish Fork added approximately 666 nonresidential buildings to house 1,446 new jobs. In the period 2010 to 2013, Spanish Fork added an estimated 612 jobs and 410,000 square feet of private, commercial square footage.

Commercial and industrial uses in the city are projected to increase by one million square feet in the ten year period 2015 to 2025. This development is projected to consume an additional 179 acres.

2.4 GROWTH PATTERNS

The majority of residential growth is anticipated on the few remaining large vacant parcels along Canyon Rd. and 1400 E, north and east of Route 6, and the southwest portion of the city. New industrial investment will be concentrated primarily north and west of the interstate surrounding the Spanish Fork – Springville Airport. General commercial growth will likely occur in and around the Route 6 and I-15 interchange, and along the Main Street corridor, particularly at the southern end. Figure 2-1 shows the areas of future development for Spanish Fork City.



Spanish Fork City
Areas of Future Development

Source: Utah AGRC 2014, Spanish Fork City, GSBS Consulting.

GSBS CONSULTING

Figure 2-1: Areas of Future Development

POWER

3.1 OVERVIEW

Spanish Fork City provides electrical power to all residential and non-residential development within the City's boundaries. As of October 2013, Spanish Fork's municipal power system provides service to 9,861 residential, 829 commercial and 8 large power accounts. Table 3-1 identifies the average energy in kilowatt hours (kWh) used per customer by type for the period 2002 through 2012. This information provides an understanding of current and proposed level of service for municipal power.

TABLE 3-1: HISTORIC AVERAGE UTILIZATION (KWH) BY CUSTOMER TYPE: 2002-2012

	Residential			Commercial			Lg User		
Year	Total Usage	Avg./ Customer	Change in Avg.	Total Usage	Avg./ Customer	Change in Avg.	Total Usage	Avg./ Customer	Change in Avg.
2002	51,953,042	7,743		65,590,644	68,111		39,883,941	4,985,493	
2003	55,921,564	7,903	160	66,039,634	68,935	824	38,991,469	4,873,934	-111,559
2004	57,515,187	7,896	-7	69,732,826	73,558	4,623	41,152,867	5,144,108	270,174
2005	61,422,059	7,984	88	65,208,602	60,772	-12,786	48,484,973	6,060,622	916,514
2006	68,719,195	8,282	298	68,791,416	58,101	-2,671	51,917,637	6,489,705	429,083
2007	78,933,080	9,069	787	72,378,317	63,995	5,894	51,739,018	5,173,902	-1,315,803
2008	81,231,583	8,971	-98	74,231,006	67,421	3,426	49,538,858	4,953,886	-220,016
2009	82,848,135	8,840	-131	75,435,696	69,590	2,169	42,290,829	4,229,083	-724,803
2010	86,314,422	9,105	265	77,416,619	74,439	4,849	42,669,143	4,741,016	511,933
2011	86,263,943	8,997	-108	78,673,950	74,011	-428	45,829,500	5,092,167	351,151
2012	92,372,770	9,511	514	83,302,794	76,848	2,837	47,954,980	5,328,331	236,164

Source: Spanish Fork Municipal Power Utility

For the period 2002 through 2012, the proportion of total consumption, measured in kWh, attributable to residential customers increased from 33 percent in 2002 to 41 percent in 2012. At the same time demand attributable to commercial and large users has decreased from 42 percent to 37 percent and from 25 percent to 21 percent respectively.

UTILIZATION GROWTH

RESIDENTIAL

Growth in residential demand measured in kWh, as seen in Table 3-1, has grown by 40 million kWh or 78 percent in the ten year period 2002-2012. At the same time the total number of residential customers grew by 3,002 or 45 percent. The average residential customer used approximately 23 percent more power in 2012 than in 2002 indicating that approximately 67 percent of the increase in residentially generated consumption is attributable to new development and 23 percent to increased utilization by existing customers.

Per capita utilization for residential customers averages 2,466 kWh for the three-year period 2010 through 2012. When per capita utilization is applied to average household sizes in Spanish Fork, single family residential utilization averages 9,789 kWh per household and multi-family utilization averages 5,565 kWh per household.

COMMERCIAL

Commercial demand measured in kWh, as seen in Table 3-1, has grown by 17 million kWh or 27 percent in the ten year period 2002-2012. At the same time the number of commercial costumers grew by 121 or 13 percent. The average commercial customer uses approximately 12.8 percent more power in 2012 than in 2002 indicating that approximately 87.2 percent of the increase in commercially generated demand is attributable to new development and 12.8 percent to increased utilization by existing customers.

The three year (2010 – 2012) average per square foot utilization for commercial customers is 11,160 kWh per square foot.

LARGE USERS

Growth in large user demand measured in kWh as seen in Table 3-1, grew by 8, million kWh or 20 percent in the ten year period 2002-2012. At the same time, the number of large user customers has grown by 1 customer or 13 percent. The average large user customer uses approximately 6.9 percent more power in 2012 than in 2002 indicating that approximately 93.1 percent of the increase in large user generated demand is attributable to new development and 6.9 percent to increased utilization by existing customers.

Per square foot usage for large users varies. Large user impact is calculated on a per applicant basis using the identified value of each Equivalent Residential Unit (ERU) in this analysis.

3.2 LEVEL OF SERVICE

Spanish Fork City's current and proposed level of service (LOS) for municipal power is determined based on the design criteria Spanish Fork City has used in designing and expanding the power system over the past several years. Using the established design criteria, the current system was evaluated to determine if there is existing excess capacity or existing deficiencies. As a next step, the need for and cost of required new facilities to maintain the current and achieve the proposed LOS was identified. Spanish Fork City's power LOS is to provide necessary system-wide capacity to ensure that anticipated utilization is no more than 80 percent of total design capacity. This LOS ensures that there is adequate capacity in the system to maintain service during peak periods. The analysis identifies when each substation and group of substations is expected to exceed "base" capacity, 80 percent of total capacity and total capacity. Base capacity is 60 – 72 percent of total capacity.

Table 3-2 provides current average kWh utilization by land use type. Single family utilization rates are used as the "base amount" and other land use types are measured against this Equivalent Residential Usage ("ERU") amount.

TABLE 3-2: UTILIZATION BY LAND USE - EQUIVALENT RESIDENTIAL UNITS 2015

AND 2025

Land Use	Unit	Average Annual Usage/Unit	ERU	2015 Units	2015 Total ERUs	2025 Units	2025 Total ERU
Single Family Residential	DU	9,789	1	9,510	9,510	12,133	12,133
Multi-Family Residential	DU	5,565	0.57	747	426	953	543
Non-Residential Commercial	SF	11,160	1.14	8,379	9,552	10,690	12,186
Large User Commercial	SF	Calculated based on actual/designed utilization					

Source: Spanish Fork Municipal Power Utility, US Census

There will be an estimated 24,862 ERU served by the Spanish Fork system in 2025. This is an increase of 5,374 ERU.

Spanish Fork City's municipal power system was evaluated by Intermountain Consumer Professional Engineers, Inc. for an updated Capital Facilities Plan in November 2013. According to the November 2013 Plan, Spanish Fork City's municipal power system load was projected to increase from 63.74 MVA in 2013 to 100.24 MVA in 2023. This projected load exceeds operating standards for the current power system.

As a result of Intermountain Consumer's analysis, a capital facilities plan, identifying approximately $9.2 million in projects to ensure that the system remains within design criteria is proposed for review and approval by the City Council. Table 3-3 identifies the total projected utilization through 2023 and the impact on the current municipal power system if no improvements are made.

According to the analysis completed by Intermountain Consumer, of the seven substations in the Spanish Fork system two have adequate existing excess capacity to accommodate expected growth through 2023, one was projected to exceed existing base capacity in 2014, and is project to exceed existing base capacity in 2019. The remaining three substations currently exceed base capacity. In order to more accurately meet overall system needs, the substations are combined to provide back up and redundant capacity. There are three combined substation groups. All three groups have adequate capacity to meet current demand. However, as shown in Table 3-3, projected loads were expected to exceed the base level MVA for the Canyon Road/Maple Mountain combined substation area in 2014, the North/Whitehead/Woodhouse substation area in 2017 and the Industrial/Argyle substation area in 2018. The entire system will exceed the base MVA in 2017 and exceed 80 percent of total MVA in 2022 if no system improvements are made. There are no existing deficiencies in the system. The Spanish Fork system functions as a single service area although each substation group is evaluated independently.

Table 3-3: Projected Loads – No Improvements

Spanish Fork City
Peak Loads - No Improvements

(No Improvements)			2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		2023	
Substation		Recloser	Amps	MVA	Amps	MVA	Amps	MVA	Amps	MVA	Amps	MVA	Amps	MVA	Amps	MVA	Amps	MVA	Amps	MVA	Amps	MVA	Amps	MVA
North	XFMR Base: 12	Main Street	97	2.09	102	2.21	108	2.34	114	2.46	120	2.60	127	2.74	134	2.89	141	3.04	148	3.21	156	3.38	164	3.55
	XFMR 80%: 16	Airport	148	3.20	156	3.37	165	3.56	174	3.75	183	3.96	193	4.17	203	4.39	214	4.62	225	4.87	237	5.13	249	5.39
	XFMR Total: 20	Sub Total	245	5.29	259	5.58	273	5.90	288	6.22	304	6.56	320	6.91	337	7.28	355	7.67	374	8.07	394	8.51	414	8.94
Whitehead	XFMR Base: 7.5	Nature's Sunshine	181	3.91	188	4.07	196	4.24	204	4.42	213	4.61	222	4.80	232	5.00	241	5.21	252	5.44	263	5.67	274	5.91
	XFMR 80%: 8.4	Provo Craft	150	3.24	156	3.37	163	3.51	169	3.65	176	3.81	184	3.97	191	4.13	199	4.31	208	4.49	217	4.68	226	4.88
	XFMR Total: 10.5	Sub Total	331	7.14	344	7.44	359	7.76	374	8.07	390	8.42	406	8.76	423	9.13	441	9.52	460	9.93	480	10.36	500	10.79
Industrial	XFMR Base: 12	Shopko	122	2.62	128	2.77	136	2.93	143	3.09	151	3.26	159	3.44	168	3.62	177	3.81	186	4.02	196	4.23	206	4.45
	XFMR 80%: 16	Klune	113	2.45	120	2.60	128	2.76	135	2.92	143	3.09	151	3.26	160	3.45	169	3.64	178	3.84	188	4.06	198	4.28
	XFMR Total: 20	Sub Total	235	5.08	249	5.37	263	5.69	278	6.00	294	6.35	310	6.70	327	7.07	345	7.46	364	7.86	384	8.29	404	8.73
Argyle	XFMR Base: 8.4	50 East	80	1.73	81	1.76	83	1.79	84	1.82	86	1.86	88	1.89	89	1.93	91	1.97	93	2.01	95	2.05	97	2.09
	XFMR 80%: 9.4	300 West	383	8.27	416	8.98	451	9.74	486	10.49	524	11.33	563	12.16	604	13.05	647	13.98	692	14.95	740	15.99	788	17.03
	XFMR Total: 11.76	Sub Total	463	10.00	497	10.74	534	11.53	570	12.32	610	13.18	651	14.06	693	14.98	738	15.95	785	16.96	835	18.04	885	19.12
Canyon Road	XFMR Base: 12	Fingerhut	265	5.72	268	5.78	270	5.84	273	5.90	277	5.97	280	6.04	283	6.12	287	6.19	291	6.28	295	6.36	299	6.45
	XFMR 80%: 16	IFA	399	8.61	403	8.70	407	8.79	411	8.89	416	8.99	421	9.09	426	9.20	432	9.32	437	9.44	443	9.57	449	9.70
	XFMR Total: 20	Sub Total	663	14.33	670	14.47	677	14.63	685	14.79	693	14.96	701	15.14	709	15.32	718	15.52	728	15.72	738	15.93	748	16.15
Maple Mountain	XFMR Base: 12	SR-6	279	6.03	293	6.32	307	6.63	321	6.93	337	7.27	352	7.61	369	7.97	387	8.35	405	8.74	424	9.17	444	9.59
	XFMR 80%: 16	High School	159	3.43	166	3.58	174	3.75	181	3.92	190	4.10	198	4.28	207	4.47	217	4.68	226	4.89	237	5.12	247	5.35
	XFMR Total: 20	Sub Total	438	9.46	458	9.90	480	10.38	502	10.85	526	11.37	551	11.89	576	12.45	603	13.03	631	13.64	661	14.28	691	14.93
Woodhouse	XFMR Base: 10	SAPA	186	4.01	197	4.25	208	4.50	220	4.75	233	5.03	246	5.31	259	5.60	274	5.91	289	6.24	305	6.58	321	6.93
	XFMR 80%: 11.2	1100 East	85	1.83	90	1.94	95	2.06	101	2.18	107	2.31	113	2.44	119	2.58	126	2.72	133	2.87	141	3.04	148	3.20
	XFMR Total: 14	K-Mart	306	6.61	324	7.00	344	7.42	363	7.84	384	8.30	406	8.76	428	9.25	452	9.76	477	10.30	503	10.87	530	11.45
		Sub Total	576	12.45	611	13.19	647	13.98	684	14.77	724	15.64	764	16.50	807	17.43	852	18.40	899	19.41	949	20.49	999	21.57
Total		Amps	2951		3088		3235		3381		3541		3702		3873		4053		4241		4441		4641	
		MVA		63.74		66.70		69.87		73.02		76.49		79.96		83.66		87.54		91.59		95.91		100.24

Combined Substations (No Improvements)	2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		2023	
	Amps	MVA	Amps	MVA	Amps	MVA	Amps	MVA	Amps	MVA	Amps	MVA	Amps	MVA	Amps	MVA	Amps	MVA	Amps	MVA	Amps	MVA
North, Whitehead, Woodhouse Base: 29.5 MVA, 80%: 35.6 MVA, Total: 44.5 MVA	1152	24.88	1214	26.21	1280	27.64	1345	29.06	1418	30.62	1490	32.18	1567	33.84	1648	35.59	1732	37.41	1822	39.36	1912	41.30
Industrial, Argyle Base: 20.4 MVA, 80%: 25.4 MVA, Total: 31.76 MVA	698	15.07	746	16.11	797	17.22	848	18.32	905	19.54	961	20.75	1021	22.04	1084	23.40	1149	24.82	1219	26.33	1289	27.85
Canyon Road, Maple Mountain Base: 24 MVA, 80%: 32 MVA, Total: 40 MVA	1101	23.78	1129	24.38	1158	25.01	1187	25.64	1219	26.33	1251	27.03	1286	27.77	1322	28.54	1359	29.35	1399	30.22	1439	31.08
Total - Base: 73.9 MVA, Total: 116.26 MVA	2951	63.74	3088	66.70	3235	69.87	3381	73.02	3541	76.49	3702	79.96	3873	83.66	4053	87.54	4241	91.59	4441	95.91	4641	100.24

Substation MVA (No Improvements)	2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		2023	
	% Base MVA	% Total MVA	% Base MVA	% Total MVA	% Base MVA	% Total MVA	% Base MVA	% Total MVA	% Base MVA	% Total MVA	% Base MVA	% Total MVA	% Base MVA	% Total MVA	% Base MVA	% Total MVA	% Base MVA	% Total MVA	% Base MVA	% Total MVA	% Base MVA	% Total MVA
North - Base: 12 MVA, Total: 20 MVA	44%	26%	47%	28%	49%	30%	52%	31%	55%	33%	58%	35%	61%	36%	64%	38%	67%	40%	71%	43%	74%	45%
Whitehead - Base: 7.5 MVA, Total: 10.5 MVA	95%	68%	99%	71%	103%	74%	108%	77%	112%	80%	117%	83%	122%	87%	127%	91%	132%	95%	138%	99%	144%	103%
Industrial - Base: 12 MVA, Total: 20 MVA	42%	25%	45%	27%	47%	28%	50%	30%	53%	32%	56%	33%	59%	35%	62%	37%	66%	39%	69%	41%	73%	44%
Argyle - Base: 8.4 MVA, Total: 11.76 MVA	119%	85%	128%	91%	137%	98%	142%	109%	152%	112%	162%	119%	172%	127%	180%	136%	192%	144%	215%	153%	225%	163%
Canyon Road - Base: 12 MVA, Total: 20 MVA	119%	72%	121%	72%	122%	73%	123%	74%	125%	75%	126%	76%	128%	77%	129%	78%	131%	79%	133%	80%	135%	81%
Maple Mountain - Base: 12 MVA, Total: 20 MVA	79%	47%	83%	50%	86%	52%	90%	54%	95%	57%	99%	59%	104%	62%	109%	65%	114%	68%	119%	71%	124%	75%
Woodhouse - Base: 10 MVA, Total: 14 MVA	124%	89%	132%	94%	140%	100%	148%	105%	156%	112%	165%	118%	174%	124%	184%	131%	194%	139%	205%	146%	216%	154%
Total - Base: 73.9 MVA, Total: 116.26 MVA	86%	55%	90%	57%	95%	60%	99%	63%	104%	66%	108%	69%	113%	72%	118%	75%	124%	79%	130%	82%	136%	86%

Combined Substation MVA (No Improvements)	2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		2023	
	% Base MVA	% Total MVA	% Base MVA	% Total MVA	% Base MVA	% Total MVA	% Base MVA	% Total MVA	% Base MVA	% Total MVA	% Base MVA	% Total MVA	% Base MVA	% Total MVA	% Base MVA	% Total MVA	% Base MVA	% Total MVA	% Base MVA	% Total MVA	% Base MVA	% Total MVA
North, Whitehead, Woodhouse Base: 29.5 MVA, Total: 44.5 MVA	84%	56%	89%	59%	94%	62%	98%	65%	104%	69%	109%	72%	115%	76%	121%	80%	127%	84%	133%	88%	140%	93%
Industrial, Argyle Base: 20.4 MVA, Total: 31.76 MVA	74%	47%	79%	51%	84%	54%	90%	58%	96%	62%	102%	65%	108%	69%	115%	74%	122%	78%	129%	83%	137%	88%
Canyon Road, Maple Mountain Base: 24 MVA, Total: 40 MVA	99%	59%	102%	61%	104%	63%	107%	64%	110%	66%	113%	68%	116%	69%	119%	71%	122%	73%	126%	76%	130%	78%
Total - Base: 73.9 MVA, Total: 116.26 MVA	86%	55%	90%	57%	95%	60%	99%	63%	104%	66%	108%	69%	113%	72%	118%	75%	124%	79%	130%	82%	136%	86%

Color Code:
Above Base
Above 80% Total
Above Total

Source: Intermountain Consumer Professional Engineers, Draft Electrical Master Plan, November 2013

EXISTING EXCESS CAPACITY

Since the 2013 master plan was completed, a number of capital improvement projects have been completed. As seen in Table 3-4, there is existing excess capacity (or the opportunity for new development to utilize existing capacity rather than build new) in all three of the substation groups although all three are expected to exceed base capacity as a result of growth in loads during the planning period.

NORTH/WHITEHEAD/WOODHOUSE

The North/Whitehead/Woodhouse group of substations currently utilizes 53 percent of base capacity and 34 percent of total capacity. This was increased from capacity evaluated in the 2013 master plan as a result of capital improvements installed in 2013 and 2014. Electrical demand in the area served by the North/Whitehead/Woodhouse group of substations is projected to grow at 5.2 percent annually through 2025. As a result of expected growth in usage, the substation group will reach 56 percent of total capacity by 2025. Capacity of the system infrastructure to serve the North/Whitehead/Woodhouse area is required to maintain the current and meet the proposed LOS in the area.

INDUSTRIAL/ARGYLE

The Industrial/Argyle group of substations currently utilizes 74 percent of base capacity and 47 percent of total capacity. Electrical energy consumption in the area served by the Industrial/Argyle group of substations is projected to grow at 6.3 percent annually through 2025. As a result of expected growth in usage, the substation group will exceed base capacity in 2020 and reach 89 percent of total capacity by 2025. Capacity of the system infrastructure to serve the Industrial/Argyle area is required to maintain the current and meet the proposed LOS in the area.

CANYON ROAD/MAPLE MOUNTAIN

The Canyon Road/Maple Mountain group of substations utilized 99 percent of base capacity and 59 percent total capacity in 2012. Electrical energy consumption in the area served by the Canyon Road/Maple Mountain group of substations is projected to grow at 2.7 percent annually through 2025. As a result of expected growth in usage, the substation group reached base capacity in 2014. MVA capacity of the system infrastructure to serve the Canyon Road/Maple Mountain area is adequate to meet demand; however, three "reconductor" projects were completed to enhance long term viability of the system and meet overall growth projections in the system. The actual cost of improvements is included in the IFFP.

TABLE 3-4: UTILIZATION/CAPACITY BY SUBSTATION GROUP 2013

Group	Base Capacity (MVA)	Total Capacity (MVA)	2015 Usage (MVA)	2015 % Base Usage	2015 % Total Capacity Usage	Projected Year Exceed Base Capacity	2025 Usage (MVA)	Estimated Rate of Growth
North/Whitehead/Woodhouse	49.50	77.50	26.00	52.5%	33.5%	2025	43.73	5.2%
Industrial/Argyle	20.40	31.76	15.00	73.5%	47.2%	2020	28.16	6.3%
Canyon Road/Maple Mountain	24.00	40.00	26.63	111.0%	66.6%	2014	34.88	2.7%
Total	93.90	149.26	67.63	72.0%	45.3%	2022	106.78	4.6%

Source: Intermountain Consumer Professional Engineers, Draft Electrical Master Plan, November 2013. Updated by Spanish

Fork City for 2015 and 2025.

3.3 IMPACT FEE FACILITIES PLAN

Figure 3-1 illustrates the current and proposed system infrastructure for the Spanish Fork electrical system. There are several projects on the plan required to maintain LOS based on projected increases in usage. Planned projects on the map are identified with corresponding project information in the IFFP (Table 3.5).

TABLE 3-5: POWER IMPACT FEE FACILITIES PLAN

Map ID	Project	Approx. Time Frame	Estimated Cost	IFFP	% to New Develop.
3718	Masterplan & Impact Fee Studies **	2012-2015	$74,772	$51,684	69.12%
3718	Masterplan & Impact Fee Studies	2016-2025	$220,000	$220,000	100.00%
5102	1700 W 1400 S Substation Land **	2011	$328,548	$112,484	34.24%
73 (5)	Dry Creek Sub Transformer (SUVPS) **	2011	$431,164	$147,616	34.24%
61 (11)	600 Amp Overhead Distribution Line from US6 to the Oaks **	2012-2013	$219,340	$66,127	30.15%
77	Nebo Sub 46kV Str/Bss/Mtr (SUVPS) **	2012	$85,180	$34,536	40.54%
(4)	Woodhouse/Bonner Sub Trans **	2012	$31,866	$12,920	40.54%
75 (1A)	46 kV 2700 N Dry Creek to Whitehead Tran Line **	2012-2015	$389,537	$246,654	63.32%
75 (A)	46 kV 2700 N Dry Creek to Whitehead Tran Line	2016-2018	$500,000	$404,400	80.88%
63 (1C)	2000 N 200 E Railroad Casing **	2012	$13,043	$3,590	27.52%
79 (4)	Woodhouse Substation Bussing **	2013	$54,852	$28,617	52.17%
82	Recond. 200E 2000N-2700N FY13-14 **	2013-2014	$117,477	$30,469	25.94%
83	North Dist. Overhead FY13-14 **	2013-2014	$230,593	$38,729	16.80%
86	UAMPS 1600N 138/46kV Trans. Line Ease. **	2013	$23,470	$15,139	64.50%
	Legacy Farms 11/1/2012 Electric Devepment Reimbursement Agreement **	2013	$406,939	$45,998	11.30%
3853	SUVPS Substation Upgrades **	2014-2015	$1,088,805	$760,296	69.83%
3853	SUVPS Substation Upgrades	2016-2017	$984,900	$796,587	80.88%
3853	SUVPS Line Rebuild & Upgrades	2018-2022	$2,706,316	$459,662	16.98%
88 (3A-D)	West Dist. Overhead **	2014	$391,390	$67,501	17.25%
90 (4)	Woodhouse Substation Expansion **	2014-2015	$1,274,175	$865,747	67.95%
	Joint Property Ventures 6/16/2015 Reimbursement Agreement **	2015	$25,805	$23,583	91.39%
	Muhlstein Meadows, LLC 11/17/2015 Electric Devepment Reimbursement Agreement **	2015	$46,617	$22,621	48.53%
98 (1C)	IHC Distribution Line Relocation UG Williams Ln	2016	$90,000	$39,308	43.68%
(8)	Bonner Substation	2017-2018	$1,575,000	$1,273,860	80.88%

TABLE 3-5: POWER IMPACT FEE FACILITIES PLAN (continued)

Map ID	Project	Approx. Time Frame	Estimated Cost	IFFP	% to New Develop.
(6)	Leland Area Rebuild	2018	$20,000	$3,397	16.98%
74 (11)	US-6 600A Powerhouse Rd to Canyon Rd SR198	2018	$250,000	$109,188	43.68%
63	Upgrade Bonner to Canyon Rd Sub Tran Line	2019	$1,100,000	$186,833	16.98%
94	46 kV Reconductor Argyle to Bonner	2019	$675,000	$114,647	16.98%
55	350 E Tap Line Rebuild	2020	$250,000	$42,462	16.98%
58	50 E Tap Line Rebuild	2020	$250,000	$42,462	16.98%
62	46 kV Reconductor Industrial to Woodhouse	2021	$830,000	$140,974	16.98%
(5)	Future Leland Substation	2022-2023	$2,177,334	$1,761,028	80.88%
64	46 kV Reconductor 900 N. to Whitehead	2022	$550,000	$93,416	16.98%
66	600 amp Circuit Tie 100 S.	2022	$600,000	$101,909	16.98%
65	46 kV Reconductor Industrial to Argyle	2023	$450,000	$76,432	16.98%
68 (9)	Reconductor 1100 East	2023	$200,000	$33,970	16.98%
71 (10)	Reconstructed 2300 East	2023	$250,000	$42,462	16.98%
72 (11)	Reconductor US-6	2023	$215,000	$36,517	16.98%
	46 kV Reconductor Woodhouse to Canyon Rd	2024	$1,100,000	$186,833	16.98%
	Total Through	2025	$19,677,124	$8,647,241	43.95%

Source: Intermountain Consumer Professional Engineers, Inc., GSBS Richman

* Cost estimate from existing 10 CFP spreadsheet from Spanish Fork City

** Actual cost from Spanish Fork City

Figure 3-1 illustrates the current and proposed system infrastructure for the Spanish Fork electrical system. There are several projects on the plan required to maintain LOS based on projected increases in usage. Planned projects on the map are identified with corresponding project information in the IFFP (Table 3.5).

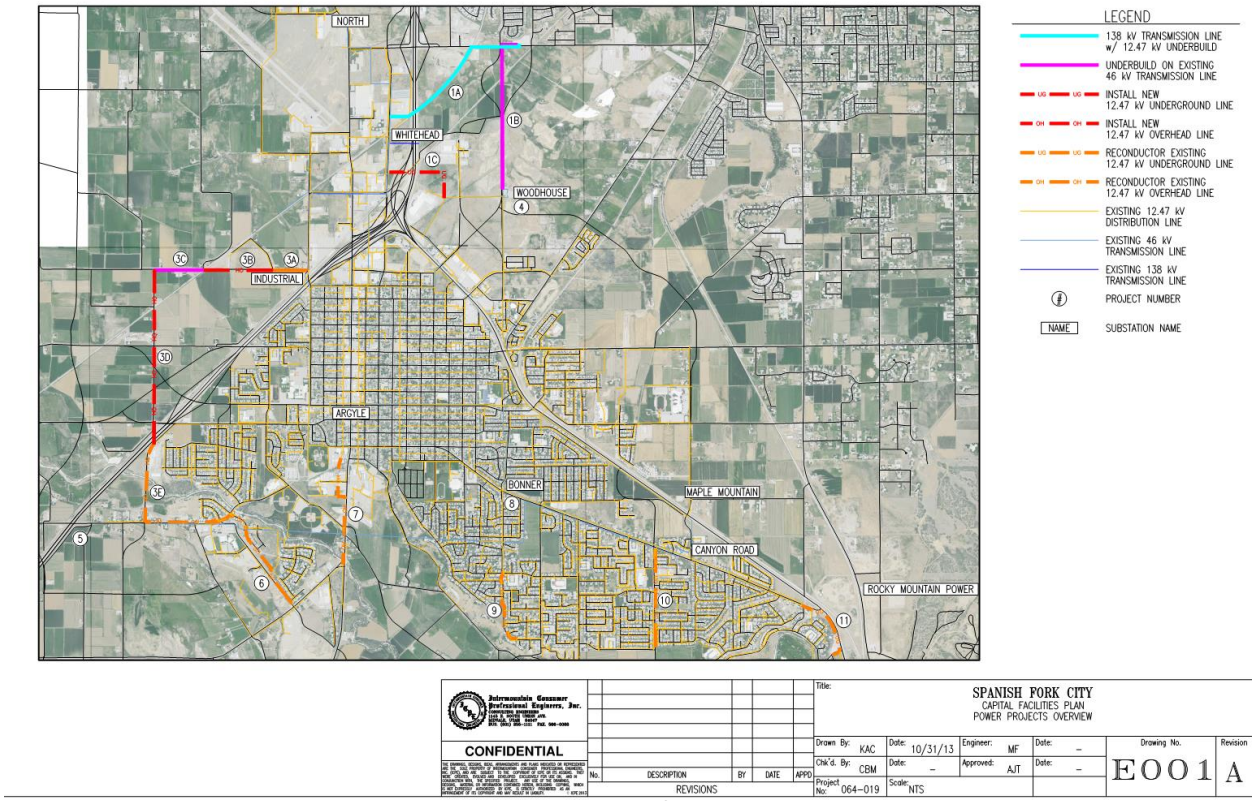


Figure 3-1: Electrical System/Capital Facilities Plan

SERVICE AREA

Although the Spanish Fork electrical system is divided into three groups of conductors for purposes of measuring and providing service, the entire system works as a whole, therefore the entire area of Spanish Fork City is considered one service area.

PLAN 2013-2025

Table 3-5 is the IFFP list of projects required to maintain the current LOS for the system. The projects were identified in the Capital Facilities Plan completed by Intermountain Consumer Professional Engineers. The portion of the plan attributable to anticipated new development was then estimated based on the ten year history of utilization growth by user class provided in Table 3-1.

The total estimated cost to maintain the current LOS through 2025 is $23,147,099 million. The estimated share of the total capital facilities plan attributable to new development of all types is 46.5 percent at an estimated cost of $10,770,099 million.

3.4 MAXIMUM ALLOWABLE IMPACT FEE

The maximum allowable impact fee based on the IFFP and anticipated new development is provided in Table 3-6. The actual impact fee will be calculated in the Impact Fee Analysis and include all applicable statutorily required adjustments.

TABLE 3-6: MAXIMUM ALLOWABLE POWER IMPACT FEE

Total Cost of IFFP	$8,647,241
# of new ERU	5,374
Cost/ERU	$1,609.09
Maximum Allowable Impact Fee/ERU	**$1,609.09**

Source: GSBS Richman

STORM WATER

Spanish Fork City (City) provides, operates and maintains infrastructure to collect and manage storm water runoff for the benefit of residents in all areas of the community. Bowen, Collins & Associates ("BC&A") completed a Storm Drainage Master Plan (SDMP) in May 2012 that forms the basis for this IFFP. That master plan addresses the components necessary to provide a storm water management system capable of collecting and managing storm water from system users based on City level of service standards. BC&A used a rainfall/runoff computer model to evaluate the performance of existing storm drain system facilities under current and projected future use conditions.

4-1 CURRENT AND PROPOSED LEVEL OF SERVICE

The Spanish Fork City Storm Drain System current and proposed level of service (LOS) is to provide a storm water system designed and installed to the criteria identified below:

MINOR SYSTEM

Minor system facilities shall be designed to collect and convey storm water runoff from a 3 hour design storm that has a 10 percent chance of occurring in any given year (commonly referred to as a 10-year design storm, see the SDMP Report). Minor system facilities include the following:

- Catch basins
- Storm drain pipes
- Manholes

Storm drain pipes shall not to be smaller than 12 inches in diameter.

MAJOR SYSTEM

Major system facilities shall be designed to collect and convey storm water runoff from a 3 hour design storm that has a 1 percent chance of occurring in any given year (commonly referred to as a 100-year design storm, see the SDMP Report). Major system facilities include:

- Streets
- Open channels
- Culverts and bridges
- Retention basins

DETENTION FACILITIES

Detention facilities shall be designed to attenuate peak runoff rates from tributary areas associated with a design storm to a level that meets level of service criteria for existing or planned major and minor system facilities as identified in the SDMP. In an effort to mitigate for increased impacts on storm water facilities from large areas of impervious area, commercial and industrial developments must provide project or local detention facilities that will reduce peak runoff rates from associated development to 0.15 cfs per acre. Public roads in and around commercial and industrial developments typically freely discharge into the storm drain system and are not detained. The combined total peak

discharge rates from detained commercial and industrial developments and undetained roads in and around those developments will be similar in magnitude to discharge rates from undetained residential developments.

SYSTEM AND PROJECT IMPROVEMENTS

The recommended improvements identified in Spanish Fork's Storm Drainage Master Plan Report (SDMP Report) included only storm water system facilities (system improvements) that serve multiple developments. Local storm drain facilities (project improvements), typically associated with single development projects, are not included in the SDMP report nor are they eligible for impact fees. The definition of system improvements and project improvements is presented below.

- Conveyance Facilities – Major storm drain conveyance facilities (system improvements) include pipelines or major channels that typically service multiple developments. Local facilities (project improvements) include smaller storm drain conveyance facilities that typically only serve one development and are used to convey storm water runoff from the design storm to the major conveyance facilities.
- Detention Facilities – A regional detention facility (system improvement) that will attenuate peak runoff from the design storm from multiple developments to levels that can be safely conveyed through existing downstream facilities. A local detention facility (project improvement) will attenuate peak runoff from one development or a single lot.

4-2 IMPACT OF GROWTH

Spanish Fork City is projected to grow by 2,833 households and one million square feet of nonresidential development by 2025. This new development will occur on approximately 900 acres of currently undeveloped area. The most cost effective way to serve new development is with existing infrastructure with available, excess capacity. The percentage of excess capacity of the existing storm water system that is eligible for reimbursement through impact fees was identified. Available or excess capacity is defined as the capacity in an existing storm drain facility that is available to convey or attenuate the design flows from anticipated future development. To identify the system-wide excess capacity available for future development, peak design storm flow runoff for existing and projected future full build-out conditions were computed and compared. The results of those computations, and the methodology summarized below were used to estimate the percentage of the excess capacity of the existing storm drain system facilities available for future development.

- Estimate Capacities of Existing Pipelines – The capacities in existing storm drain pipelines were estimated using Manning's equation, pipe size, and pipe slope data provided by the City.
- Estimate Peak Flow Rate – The design flow in each modeled pipeline was estimated using the computer hydraulic/hydrology model (See Chapters 3 and 4 of the SDMP report) for existing and future development conditions.
- Eliminate Facilities without Available Capacity – The projected future design flow was compared against the pipeline's existing capacity. Where the estimated projected future design flow exceeded the existing capacity of the pipeline, the available capacity was assumed to be zero, because the pipeline will need to be replaced. This corresponds to those facilities with deficiencies that are identified in the capital facilities plan (see Chapter 5 of the SDMP report).
- Calculate Percent of Available Capacity in Existing Pipelines – Where the projected future design flow was less than the existing capacity of the existing pipeline, the percent of available capacity was calculated by

dividing the flow rate associated with existing development conditions by the projected design flow for future development conditions and subtracting the result from one then multiplying by one hundred to convert to a percentage. It is important to note that because the existing pipelines used in this calculation were constructed to convey the projected future design flow, the projected future design flow was used as the capacity of the existing pipeline.

- Calculate Cost Weighted Average for System – Each pipeline in the system has a different quantity of excess capacity to be used by future growth. To develop an estimate of excess capacity on a system wide basis, the capacities of each of these pipelines and their contribution to the system as a whole must be considered. To do this, each pipeline must first be weighted based on its contribution to system. For this purpose, each pipeline has been weighted based on the product of its capacity and length (e.g. 20% excess capacity in a 36-inch, 4000 foot pipeline will be worth much more than 20% excess capacity in an 18-inch, 300 foot pipeline). The excess capacity in the system as a whole can then be calculated as the sum of the weighted capacity used by future growth divided by the sum of total weighted capacity in the system.

The results of this analysis indicate that the existing storm drain system facilities have 13.2 percent available capacity to serve future development.

4-3 EXISTING AND FUTURE FACILITIES

The SDMP report identifies the recommended capital facility projects needed to provide the desired level of storm drain service to various parts of the City at projected full build-out conditions. Many of those projects will be constructed in phases as development occurs. One of the goals of this IFFP is to identify a list of system improvements that will be completed over the next 10 years to meet the needs of anticipated development. Demands placed upon existing storm drain facilities by future development were determined using the process outlined below. Each of the steps were developed as part of the SDMP report and associated analyses. A detailed description of the steps outlined below can be found in the SDMP report.

1. Existing Capacity – The capacities in existing storm drain pipelines were estimated using Manning's equation, pipe size, and slope data provided by the City (See Chapters 3 and 4 of the SDMP report).
2. Existing Flow – The peak flow rates for existing development conditions were estimated using a hydrologic computer model (See Chapters 3 and 4 of the SDMP report).
3. Existing Deficiencies – Existing system capacity deficiencies listed in Table 4-2 in the storm drain system were identified using the defined level of service, peak flow estimates from the hydraulic computer model, and the estimated capacities for existing system facilities. Identified deficiencies were verified by City staff (see Chapter 5 of the SDMP report).
4. Future Flow - The peak flow rates for the design storm based on projected full build-out conditions were estimated using a hydrologic computer model (See Chapter 3 and 4 of the SDMP report).
5. Future Demand - Future demands on the storm drain system were identified using the defined level of service, peak flow estimates from the hydraulic computer model and the estimated capacities for existing system facilities. (see Chapter 5 SDMP Report).
6. Recommended Improvements – Needed storm drain projects were identified to provide the defined level of service associated with future development (See Chapter 5 of the SDMP report).

The steps listed above define the "demands placed upon [the] existing public facilities by new development activity; and

the proposed means by which the local political subdivision will meet those demands" (Utah Code Ann. § 11-36a-302 (1)(a)(iv)(v)).

4-4 SOURCE OF COST ESTIMATES

The costs of construction for projects to be completed within ten years have been estimated based on past City experience with projects of a similar nature. Collection system project costs are based on average per foot costs for pipes of the same size. The unit cost estimates developed as part of the SDMP are provided in Table 4-1. The cost listed in IFFP does not include bond costs related to paying for impact fee eligible improvements.

TABLE 4-1: UNIT COST ESTIMATES - STORM WATER FACILITIES

Description	Unit	Unit Cost
Detention Basins		
Property Acquisition	Acre	$100,000
Excavation and Hauling	Cubic Yard	$13
Landscaping (Non-irrigated native	Square Foot	$0.30
Landscaping (Irrigated turfgrass)	Square Foot	$2.60
Inlet Apron	Lump Sum	$12,000
Outlet Structure	Lump Sum	$16,000
Emergency Spillway	Lump Sum	$5,000
Riprap	Lump Sum	$20,000
Storm Drain Pipelines		
Permanent Easement Acquisition	Acre	$10,000
18-inch RCP	Linear Foot	$90
24-inch RCP	Linear Foot	$100
30-inch RCP	Linear Foot	$120
36-inch RCP (1)	Linear Foot	$145
42-inch RCP (1)	Linear Foot	$180
48-inch RCP (1)	Linear Foot	$215
54-inch RCP (1)	Linear Foot	$250
90-inch RCP (1)	Linear Foot	$520
96-inch RCP (1)	Linear Foot	$270
Manhole (1)	Each	$4,000
Traffic Control	Lump Sum	$5,300
Channel Construction		
Excavation and Hauling	Cubic Yard	$13
Riprap	Cubic Yard	$75
Landscaping (Non-irrigated native	Square Foot	$0.30
Other		
Contingency	25 Percent of Construction Cost	
Engineering, Legal and Administration	15 Percent of Construction Cost w/Contingency	

Source: BC&A

(1) Includes trenching, installation, backfill, and asphalt surface restoration

4-5 IMPACT FEE FACILITIES PLAN

In Chapter 5 of the SDMP Report, capital facility projects needed to provide storm water management service to various parts of the City at projected build-out were identified. Most of those projects will need to be constructed in phases as development occurs. Only infrastructure to be constructed within a ten year horizon will be considered in the calculation of impact fees to avoid uncertainty surrounding improvements further into the future. Table 4-2 identifies the storm drain system improvements from the capital facilities plan that are anticipated to be constructed within the next ten years to serve approximately 900 acres of new residential and non- residential development.

TABLE 4-2: STORM WATER IMPACT FEE FACILITIES PLAN
2016-2025

		Percentage Attributable to:		Cost Attributable to:	
Project	Total Estimated Cost[2]	Existing Deficiency[1]	New Development	Repairing Existing Deficiency[1]	New Development
CFP-R320 White Rail Trunk Line	$201,255	16.0%	84.0%	$32,201	$169,054
CFP-2550E DF Canyon Rd	$175,050	82.0%	18.0%	$143,541	$31,509
CFP-FG DF Fairgrounds	$175,998	84.0%	16.0%	$147,838	$28,160
CFP-R43 Sunset Park Trunk Line	$191,441	83.0%	17.0%	$158,896	$32,545
CFP-DB5 Legacy Farms West	$80,842	0.0%	100.0%	$0	$80,842
CFP-R260 Volunteer Dr to 500 S	$466,163	53.0%	47.0%	$247,066	$219,097
CFP-R259 500 S 200 W to Main St	$403,283	58.0%	42.0%	$233,904	$169,379
CFP-R255 Main St Fairgrounds Trunk Line	$278,081	67.0%	33.0%	$186,314	$91,767
CFP-R266 Fairgrounds Trunk Line	$170,088	80.0%	20.0%	$136,070	$34,018
CFP-R267 Fairgrounds to Cemetery Trunk Line	$123,105	85.0%	15.0%	$104,639	$18,466
CFP-R262 Cemetery Trunk Line / LID	$250,000	65.0%	35.0%	$162,500	$87,500
CFP-400S DF 700 E	$135,845	71.0%	29.0%	$96,450	$39,395
CFP-R270 Cemetery Trunk Line / LID	$150,000	68.0%	32.0%	$102,000	$48,000
Planning and Impact Fee Analysis	$200,000	0.0%	100.0%	$0	$200,000
Totals	**$3,001,151**	**58.0%**	42.0%	**$1,751,419**	**$1,249,732**

[1] Existing Deficiencies will not be paid for using impact fees.
[2] 2012 dollars
Source: BC&A

4-6 MAXIMUM ALLOWABLE IMPACT FEE

Table 4-3 is the maximum allowable impact fee based on the IFFP identified in Table 4-2 and an anticipated 907 acres of new development in the 2014 to 2023 time period. Spanish Fork City requires payment of the storm Water impact fee at plat approval. The final fee will be calculated in the Impact Fee Analysis.

TABLE 4-3: MAXIMUM ALLOWABLE STORM WATER IMPACT FEE

Total Cost of IFFP	$1,249,732
# of new acres developed	1,542
Cost/Acre	$810.62
Maximum Allowable Impact Fee/Acre	**$810.62**

Source: GSBS Richman

DRINKING WATER

Spanish Fork City provides drinking water facilities for the benefit of residents in all areas of the community. The current and proposed level of service (LOS) for drinking water facilities is determined by establishing the 2015 drinking water capacity, including identification of existing deficiencies and existing excess capacity in the system.

Hansen, Allen & Luce, Inc. (HAL) completed a Drinking Water System Master Plan in May 2012 to provide a system capable of providing drinking water to system users based on City demand data and standards established by the Utah Division of Drinking Water. HAL modeled Spanish Fork's drinking water system to evaluate the performance of existing facilities under current and future demands. Recommendations for system improvements are based on this model.

5-1 CURRENT AND PROPOSED LEVEL OF SERVICE

Table 5-1 summarizes the usage and performance of the current Spanish Fork drinking water system. The system is evaluated by equivalent residential connection (ERC) and in total. An ERC is the average usage of a single-family residential connection. In the Spanish Fork drinking water system, an ERC uses an average of 0.20 gpm (288 gallons per day) based on a review of several years of residential billing data and production data. This includes an additional factor of 30 percent above actual billed water per ERC due to unmetered uses such as low flows through meters, system flushing to remove sediments, fire suppression, fire flow testing, waste flows from well startup, and other unknown water loss. Table 5-1 also summarizes the projected drinking water system usage in the year 2023 based on current usage. Using development projections identified in the demographics chapter, approximately 30 percent of anticipated build-out ERC will be developed by 2025, the planning horizon for this IFFP study.

There are five components to a drinking water system: source, storage, distribution, fire suppression, and water rights. Each component of Spanish Fork's drinking water system has a current and proposed LOS. Current and proposed LOS is based on system usage and system design criteria. The IFFP projects and the impact fees are based on actual impact of each ERC on the system. The May 2012 Master Plan identified key system design criteria. An extended-period hydraulic model of the system was used to assess current performance and identify future system requirements resulting from growth.

TABLE 5-1: CURRENT DRINKING WATER SYSTEM PERFORMANCE AND USAGE

	Per ERC	2015 Total Usage	Projected 2025 Usage
Total Usage from Sources (ac-ft/yr)		3,837	4,895
Total Metered Usage (ac ft/yr)		2,913	3,716
Total Metered Res. Connections		9,599	12,246
Total Metered Res. Usage (ac ft/yr)		2,086	2,661
Total Metered Non-Res. Usage (ac ft/yr)		827	1,055
Unmetered Water		24.1%	24.1%
ERCs	1	13,405	17,101
Average Day Use (gpm)	0.18	2,379	3,035
Peak Day Use (gpm)	0.27	3,568	4,552

Peak Instantaneous Flow (gpm)	0.39	5,233	6,676
Equalization Storage (gallons)	400	5,361,819	6,700,000
Maximum Operating Pressure (psi)	125	125	125
Minimum Operating Pressure (psi)	50	50	50
Water Rights/Source Volume (ac-ft/yr)	0.32	4,289	5,280
Fire Suppression	1,000 gpm for 2 hours	3.26 MG	3.26 MG

Source: Hansen, Allen & Luce, Inc.

Based on current system performance and system design criteria, Table 5-2 summarizes the current and proposed source, storage and distribution, fire suppression, and water rights LOS for the Spanish Fork drinking water system facilities for the purpose of calculating the drinking water impact fee.

TABLE 5-2: CURRENT AND PROPOSED DRINKING WATER LEVEL OF SERVICE

Facility	Current and Proposed LOS per ERC
Source (gpm)	0.30
Storage (gallons)	400
Distribution	Maintain pressures between 50 and 125 psi with a maximum pressure fluctuation of 20 psi
Fire Suppression	1,000 gpm for 2 hours
Water Rights	0.32 ac-ft/yr and 0.30 gpm

SOURCE LEVEL OF SERVICE

The existing and proposed LOS for source in the drinking water system is 0.30 gpm per ERC. The total existing source requirement at this level of service is 3,568 gpm and the requirement at 2025 is projected to be 4,552 gpm.

Table 5-3 identifies Spanish Fork's existing drinking water source capacity. The primary drinking water sources are springs. The springs, however, vary in production. Table 5-3 identifies the average flow of the springs as well as the reliable flow during periods of drought. During normal precipitation years, the springs can handle the entire drinking water system peak-day demand. Drinking water source capacity, however, must be based on the flow available during drier years. For example, Crab Creek Springs was flowing at an average of 700 gpm for the spring of 2014, whereas its normal average flow is 1,400 gpm. The City can use the 2550 East (Canyon Road) Well in the drinking water system in addition to the 1700 East (Canyon Elementary) Well if necessary. The capacity for the 2550 East (Canyon Road) Well is being accounted for in the pressurized irrigation system and is not included in Table 5-3. The total dry-year flow capacity for drinking water system sources is about 3,750 gpm which is roughly equivalent to current peak-day use.

TABLE 5-3: EXISTING DRINKING WATER SYSTEM SOURCES

Source	Average Year Flow (gpm)	Dry Year Flow (gpm)
Crab Creek Springs	1,400	700
Malcomb Springs	2,750	1,350
Cold Springs	1,000	750
1700 East (Canyon Elementary) Well	1,700	1,700
Total	**7,575**	**5,130**

Source: Hansen, Allen & Luce, Inc.

Using development projections identified in the demographics chapter, approximately 30 percent of anticipated build-out ERCs will be developed by 2025, the planning horizon for this IFFP study. Table 5-1 identifies the peak day source requirement for 2025 of 4,552 gpm. The City is currently working on projects that will make additional spring water available. This should be sufficient for the growth anticipated in the next 10 years. The City will need to start developing additional well sources for the drinking water system for growth beyond 10 years.

STORAGE LEVEL OF SERVICE

The existing and proposed LOS for equalization storage in the drinking water system is 400 gallons per ERC. The City's existing drinking water system has three storage facility locations each with two storage tanks. There are three requirements for drinking water storage:

- equalization storage to meet peak demands
- fire suppression storage
- emergency storage.

It is assumed that the existing and proposed level of service of 400 gallons per ERC for equalization storage includes emergency storage. Table 5-4 identifies the current capacity of each storage facility serving the City's drinking water system. The existing equalization storage at the existing and proposed level of service is 5.0 MG (Table 5-1). This leaves 3.0 MG of existing capacity available for future growth.

TABLE 5-4: EXISTING STORAGE FACILITIES AND CAPACITY

Facility	Equalization (MG)	Fire Suppression (MG)	Total Capacity (MG)
Sterling Hollow Tank 1	2.25	0.75	3.00
Sterling Hollow Tank 2	3.75	1.25	5.00
Malcomb Tank 1	0.64	0.36	1.00
Malcomb Tank 2	1.28	0.72	2.00
Oaks 1	0.04	0.09	0.13

Oaks 2	0.04	0.09	0.13
Total	**8.00**	**3.26**	**11.26**

Source: Hansen, Allen & Luce, Inc.

Using development projections identified in the demographics chapter, approximately 30 percent of anticipated build-out ERC will be developed by 2025, the planning horizon for this IFFP study. Table 5-1 identifies equalization storage requirements for 2025 of 6.7 MG based on the existing and proposed level of service. This leaves 1.3 MG of remaining capacity in Sterling Hollow Tank 2 for future growth beyond ten years.

DISTRIBUTION LEVEL OF SERVICE

The existing and proposed LOS for distribution in the drinking water system is maintaining a minimum pressure of 50 psi and a maximum pressure of 125 psi during normal operating conditions. Additionally, the maximum allowable pressure fluctuation during normal operating conditions is 20 psi.

The distribution system consists of all pipelines, valves, fittings, and other appurtenances used to convey water from the water sources and storage tanks to the water users. The existing drinking water system contains over 190 miles of distribution pipe ranging in size from 2 to 30 inches in diameter (Figure 5.1). The drinking water system distribution piping is much older than the pressurized irrigation system *distribution piping. Removing the majority of the outdoor irrigation demand from the drinking water* system alleviated some overall capacity. The drinking water system is still required to meet fire suppression demands.

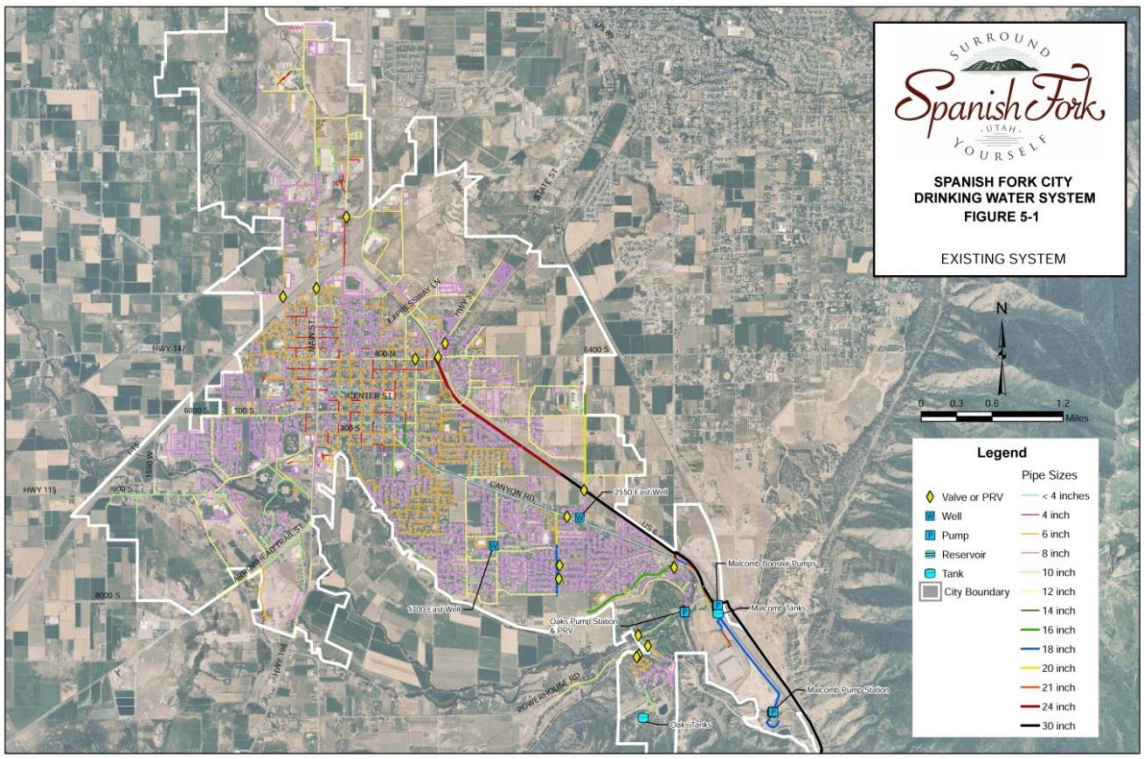


Figure 5-1: Spanish Fork Drinking Water System Close Up

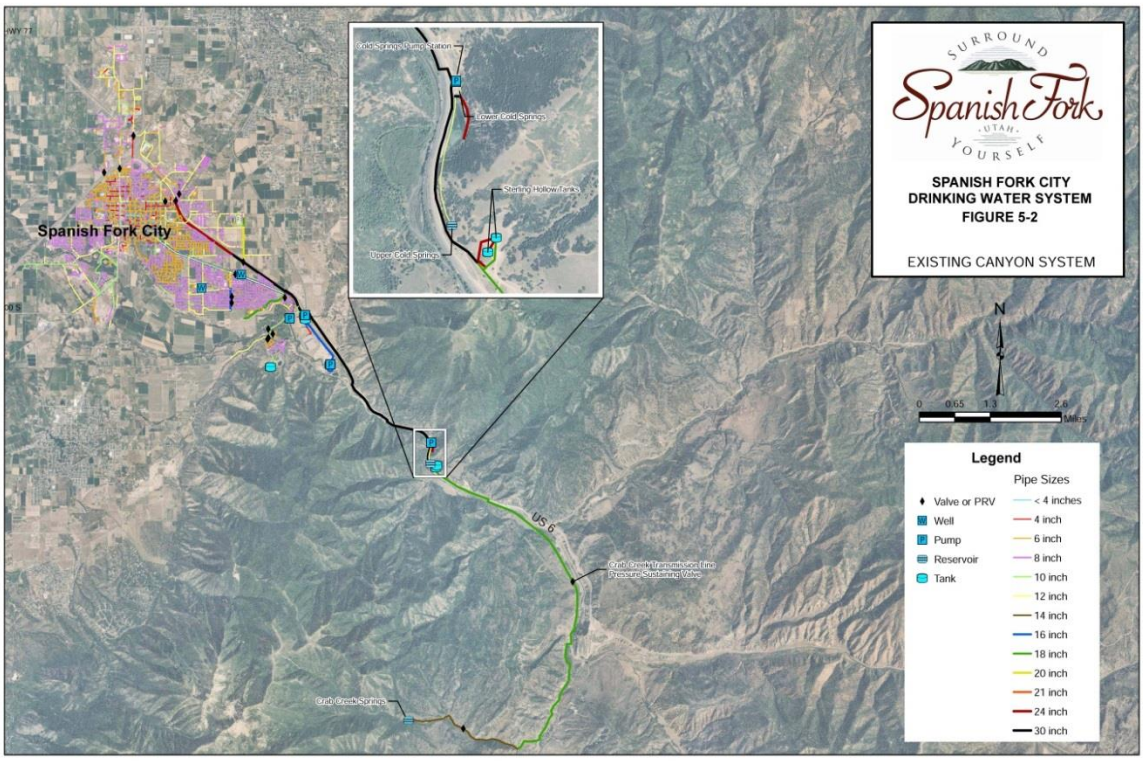


Figure 5-2: Spanish Fork Drinking Water System

FIRE SUPPRESSION LEVEL OF SERVICE

The existing and proposed LOS for fire suppression in the drinking water system is 1,000 gpm for 2 hours per ERC. For homes larger than 3,600 square feet total including the garage and non-residential buildings require a minimum fire flow of 1,500 gpm. The largest fire flow in the system is 8,000 gpm for 4 hours. Removing the majority of the outdoor irrigation demand from the drinking water system by building a pressurized irrigation system has in general increased overall capacity for fire suppression. The total fire suppression storage capacity in the existing system is 3.2 MG, which is sufficient capacity for growth beyond 10 years.

WATER RIGHTS LEVEL OF SERVICE

The existing and proposed LOS for water rights in the drinking water system is 0.32 ac-ft/yr. The City owns 17,236 ac-ft/yr of water rights for the drinking water system (see Table 5-5). During a year when precipitation is below normal, the City is able to maintain a level of service of 0.32 ac-ft/yr per ERC. In a dry year, these water rights give the City about 13,800 ac-ft/year. This capacity is sufficient not only for the existing and future anticipated demand in the next ten years, but is sufficient for many years beyond the growth in the 2025 planning horizon.

TABLE 5-5: EXISTING DRINKING WATER SYSTEM WATER RIGHTS

Type	Normal Year Volume (ac-ft)	Dry Year Year Volume (ac-ft)
River/Springs	8,026	4,573
Wells	8,665	8,665
Total	**16,691**	**13,238**

Source: Hansen, Allen & Luce, Inc.

5-2 EXISTING EXCESS CAPACITY

SOURCE

The existing excess capacity for source is projected to be just enough through the year 2025 (see Table 5-6). Anticipated increase in demand from new ERCs will use newly developed source capacity. The soon to be completed IFFP Cold Springs Development source project will add an anticipated capacity of 2,000 gpm or 6,667 ERCs for new growth.

TABLE 5-6: SOURCE EXISTING EXCESS CAPACITY, 2015–2025 (GPM)

	Capacity	2015	Diff.	2025	Diff.
Total	5,130	4,021	1,109	5,130	0

Source: Hansen, Allen & Luce, Inc.

STORAGE

There is existing excess capacity in the drinking water system for equalization storage through 2025. Current excess capacity is approximately 2.64 MG. As seen in Table 5-7 the anticipated increase in demand from new ERCs is anticipated to require approximately 56 percent of available excess capacity.

TABLE 5-7: STORAGE EXISTING EXCESS CAPACITY, 2015–2025 (MG)

	Capacity	2015	Diff.	2025	Diff.
Total	8.0	5.36	2.64	6.84	1.16

Source: Hansen, Allen & Luce, Inc.

DISTRIBUTION

The capacity for the distribution system was calculated based on the existing and proposed level of service. Using the existing extended-period hydraulic model for the drinking water system, the demand was increased until the existing system reached unacceptable performance during peak instantaneous demand times. Unacceptable performance was defined as a minimum normal operating pressure of 50 psi. The highest pressure drop in the water system during peak instantaneous demand conditions at maximum capacity was predicted by the model to be 20 psi. The maximum capacity of the existing drinking water system was determined to be 22,300 ERCs. Given the existing demand on the system of 12,500 ERCs, the remaining capacity of the distribution system is 9,800 ERCs.

Although there is remaining capacity in the existing distribution system, the City is not including a "buy-in" for the majority of the remaining capacity in the impact fee. Two proposed projects are being included in the impact fee

calculation. There are also some projects with pipelines that are being included in the impact fee, but that piping is directly related to source and fire suppression storage capacity.

FIRE SUPPRESSION

The total fire suppression storage capacity in the existing system is 3.2 MG. It is not anticipated that any additional capacity will be needed for future growth in the next 10 years. Removing the majority of the outdoor irrigation demand from the drinking water system by building a pressurized irrigation system has in general increased overall capacity for fire suppression in the distribution system. The City will not include a "buy-in" for this existing capacity in the impact fee. New development payments for this existing capacity are included in the impact fee calculation for equalization storage.

The 2012 Master Plan identified locations where the existing and proposed level of service for fire suppression is not met in specific places in the distribution system. These localized fire flow capacity issues are considered existing system deficiencies and will not be paid for by impact fees.

WATER RIGHTS

There is existing excess capacity in the drinking water system for water rights. The City owns 16,691 ac-ft/yr of water rights for the drinking water system. In a dry year, however, these water rights give the City 13,238 ac-ft/yr. This capacity is sufficient not only for the existing and future anticipated demand in the next ten years, but for many years beyond. For this reason, the City will not require additional water rights for the drinking water system from new development. Current excess capacity is approximately 9,500 ac-ft/yr. As seen in Table 5-8 the anticipated increase in demand from new ERCs is anticipated to require approximately 12 percent of available excess capacity.

TABLE 5-8: WATER RIGHTS EXISTING EXCESS CAPACITY - 2015-2025 (AC-FT/YR)

	Capacity	2015	Diff.	2025	Diff.
Total	13,238	4,289	8,949	5,472	7,766

Source: Hansen, Allen & Luce, Inc.

5.3 IMPACT OF GROWTH

Increase in demand generated by new development is projected to require additional capacity in sources, 57 percent of available excess capacity in storage, the use of existing capacity in the distribution system, the use of existing capacity for fire suppression, and 13 percent of available excess capacity in water rights.

5.4 FUTURE FACILITIES & COST ESTIMATES

The 2012 Drinking Water Master Plan includes a list of projects required to build-out the drinking water system. Total cost for Master Planned projects is $49,912,013 (2011$). Construction cost estimates are based on:

1. *RSMeans Heavy Construction Cost Data 2011*
2. Price quotes from equipment suppliers
3. Recent construction bids for similar work

The Impact Fee Facilities Plan below includes currently installed improvements and planned projects needed to provide capacity in the next 10 years. For projects already built, the cost shown is the actual cost of construction.

5.6 IMPACT FEE FACILITIES PLAN

SERVICE AREA

Spanish Fork City's drinking water system includes six separate pressure zones. However, because the zones are interrelated the system is treated as a single service area for purposes of imposing an impact fee.

2015–2025 PLAN

Table 5-9 is the Spanish Fork City 2015–2025 Impact Fee Facilities Plan. From 2015 to 2025, development is anticipated to increase by 3,696 ERCs from 13,405 ERCs to 17,101 ERCs (see Table 5-1).

TABLE 5-9: DRINKING WATER IMPACT FEE FACILITIES PLAN, 2015-2025

Project	Total Cost (Actual or Estimated)		Total ERCs	Cost/ERC	New Development ERCs	IFFP Cost
Source						
Cold Springs Development	$2,017,502	A	6,667	$302.61	3,697	$1,118,6
Crab Creek Transmission Line (77%)	$1,505,457	A	9,000	$167.27	3,697	$618,3
Storage						
5 MG Water Tank - Sterling Hollow	$3,215,705	A	9,400	$342.10	3,697	$1,264,6
Crab Creek Transmission Line (23%)	$449,682	A	9,400	$47.84	3,697	$176,8
Distribution						
2550 E. Trunk Line (MM High School)	$174,347	A	22,300	$7.82	3,697	$28,9
400 N. Trunk Line (Legacy Farms)	$52,898	A	22,300	$2.37	3,697	$8,7
Muhlestein Meadows, LLC 11/17/2015	$2,780	A	22,300	$0.12	3,697	$4
750 South 2550 East Trunk Line	$133,480	A	22,300	$5.99	3,697	$22,1
Main St. 1400 N to 1600 N Trunk Line	$215,000	A	22,300	$9.64	3,697	$35,6
Planning						
Model, Master Plan, & Impact Fee Updates	$250,000	E	4,155	$60.17	3,697	$248,0
Total IFFP	$8,016,851			$945.93		$3,522,3

Source: Spanish Fork Drinking Water System Master Plan, 2012, Hansen, Allen & Luce; GSBS

E - Estimated Cost

A - Actual Cost

5-7 MAXIMUM ALLOWABLE IMPACT FEE PER ERC

Table 5-10 is the maximum allowable impact fee based on the IFFP identified in Table 5-9 and an anticipated additional 3,697 ERCs of new development in the 2015 to 2025 time period. The final fee will be calculated in the Impact Fee Analysis.

TABLE 5-10: MAXIMUM ALLOWABLE IMPACT FEE/ERC

Total Cost of IFFP	$3,522,349
# of new ERC	3,697
Cost/ERC	$945.93
Maximum Allowable Impact Fee/ERC	**$945.93**

Source: GSBS Richman

PRESSURIZED IRRIGATION

Spanish Fork City provides irrigation water to residents of the City via a pressurized irrigation (PI) water system. The system reduces demand on the drinking water system particularly during the summer by providing irrigation water for outdoor use. The system includes two pressure zones: the upper and lower zones. Each zone has both exclusive and shared water sources making the zones interrelated. Hansen, Allen & Luce, Inc. (HAL) completed a Pressurized Irrigation System Master Plan in May 2012 that forms the basis for this IFFP. The master plan addresses the components necessary for a system to respond to variations in demand while maintaining acceptable pressures. System components include pumps, storage facilities, valves and pipes. HAL modeled Spanish Fork's PI system to evaluate the performance of existing facilities under current and future demands. Recommendations for system improvements are based on this model.

6-1 CURRENT AND PROPOSED LEVEL OF SERVICE

Table 6-1 summarizes the usage and performance of the current Spanish Fork PI system per irrigated acre and in total. The table includes a projection of usage in 2025 based on existing usage. In the Spanish Fork PI system, the average size of a single family lot is 0.25 acres with a typical irrigated area of 0.15 ac (based on HAL's review of aerial imagery). For single family homes and twin homes, it is recommended that the proposed level of service for irrigated area be 60% of the total lot size. This matches the existing level of service. Even though larger lots have the potential for a larger percentage of irrigated area, the aerial imagery review revealed that it is typical for larger lots to have larger homes, driveways and other non- irrigated features proportional to the lot size. For multi-family and non-residential lots the recommended level of service is the actual irrigated acres as measured at final plat.

TABLE 6-1: CURRENT PRESSURIZED IRRIGATION WATER SYSTEM USAGE AND PROJECTED USAGE

	Per Irrigated Acre	2015 Total Usage	Projected 2025 Usage
Total Usage from Sources (ac-ft/yr)		5,681	13,512
Total Metered Usage (ac ft/yr)		5,004	6,384
Total Metered Single Family Res. Connections		8,465	10,799
Total Metered Single Family Res. Usage (ac ft/yr)		3,449	4,400
Total Metered Non-Res. Usage (ac ft/yr)		1,555	1,984
Unmetered Water		11.9%	11.9%
ERCs	6.2	10,856	13,850
Irrigated Area (ac)	1	1,765	2,252
Average Day Use (Irrigation Season, gpm)	5	8,826	11,260
Peak Day Use (gpm)	6	10,591	13,512
Peak Instantaneous Flow (gpm)	10	17,652	22,519
Equalization Storage	9,488 gallons	51.4 ac-ft	65.57 ac-ft
Max Operating Pressure (psi)	125	125	125
Min Operating Pressure (psi)	40	40	40
Water Rights/Source Volume (ac-ft/year)	4	7,061	9,008

Source: Hansen Allen & Luce

In addition to the area irrigated on each lot, the City has 129 acres of irrigated area in parks and detention basins. In most cases, the detention basins are incorporated into the parks. These properties are equally used by the City population and evenly distributed to the existing ERC (Equivalent Residential Connection, the average usage of a single family residential connection) lots. For each irrigated acre, this results in an additional 0.084 acres of parks and detention basins (8.4%). It is recommended that this ratio of 8.4% for parks and detention basins be maintained as new growth occurs. Table 6-2 lists the total current and proposed level of service in terms of irrigated acres by lot size. The level of service is 60% of the sum of lot size plus the 8.4% of the calculated irrigated acres for parks and detention basins (for calculation see Table 6-2).

TABLE 6-2: IRRIGATED ACRES BY RESIDENTIAL LOT SIZE

Lot Size	Irrigated Acres *
0.25 Acre	0.163
0.33 Acre	0.217
0.50 Acre	0.325
0.75 Acre	0.488
1.00 Acre	0.650

* Irrigated acres = (lot size) x 0.6 x (1.084)

Source: Hansen, Allen & Luce

Similarly, the irrigated acreage level of service for multi-family and non-residential lots is the actual irrigated acreage measured at final plat plus the 8.4% factor for the measured irrigated acreage of parks and detention basins. For example, if a non-residential development showed 0.5 acres of irrigated area at final plat then the level of service for irrigated area for the development would be 0.54 acres (0.5 x 1.084).

There are four components to a PI system: source, storage, distribution, and water rights. Each component of Spanish Fork's PI system has a current and proposed LOS. Current and proposed LOS is based on system usage and system design criteria. PI projects and the impact fees are based on actual impact of each ERC on the system. The May 2012 Master Plan identified key system design criteria. An extended-period hydraulic model of the system was used to assess current performance and identify future system requirements resulting from growth.

Based on current system performance and system design criteria, Table 6-3 summarizes the current and proposed source, storage, distribution, and water rights LOS for the Spanish Fork PI system facilities for the purpose of calculating the PI water impact fee. The LOS is presented per equivalent residential connection (ERC) and per irrigated acre. While the City defines the LOS per irrigated acre, the LOS in terms of ERCs gives an idea of values for a typical residential connection.

TABLE 6-3: CURRENT AND PROPOSED PI WATER SYSTEM LOS

Facility	Current and Proposed LOS per ERC	Current and Proposed LOS per Irrigated Acre
Source (gpm)	0.98	6
Storage (gallons)	1,543	9,488
Distribution	Maintain pressures between 40 and 125 psi with a maximum pressure fluctuation of 20 psi	Maintain pressures between 40 and 125 psi with a maximum pressure fluctuation of 20 psi
Irrigated Area (acres)	0.163	1
Water Rights	0.65 ac-ft/yr and 0.98 gpm	4.0 ac-ft/yr and 6.0 gpm

SOURCE LEVEL OF SERVICE

The existing and proposed LOS for source in the PI water system is 0.98 gpm per ERC. The total existing source requirement at this level of service is 10,591 gpm and the requirement at 2025 is projected to be 13,512 gpm.

Table 6-4 identifies Spanish Fork's existing PI water source capacity. The primary water source for the PI water system is the Spanish Fork River; however, the City currently supplements with groundwater from wells. The available water from the river varies in production. Table 6-4 identifies the average flow of all sources as well as the reliable flow during periods of drought. The PI sources are not affected by drought as much as the drinking water system sources because of the reliance on wells and because of access to water from Strawberry Reservoir. Water in wet years can be stored in the reservoir for use during drier years. Still, PI water source capacity should be based on the flow available during drier years to ensure enough water to cover demand is available. The total drought year flow capacity for PI water system sources is about 9,200 gpm which is about the same as current peak-day use. The City can use the 1700 East (Canyon Elementary) Well in the PI water system in addition to the 2550 East (Canyon Road) Well if necessary. The capacity for the 1700 East (Canyon Elementary) Well is being accounted for in the drinking water system for the impact fee facility plan since it is used primarily for drinking water purposes.

TABLE 6-4: EXISTING PI WATER SYSTEM SOURCES

Source	Average Year Flow at full Capacity (gpm)	Drought Year Flow (gpm)
Darger Springs (Spanish Fork River)	1,000	500
Golf Course Pump Station (Spanish Fork River and Strawberry Reservoir)	4,000	4,000
2550 East (Canyon Rd) Well	1,000	1,000
Cemetery Well #1	500	500
Cemetery Well #2	1,000	1,000
Fairgrounds Shop Well	1,300	1,300
Memorial Well	1,000	1,000
2550 East Pump Station	500	300
Cold Springs	2,275	1,370
R1 Well	400	400
Total	**12,975**	**11,370**

Source: Hansen, Allen & Luce

Using development projections identified in the demographics chapter, approximately 30 percent of anticipated build-out ERCs will be developed by 2025, the planning horizon for this IFFP study. Table 6-1 identifies peak day source requirements for 2025 of 13,512 gpm. This leaves 2,142 gpm additional dry-year PI water sources that the City needs to develop for future growth through 2025. The City anticipates that eventually all of the groundwater source will be used in the drinking water system and the PI system will rely on water from Strawberry Reservoir and Spanish Fork River. The City will need to provide additional Strawberry Reservoir and Spanish Fork River source capacity for new growth in the PI System to replace the groundwater sources currently being used from the drinking water system. The ground water source will be needed for new growth in the drinking water system.

STORAGE LEVEL OF SERVICE

The City's existing PI system has two open-air storage facilities, both located on the east side of the City. There are three types of storage requirements:

- operational storage to allow for storage capacity for pump operation
- emergency storage to respond to system failures
- equalization storage to ensure peak water demands are met by supplying additional water during high demand and storing water during low demand.

Table 6-5 identifies the current capacity of each of the storage facilities serving the City's PI system. The Spanish Oaks Reservoir provides 77 ac-ft of operational, emergency, and equalization capacity. The Golf Course Pond provides 24 ac-ft of operational capacity for source. Spanish Fork City's current total storage capacity is 101 ac-ft.

TABLE 6-5: EXISTING STORAGE FACILITIES AND CAPACITY

Facility	Capacity (ac-ft)
Spanish Oaks Reservoir	77
Golf Course Pond	24
Total	**101**

Source: Spanish Fork Pressurized Irrigation System Master Plan, 2012, Hansen, Allen & Luce

Table 6-1 identifies the existing system storage requirements of 51.4 acre-feet assuming the current LOS of 1,765 gpm per ERC. This LOS assumes that operational storage capacity is adequate to deliver source water at the identified levels for peak day demand, that 25 percent of the peak day demand is available for equalization needs and that approximately 1/3 of the equalization requirement is available for emergency situations. The storage assumptions are based on the performance of the current system.

Using development projections identified in the demographics chapter, approximately 30 percent of anticipated build-out ERC will be developed by 2025, the planning horizon for this IFFP study. Table 6-1 identifies storage requirements for 2025 as 65.6 acre-feet.

DISTRIBUTION LEVEL OF SERVICE

The distribution system consists of all pipelines, valves, fittings, and other appurtenances used to convey water from water sources and storage tanks to water users. The existing PI system contains over 120 miles of distribution pipe ranging in size from 2 to 36 inches in diameter (Figure 6.1).

The City's current and proposed level of service for distribution is to maintain pressures between 40 and 125 psi at all points in the system under normal operating conditions. As part of the master planning process, HAL modeled the current delivery system using the 7,438 ERCs on the system at the time the distribution system was installed. HAL then modeled the system incrementally to determine at what point the current and proposed LOS for distribution could not be maintained (i.e., pressures fell below 50 psi). According to the model, the maximum capacity of the existing delivery system is 15,393 ERCs. The system currently serves 10,591 ERCs.

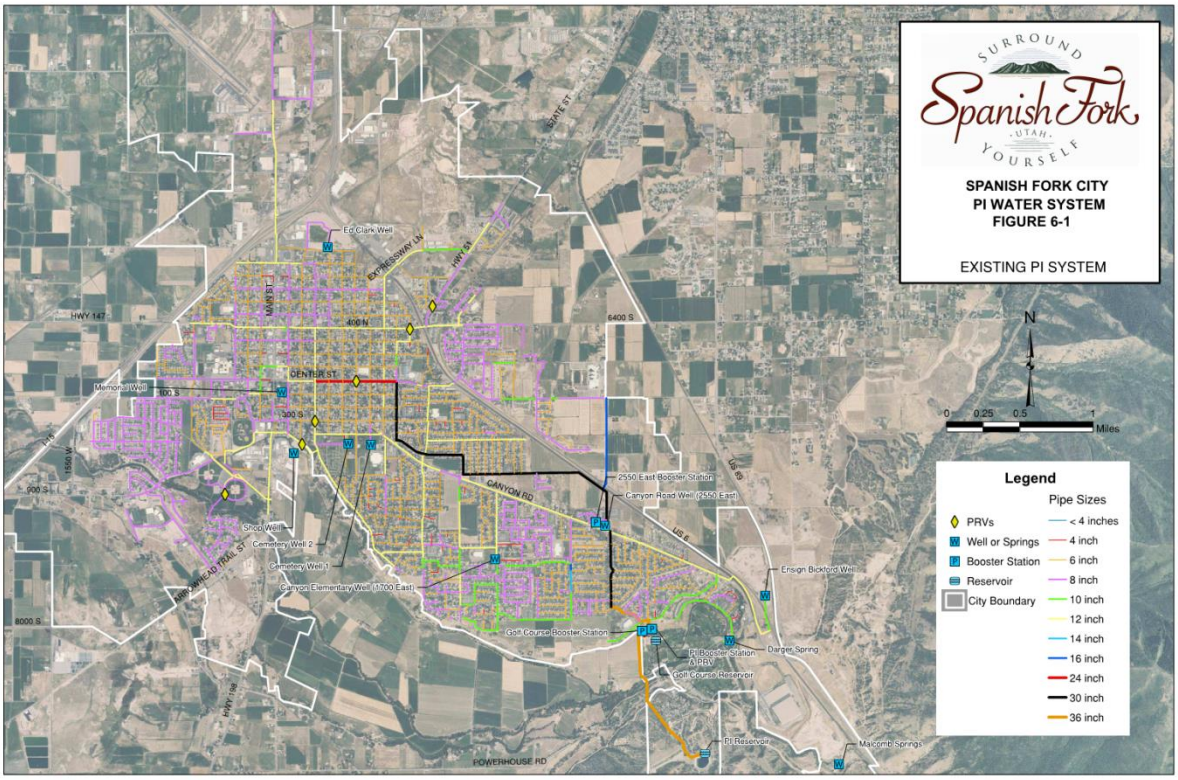


Figure 6-1: Spanish Fork PI Water System

WATER RIGHTS LEVEL OF SERVICE

The existing and proposed LOS for water rights in the PI system is 0.65 ac-ft/yr per ERC. The City owns 9,785 ac-ft/yr of water rights for the PI water system (see Table 6-6). Part of the level of service for water rights and water source the City provides is able to deliver 0.65 ac-ft/yr per ERC during a year in which precipitation is below normal. The PI water system water rights give the city about 8,762 ac-ft/yr during a dry year. While this capacity is sufficient for current demand, it will not fulfill the projected 2025 demand of 9,002 ac-ft/yr. The City should plan on acquiring additional irrigation water rights for new development for the PI system.

TABLE 6-6: EXISTING PI WATER SYSTEM WATER RIGHTS

Type	Normal Year Volume (ac-ft)	Dry Year Volume (ac-ft)
Wells	3,426	3,426
River Water	3,300	2,277
Strawberry Water	3,059	3,059
Total	**9,785**	**8,762**

Source: Hansen, Allen & Luce, Inc.

6.2 EXISTING EXCESS CAPACITY

SOURCE

There is no existing excess capacity in the PI system for source. The total existing source requirement at the existing and proposed LOS for source in the PI water system is 10,591 gpm. The total drought year flow capacity for PI water system sources is about 12,000 gpm. The source requirement at 2025 is projected to be 12,084 gpm. As seen in Table 6-7 the anticipated increase in demand from new ERCs is anticipated to require 1,512 gpm.

TABLE 6-7: SOURCE EXISTING EXCESS CAPACITY, 2015–2025 (GPM)

	Capacity	2015	Diff	2025	Diff
Total	12,000	10,591	1,409	13,512	-1,512

[1] ERCs were calculated based on actual utilization and irrigated acres per single-family acre

Source: Spanish Fork Pressurized Irrigation System Master Plan, 2012, Hansen, Allen & Luce

STORAGE

There is existing excess capacity in the PI system for storage. Current excess capacity is approximately 49.6 ac-ft. As seen in Table 6-8 the anticipated increase in demand from new ERCs is anticipated to require approximately 28 percent of available excess capacity.

TABLE 6-8: STORAGE EXISTING EXCESS CAPACITY,2015–2025 (AC-FT)

	Capacity	2015	Diff	2025	Diff
Total	101	51.4	49.6	65.6	35.4

[1] ERCs were calculated based on actual utilization and irrigated acres per single-family acre

Source: Spanish Fork Pressurized Irrigation System Master Plan, 2012, Hansen, Allen & Luce

DISTRIBUTION

There is existing excess capacity in the PI system for distribution. Current excess capacity is approximately 7,377 ERCs. Table 6-9 indicates that anticipated new development will consume approximately 55 percent of available excess capacity.

TABLE 6-9: DISTRIBUTION EXISTING EXCESS CAPACITY, 2015–2025 (ERCS)

	Capacity	2015	Diff	2025	Diff
Total	25,029	17,652	7,377	13,367	3,319

1 ERCs were calculated based on actual utilization and irrigated acres per single-family acre

Source: Spanish Fork Pressurized Irrigation System Master Plan, 2012, Hansen, Allen & Luce

WATER RIGHTS

There is existing excess capacity in the PI water system for water rights. The existing and proposed LOS for water rights in the PI water system is 4 ac-ft/yr per irrigated acre or 0.65 ac-ft/yr per ERC for 0.15 acres of irrigated area.

The City owns 9,240 ac-ft/yr of water rights for the PI water system (see Table 6-6). In a dry year, however, these water rights give the City about 8,217 ac-ft/yr. This capacity is sufficient for about 91% of growth anticipated for the next ten years. The City should acquire an additional 785 ac-ft of dry year irrigation water rights to satisfy the PI needs for new development for the PI system. It is recommended that the proposed level of service for irrigated area be 60% of the total lot size for single family homes and twin homes. For multi-family and non-residential lots the recommended level of service is the actual irrigated acres as measured at final plat. In addition to the irrigated area on the lot, it is recommended that 8.4% of the irrigated acreage be added to account for the irrigation of parks and detention basins. As seen in Table 6-10, the increase in demand from new ERCs is anticipated to require approximately 1,946 ac-ft of additional water rights. The City will require that new development assign water rights to the City equal to the PI demand of the new development or reimburse the City for water rights purchased that provide excess capacity of 1,161 ac-ft. It is required that the City Engineer approve all water rights being assigned to the City for new development.

TABLE 6-10: WATER RIGHTS EXISTING EXCESS CAPACITY, 2015–2025 (AC-FT/YR)

	Capacity	2015	Diff	2025	Diff
Total	8,217	7,056	1,161	9,002	-785

Source: Hansen, Allen & Luce, Inc.

6.3 EXISTING DEFICIENCIES

The 2012 Pressurized Irrigation System Master Plan did not identify any issues with the existing system that must be addressed.

6.4 IMPACT OF GROWTH

Increase in demand generated by new development is projected to consume 29 percent of available excess capacity in storage and 66 percent of available excess capacity in distribution. New development through 2025 is expected to consume all available excess capacity in water rights. There is no excess capacity for source. A new pump station that uses the remainder of the source storage capacity out of the Golf Course Pond and adds about 4,000 gpm of source capacity to the system was recommended in the 2012 Master Plan. Also identified in the 2012 Master Plan is the need to obtain water rights for the new growth for the recommended source.

6.5 FUTURE FACILITIES

The 2012 PI Master Plan includes a list of projects required to build out the PI system. Total cost for master planned projects is $23,362,345 (2011$). Construction cost estimates are based on:

4. RSMeans Heavy Construction Cost Data 2011
5. Price quotes from equipment suppliers
6. Recent construction bids for similar work

The Impact Fee Facilities Plan below includes currently installed improvements and planned projects needed to provide capacity in the next 10 years. For projects already built, the cost on the plan is the actual cost of construction.

6.6 PI IMPACT FEE FACILITIES PLAN

SERVICE AREA

Spanish Fork City's PI system includes two reservoirs and an upper and lower pressure zone. However, because the pressure zones are interrelated and one of the two reservoirs provides all emergency and equalization capacity, the system is treated as a single service area for purposes of imposing an impact fee.

2015–2025 PLAN

Table 6-11 is the Spanish Fork City 2015–2025 Impact Fee Facilities Plan. From 2015 to 2025, development is anticipated to increase by 2,994 ERCs from 10,591 ERCs to 13,512 ERCs (see Table 6-1).

Table 6-11: Impact Fee Facilities Plan, 2015–2025

Project	Total Cost (Actual or Estimated)		Total ERCs Served	Cost/ERC Served	New Development ERCs	IFFP Cost
SOURCE						
Golf Course Pl Pond	$319,215	A				
4,000 gpm Pump Station	$1,200,000	E				
Source Total	*$1,519,215*		*4,100*	*$370.54*	*2,994*	*$1,109,311*
WATER RIGHTS						
Summit Energy Water Right Purchase	$450,588	A	173	*$2,604.55*	173	$450,588
Wash Creek Water Right Purchase	$60,000	A	23	*$2,608.70*	23	$60,000
Spring Creek Water Right Purchase	$678,708	A	1,120	*$605.99*	1,120	$678,708
Butler Springs Water Right Purchase	$1,275,000	A	1,308	*$974.77*	1,308	$1,275,000
Additional Water Rights	$432,895	E	370	*$1,170.72*	370	$432,895
Water Rights Total	*$2,897,191*		*2,994*	*$967.74*	*2,994*	*$2,897,191*
DISTRIBUTION AND STORAGE						
2550 E. Trunk Line (MM High School)	$110,554	A				
400 N. Trunk Line (Legacy Farms)	$52,898	A				
Citywide Pressurized Irrigation System	$17,315,139	A				
2000 N 200 E. Railroad Casing	$13,043	A				
Canyon Road Transmission Line/Crab Creek	$993,000	A				
Mill Rd (Muhlestein Meadows)	$47,883					
DISTRIBUTION TOTAL	*$18,532,517*		*15,393*	*$1,203.96*	*2,994*	*$3,604,377*
PLANNING						
Model, Master Plan & Impact Fee Updates	*$250,000*	*E*	*2,994*	*$83.51*	*2,994*	*$250,000*
	$23,198,192			**$2,625.75**		**$7,860,878**

Source: Spanish Fork Pressurized Irrigation System Master Plan, 2012, Hansen, Allen & Luce; GSBS

6.7 MAXIMUM ALLOWABLE IMPACT FEE PER ERC

SERVICE AREA

The maximum allowable impact fee based on the IFFP and anticipated new development is provided in Tables 6-12 and 6-13. Maximum allowable impact fees for water rights and for all other PI measures are displayed separately because new development can assign water rights to the City. The actual impact fee will be calculated in the Impact Fee Analysis and include all applicable statutorily required adjustments.

TABLE 6-12: PI MAXIMUM ALLOWABLE IMPACT FEE/ERC EXCLUDING WATER RIGHTS

Total Cost of IFFP	$4,963,688
# of new ERC	2,994
Cost/ERC	$1,658.01
Maximum Allowable Impact Fee/ERC	**$1,658.01**

Source: GSBS Richman

TABLE 6-13: PI WATER RIGHTS MAXIMUM ALLOWABLE IMPACT FEE/ERC

Total Cost of IFFP	$2,897,191
# of new ERC	2,994
Cost/ERC	$967.74
Maximum Allowable Impact Fee/ERC	**$967.74**

Source: GSBS Richman

WASTE WATER

Spanish Fork City provides waste water collection and treatment facilities for the benefit of most residents in Spanish Fork City with the exception of a small service area that is treated by the City of Salem. Spanish Fork City and Mapleton City jointly own waste water treatment facilities and some waste water trunklines that run through Spanish Fork City as part of a number of interlocal agreements. Because of these jointly owned facilities, information pertinent to Mapleton City has been included in this IFFP for reference only. Capacity utilized by Mapleton City customers is not included in this Spanish Fork City IFFP to determine maximum impact fees.

Much of the analysis forming the basis of this IFFP has been taken from the December 2011 Waste water Master Plan (WWMP) completed by Bowen, Collins & Associates (BC&A). As part of the master plan process, BC&A performed hydraulic modeling of Spanish Fork's waste water collection system to evaluate the performance of existing facilities under current and future demands. Aqua Engineering evaluated the Spanish Fork Waste water Treatment Plant under current and future developed conditions and developed a waste water treatment facilities plan that was included in the December 2011 WWMP.

7-1 CURRENT AND PROPOSED LOS

CURRENT

The following design criteria have been and will be used to establish system standards for service to users of Spanish Fork waste water system facilities:

- **Pipeline Capacity:** Spanish Fork City requires that all sewer mains be designed such that the peak flow (including domestic discharge and infiltration) is less than or equal to 75 percent of the pipe's hydraulic capacity, using a Manning's roughness factor *n* of 0.013. This ensures capacity in the pipelines to account for inflows into the system during snowmelt or rain events and other unknowns.
- **Pump Station Capacity:** Based on industry standards and good design practice, it is recommended that peak daily flow to a lift station not exceed 85 percent of the lift station's hydraulic pumping capacity. Allowing for a modest amount of capacity above projected flows accounts for unknowns associated with flow projections and mechanical wear at each lift station. The minimum design standard for lift stations has correspondingly been established to require 15 percent of total capacity be reserved to account for these uncertainties. A single backup pump is required to accommodate mechanical failure of the primary pump and/or potential inflow from storm or snowmelt events.
- **Force Mains/Siphons** – Force mains and siphons are required to maintain velocities between three ft/sec and seven ft/sec.
- **Treatment Plant Capacity:** A treatment plant consists of different components. Each component may have different criteria for design depending on the nature of the component. For the majority of treatment related components, design is based on treating the average daily flow during the maximum month. Conversely, conveyance pipelines must be designed based on peak hour flow (function of daily flow and diurnal flow variation). This is the same standard used by the State of Utah Department of Environmental Quality (UDEQ) when rating the overall treatment capacity of a treatment plant.
- **Design Flows:** The WWMP prepared by BC&A identified historic and projected discharges for the Spanish Fork City and Mapleton City service areas. The level of service for existing flow rates based on master plan data are summarized in Table 7-1.

TABLE 7-1: WASTE WATER CURRENT LOS - SPANISH FORK CITY AND MAPLETON CITY

Item	Spanish Fork City	Mapleton City	Total
Estimated 2015 Population	38,528	8,814	47,342
Equivalent Residential Connections (ERCs) [1]	13,405	2,373	15,778
Domestic Waste water Production (mgd) [2]	2.34	0.51	2.85
Infiltration, Maximum Month (mgd) [3]	2.36	0.24	2.60
Average Day, Maximum Month Flow (mgd)	4.70	0.75	5.45
Peak Hour Flow (mgd)	7.28	1.20	8.48
Flows per ERC			**Weighted Average**
Domestic Waste water Production (gpd/ERC)	174.6	216.2	182.3
Average Day, Maximum Month Flow (gpd/ERC)	350.7	317.3	344.5
Peak Hour Flow (gpd/ERC)	542.7	507.6	536.2
Average Indoor Water Use (gpd/ERC)	194.0	240.2	202.6
Treatment per Capita[4]			
BOD (lb/capita/day)	0.17	0.17	0.17

[1] – 2015 ERCs were estimated using the Utah Government Office of Management & Budget (GOMB) population projections and the same service connection data used in the 2011 WWMP by BC&A.

[2] – Million gallons per day.

[3] – Current infiltration is equal to 107% of domestic flow.

PROPOSED

The proposed level of service is the performance standard used to evaluate system needs in the future. The Impact Fee Act indicates that the proposed level of service may:

1. diminish or equal the existing level of service; or
2. exceed the existing level of service if, independent of the use of impact fees, the City implements and maintains the means to increase the level of service for existing demand within six years of the date on which new growth is charged for the proposed level of service.

In the case of this IFFP, there are several proposed changes to the existing level of service in the City relative to waste water treatment. As discussed in Chapter 7 of the 2011 WWMP, the Utah Division of Water Quality has been developing new criteria for the Utah Pollutant Discharge Elimination System (UPDES) Permit related to the treatment plant's treated discharge. The new permit requirements were released by the State in the spring of 2014. As a result of the new permit requirements, several new projects, not included in the 2011 WWMP but proposed by Aqua Engineering in the meantime, have been included in this IFFP. Nutrient removal and UV disinfection projects represent an increase in the proposed level of service for waste water treatment that will be funded in accordance with the requirements of the Impact Fee Act.

The proposed LOS is summarized in Table 7-2. This IFFP assumes projected flows of 174 gpd of domestic waste water production from each new ERC with approximately 24 gpd of infiltration per ERC. The planning infiltration rate the City

has used is based on an infiltration rate of 200 gpd/(in-diameter mile) and was estimated for Spanish Fork City using historic pipe lengths and pipe diameters used to serve the City. Basically, it is an estimate of infiltration for the City if the City's collection system was constructed with the newest technology and construction methods. The planning I&I is lower than existing I&I, which is calculated to be 101 percent of domestic waste water flows from each ERC (174 gpd/ERC domestic flow and 351 gpd/ERC including I&I). This is the result of lower infiltration rates due to improved construction methods. For new construction, current material and design standards typically plan on an allowance of no more than 400 to 600 gpd/in-dia/mile of installed pipe[4]. However, by assuming an infiltration rate of approximately 200 gpd/(in-diameter mile), the City has assumed that infiltration for new construction will be roughly half the allowable infiltration for modern material and design standards. This compares to a range of 1000 to 4000 gpd/in-dia/mile of expected infiltration for older construction methods.

TABLE 7-2: WASTE WATER PROPOSED LOS - SPANISH FORK CITY AND MAPLETON CITY

Item	Spanish Fork City	Mapleton City	Total
New Population through 10 Years	10,625	3,352	13,977
New Equivalent Residential Connections (ERCs) [1] through 2023	3,697	979	4,675
New Domestic Waste water Production (mgd)	0.65	0.21	0.86
New Infiltration, Maximum Month (mgd)	0.089	0.023	0.11
Growth in Average Day, Maximum Month Flow (mgd)	0.739	0.233	0.97
Growth in Peak Hour Flow (mgd)	1.45	0.42	1.87
Flows per ERC			Weighted Average
Domestic Waste water Production (gpd/ERC)	174.6	216.2	183.3
Average Day, Maximum Month Flow (gpd/ERC)	198.6	240.2	183.3
Peak Hour Flow (gpd/ERC)	393.3	427.4	400.4
Average Indoor Water Use (gpd/ERC)	194.0	240.2	202.6
Treatment per Capita			
BOD (lb/capita/day)	0.17	0.17	0.17

[1] – 2025 ERCs were projected using GOMB population projections and Spanish Fork City data.

Source: Bowen, Collins & Associates; GSBS Richman

7.2 EXISTING EXCESS CAPACITY

The waste water service needs associated with projected future growth will be met through a combination of available excess capacity in existing facilities and construction of additional capacity in new facilities. To define existing capacity, the system was divided into two different components (collection and treatment). The purpose of this breakdown is to consider the available capacity for each component individually. Excess capacity associated with the collection system and treatment system is described as follows:

[4] "Chapter 3 – Quantity of Wastewater" *Gravity Sanitary Sewer Design and Construction.* NY, NY: American Society of Civil Engineers

Collection

To calculate the percentage of capacity in existing facilities available for future growth, existing and future flows were examined in a hydraulic model for each collection pipeline. The method used to calculate excess capacity available for use by future development is as follows:

- CALCULATE FLOWS – The peak flow in each facility was calculated for both existing and future development conditions.
- IDENTIFY TOTAL CAPACITY – Where a facility has capacity in excess of projected flows at buildout, the available capacity in the facility was defined as the difference between existing flows and buildout flows. Where the facility has capacity less than projected flows at buildout, the available capacity in the facility was defined as the difference between existing flows and the facility's maximum capacity. The design capacity of 75 percent of total hydraulic capacity was also calculated.
- CALCULATE PERCENT OF EXCESS CAPACITY USED BY GROWTH IN REMAINING FACILITIES – Where the future flow was less than the capacity of the existing facility, the percent of excess capacity being used in each facility was calculated by dividing the growth in flow in the facility (future flow less existing flow) by the total capacity (existing flow plus available capacity).
- CALCULATE EXCESS CAPACITY FOR THE SYSTEM AS A WHOLE – Each pipeline in the system has a different quantity of excess capacity to be used by future growth. To develop an estimate of excess capacity on a system wide basis, the capacities of each of these pipelines and their contribution to the system as a whole must be considered. To do this, each pipeline must first be weighted based on its contribution to system. For this purpose, each pipeline has been weighted based on the product of its capacity and length (e.g. 100 gpm of capacity in a 4,000 ft. pipeline contributes more to the system than 100 gpm of capacity in a 300 ft. pipeline). The excess capacity in the system as a whole can then be calculated as the sum of the weighted capacity used by future growth divided by the sum of total weighted capacity in the system.

Based on the method described above, the calculated percentage of existing capacity of pipelines available to serve new growth is summarized in Table 7-3. This has been done for both Spanish Fork City collection system facilities and joint collection facilities owned by Spanish Fork City and Mapleton City. This allows the cost of capacity to be more accurately calculated for users in both cities. Also included in Table 7-3 is a capacity breakdown for recently completed master plan projects.

TABLE 7-3: WASTE WATER SYSTEM – COLLECTION EXISTING EXCESS CAPACITY EVALUATION

Existing Collection System Assets	Original Cost	Capacity Used by Existing Users	Capacity for New Development for Next 10 Years	Remaining Capacity for Build-out Development	Cost to New Development for Next 10 Years
JOINT TRUNK LINE					
Mapleton City Share of Joint Trunk	$507,609	20.53%	6.87%	38.20%	n/a
Spanish Fork City Share of Joint Trunk	$525,279	17.10%	3.58%	13.71%	$18,804.99
SUB-TOTAL JOINT TRUNK LINE	$1,032,888	37.63%	10.45%	51.91%	n/a
200 East 36-inch Sewer Trunk[1]	$374,318	4.64%	15.62%	36.17%	$58,468.47
(Longview RR Spur Siphon)[1]	$437,727	44.96%	9.03%	46.01%	$41,136.35
Old Mill Arrowhead Trail Trunkline[1,2]	$224,750	3.18%	25.20%	71.62%	$56,637.00
Scenic Development SF Pkwy Trunkline[1]	$206,804	0.00%	50.00%	50.00%	$103,402.07
All other Spanish Fork City Collection Lines		57.61%	7.96%	34.443%	n/a

[1] – Recently completed project.

[2] – Part of Project 7 in 2011 WWMP. Percentages attributable to 10-year growth based on City estimate of 10-year growth for service area (based on proposed developments and development pressure).

Source: Bowen, Collins & Associates

TREATMENT

The City's waste water treatment plant (WWTP) has an existing capacity of 6.0 mgd. Existing peak month, average day flows for existing development are estimated to be 5.45 mgd. The 10-year peak month average day flows are projected to be 6.43 mgd if infiltration returns to historic levels observed at the treatment plant. Based on projected discharges using the planning infiltration rate used in the master plan, the City will need to expand the plant to its buildout capacity of 8.0 mgd within the next 10-years. It is worth noting that Aqua Engineering (the treatment plant engineer) does not anticipate flows exceeding 5.6 mgd over the next 10-years based on more recent climate conditions (average of the last 3 years). As a result, waste water treatment associated with new growth will be accommodated through remaining capacity at the existing WWTP. Percent of total existing plant capacity to be used by 10-year growth for Spanish Fork City and Mapleton City were calculated based on reported ownership as indicated in Table 7-4.

TABLE 7-4: WASTE WATER SYSTEM - TREATMENT EXISTING EXCESS CAPACITY EVALUATION

City	Original Cost	Plant Capacity (mgd)	Existing Average Day, Maximum Month Flow (mgd)	Existing Capacity Available to 10-Year Growth[1]	Cost to New Development for Next 10 Years
Spanish Fork City Ownership (77%)	$10,628,585	4.42	4.70	n/a	n/a
Mapleton City Ownership (23%)	$3,174,772	1.58	0.75	n/a	n/a
Total	$13,803,357	6	5.45	9.11%	$1,257,486

[1] – Mapleton excess capacity will need to be purchased by Spanish Fork City as growth occurs.

Source: Bowen, Collins & Associates

OTHER ASSETS

The long-term plan for waste water treatment for Spanish Fork City includes the construction of a new regional treatment plant (see Chapter 7 of the 2011 WWMP). Some land for this future plant has already been purchased and the percentage of flow that is attributable to existing and future growth is indicated in Table 7-5. In addition, a number of projects at the treatment plant have significantly more capacity than the plant's rated capacity of 6.0 mgd. As a result, these assets are treated separately to evaluate available excess capacity.

TABLE 7-5: WASTE WATER SYSTEM - OTHER ASSETS EXISTING EXCESS CAPACITY EVALUATION

Existing Treatment Plant Assets	Original Cost	Capacity (mgd)	Capacity Used by Existing Users	Capacity for New Develop-ment for 10-Years	Remaining Capacity for Build-out Develop-ment	Cost to New Develop-ment for 10-Years
2002 Sludge Dewatering (Belt Press) [1]	$319,700	12.3	26.38%	10.45%	63.16%	$33,421
2003 Secondary Clarifiers[1]	$850,000	9	38.86%	16.76%	44.38%	$142,478
2006 Intermediate Pumping[1]	$204,600	8.6	38.31%	19.06%	42.63%	$39,003
2006 Sludge Thickening[1]	$566,856	12.3	22.20%	11.05%	66.75%	$62,625
2013 Redundant Digester[2]	$1,357,329	8	74.44%	9.23%	16.33%	$125,336
Land for Regional WWTP (Spanish Fork Share only) [3]	$1,608,633	12.3	48.12%	6.01%	45.87%	$96,612
Total	$4,907,118					$499,475

[1] – At the time of construction, this project was 100 percent attributable to new growth because there was no excess capacity remaining in the existing process. These projects were not included in the 2013 IFFP as a result of a policy decision. Subsequent to completion of the 2013 IFFP, several regulatory changes mean, in the interest of proportional distribution of costs, inclusion of these projects.

[2] – This project was constructed in 2012 to improve the level of service for digester capacity and will provide redundant capacity for the existing treatment plant through its buildout capacity of 8.0 mgd. No redundant capacity was available at the plant. The redundant capacity was installed to improve operation of the existing digester through more frequent maintenance .

[3] – Land for the new treatment plant was purchased in 2008 and will be used to replace the existing treatment plant as flows approach 8.0 mgd.

Source: Bowen, Collins & Associates

7.3 IMPACT OF NEW DEVELOPMENT

New development in Spanish Fork will increase waste water flows. Estimated new ERCs from new development are summarized in Table 7-6. Projected flows for the 10-year planning window are summarized in Table 7-2.

TABLE 7-6: WASTE WATER SYSTEM - ERC PROJECTIONS THROUGH 2025

Year	Population	Single Family Residential ERCs[1]	Multi Family Residential ERCs[1]	Non-residential ERCs[1]	Total
2013	36,923	8,483	716	3,358	12,557
2014	37,669	8,655	730	3,420	12,805
2015	38,528	8,852	747	3,806	13,405
2016	39,676	9,116	769	3,919	13,804
2017	40,859	9,388	792	4,036	14,216
2018	42,077	9,667	816	4,156	14,639
2019	43,331	9,956	840	4,280	15,076
2020	44,623	10,252	865	4,408	15,525
2021	45,494	10,453	882	4,494	15,828
2022	46,383	10,657	899	4,581	16,137
2023	47,288	10,865	917	4,671	16,452
2024	48,212	11,077	935	4,762	16,774
2025	49,153	11,293	953	4,855	17,101

1 – Existing ratio of resident to nonresident based on 2010 residential/nonresidential winter water use billing data and GIS meter data as provided by Spanish Fork City for use in the 2011 WWMP.

Source: Bowen, Collins & Associates; GSBS Richman

7.4 FUTURE FACILITIES

Demand placed upon existing system facilities by future development was projected using the process outlined below. Each of the steps was completed as part of this plan's development. More description of the methodology used in the process outlined below can be found in the 2011 WWMP.

- Existing Demand – The demand existing development places on the City's system was estimated based on historic water use and sewer system flow records.
- Existing Capacity – The capacities of existing collection facilities were estimated using size data provided by the City and a hydraulic computer model. The capacity of the existing City treatment plant was developed by Aqua Engineering and is included in the 2011 WWMP.
- Existing Deficiencies – Existing deficiencies in the system were identified by comparing estimated future demand for the defined level of service against calculated capacities. Costs associated with resolving existing deficiencies have not been included as part of the impact fee facilities plan.
- Future Demand - The sewer discharge that future development will add to the system was estimated based on development projections as discussed in the 2011 WWMP.
- Future Deficiencies - Future deficiencies in the collection system were identified using the estimated flows for the defined level of service and results from the computer model. Future deficiencies at the treatment plant were identified using defined level of service and projected plant inflows. Future deficiencies at the WWTP were identified using the defined level of service and project WWTP inflows.
- Recommended Improvements – Needed system improvements were identified to meet demands associated

with future development (see Chapter 6 of the 2011 WWMP)

The steps listed above describe the "demands placed upon existing public facilities by new development activity at the proposed level of service; and the means by which the political subdivision or private entity will meet those growth demands" (Section 11-36a-302-1.a of the Utah Code).

7.5 IMPACT FEE FACILITIES PLAN

In Chapter 6 and Chapter 7 of the 2011 WWMP, capital facility projects needed to provide service to various parts of the City at projected buildout were identified. Most of these projects will need to be constructed in phases as development occurs. Only infrastructure to be constructed within a ten year horizon will be considered in the calculation of impact fees to avoid uncertainty surrounding improvements further into the future. Included in this IFFP is a new nutrient removal project that was not described in the 2011 WWMP because the legal requirements were still unknown at the time (see 7-1). The project is described below.

PROJECT 4 –NUTRIENT REMOVAL PROJECTS

New regulations from the State are going to require nutrient removal to meet secondary standards. It is anticipated that several projects will be installed to meet the new secondary requirements. A biological phosphorous removal project is planned in the next few years along with UV Disinfection. Nitrate removal projects will require a set of anaerobic basins and anoxic basins .

Table 7-7 summarizes the components of projects identified in the capital facilities plan that will need to be constructed within the next ten years. Included in the Table 7-7 is a line item to prepare this and subsequent impact fee facility plans and impact fee analyses.

TABLE 7-7: WASTE WATER SYSTEM IMPACT FEE FACILITIES PLAN

Project Name	Project Year	Cost Estimate[1]	Percent Attributable to Existing Users	Percent Attributable to 10-Year Growth	Percent Attributable to Growth Beyond 10-Years	IFFP Cost
Williams Lane	2016	$623,900	0%	15.90%	84.10%	$99,200
1850 N to WWTP	2018	$912,100	0%	15.90%	84.10%	$145,024
Southeast Trunk Line[2]	2019	$5,664,000	0%	24.54%	75.46%	$1,389,946
Collection System Costs Sub-total		**$7,200,000**				**$1,634,170**
Phosphorous Removal[3]	2018	$352,000	51.57%	15.23%	33.20%	$522,100
UV Disinfection[3]	2018	$895,000	69.73%	20.59%	9.69%	$184,242
Anoxic Basins[3]	2024	$1,386,000	58.08%	17.15%	24.77%	$237,666
Aeration Basins[3]	2024	$4,522,000	69.73%	20.59%	9.69%	$930,883
Treatment Costs Sub-total		**$7,155,000**				**$1,874,891**
Model, Master Plan & Impact Fee Updates	2014 - 2023	$250,000	0%	100%	0%	$250,000
Total Costs		**$14,605,000**				**$3,759,061**

[1] – Cost estimates are in 2016 dollars. Inflation is not included.

[2] – See Project 3 in 2011 Waste water Master Plan. Project has been modified to exclude Mapleton City flows. Percent attributable to 10-year growth based on City estimate of 10-year growth for service area of trunk line.

[3] – Improved level of service project.

Source: Bowen, Collins & Associates; GSBS Richman

Table 7-7 identifies the proportionate share of the costs of public facilities that are reasonably related to the new development activity. While most projects identified in the table are required solely to meet future growth, some projects also provide a benefit to existing users. Projects that benefit existing users include those projects addressing existing capacity needs and maintenance related projects.

For many projects, the division of costs between existing and future users is easy because 100 percent of the project costs can be attributed to one category or the other (e.g. infrastructure needed solely to serve new development can be 100 percent attributed to new growth, while projects related to existing conditions or capacity deficiencies can be 100 percent attributed to existing user needs). For projects needed to address both existing deficiencies and new growth or where a higher level of service is being proposed, costs have been divided proportionally between existing and future users based on their needs in the facility. For example, nitrogen removal project are anticipate to provide 7 mgd of BOD capacity (BOD capacity ignores abnormal infiltration conditions). Spanish Fork City currently owns 77% of existing capacity and it is assumed that it will own the same proportion of capacity in 10 year (or 5.39 mgd). Of the 5.39 mgd of capacity, 2.78 mgd (51.6 percent) will be used by existing customers, while the remaining 2.61 mgd (48.4 percent) will be used by future users. Project costs have been divided accordingly.

Included in Table 7-7 is a breakdown of capacity associated with growth both at full buildout and through the next 10 years. This is necessary because some of the projects identified in the table will be built with capacity to accommodate flows beyond the ten-year growth window.

7.6 BASIS OF COST ESTIMATES

The costs of construction for projects to be completed within ten years have been estimated based on past City experience with projects of a similar nature. Collection system project costs are based on average per foot costs for pipes of the same size. Plant project costs are based on City and engineering personnel estimates from conceptual project plans. Aqua Engineering provided updated cost estimates for waste water treatment plant projects as needed to satisfy the State of Utah's new UPDES permit requirements. Additional details regarding cost estimates are contained in the 2011 WWMP.

7.7 MAXIMUM ALLOWABLE IMPACT FEE PER ERU

The maximum allowable impact fee based on the IFFP and anticipated new development is provided in Table 7-8. The actual impact fee will be calculated in the Impact Fee Analysis and include all applicable statutorily required adjustments. Note that the impact fee has been divided into components to simplify special calculation of impact fees for non-residential customers (with higher than average treatment requirements).

TABLE 7-8: MAXIMUM ALLOWABLE WASTE WATER IMPACT FEE/ERC

	Planning & Collection	Treatment	Total
Total Cost of IFFP	$1,884,170	$1,874,891	$3,759,061
# of new ERC	3,697	3,697	3,697
IFFP Cost/ERC	$509.70	$507.19	$1,016.89
Total Cost of Collection Existing Excess Capacity	$278,449		$278,449
Total Cost of Treatment Existing Excess Capacity	$0	$1,257,486	$1,257,486
Total Cost of Other Assets Existing Excess Capacity	$0	$499,475	$499,475
# of new ERC	3,697	3,697	3,697
"Buy-in" Cost/ERC	$75.32	$475.29	$550.61
Maximum Allowable Impact Fee/ERC	$585.02	$982.48	$1,567.50

Source: GSBS Richman

PUBLIC SAFETY

Spanish Fork City provides police and fire/EMS facilities for the benefit of residents in all areas of the community. The current and proposed level of service (LOS) for public safety facilities is determined by establishing the 2015 number of square feet of fire and police buildings attributable to the needs of current residential and nonresidential development.

8.1 CURRENT & PROPOSED LEVEL OF SERVICE (LOS)

The fire/EMS and police facility current and proposed LOS is defined as units of square footage per 1,000 residents and nonresidential developed space. Table 8-1 is a summary of the current and proposed LOS for fire/EMS and police infrastructure.

TABLE 8-1: PUBLIC SAFETY CURRENT AND PROPOSED LEVEL OF SERVICE

Facility Type	Current & Proposed Residential LOS	Unit	Current & Proposed Nonresidential LOS	Unit
Fire/EMS Facility	170.2	SF/1,000 Residents	1.09	SF/1,000 SF building
Police Facility	206.3	SF/1,000 Residents	0.67	SF/1,000 SF building

Source: Spanish Fork City, U.S. Census, GSBS

Proportional allocation of the cost of new facilities to various land use types will occur in the Impact Fee Analysis.

8.2 EXISTING FACILITIES

Spanish Fork City is currently served by one fire/EMS facility with a total floor area of 15,720 square feet. The current location of the fire/EMS station represents an existing deficiency. It is not well placed to provide the City's proposed standards for proximity to fire/EMS services. According to these standards, all developed areas should be within a five mile radius of a fire/EMS station. Non-impact fee sources will be used to supplement the existing fire/EMS facility square footage in new facilities located on the east and west sides of the City to achieve the proposed proximity standard for existing and new development.

The City is also served by one police station, sharing a building with the courts. Court facilities are not impact fee eligible. The building, built in 2008 and 2009, has a floor area of 61,000 square feet of which 46 percent or 28,060 square feet is dedicated to the police. This existing police facility was built to serve the community through build-out. Table 8-2 provides the projected distribution of land uses at build out.

TABLE 8-2: SPANISH FORK PROJECTED LAND USES AT BUILD-OUT

	Acres	Percent Total	Population	HH	SF
Residential/Mixed Use	4,474	45%	69,895	16,276	
General Commercial	865	9%			9,791,243
Industrial	1,098	11%			10,519,299
Exempt/Civic	2,269	23%			
Vacant	0	0%			
ROW	1,229	12%			
Total	9,935	100%	69,895	16,276	20,310,542

Source: Spanish Fork City, GSBS

Table 8-3 represents the current level of fire/EMS and police facility service per resident and per SF of non-residential space. The square footage in each facility was multiplied by the percent of the total residentially developed acreage in the City at the LOS horizon (48 percent in 2015 for fire/EMS and 51 percent at build-out for police) to determine the square footage dedicated to serving residential development. The area in each facility dedicated to serving residential development was then divided by the service population level to determine the fire/EMS and police facility per resident level of service. A similar calculation using building square footage was completed for nonresidential development.

TABLE 8-3: PUBLIC SAFETY FACILITIES LOS CALCULATION

Facility	SF	SF/ Residential Service	SF/1,000 Residents Served	SF/ Non-Residential Served	SF/1,000 SF of Non-Residential Development Served
Current Fire/EMS Station	15,720	6,557	170.2	9,163	1.09
Police Station	28,060	14,420	206.3	13,640	0.67

Source: Spanish Fork City, U.S. Census, GSBS Richman

8.3 EXISTING EXCESS CAPACITY

The Spanish Fork police force currently includes 35 police officers and related administrative and support personnel. The 28,060 SF of police facility was designed to accommodate 60 police officers and related administrative and support personnel, the anticipated size of the force at community build out. Table 8-4 provides an estimate of available police facility square footage for build out.

TABLE 8-4: POLICE FACILITY EXCESS CAPACITY

	Residential	Non-Residential	Total
Police Station Total			28,060
Current Utilization	7,948	5,614	13,562
Projected 10-Year Utilization	10,140	6,312	16,452
Build-Out Projected Utilization	14,420	13,640	28,060
10-Year Estimated Consumption	2,192	698	2,890

Source: Spanish Fork City, GSBS

8.4 EXISTING DEFICIENCIES

The Spanish Fork fire/EMS facility is currently centrally located on Main Street. Recently developed areas have focused on the eastern and western edges of the community. This puts new development five miles or more from the existing fire/EMS facility, outside of the City's target distance for fire/EMS stations. Future new development is anticipated for the eastern and western areas of the community as well. Spanish Fork City intends to supplement the current fire/EMS facility with two new facilities, one located on the east and one located on the west. The two new facilities will be sized to replace the existing facility and address existing deficiencies and serve future new development.

8.5 IMPACT OF GROWTH

The projected 2025 increase in population of 10,625 people to a total population of 49,153 and nonresidential development of over 1 million square feet to a total commercial square footage of approximately 9.4 million would erode the current fire/EMS levels of service as seen in Table 8-5.

TABLE 8-5: IMPACT OF GROWTH

Facility Type	Current Residential LOS	New Residents	Needed to Serve New Growth	Current Nonresidential LOS	10-Year Nonresidential SF	Revised LOS (no new facilities)
Fire/EMS Facility	195.7	49,153	153.4	0.98	9,420.39	0.87

Source: GSBS

8.6 FUTURE FACILITIES

To serve the 10,625 new residents and 1 million square feet of nonresidential development projected through 2025, additional capacity for fire/EMS facilities is required, as identified in Table 8-6

TABLE 8-6: PROJECTED NEW DEVELOPMENT RELATED FACILITY NEEDS 2015 - 2025

Facility Type	Residential LOS	New Residents	Needed to Serve Residential Growth	Non-residential LOS	New SF Nonresidential Space (thousands)	Needed to Serve Nonresidential Growth	Total Growth-Related Facility Need
Fire/EMS Facility	170.2	10,625	2,079	0.98	1,041	1,021	3,100

Source: GSBS Richman

Currently, approximately 48 percent of existing fire/EMS facilities serve residential development and 52 percent serve nonresidential development. Table 8-7 shows that 47 percent of the additional need for fire/EMS capacity is caused by new residential development and 53 percent by nonresidential development. The cost of new fire/EMS facilities through 2025 will be distributed 47 percent to residential growth and 53 percent to non-residential growth.

TABLE 8-7: SOURCE OF NEW DEVELOPMENT DRIVEN CAPACITY NEED

Facility Type	Total New Required	Residential Required	% Residential	Non Residential Required	% Non-Residential
Fire/EMS	3,100	2,079	67.06%	1,021	32.94%

Source: GSBS

8.7 SOURCE OF COST ESTIMATES

Estimated costs of facilities in the Impact Fee Facilities Plan are based on the assumptions included in Table 8-8. The estimated cost per square foot includes hard and soft construction costs. Land cost is identified separately. Land cost estimates are based on discussions with local developers.

TABLE 8-8: ESTIMATED COSTS - PUBLIC SAFETY FACILITIES (2013$)

Facility Type	Construction Cost per SF	Land Cost per Acre	FAR	Estimated Acres
Fire/EMS Station	$200	$100,000	0.15	4.59

Source: GSBS

8.8 IMPACT FEE FACILITIES PLAN

A concept plan for future growth is provided in Table 8-9. Spanish Fork City's current fire/EMS station has a floor area of 15,720 square feet. The current fire station will be supplemented by two fire/EMS stations totaling approximately 30,000 square feet or 15,000 square feet each. Only the cost for 2,943 square feet (amount used in the next 10 years) of the new stations will be collected through impact fees. Other funding sources will be identified and used to fund the remaining balance of these fire/EMS stations. In the event that a bond repaid with property tax is the source of funds for the new facilities, a credit to impact fees may be appropriate.

TABLE 8-9: PUBLIC SAFETY IMPACT FEE FACILITIES PLAN

Future Facility	Area (sf)	Cost/SF	Impact Fee Funded SF	Impact Fee Funded Cost
East Side Fire/EMS Station	15,000	$215.30	1,550.0	$333,715
West Side Fire/EMS Station	15,000	$215.30	1,550.0	$333,715
Total	30,000	$215.30	3,100.0	$667,430

Source: GSBS

8.9 CALCULATION OF "BUY-IN"

There is existing excess police facility capacity available for use by new development. A buy-in amount has been calculated based on the original cost of construction and the bond amount. Spanish Fork City issued a $22,000,000 sales tax bond in 2008 to fund the public safety/courts building and North Park. $18,000,000 of the original bond amount funded the public safety/courts building. The actual cost of construction was $19,742,211 with an additional $1,742,211 funded through City general funds.

Table 8-10 provides a breakdown of the original construction and bonding cost attributable to the police facility.

TABLE 8-10: POLICE FACILITY ORIGINAL COST

Item	Amount
Total Bond	$22,000,000
Police/Courts Facility	$18,000,000
Police/Courts Facility Total Construction Cost	$19,746,211
Police/Courts Facility Total SF	61,000
Police Facility SF	28,060
Percent Total Police/Courts Facility Cost Attributable to Police Station	46%
Police Station Original Cost	$9,083,257

Source: Spanish Fork City

Table 8-11 provides the amount required per capita for new residential development and per 1,000 SF for new non-residential development for police facilities.

TABLE 8-11: POLICE FACILITY BUY-IN

	Residential	Non-Residential	Total
Square Feet	14,420	13,640	28,060
% of Facility	51.39%	48.61%	100.00%
Cost of Facility			$9,083,257
Per SF Cost of Facility			$323.71
Cost per capita or 1,000 SF	$66.78	$217.39	

Source: Spanish Fork City; GSBS

TABLE 8-12: PUBLIC SAFETY MAXIMUM ALLOWABLE IMPACT FEE

Facility Type	Total Cost	% Residential	Population Served	Fee Per Capita	% Non-Residential	SF Served (1000s)	Fee per 1,000 SF
Fire/EMS IFFP	$667,430	67.06%	10,625	$42.13	32.94%	1,041	$211.11
Police Facility Buy In	$9,083,257	51.39%	69,895	$66.78	48.61%	20,311	$217.39
Total Maximum Fee	$9,750,687			$108.91			$428.51

Source: GSBS

TRANSPORTATION

Spanish Fork City provides transportation facilities for the benefit of residents, business owners and visitors in all areas of the community. The current and proposed level of service (LOS) for transportation facilities is based on the Transportation and Traffic Circulation Element of the Spanish Fork General Plan adopted in December 2011 and updated in June 2012 by Horrocks Engineers ("Horrocks"). The IFFP identifies the facilities needed to provide transportation facilities to new development through 2023.

Only collector and arterial roads owned and operated by the city are considered system-level transportation facilities, which are impact fee eligible. State and federal highways are impact fee eligible only to the extent that local funding is required. State and federal highways are included in the traffic model to ensure that the capacity represented on these roads is accounted for but not included in the IFFP for calculation of required funding. Local streets are project level infrastructure facilities and are built as part of the development and are not included in the IFFP.

Figure 9- is a map of the roadways in Spanish Fork by ownership category. Roads in red are owned and maintained by the City.

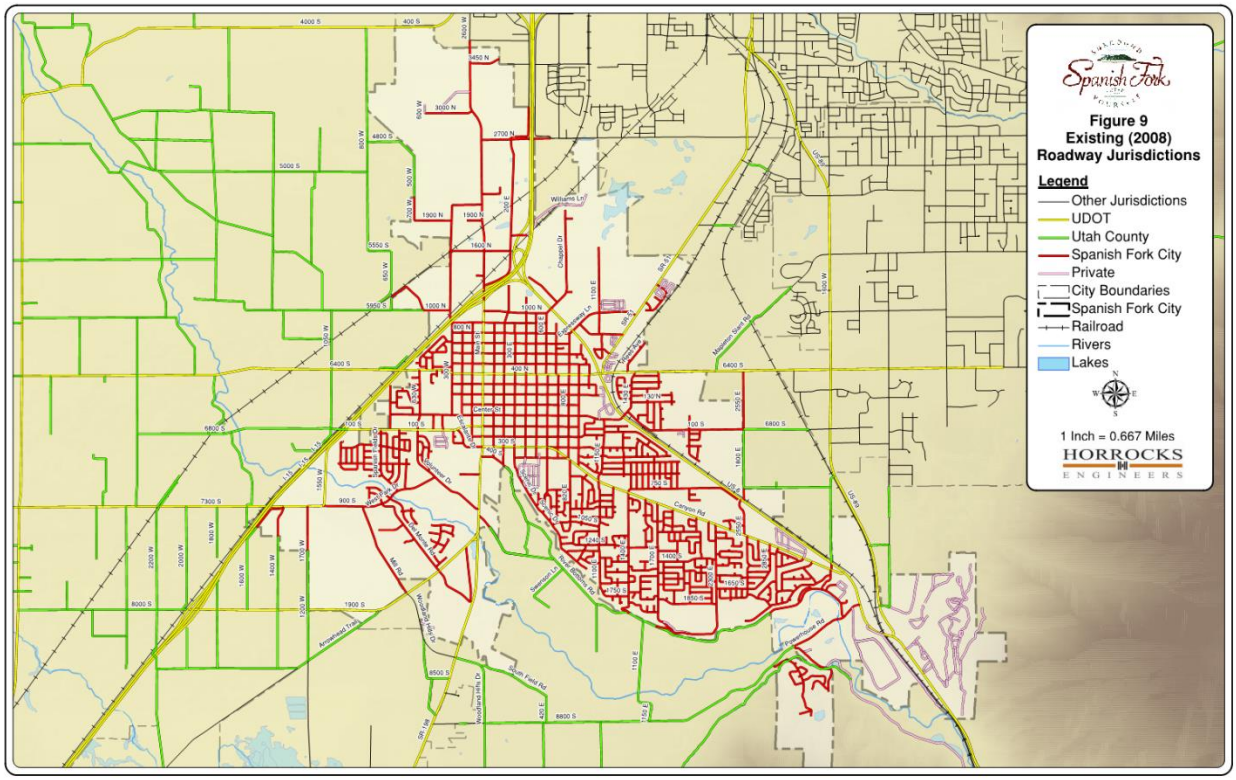


Figure 9-1: Roadway Jurisdiction

9.1 CURRENT & PROPOSED LEVEL OF SERVICE (LOS)

Transportation LOS is defined by a letter grade relating to "flow" of traffic on a highway or through an intersection. Level of service A indicates free flowing traffic with no back up or wait times. By contrast, LOS F indicates extremely

congested (or gridlocked) traffic. Spanish Fork City has established LOS C as the acceptable operating condition for their roadways and intersections.

Figure 9- is a map of the roadways in Spanish Fork by 2008 LOS classification. Areas indicated in yellow red on this map were at LOS D or worse in 2008. These areas represent existing deficiencies.

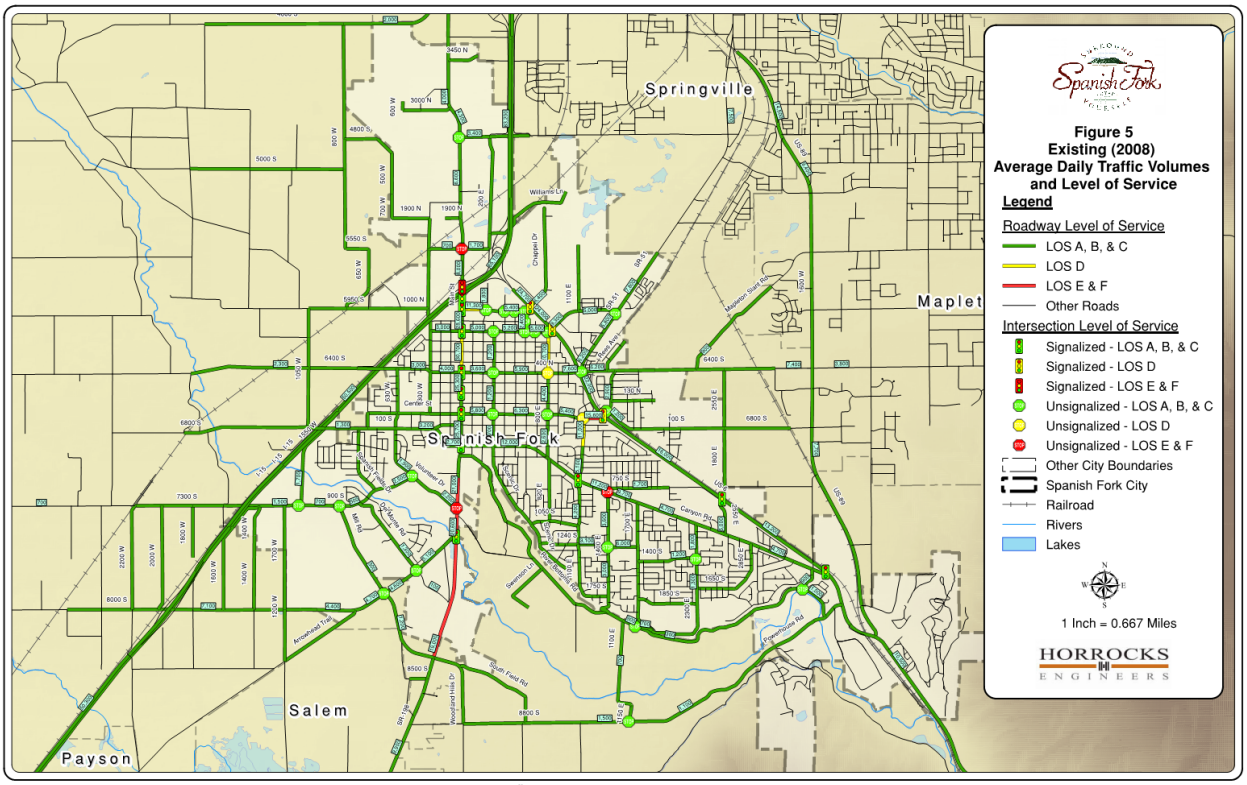


Figure 9-2: Existing LOS

Using existing traffic and land use data from Spanish Fork City, the travel demand model was calibrated to accurately reflect current travel conditions as a baseline. Horrocks then projected future travel demand using future land use maps, socio-economic conditions and the Mountainland Association of Governments (MAG) regional travel model. Once the travel demand model was calibrated for existing conditions, planned land uses and socio-economic data were input into the model to predict future roadway traffic volumes and conditions. The resulting output of the travel demand model consisted of projected traffic volumes on all the major streets throughout the City. Figure 9- represents the results of the Horrocks traffic model in 2040 if no capacity expansion projects are completed. Facilities in red and yellow exceed LOS C.

Horrocks modeled and analyzed various alternatives for roadway improvements based on these projected traffic volumes. Horrocks then recommended improvement projects, taking into account various measures of effectiveness, including LOS, delay, and overall safety. Existing (2008) and future (2040) traffic scenarios of Spanish Fork City were modeled in the original Transportation Master Plan.

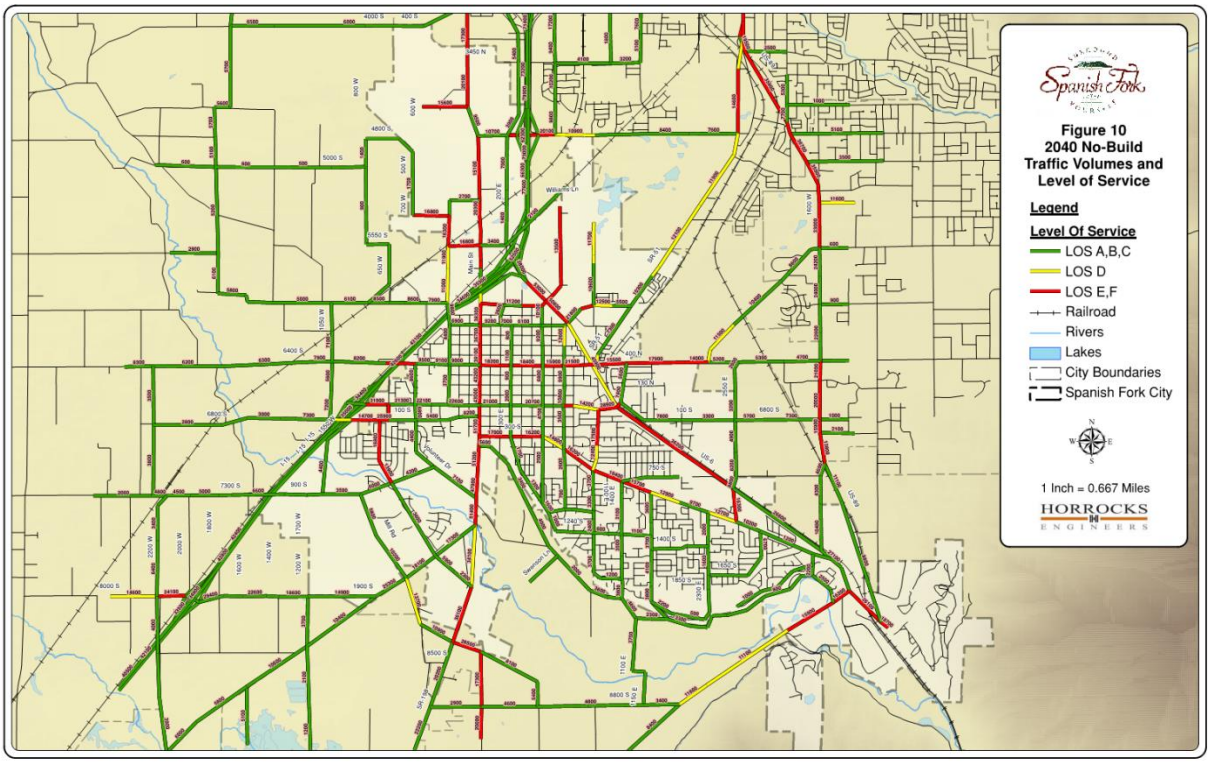


Figure 9-3: 2040 No-Build Conditions

Horrocks used the volume capacities identified in Table 9-1 to evaluate current and projected LOS of the Spanish Fork transportation system.

TABLE 9-1: TRANSPORTATION LOS CAPACITY

Functional Classification	Lanes	LOS C (volume)
Arterial	7	43,000
	5	28,500
Collector	3	10,800
	2	9,700

Source: Horrocks, MAG Travel Demand Model

9.2 EXISTING EXCESS CAPACITY AND EXISTING DEFICIENCIES

A calibrated travel demand model was used to generate current traffic volumes for each segment in Spanish Fork City's current road network. For segments with capacity greater than volume, there is existing excess capacity. For segments with capacity less than volumes, there is an existing deficiency. Significant parts of the existing roadway system do not have adequate capacity to accommodate growth through 2040. The roadways with existing excess capacity are indicated in green in Figure 9-3. The roadways indicated in yellow and red are roadways with existing deficiencies. These areas are predicted to function at LOS D or worse.

9.3 IMPACT OF GROWTH

Figure 9- shows the recommendations of the 2012 Transportation Master Plan, addressing anticipated needs through 2040. The plan includes a list of projects required to serve the anticipated 64,607 people in Spanish Fork and the anticipated growth for traffic traveling through Spanish Fork from neighboring cities through 2040. The projects included in this plan are intended to provide LOS C throughout the city.

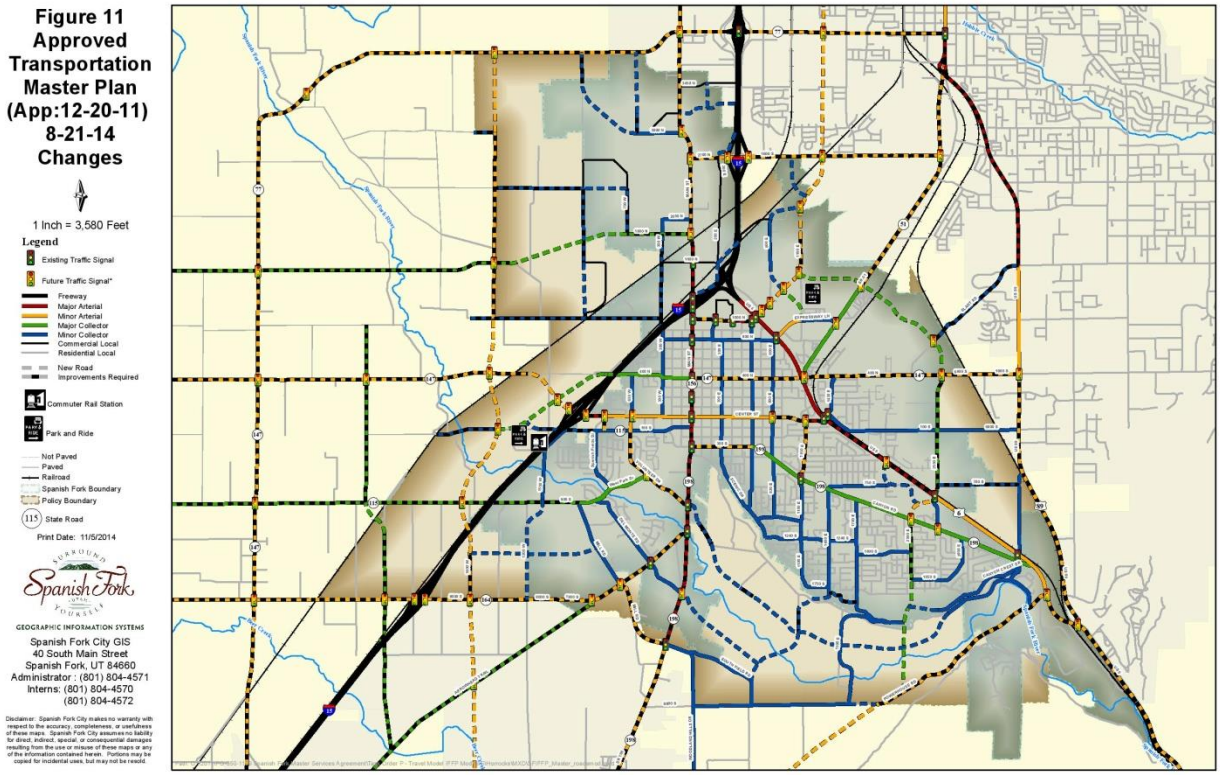


Figure 9-4: Future Facilities

10-YEAR GROWTH

Spanish Fork City has identified the projects required to serve anticipated growth in traffic through 2025. Table 9-2 identifies the projects required to accommodate traffic growth through the 10 year planning window.

TABLE 9-2: 10-YEAR PROJECTS

Project #	Project Location	Total Cost
57	Widen & Signalize 1000 North	$2,230,976
94	New signal 1600 N Main St.	$138,000
	Muhlestein Meadows, LLC 11/17/2015 Riemburse Agree	$114,368
95	Widen Cut Bridge	$3,191,050
5	New Signal & Intersection Rebuild Center St 1150 E	$637,010
2	New Signal Center St 800 E	$180,000
46	Spanish Fork Parkway	$9,968,409
15	Spanish Fork Parkway S.R. 51 Signal	$180,000
96	Spanish Fork Parkway Railroad Crossing Design & Permitting	$125,000
53	New Alignment from 2550 E Canyon Rd to US-6	$652,000
54-1	920 S 2550 E to 2300 E	$1,346,592
54-2	2300 E Canyon Rd to 920 S	$329,613
54-3	2300 E 920 S to 2000 E 750 S	$1,016,308
54-4	2000 E 750 S to US-6	$1,089,214
54-5	2550 E 920 S Roundabout	$200,000
54-6	2300 E 920 S Roundabout	$110,000
54-7	2000 E 750 S Roundabout	$160,000
6	New Signal at US-6 2000 E	$240,000
37	New Signal at 2600 E Canyon Rd	$180,000
43	Canyon Creek Parkway	$10,205,924
47	Market Place Dr from Expressway Ln to Chappel Rd	$3,186,645
37	New Signal 2600 East and Canyon	$180,000
38	New Signal Kirby Lane and Chappel Dr	$180,000
39	New Signal 1150 North and Chappel Dr	$180,000
Total		$35,958,207

Source: Horrocks

9.4 SOURCE OF COST ESTIMATES

The total cost for the projects planned for the next ten years as shown in Table 9-2 is $35,958,207 (2015$). Construction cost estimates are based on:

1. "Means Heavy Construction Cost Data, 2011."
2. Price quotes from equipment suppliers.
3. Recent construction bids for similar work.

For projects already built, the cost used in the IFFP is the actual cost of construction.

9.5 FUTURE FACILITIES/IMPACT FEE FACILITIES PLAN

To serve the approximately 10,000 new residents and 1 million square feet of nonresidential development projected through 2025, additional lane miles and intersection capacity are required. However, not all of the projects listed in Table 9-2**Error! Reference source not found.** are eligible for impact fee assessment. Only projects related to collector and arterial streets and only the portion of the project attributed to development growth in the next ten years are impact fee eligible. Figure 9-5 shows the projects included in the IFFP.

The IFFP in Table 9-3 includes currently installed improvements and planned projects needed to provide capacity in the next 10 years. The impact fee eligible portion of the proposed projects equals $15.6 million.

TABLE 9-3: IMPACT FEE FACILITIES PLAN

Project #	Project Location	Total Cost	Impact Fee Percentage	Impact Fee Amount
57	Widen & Signalize 1000 North	$2,230,976	57.0%	$1,271,656
94	New signal 1600 N Main St.	$138,000	59.0%	$81,420
0	Muhlestein Meadows, LLC 11/17/2015 Riemburse Agree	$114,368	34.0%	$38,885
95	Widen Cut Bridge ***	$3,191,050	0.0%	$0
5	New Signal & Intersection Rebuild Center St 1150 E	$637,010	80.0%	$509,608
2	New Signal Center St 800 E	$180,000	80.0%	$144,000
46	Spanish Fork Parkway	$9,968,409	43.1%	$4,291,643
15	Spanish Fork Parkway S.R. 51 Signal **	$180,000	0.0%	$0
96	Spanish Fork Parkway Railroad Crossing Design & Permitting	$125,000	100.0%	$125,000
53	2550 E US-6 to 920 S	$769,098	48.3%	$196,140
54-1	920 S 2550 E to 2300 E	$1,346,592	100.0%	$585,768
54-2	2300 E Canyon Rd to 920 S	$329,613	100.0%	$143,382
54-3	2300 E 920 S to 2000 E 750 S	$1,016,308	100.0%	$442,094
54-4	2000 E 750 S to US-6	$1,089,214	100.0%	$1,089,214
54-5	2550 E 920 S Roundabout	$200,000	100.0%	$200,000
54-6	2300 E 920 S Roundabout	$110,000	100.0%	$110,000
54-7	2000 E 750 S Roundabout	$160,000	100.0%	$160,000
6	New Signal at US-6 2000 E **	$240,000	0.0%	$0
43	Canyon Creek Parkway	$10,205,924	45.9%	$4,685,164
47	Market Place Dr from Expressway Ln to Chappel Rd	$3,186,645	41.3%	$1,266,130
37	New Signal 2600 East and Canyon	$180,000	0.0%	$0
38	New Signal Kirby Lane and Chappel Dr	$180,000	80.0%	$144,000
39	New Signal 1150 North and Chappel Dr	$180,000	80.0%	$144,000
Total		**$35,958,207**		**$15,628,104**

*** Project is funded by grants

Source: Horrocks & Spanish Fork City

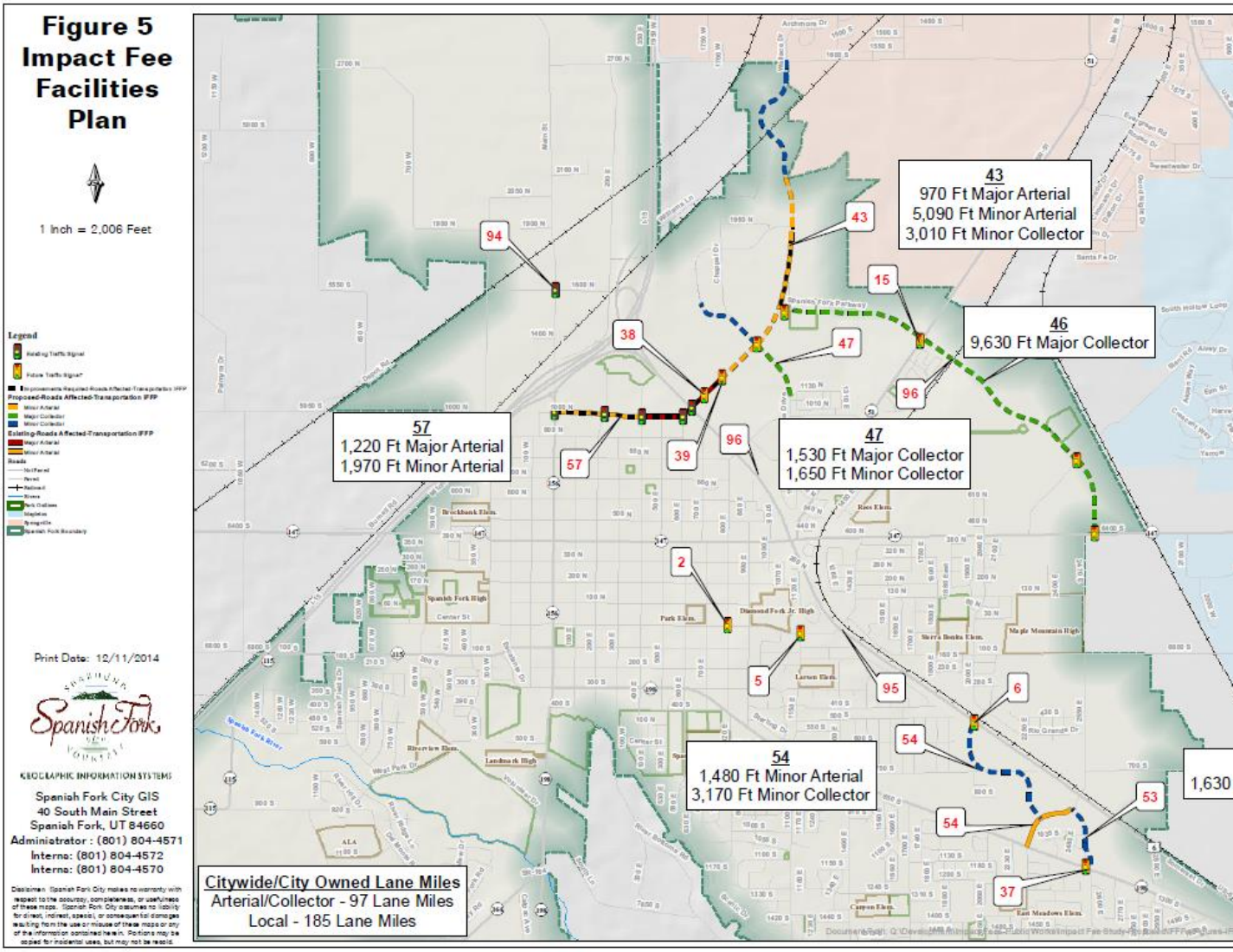


Figure 9-5: Projects Included in Impact Fee Facilities Plan

Spanish Fork City's network of arterial and collector streets is treated as a single service area for purposes of imposing an impact fee. The city has determined that only collector and arterial streets will be eligible for impact fee assessment and assumes that developers will build local streets connecting their future development projects with the city circulation network.

Table 9-4 is a capacity analysis of all impact fee eligible projects. This analysis may be used to adjust impact fees based on the amount of available capacity on a particular roadway today (reserve capacity) and the amount of capacity that will exist at the end of the 10 year planning window (excess capacity).

TABLE 9-4: PROJECT CAPACITY ANALYSIS

Project #	Project	2015 Existing Volume	2015 Existing Capacity	2015 Reserve Capacity	2025 Future Volume	2025 Future Capacity	2025 Excess Capacity
57	Widen 1000 North	11,300	10,000	-13.0%	29,900	28,500	-4.9%
46	Spanish Fork Parkway	n/a	n/a	n/a	10,900	10,800	-0.9%
53	New Alignment from 2550 E Canyon Rd to US-6	5,000	9,700	48.5%	5,700	10,800	47.2%
54	New Road from US-6 to 2300 East	n/a	n/a	n/a	12,400	28,500	56.5%
43	Canyon Creek Parkway	8,400	10,000	16.0%	33,900	28,500	-18.9%
47	Market Place Dr from Expressway Ln to Chappel Rd	n/a	n/a	n/a	10,400	10,800	3.7%

Source: Horrocks

TABLE 9-5: MAXIMUM ALLOWABLE IMPACT FEE CALCULATION

	Roadway
Total Cost of IFFP (2025)	$15,628,104
# of New Peak Trips (2025) *	16,500
Cost/Peak Trip	$947.16
Maximum Allowable Impact Fee/Peak Trip	**$947.16**

Source: Horrocks, GSBS Richman

** Based on the MAG Traffic Demand Model*

Final impact fees by land use will be based on land use. The fee schedule is calculated in the Impact Fee Analysis using ITE trip generation rates.

PARKS, TRAILS, AND RECREATION

Spanish Fork City provides parks, trails, and recreation facilities for the benefit of residents in all areas of the community. The current and proposed LOS for parks, trails, and recreation facilities is determined by establishing the 2015 number of acres for parks and linear feet for trails, the level of improvement (landscaping, parking, etc.) per acre or linear foot, and the average number of recreation facilities provided per acre. Tables 10-8 and 10-9 summarize the current and proposed LOS for parks, trails, and recreation facilities for purposes of calculating the parks and trail impact fee.

10.1 CURRENT AND PROPOSED LOS

Spanish Fork provides a wide range of park and trail facilities funded through federal and state grants, general fund and developer contributions. The City classifies parks as community and neighborhood parks depending on size and focus. The majority of neighborhood parks were developed as a result of developer contributions in exchange for increased density. This practice and source of neighborhood parks is not expected to continue, but… . In addition, neighborhood parks will be developed in conjunction with storm water detention facilities where appropriate. Community parks have been funded through grants and general fund contributions. Although grant funding is anticipated for some parks and trails on the Capital Facilities Plan, the general fund source will not be available in the future. Impact fees are appropriate to ensure that the current LOS will not be eroded for current residents and to ensure a proportional distribution of costs for the proposed LOS.

Table 10-1 identifies the existing inventory of neighborhood and community parks.

TABLE 10-1: PARK ACREAGE INVENTORY - EXISTING

Park	Developed	Undeveloped	Total
NEIGHBORHOOD PARKS			
Canyon Elementary	2.35	0	2.35
Parkside Estates	2	0	2
Abbie Court	3.7	0	3.7
Whispering Willows	1.3	0	1.3
Sub Total Neighborhood Parks	*9.35*	*0*	*9.35*
COMMUNITY PARKS			
Sports Park	80	11.5	91.5
Canyon View Park	24	0	24
Russell Swenson Complex	18	0	18
Centennial Park	11.5	0	11.5
North Park	9.5	0	9.5
Skate/East Park	8.5	0	8.5
Urban Forest Park	0	16	16
Water Park	4	0	4
City Park	4	0	4
Legacy Park 1	0	8	8
Legacy Park 2	0	15.5	15.5
River Park	0.00	6.10	6.10
Sierra	0	7	7
SUB TOTAL COMMUNITY PARKS	*159.5*	*66.1*	*225.6*
Total	168.85	66.1	234.95

Source: Spanish Fork Parks Department

Spanish Fork has a total of 235 park acres serving 38,500 people living in 10,274 households. Table 10-2 provides the current and proposed LOS for developed and undeveloped park acres.

TABLE 10-2: CURRENT AND PROPOSED LOS - PARK ACRES

	Developed	Undeveloped
Acres	168.85	66.10
Population	37,600	37,600
Acres/1,000 Population	4.49	1.76
Current/Proposed LOS	4.49	1.76

Source: GSBS Richman

Table 10-3 represents the existing inventory of trails in Spanish Fork.

TABLE 10-3: TRAILS LINEAR FEET INVENTORY - EXISTING

Trails	Developed	Undeveloped	Total
100 South	2,900		2,900
Dripping Rock	2,364		2,364
Justice Center	1,044		1,044
North Park Connector	8,689		8,689
Reservoir Connector	1,256	3,983	5,239
Urban Forest Trail	2,377		2,377
Spanish Fork River Trail	22,503	5,937	28,440
Spanish Fields Trail	1,260		1,260
HWY 6	3,731		3,731
Sports Park Trails	9,088		9,088
Water Park Connector	7,000		7,000
Whispering Willows	768		768
Canyon View / Golf Course	4,586		4,586
400 North	2,180		2,180
Canyon Road	1,757		1,757
Total	71,503	9,920	81,423

Source: Spanish Fork Parks Department

There is a total of 71,503 linear feet of developed and 9,920 linear feet of undeveloped trails serving approximately 38,500 people living in 10,274 households. Table 10-4 provides the current and proposed LOS for developed and undeveloped trails.

TABLE 10-4: CURRENT AND PROPOSED LOS - TRAILS

	Developed	Undeveloped
Linear Feet	71,503	9,920
Population	37,600	37,600
LF/1,000 Population	1,902	264
Current/Proposed LOS	1,902	264

Source: Spanish Fork Parks Department, GSBS Richman

Each developed community park in Spanish Fork includes recreational and other improvements. Table 10-5 identifies the number of improvements by type in each park in the Spanish Fork inventory.

TABLE 10-5: PARK FACILITIES INVENTORY - EXISTING

Park	Number						
	Ball Field	Field Lighting	Playground	Restrooms/ Shelters	Sand Volleyball	Soccer/ Football	Tennis/ Basketball
Canyon Elementary	0	0	0	0	0	0	0
Parkside Estates	0	0	1	1	0	0	1
Abbie Court	0	0	1	1	0	0	1
Whispering Willows	0	0	1	0	0	0	0
Sports Park	8	11	1	4	0	9	6
Canyon View Park	0	0	1	5	1	0	0
Russell Swenson Complex	6	6	1	1	0	0	0
Centennial Park	0	0	1	1	0	4	0
North Park	0	0	3	5	1	0	0
Skate/East Park	1	0	0	0	0	0	0
Urban Forest Park	0	0	0	0	0	0	0
Water Park	0	0	0	2	3	0	1
City Park	0	0	1	1	0	0	0
Legacy Park 1	0	0	0	0	0	0	0
Legacy Park 2	0	0	0	0	0	0	0
Sierra	0	0	0	0	0	0	0
Total Facilities	15	17	11	21	5	13	9

Source: Spanish Fork Parks Department

Table 10-6 calculates the parks facilities current and proposed LOS based on the number and cost of facilities per acre of park.

TABLE 10-6: CURRENT AND PROPOSED LOS - PARKS FACILITIES

	Ball Field	Field Lighting	Playground	Restrooms/ Shelters	Sand Volleyball	Soccer/ Football	Tennis/ Basketball
Total Facilities	15	17	11	21	5	13	9
Total Developed Acres	169.85	169.85	169.85	169.85	169.85	169.85	169.85
Facilities per 100 Acres	8.88	10.07	6.51	12.44	2.96	7.70	5.33
Cost per Facility	$98,000	$65,000	$45,000	$85,000	$10,000	$6,778	$38,000
Cost per Acre	$8,702	$6,546	$2,930	$10,574	$296	$522	$2,025

Source: Spanish Fork Parks Department, GSBS Richman

The cost for soccer/football fields includes only bleachers, scoreboards and goal posts. The cost of finishing the field itself is included in the landscaping and irrigation costs identified in the Parks Improvements LOS. In addition to

facilities, Spanish Fork's developed community parks include walkways, parking lots, landscaping and irrigation. The average ratios of these improvements are included in Table 10-7.

TABLE 10-7: PARK IMPROVEMENTS LOS/ACRE

Item	Average Cost/ 10 Acre Park	Average Cost/ Park Acre
Survey/Engineering	$63,880	$6,388
Clearing/Grubbing ($ 3,200/acre)	$43,560	$4,356
Grading (435,600sq ft. X .08$	$43,560	$4,356
Utilities & Street Improvements	$210,000	$21,000
Hydro-Seeding (8.7 acres x $ 2,600/acre)	$32,670	$3,267
Irrigation (8.7 acres x $17,000/acre)	$147,900	$14,790
Trees/shrubs (120 @ 250)	$30,000	$3,000
Parking (64 cars @ $1,675/space	$107,200	$10,720
Sidewalks ($5.00 per sq.ft. x 13,200)	$66,000	$6,600
Fencing (6 ft.: 2,640 linear ft. x $21.25)	$63,360	$6,336
Total	$808,130	$80,813

Source: Spanish Fork Parks Department

The combined current and proposed LOS for community parks is provided in Table 10-8.

TABLE 10-8: COMBINED CURRENT AND PROPOSED LOS - PARKS

Item	Cost per Acre	Acres per 1,000 Population	Cost per 1,000 Population	Cost per Capita
Park Acres *	$80,000	6.25	$500,000	$500.00
Park Facilities **	$35,175	4.49	$157,936	$157.94
Park Improvements **	$80,813	4.49	$362,850	$362.85
Total	$195,988		$1,020,786	$1,020.79

Source: GSBS Richman

** Includes both developed and undeveloped park acreage*

*** Includes only developed park acreage*

The combined current and proposed LOS for trails is provided in Table 10-9.

TABLE 10-9: COMBINED CURRENT AND PROPOSED LOS - TRAILS

Item	Cost per LF[1]	LF per 1,000 Population	Cost per 1,000 Population	Cost per Capita
Trails *	$29.38	2,166	$63,647	$63.65
Trail Improvements **	$100	1,902	$190,200	$190.20
Total	$129		$253,847	$253.85

Source: GSBS Richman

[1] - Assumes 10 foot width

** Includes both developed and undeveloped trails*

*** Includes only developed trails*

10.2 IMPACT OF GROWTH

The projected increase in population of approximately 10,000 people will erode the current LOS as seen in Table 10-10.

TABLE 10-10: IMPACT OF GROWTH ON LOS

	LOS (Acs/LF / 1,000 Population)	2023 Population	Revised LOS (no build)	& Change
Parks	6.25	49,153	4.78	-23.52%
Trails	2,166	49,153	1,657	-23.52%

Source: GSBS Richman

The impact of growth on the LOS for park and trails improvements (landscaping/irrigation/parking) and facilities is proportional to the impact seen in acreage and linear feet. There is no existing excess capacity in Spanish Fork's park and trails system.

10.3 FUTURE FACILITIES

To maintain the current and achieve the proposed LOS and serve the anticipated additional approximately 10,000 new residents in Spanish Fork between 2013 and 2023, a total of 43.5 developed and 14.9 undeveloped park acres are required. Table 10-11 identifies the amount of parks and trails needed to achieve the proposed LOS.

TABLE 10-11: NEW PARKS/TRAILS TO MAINTAIN LOS

Classification	New Population	LOS Developed	LOS Undeveloped	Developed	Undeveloped	Total
Parks (Acres)	10,625	4.49	1.76	47.71	18.7	66.41
Trails (LF)	10,625	1902.00	264	20,209	2,805	23,014

Source: GSBS Richman

10.4 IMPACT FEE FACILITIES PLAN

The Spanish Fork Parks and Trails IFFP includes projects needed to achieve the proposed LOS. The IFFP also includes grant and other funding for projects at a level comparable to past projects.

TABLE 12: PARKS, TRAILS AND RECREATION IFFP

Park Land Purchase	86.15		$1,321,946				$2,339,224	$771,320	$927,904	$927,904		$1,348,447	$8,058,691
Subtotal Parks	*86.15*	*$0*	*$800,000*		*$521,946*	*$1,567,904*				*$800,000*	*$0*	*$235,842*	*$235,842*
TRAILS													
Legacy Farms West												$1,012,605	$1,012,605
North Park Main St Connector Trail	8	*PARKS* $68,800	*Acre*										$68,800
Arrowhead Hansen Park Connector Trail			$150,000		$521,946	$521,946							$1,043,892
US-6 Cut Bridge to NE Bench Park Final Phase			$236,500				$771,320	$771,320					$150,000 $1,542,640
Maple Mountain Sub Justice Center													$236,500
Urban Forest Park Development									$927,904	$927,904			$1,855,808
Connector Trail					$91,900								$91,900
River Connector Trail			$500,000		$2,900,000								$3,400,000
Trail Development based on Master Plan								$100,000		$100,000		$100,000	$300,000
Subtotal Trails		*$68,800*	*$886,500*		*$2,991,900*		*$0*	*$100,000*	*$0*	*$100,000*	*$0*	*$100,000*	$4,247,200
Total		**$68,800**	**$2,208,446**	**$3,513,846**			**$2,339,224**	**$871,320**	**$927,904**	**$1,027,904**	**$0**	**$1,348,447**	**$12,305,891**
Grants & Other Funding			$108,850		$242,280			$50,000		$50,000		$50,000	$2,201,140
IFFP TOTAL		**$68,800**	**$2,099,596**	**$3,271,566**			**$2,339,224**	**$821,320**	**$927,904**	**$977,904**	**$0**	**$1,298,447**	**$10,104,751**

Source: Spanish Fork Parks Department

10.5 MAXIMUM IMPACT FEE PER CAPITA

The maximum allowable impact fee based on the IFFP and anticipated new development is provided in Table 10-13. The actual impact fee will be calculated in the Impact Fee Analysis and include all applicable statutorily required adjustments.

Table 10-13: Maximum Allowable Parks/Trails Impact Fee

Total Cost of IFFP	$10,104,751
# of new residents	10,625
Cost/Capita	$951.03
Maximum Allowable Impact Fee/Capita	**$951.03**

Source: GSBS Richman