Ivins City Sewer Master Plan/IFFP/IFA
Draft Recommendations

UTAH
IVINS CITY™



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Master Planning Tasks



Review unit demands per ERU



Hydraulic model results



Recommended Improvements



Capital facilities plan

Calculating Demand per ERU

- ERU: Equivalent Residential Unit
- Normalize various connection types to unit
- Existing system: **4,268 ERUs**
- Level of Service for Existing Users
  - Domestic Flow: 159 gallons per day
  - Infiltration: 16 gallons per day
  - **Average Daily Flow: 175 gallons per day per ERU**
  - **Peak Daily Flow: 302 gallons per day per ERU**





Forecasting Future Growth

- 10-Year Growth: **Additional 3,040 ERUs**
- Buildout: **Total of 11,551 ERUs** (increase of 6,923 ERUs)

Year	Residential ERUs	Non-Residential ERUs	Total ERUs	Estimated Average Daily Domestic Wastewater Flow (gal/day)	Estimated Daily Groundwater Infiltration (gal/day)	Total Daily Wastewater Flow (gal/day)
2024	4,235	393	4,628	735,852	74,048	809,900
2025	4,395	537	4,932	784,188	78,912	863,100
2026	4,555	681	5,236	832,524	83,776	916,300
2027	4,715	825	5,540	880,860	88,640	969,500
2028	4,875	969	5,844	929,196	93,504	1,022,700
2029	5,035	1113	6,148	977,532	98,368	1,075,900
2030	5,195	1257	6,452	1,025,868	103,232	1,129,100
2031	5,355	1401	6,756	1,074,204	108,096	1,182,300
2032	5,515	1545	7,060	1,122,540	112,960	1,235,500
2033	5,675	1689	7,364	1,170,876	117,824	1,288,700
2034	5,835	1833	7,668	1,219,212	122,688	1,341,900
2040	7,085	2,185	9,270	1,473,930	148,320	1,622,250
2045	7,978	2,433	10,411	1,655,349	166,576	1,821,925
2050	8,871	2,680	11,551	1,836,609	184,816	2,021,425

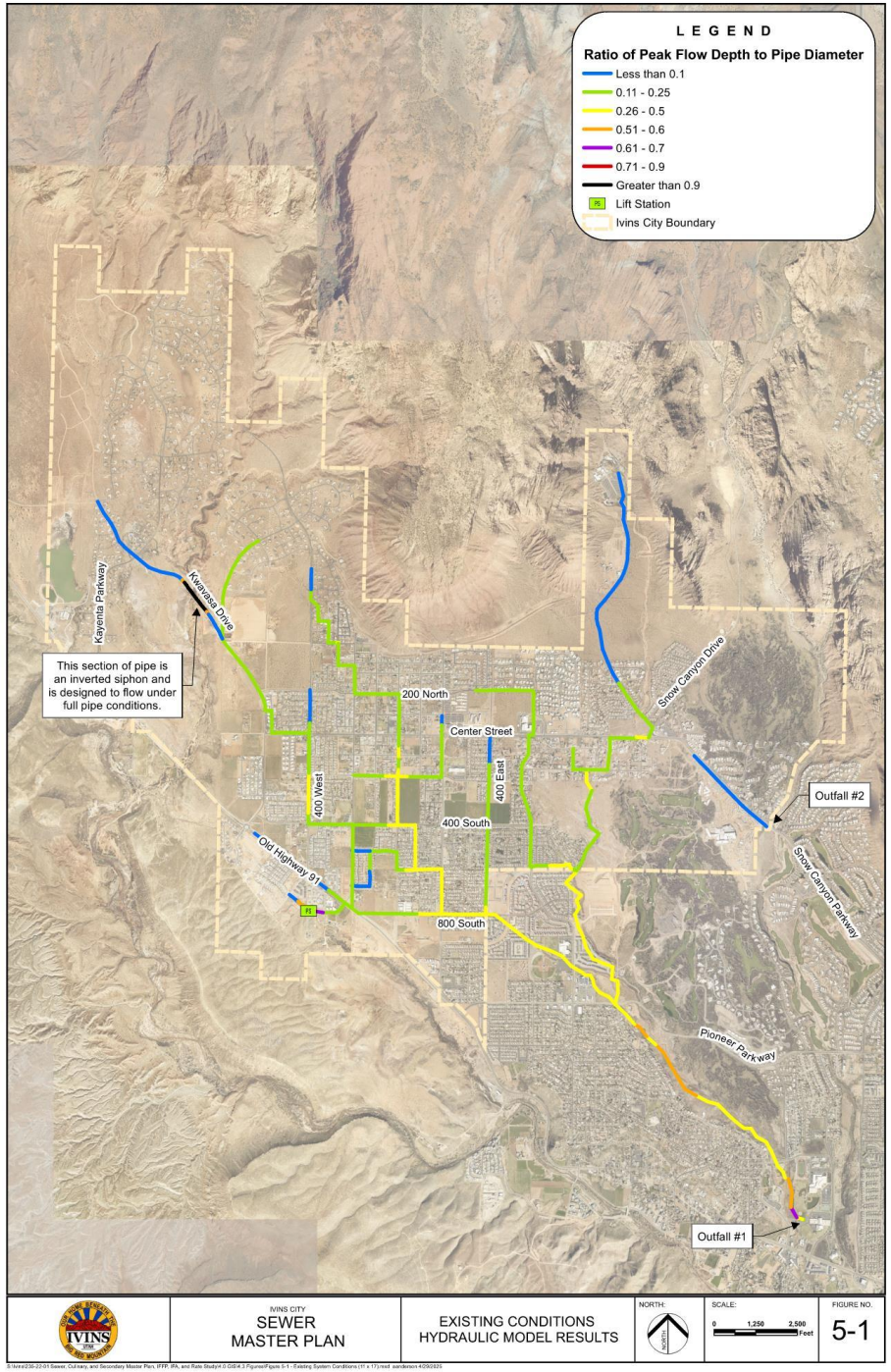
Hydraulic Modeling

- Identify deficiencies in the existing system
- Identify future operating deficiencies
- Determine projects to address existing and future deficiencies
- Pipelines: <0.7 d/D
- Pump Stations: <85% of pumping capacity



Existing Conditions

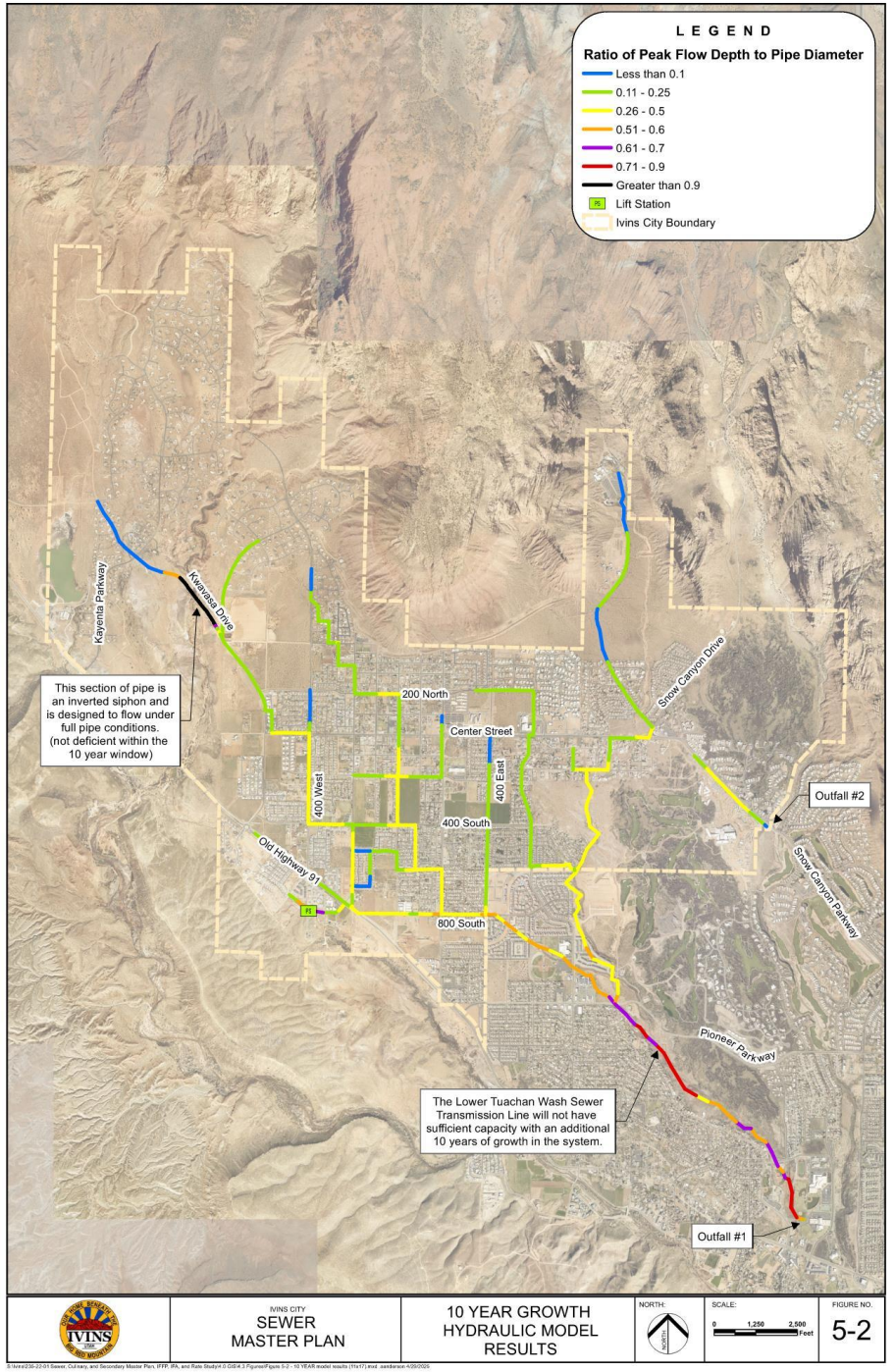
- No deficiencies in the existing collection system
- Section of Tuachan Wash Sewer Line reaching capacity



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10-Year Conditions

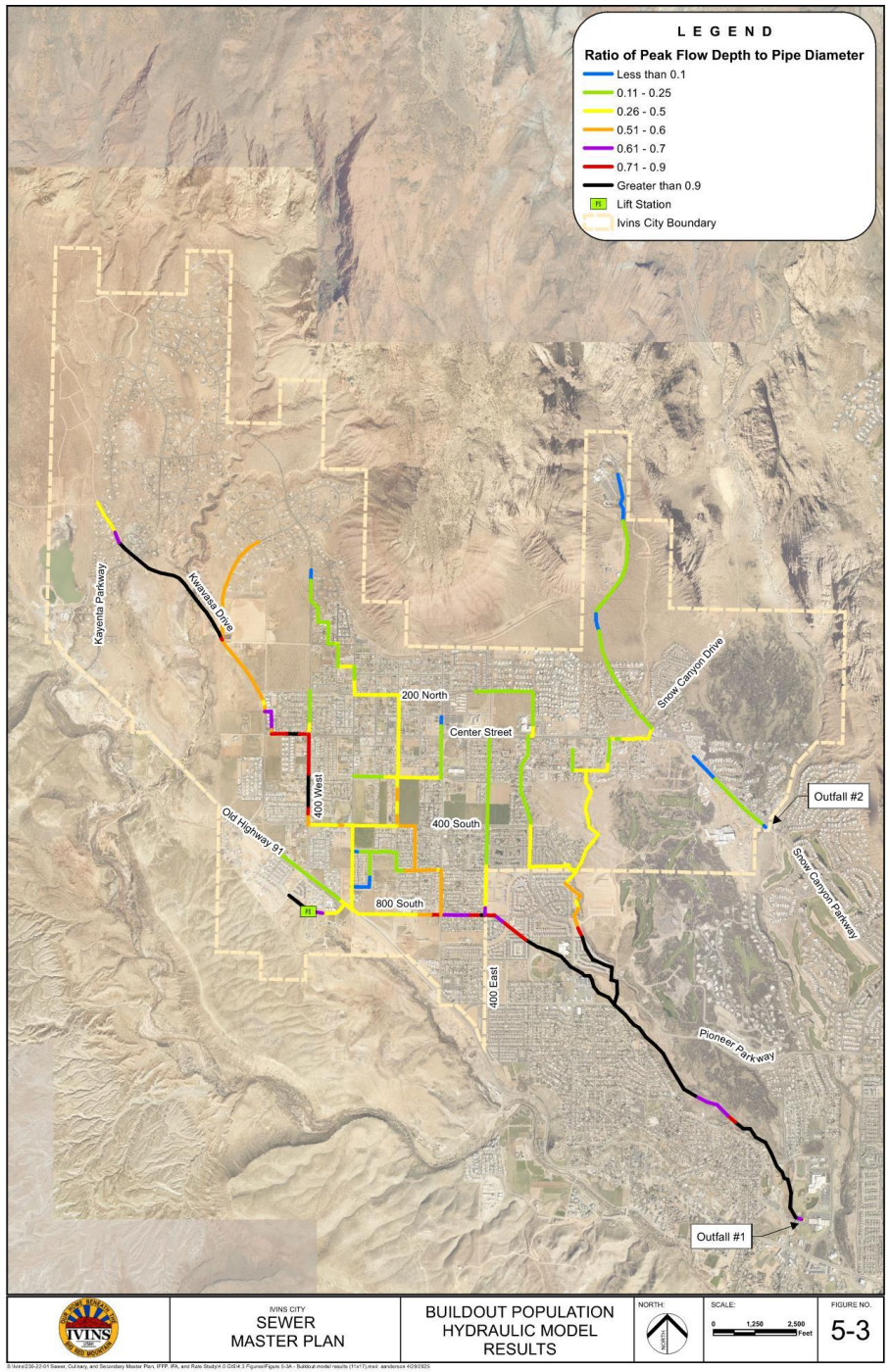
- Deficiencies anticipated in Tuacahn Wash Line
- No lift station deficiencies



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Buildout Conditions (2050)

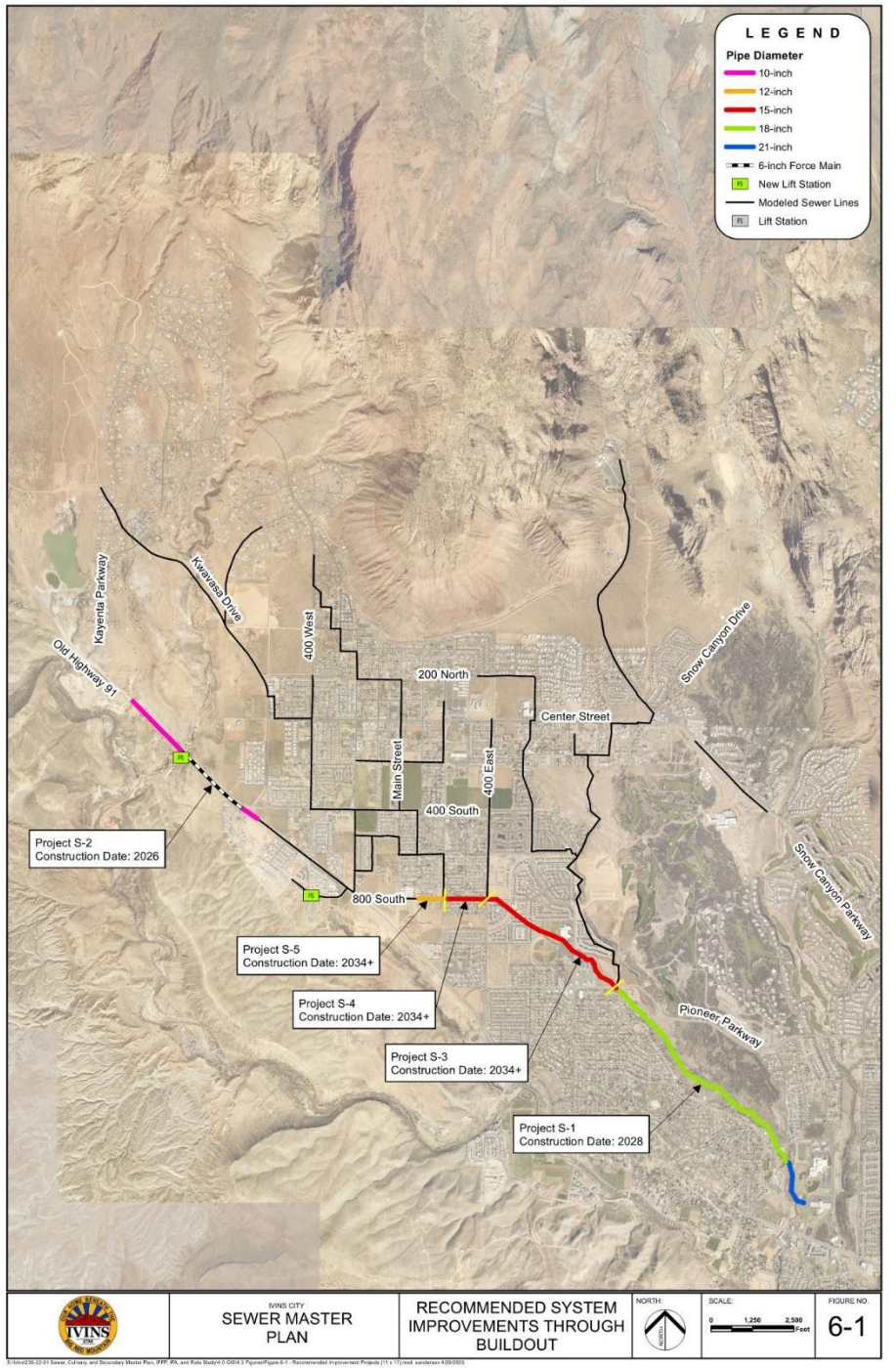
- Additional deficiencies anticipated to occur in the future
  - Upper Kwavasa Drive
  - 400 West
  - 800 South
  - Line through Santa Clara (Lava Flow Line)
- No upgrades anticipated for existing lift stations



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Recommended Projects

- Multiple collection system improvements
- One new lift station



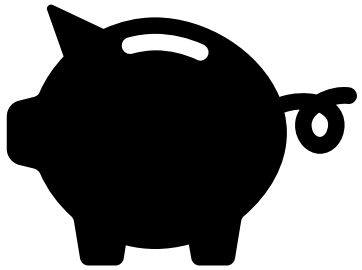
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Recommended Collection System Projects

Project Identifier	Project Year	Description	Unit	Quantity	Pipe Diameter (in.)	Unit Cost	Estimated 2024 Construction Cost	Engineering, Survey, Admin (15% of Construction Cost)	Total Estimated Cost	% Paid by Ivins City	Total 2025 Cost to Ivins City
S-1 A	2028	Lower Tuacahn Wash Sewer Line Replacement Project (Reach A)	LF	7,600	18	$350	$2,660,000	$399,000	$3,059,000	73.4%	$2,245,000
S-1 B	2028	Lower Tuacahn Wash Sewer Line Replacement Project (Reach B)	LF	1,600	21	$400	$640,000	$96,000	$736,000	73.4%	$540,000
S-2 A	2026	Old Highway 91 Sewer Line Extension (Reach A)	LF	2,300	10	$150	$345,000	$51,750	$396,750	100%	$397,000
S-2 B	2026	Old Highway 91 Sewer Line Extension (Reach B, Lift station)	LS	1	NA	$950,000	$950,000	$142,500	$1,092,500	100%	$1,093,000
S-2 C	2026	Old Highway 91 Sewer Line Extension (Reach C, Pressure Pipe)	LF	2,700	6	$80	$216,000	$32,400	$248,400	100%	$249,000
S-2 D	2023 (complete)	Old Highway 91 Sewer Line Extension (Reach D)	LF	600	10	$145	$87,000	$13,000	$100,000	100%	$100,000
S-3	2034+	800 South & 400 East to Pioneer Parkway Replacement Project	LF	5,000	18	$320	$1,600,000	$240,000	$1,840,000	75.1%	$1,382,000
S-4	2034+	800 South from 200 East to 400 East Pipe Replacement Project	LF	1,350	15	$280	$378,000	$56,700	$434,700	100%	$435,000
S-5	2034+	800 South from 200 East to 100 East Pipe Replacement Project	LF	750	12	$250	$187,500	$28,125	$215,625	100%	$216,000
		Total					**$7,063,500**	**$1,059,475**	**$8,122,975**		**$6,657,000**

Rehabilitation and Replacement Budget

- City should budget for regular R&R
- Estimated system replacement value: $101 M
- Based on approximate service life of system components, recommended to invest between $450,000 - $900,000 per year in R&R



What is an Impact Fee?

- An impact fee is a one-time fee to new growth to offset the cost of infrastructure needed to service development





Impact Fee Concepts



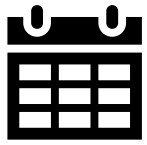
Definition of Level of Service



Project Level vs. System Level Improvements



Evaluation of existing capacity and future capacity



10-Year Planning Window

Impact Fee Calculation

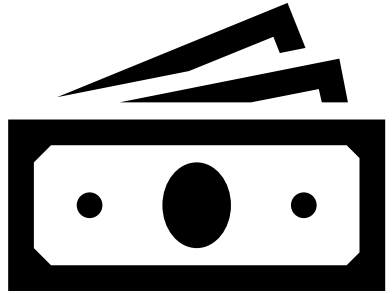
Total Impact Fee = **Proportionate Share of Existing Facilities** + **Proportionate Share of New Facilities**

Impact Fee Calculation

System Components	Total Cost of Component	% Serving 10-year Growth	Cost Serving 10-year Growth	10-year ERUs Served	Cost Per ERU
Collection Facilities					
Existing Facilities	$857,489	26.3%	$225,520	3,040	$74.18
10-year Projects	$4,624,000	22.3%	$1,032,047	3,040	$339.49
10-Year Project Interest Costs	$971,568	22.3%	$216,848	3,040	$71.33
Subtotal	***$5,595,568***		***$1,248,895***		***$410.82***
Public Works Facilities					
Existing Facilities	$187,945	26.3%	$49,430	3,040	$16.26
Existing Facilities Interest Costs	$0	26.3%	$0	3,040	$0.00
10-Year Projects	$1,996,950	26.3%	$525,198	3,040	$172.76
10-Year Project Interest Costs	$0	26.3%	$0	3,040	$0.00
Subtotal	***$2,184,895***		***$574,627***		***$189.02***
Other					
Impact Fee Studies - Professional Fees	$150,000	44.00%	$66,000	3,040	$21.71
Subtotal	***$150,000***		***$66,000***		***$21.71***
Total	**$7,930,463**		**$1,889,522**		**$621.55**

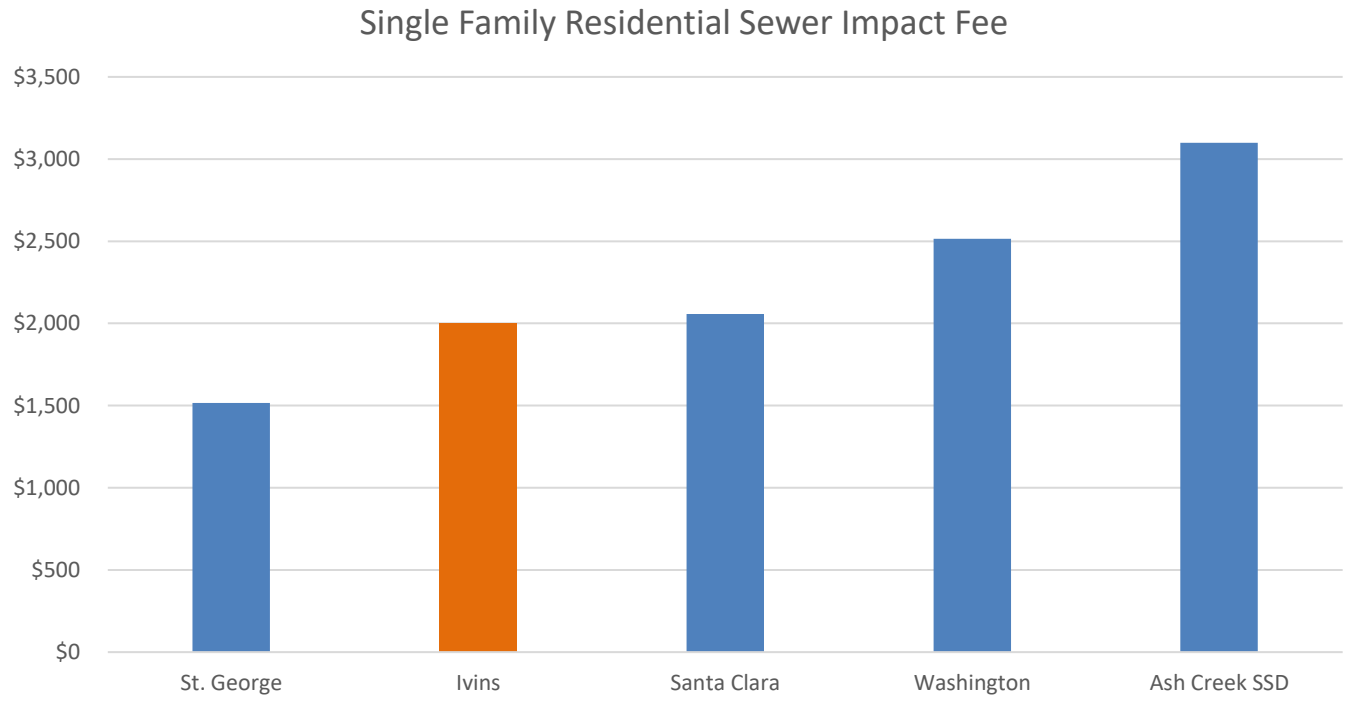
Bond Assumptions

- $2,000,000 bond to put toward theTuacahn Wash Sewer Line Upgrade
- 4% interest rate
- 3% bond issuance fee
- 20-year term
- $971,500 in interest paid over 20 years



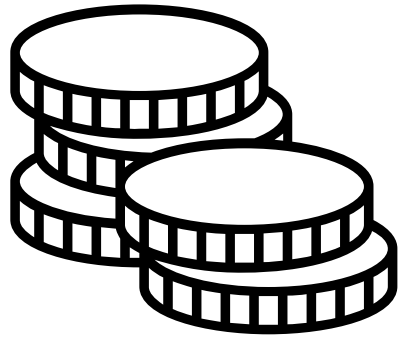
Impact Fee Comparison

City	Local Fee	Regional Fee	Total
St. George	$137	$1,379	$1,516
Ivins	$621	$1,379	$2,000
Santa Clara	$679	$1,379	$2,058
Washington	$1,135	$1,379	$2,514
Ash Creek SSD	NA	NA	$3,100



Next Steps

- Finalize Master Plan, IFFP, and IFA
- Update User Rates



Thank You

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