PUBLIC NOTICE

The Grantsville City Planning Commission will hold a Work Meeting with the Grantsville City Council at 7:00 p.m. on Tuesday, April 14, 2026 at 429 East Main Street, Grantsville, UT 84029 and electronically via Zoom. The agenda is as follows:

ROLL CALL

AGENDA

1. **Presentation and Discussion:** Discussion regarding the Grantsville City Master Transportation Plan, including current conditions, future transportation needs, and potential improvements. No formal action will be taken.

2. **Presentation and Discussion:** Discussion of proposed amendments to the Parks and Transportation Capital Facilities Plans (CFPs), Impact Fee Facilities Plans (IFFPs), and Impact Fee Analyses (IFAs) for Grantsville City. No formal action will be taken.

3. Adjourn

Scan QR code to join Zoom meeting.

Shelby Moore
Zoning Administrator
Grantsville City Community & Economic Development

Join Zoom Meeting
Join Zoom Meeting: https://us02web.zoom.us/j/4358843411
By Phone, Dial: 1-253-215-8782
Meeting ID: 435 884 3411

CERTIFICATE OF POSTING: This agenda was posted on the Grantsville City Hall Notice Boards, the State Public Notice website at www.utah.gov/pmn/index.html, and the Grantsville City website at www.grantsvilleut.gov. Notification was sent to the Tooele Transcript Bulletin.

PUBLIC NOTICE
April 14, 2026

Notice is hereby given that the **Grantsville City Planning Commission will hold a Work meeting with the Grantsville City Council.**

The meeting will be held on **April 14, 2026 at 7:00 P.M.** at **Grantsville City Hall, 429 East Main Street, Grantsville, Utah and electronically via zoom (link provided below).**

This joint work meeting with the **Grantsville City Council** is intended for discussion, and informational purposes only. **No formal action will be taken.**

In accordance with the **Utah Open and Public Meetings Act**, this notice is being provided at least 24 hours in advance of the meeting.

A copy of this notice has been posted at **Grantsville City Hall**, on the **Utah Public Notice Website**, and on the **City's website**.

BY ORDER OF THE GRANTSVILLE PLANNING COMMISSION
Shelby Moore
Zoning Administrator

Scan the QR code above or use the link below to join the Zoom meeting.
https://us02web.zoom.us/j/4358843411
Passcode: 3411
By Phone Call: 1-253-215-8782
Meeting ID: 435 884 3411

AGENDA ITEM #1

Presentation and Discussion: Discussion regarding the Grantsville City Master Transportation Plan, including current conditions, future transportation needs, and potential improvements. No formal action will be taken.

AGENDA ITEM #2

Presentation and Discussion: Discussion of proposed amendments to the Parks and Transportation Capital Facilities Plans (CFPs), Impact Fee Facilities Plans (IFFPs), and Impact Fee Analyses (IFAs) for Grantsville City. No formal action will be taken.

CFPs, IFFPs, and IFAs 2026 Amendments

Drinking Water, Public Safety, Parks, Wastewater,
Water Rights Acquisition, and Storm Drainage

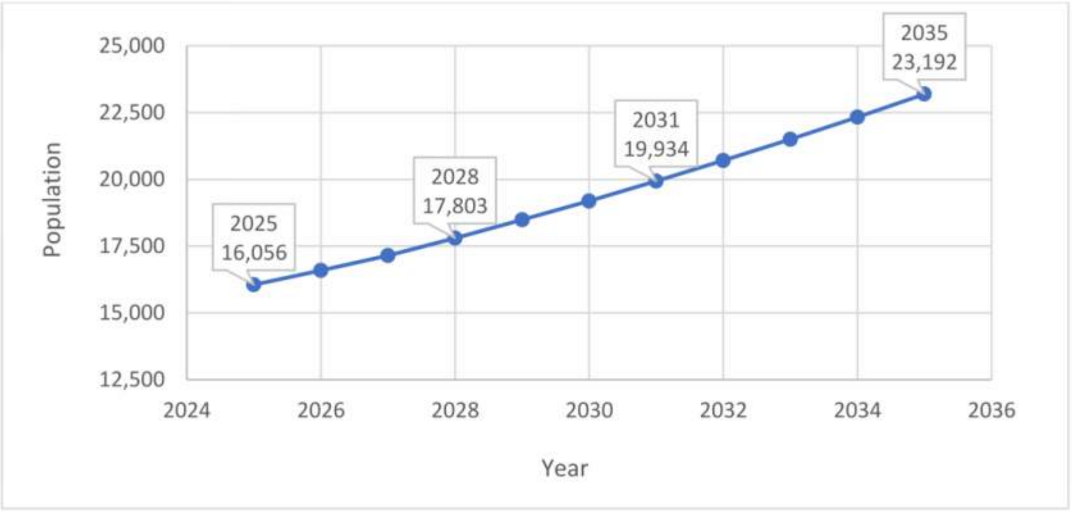
April 14, 2026
City Council and Planning Commission Work Meeting

Introduction and Process

- Ensign is amending the Capital Facility Plans (CFPs), Impact Fee Facility Plans (IFFPs), and Impact Fee Analyzes (IFAs) for 2026 excluding **Transportation Only**.
    - Last amendment was in May 2025 to all plans except for Parks and Transportation which were amended in January 2026.
    - Impact fees help fund expansion of public facilities necessary to accommodate new growth.
    - Plans are amended yearly.
    - Have met with City Staff to discuss projects and incorporated City Staff comments in amendments.
    - It takes 90 days before amended impact fees go into effect once City Council approves.
    - Developer funded projects are not impact fee eligible.
- Demographics were updated with 2026 Sewer Rate Study and utilized in CFP, IFFP, and IFAs. The actual growth rate in 2025 was 2.93% and a projected growth rate of 3.5% in 2026 and 2027 is utilized with a 4.0% growth rate from 2028 to 2035 which is the end of the 10-year planning period. For the past 26 years, Grantsville's average growth rate is approximately between 4.5% to 5.0% with spikes of approximately 10% during COVID years.
- Determined capital improvement projects using demographics and the level of service.
- Determined non-capital improvement project costs (i.e. interest expense, existing capital assets, professional expenses, future debt service, etc.).

Demographics

- Population Projection in 10-year Planning Period

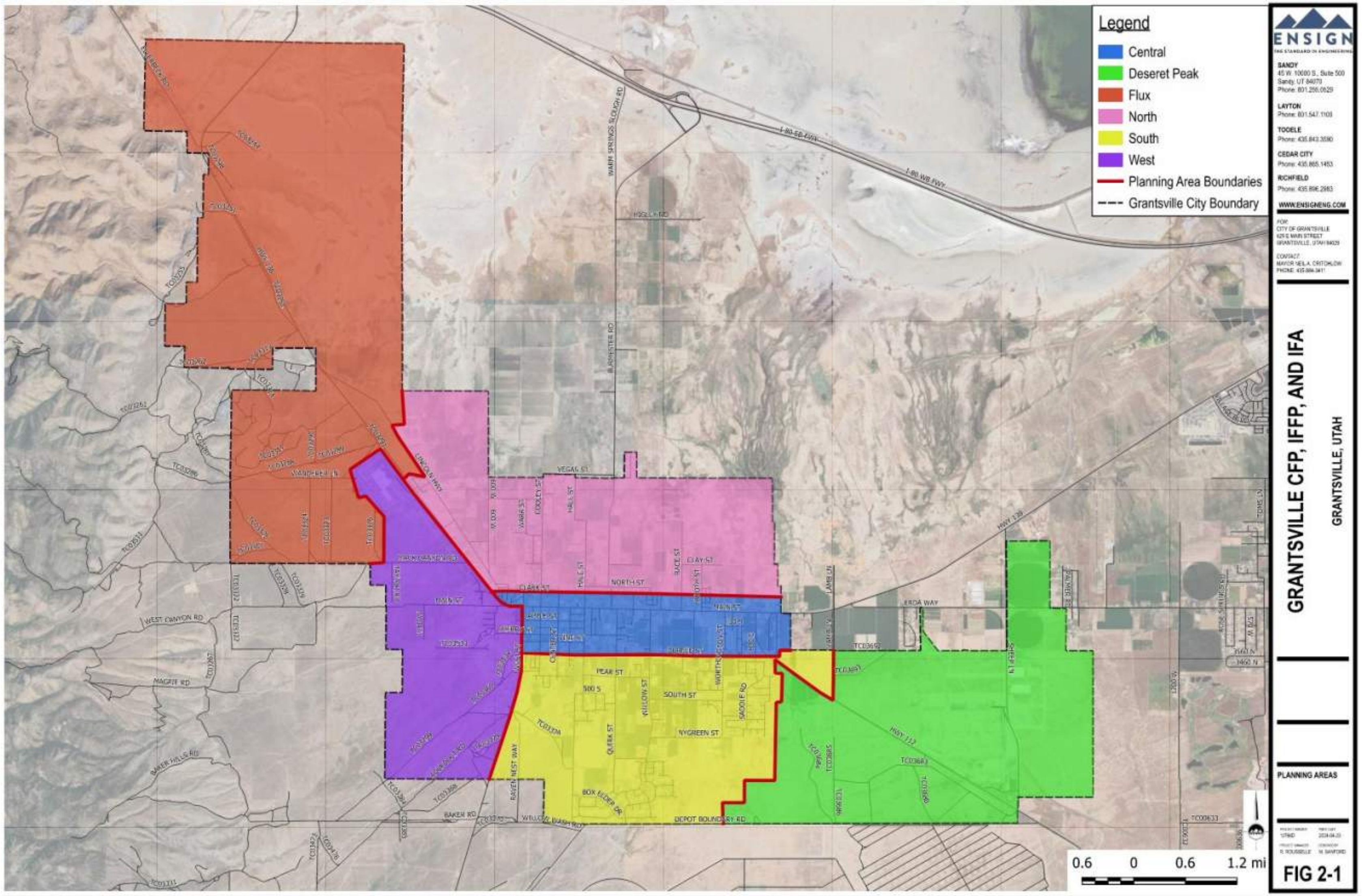


- Current Service Connections and ERCs

Service Connection Type	Service Connections	Units	ERC / Unit	ERCs
Single Family	4,609	4,618	1.00	4,618
Multi-Unit	46	290	0.52	151
Trailer	8	208	1.12	233
Commercial	110	155	7.34	1,138
Church	10	11	4.57	50
School	7	12	5.09	61
Construction Water	20	20	6.81	136
City Rate	5	33	10.59	349
Total	**4,815**	**5,347**		**6,736**

Demographics

- Planning Sub-Areas



Demographics

- Projected ERCs and Growth Distribution in 10-year Planning Period

Year:		2025		2026		2027		2028		2029		2030		2031		2032		2033		2034		2035	
Projected Population:		**16,056**		**16,592**		**17,148**		**17,803**		**18,486**		**19,193**		**19,934**		**20,705**		**21,501**		**22,332**		**23,192**	
Residential Growth Rate:		**2.93%**		**3.5%**		**3.5%**		**4.0%**		**4.0%**		**4.0%**		**4.0%**		**4.0%**		**4.0%**		**4.0%**		**4.0%**	
Commercial Growth Rate:		**0.73%**		**0.88%**		**0.88%**		**1.00%**		**1.00%**		**1.00%**		**1.00%**		**1.00%**		**1.00%**		**1.00%**		**1.00%**	
Service Connection Type	**ERC / Unit**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**
Single Family	1.00	4,618	4,618	4,780	4,780	4,947	4,947	5,145	5,145	5,351	5,351	5,565	5,565	5,788	5,788	6,020	6,020	6,261	6,261	6,511	6,511	6,771	6,771
Multi-Unit	0.52	290	151	300	156	311	162	323	168	336	175	349	181	363	189	378	197	393	204	409	213	425	221
Trailer [1]	1.12	208	233	208	233	208	233	208	233	208	233	208	233	208	233	208	233	208	233	208	233	208	233
Commercial	7.34	155	1,138	156	1,145	157	1,152	159	1,167	161	1,182	163	1,196	165	1,211	167	1,226	169	1,240	171	1,255	173	1,270
Church [2]	4.57	11	50	11	50	11	50	12	55	12	55	13	59	13	59	14	64	14	64	15	69	15	69
School [3]	5.09	12	61	12	61	12	61	13	66	13	66	14	71	14	71	15	76	16	81	16	81	17	87
Construction Water	6.81	20	136	21	143	22	150	23	157	24	163	25	170	26	177	27	184	28	191	29	197	30	204
City Rate [4]	10.59	33	349	35	371	36	381	37	392	37	392	39	413	39	413	40	424	41	434	42	445	42	445
Total		**5,347**	**6,736**	**5,523**	**6,939**	**5,704**	**7,136**	**5,920**	**7,383**	**6,142**	**7,617**	**6,376**	**7,888**	**6,616**	**8,141**	**6,869**	**8,424**	**7,130**	**8,708**	**7,401**	**9,004**	**7,681**	**9,300**
Increase from 2025		*-*	*-*	*176*	*203*	*357*	*400*	*573*	*647*	*795*	*881*	*1,029*	*1,152*	*1,269*	*1,405*	*1,522*	*1,688*	*1,783*	*1,972*	*2,054*	*2,268*	*2,334*	*2,564*

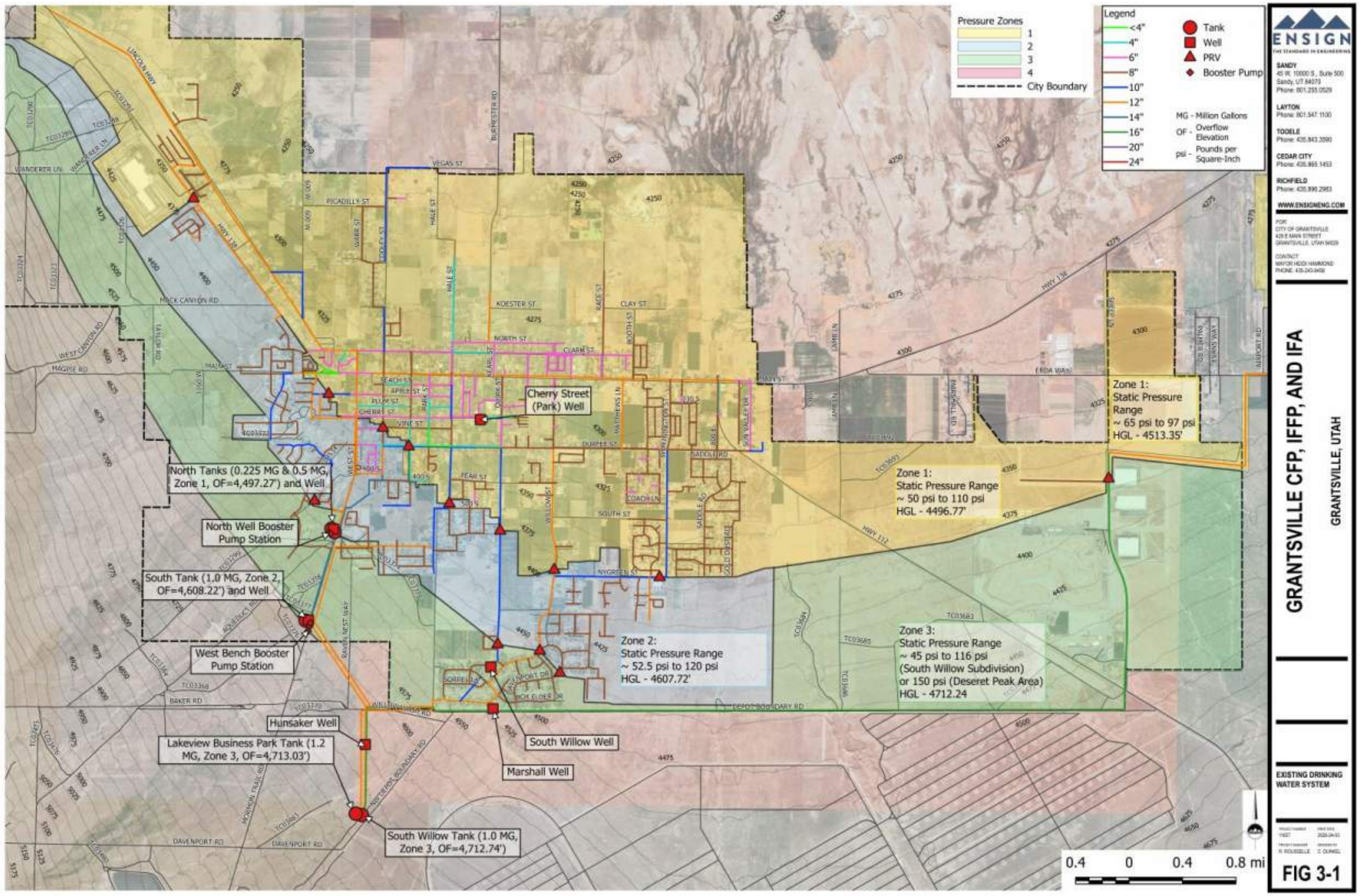
[1.1] Trailer units are not expected to increase.
[2] Church growth rate is 1 church per 1,480 population.
[3] School growth rate is 1 school per 1,360 population.
[4] City Rate growth rate is based on anticipated City projects.

Drinking Water (Existing)

- Level of Service
  - **Unit Average Day Demand = 807 gpd/ERC (0.618 ac-ft/year/ERC)**
    - Indoor Demand = 195 gpd/ERC (0.218 ac-ft/year/ERC)
    - Outdoor Demand = 612 gpd/ERC (0.400 ac-ft/year/ERC)
  - **Unit Peak Day Demand = 1,416 gpd/ERC (0.983 gpm/ERC)**
    - Indoor Demand = 275 gpd/ERC (0.191 gpm/ERC)
    - Outdoor Demand = 1,141 gpd/ERC (0.792 gpm/ERC)
  - **Peak Instantaneous Demand:**
    - Indoor Demand = 10.8*(ERCs)$^{0.64}$ gpm/ERC
    - Outdoor Demand = 1.58 gpm/ERC
  - **Fire Flow:**
    - Industrial/Commercial Buildings = 2,050 gpm for 4 hours (492,000 gallons)
    - Residential = 1,500 for 2 hours

Drinking Water System Capacity Requirements:

- **Sources:**
  - Supply Peak Day Demand
- **Storage:**
  - Storage for Average Day Demand plus Fire Flow (Industrial/Commercial Buildings Fire Flow)
- **Distribution:**
  - Per UAC R309-105-9, distribution systems should maintain a minimum pressure at all points in the system during;
    - Peak Day Demand plus Fire Flow - 20 psi
    - Peak Instantaneous Demand – 30 psi
    - Peak Day Demand – 40 psi
  - Max Velocity Requirements:
    - Peak Day and Peak Instantaneous Demand - 5 fps
    - Peak Day Demand plus Fire Flow – 10 fps



Drinking Water (Proposed)

- Capital Improvement Projects and Impact Fee Eligible Costs

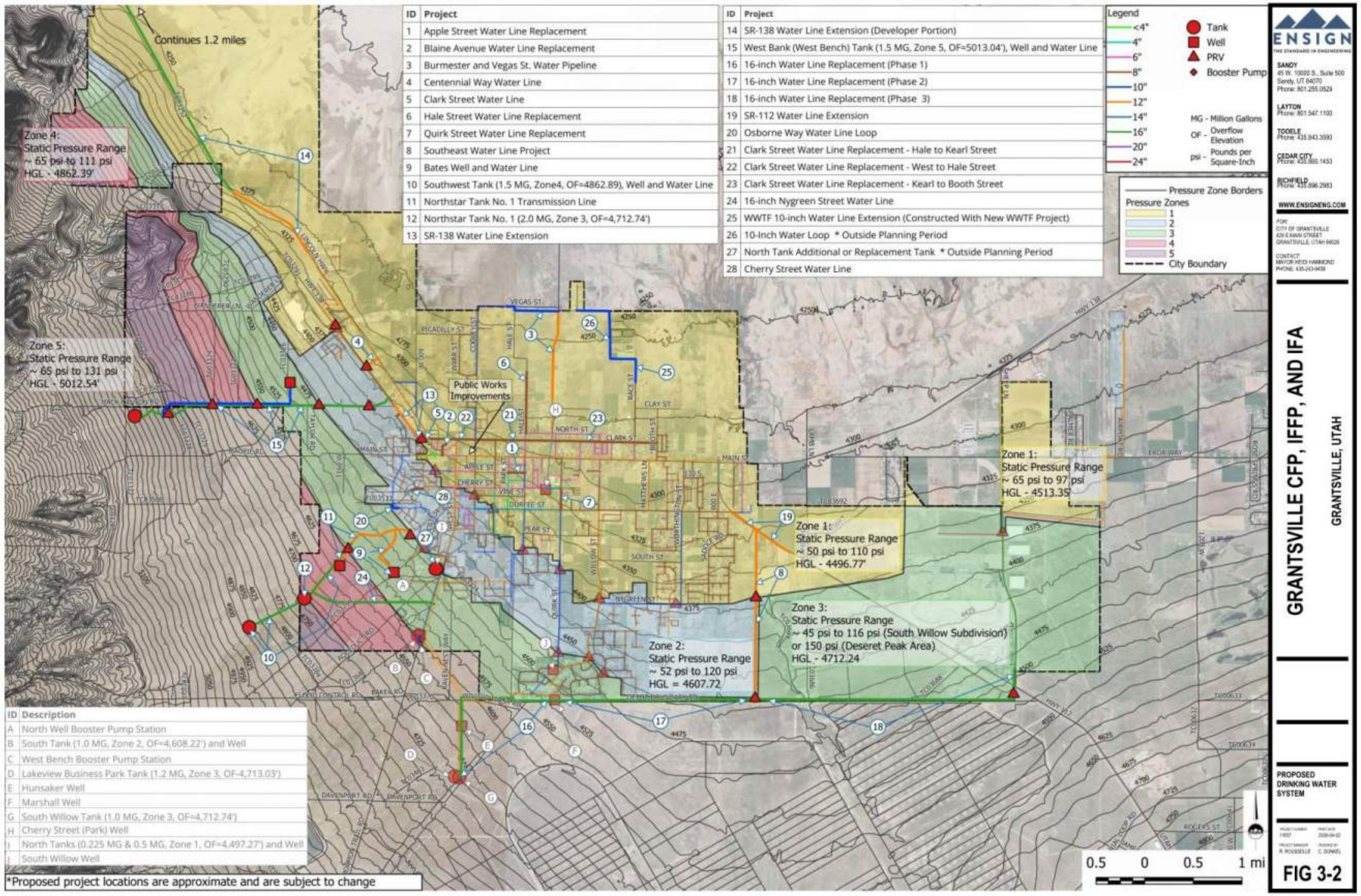
Project	Construction Year	Current Year (2025) Cost Estimate	Construction Year Cost Estimate	Proportionate Share	Impact Fee Eligible Cost
Bates Well	2027	$3,041,918.77	$3,258,579.43	0% [2]	$0.00
West Bank Well	2027	$3,518,067.73	$3,768,642.10	0% [2]	$0.00
Southwest Well	2031	$2,979,952.08	$3,663,121.97	0%	$0.00
Northstar Tank No. 1	2026	$3,387,223.88	$3,505,776.72	0.00%	$0.00
West Bank Tank	2027	$4,898,123.85	$5,246,992.72	0% [2]	$0.00
Southwest Tank	2031	$3,825,690.00	$4,702,749.81	0% [2]	$0.00
Osborne Way Water Line Loop	2026	$76,356.25	$79,028.72	27.6%	$21,788.13
SR-138 Water Line Extension (Developer Portion)	2026	$6,272,971.05	$6,492,525.04	0% [2]	$0.00
Northstar Tank No. 1 Transmission Line	2026	$2,504,135.45	$2,591,780.19	0% [2]	$0.00
SR-138 Water Line Extension	2027	$566,221.70	$606,550.84	27.6%	$167,225.41
Generator	2027	$269,200.00	$288,373.77	27.6%	$79,504.34
SR-112 Water Line Extension	2027	$540,168.75	$578,642.27	0% [2]	$0.00
Southeast Water Line Project	2028	$1,507,959.92	$1,671,902.12	0% [2]	$0.00
Clark Street Water Line Project	2029	$480,299.94	$551,155.23	27.6%	$151,952.90
Burmester and Vegas Street Water Pipeline Project	2031	$973,445.29	$1,196,612.81	27.6%	$329,904.86
Centennial Way Water Line Project	2035	$357,093.75	$503,716.00	27.6%	$138,873.96
Public Works Improvements	2035	$1,318,982.50 [1]	$1,860,555.08	27.6%	$512,953.03
Hale Street Water Line Replacement	2029	$878,172.10	$1,007,722.68	27.6%	$277,828.06
Total		**$37,395,983.01**	**$41,574,427.50**		**$1,680,030.71**

[1] The cost shown for the Public Works Improvements project is half of the total cost estimate because this project cost will be split evenly between the wastewater and drinking water utilities.

[2] The proportionate share is 0% because the project is expected be constructed by developers.

Drinking Water (Proposed)

- Capital Improvement Projects Figure



Drinking Water Impact Fees

- Impact Fees
  - Existing Impact Fees

Water Meter Size (inches)	Maximum Flow Rate (gpm)	ERCs	Impact Fee
3/4	25 [1]	1	$2,497.04
1	40 [1]	1.6	$3,995.27
1 1/2	50 [1]	2	$4,994.08
2	100 [1]	4	$9,988.16
3	200 [2]	8	$19,976.33
4	400 [2]	16	$39,952.65
6	800 [2]	32	$79,905.30
8	1,000 [2]	40	$99,881.63
Non-Residential Development Indoor			$25.46 per fixture unit
Non-Residential Development Outdoor			$15,780.55 per irrigated acre

[1] From AWWA M6 Table 5-3 Displacement Meters.
[2] From AWWA M6 Table 5-3 Electromagnetic and Ultrasonic Meter Type 1.

  - Proposed Maximum Allowable Impact Fees

Water Meter Size (inches)	Maximum Flow Rate (gpm)	ERCs	Impact Fee
3/4	25 [1]	1	$2,841.56
1	40 [1]	1.6	$4,546.49
1 1/2	50 [1]	2	$5,683.11
2	100 [1]	4	$11,366.22
3	200 [2]	8	$22,732.45
4	400 [2]	16	$45,464.89
6	800 [2]	32	$90,929.79
8	1,000 [2]	40	$113,662.24
Non-Residential Development Indoor			$28.97 per fixture unit
Non-Residential Development Outdoor			$17,957.79 per irrigated acre

[1] From AWWA M6 Table 5-3 Displacement Meters.
[2] From AWWA M6 Table 5-3 Electromagnetic and Ultrasonic Meter Type 1.

Public Safety

- Level of Service

Department	Staff Level of Service	Facility Level of Service
Police	1.87 staff per 1,000 population [1]	232.1 sq ft building area per staff member
Fire	3.14 firefighters per 1,000 population	0.0565 fire stations per 1,000 population
Animal Control	0.156 officers per 1,000 population	90.3 sq ft building area per 1,000 population

[1] *Police staff LOS does not include animal control officers, crossing guards, or victim advocate volunteers.*

Public Safety

- Capital Improvement Projects

Project	Building Area (sq ft)	Construction Priority		Current Year (2025) Cost Estimate
		Begin Planning	Completion	
Animal Control Shelter	4,500	2025	2033	$1,567,581.40 [1]
Justice Center Renovations	N/A	2028	2029	$19,580.00 [1]
Justice Center Police Expansion	4,497	2033	2034	$1,246,608.00 [1]
New City Hall Building	20,000	2032	2034	$9,681,145.54 [1]
Existing City Hall Renovations	N/A	2033	2034	$2,425,500.00 [1]
Future Satellite Fire Station and Ladder Truck	N/A	N/A	N/A	$0.00
Total				**$14,940,414.94**

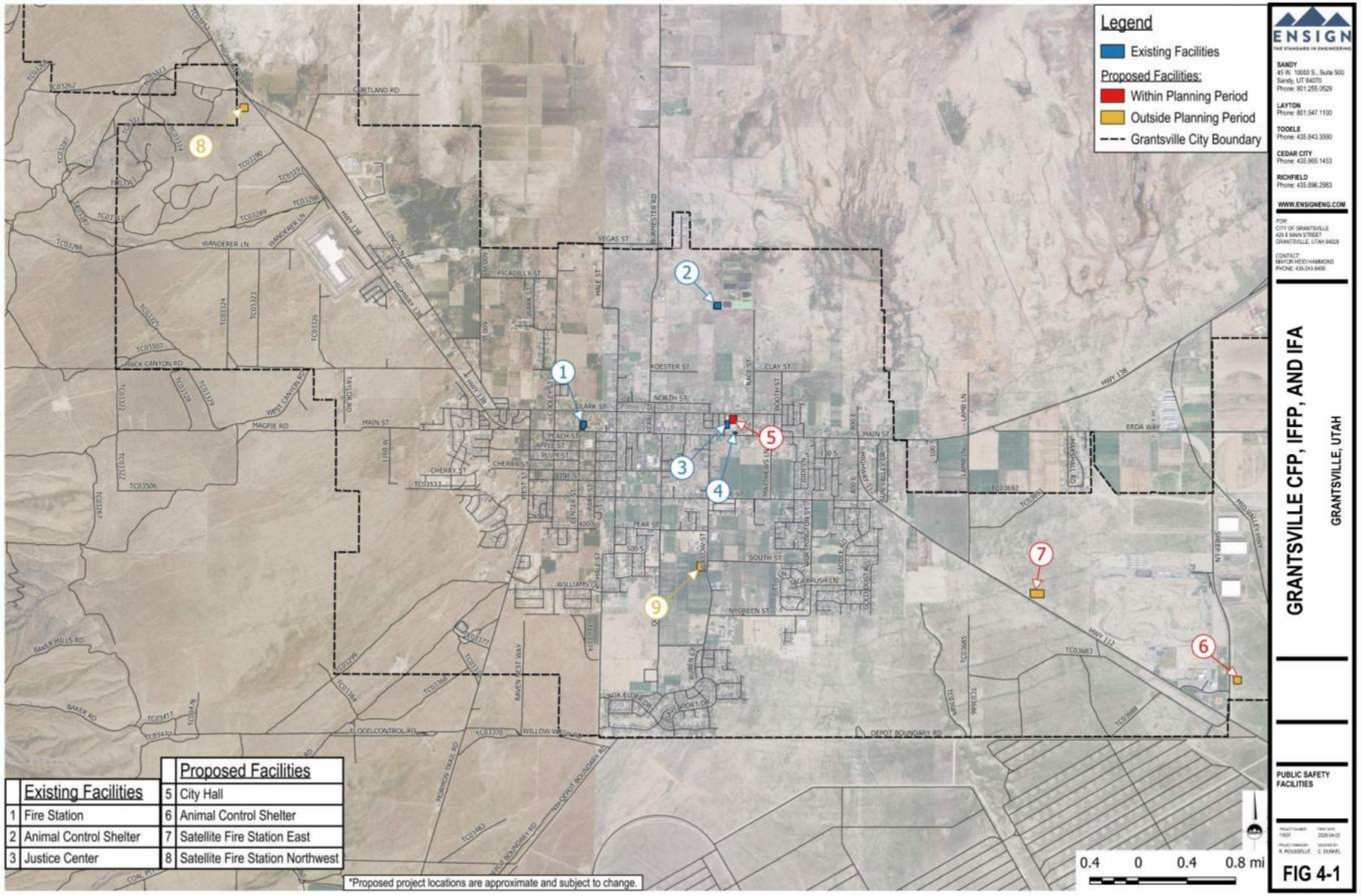
[1] Cost estimates are based on rough costs per square footage. These should be updated when project details are determined.

[2] Assumed that 50% of the Animal Control Shelter will be jointly paid and constructed in 2033

- Impact fee Eligible Costs

Project	Construction Year	Current Year (2025) Cost Estimate	Construction Year Cost Estimate	Proportionate Share	Impact Fee Eligible Cost
Animal Control Shelter	2033	$1,567,581.40	$2,064,205.35	14.3%	$295,585.40
Justice Center Police Expansion	2034	$1,246,608.00	$1,698,998.74	34.0%	$578,158.28
Total		**$2,814,189.40**	**$3,763,204.10**		**$873,743.68**

Public Safety



Public Safety

- Impact Fees
  - Existing Impact Fees

Land Use	Impact Fee
Single Family	$1,037.12 per Dwelling Unit
Multi-Unit	$448.05 per Dwelling Unit
Non-Residential	$615.28 per 1,000 sq ft building area

  - Proposed Maximum Allowable Impact Fees

Land Use	Impact Fee
Single Family	$712.43 per Dwelling Unit
Multi-Unit	$2,388.62 per Dwelling Unit
Non-Residential	$3,070.10 per Non-Residential Unit

Parks, Recreation Facilities, Open Spaces, and Trails

- Level of Service

Parameter	LOS Requirement
Park Acreage per 1,000 population	4.00 acres

Parks, Recreation Facilities, Open Spaces, and Trails

- Capital Improvement Projects and Impact Fee Eligible Costs

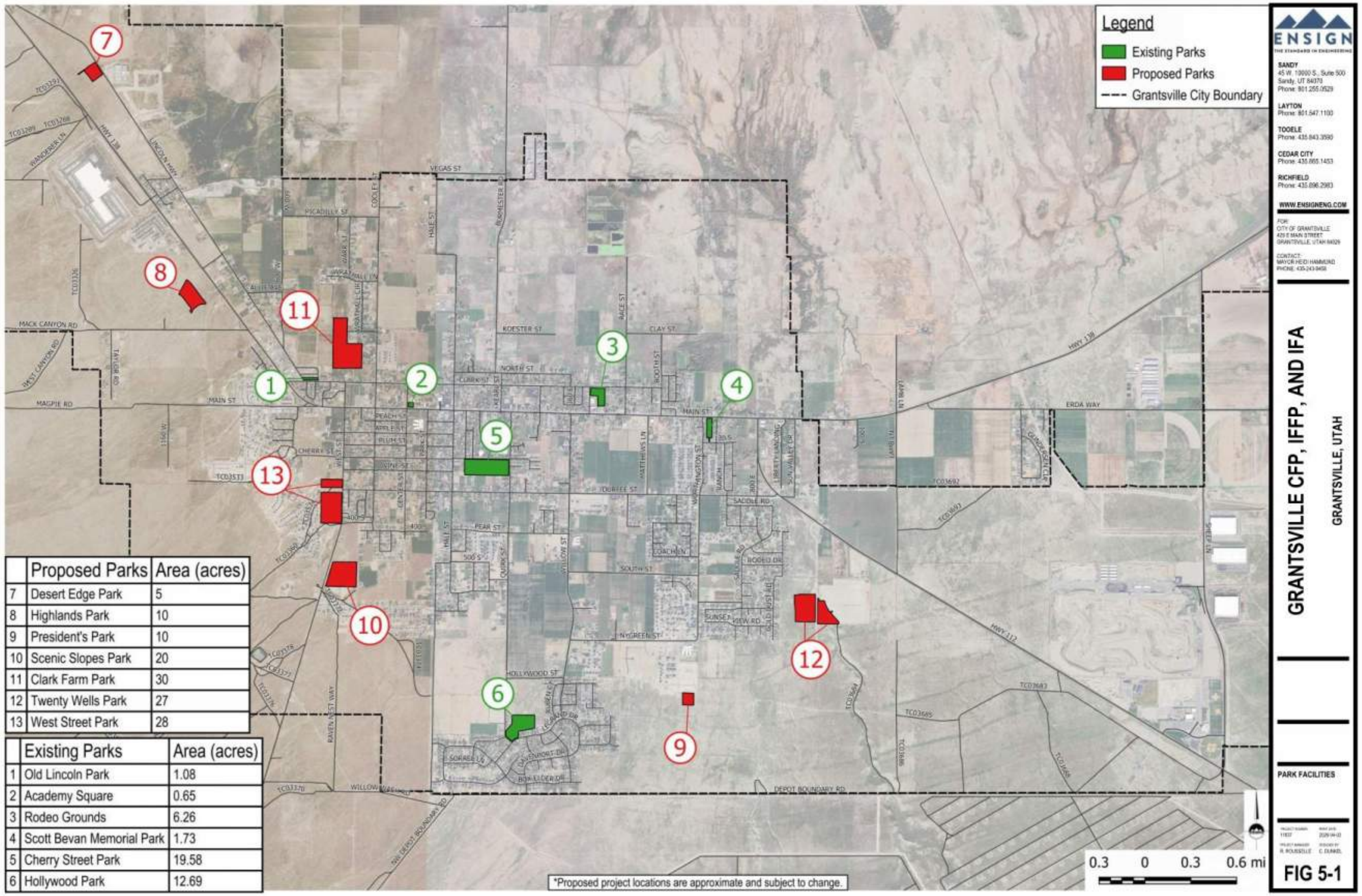
Project	Construction Year	Current Year (2025) Cost Estimate	Construction Year Cost Estimate	Proportionate Share	Impact Fee Eligible Cost
West Street Park	2026	$297,903.23	$308,329.84	19.7%	$60,752.89
Scenic Slopes Park, Utilities, Pump Track, Site Improvements	2026	$3,170,969.33	$2,420,969.33[2]	100.0%	$2,420,969.33
Desert Edge Park	2027	$2,664,070.11	$2,853,818.50	0% [1]	$0.00
Scenic Slopes Parking, Park Amenities, Ball Courts	2028	$2,447,372.82	$2,713,445.99	100.0%	$2,713,445.99
President's Park	2034	$1,695,904.66	$2,311,343.97	100.0%	$2,311,343.97
Scenic Slopes Park Baseball and Soccer Field	2032	$3,198,537.29	$4,069,432.67	100.0%	$4,069,432.67
Twenty Wells Park	2032	$8,628,500.00	$10,977,861.62	0% [1]	$0.00
Highlands Park	2033	$3,392,678.66	$4,467,509.92	0% [1]	$0.00
Clark Farm Park	2034	$3,405,170.23	$4,640,897.49	0%	$0.00
Total		**$28,901,106.33**	**$34,763,609.34**		**$11,575,944.86**

[1] *The proportionate share is 0% because the project is expected be constructed by developers.*

[2] *Construction Year Cost based on Resolution No. 2025-71 not inflated, without grant of $750k which is not impact fee eligible.*

Parks, Recreation Facilities, Open Spaces, and Trails

- Capital Improvement Projects Figure



	Proposed Parks	Area (acres)
7	Desert Edge Park	5
8	Highlands Park	10
9	President's Park	10
10	Scenic Slopes Park	20
11	Clark Farm Park	30
12	Twenty Wells Park	27
13	West Street Park	28

	Existing Parks	Area (acres)
1	Old Lincoln Park	1.08
2	Academy Square	0.65
3	Rodeo Grounds	6.26
4	Scott Bevan Memorial Park	1.73
5	Cherry Street Park	19.58
6	Hollywood Park	12.69

Parks, Recreation Facilities, Open Spaces, and Trails

- Impact Fees
  - Existing Impact Fees

Land Use	Impact Fee
Single Family and Multi-Unit	$4,032.45 per Dwelling Unit

  - Proposed Maximum Allowable Impact Fees

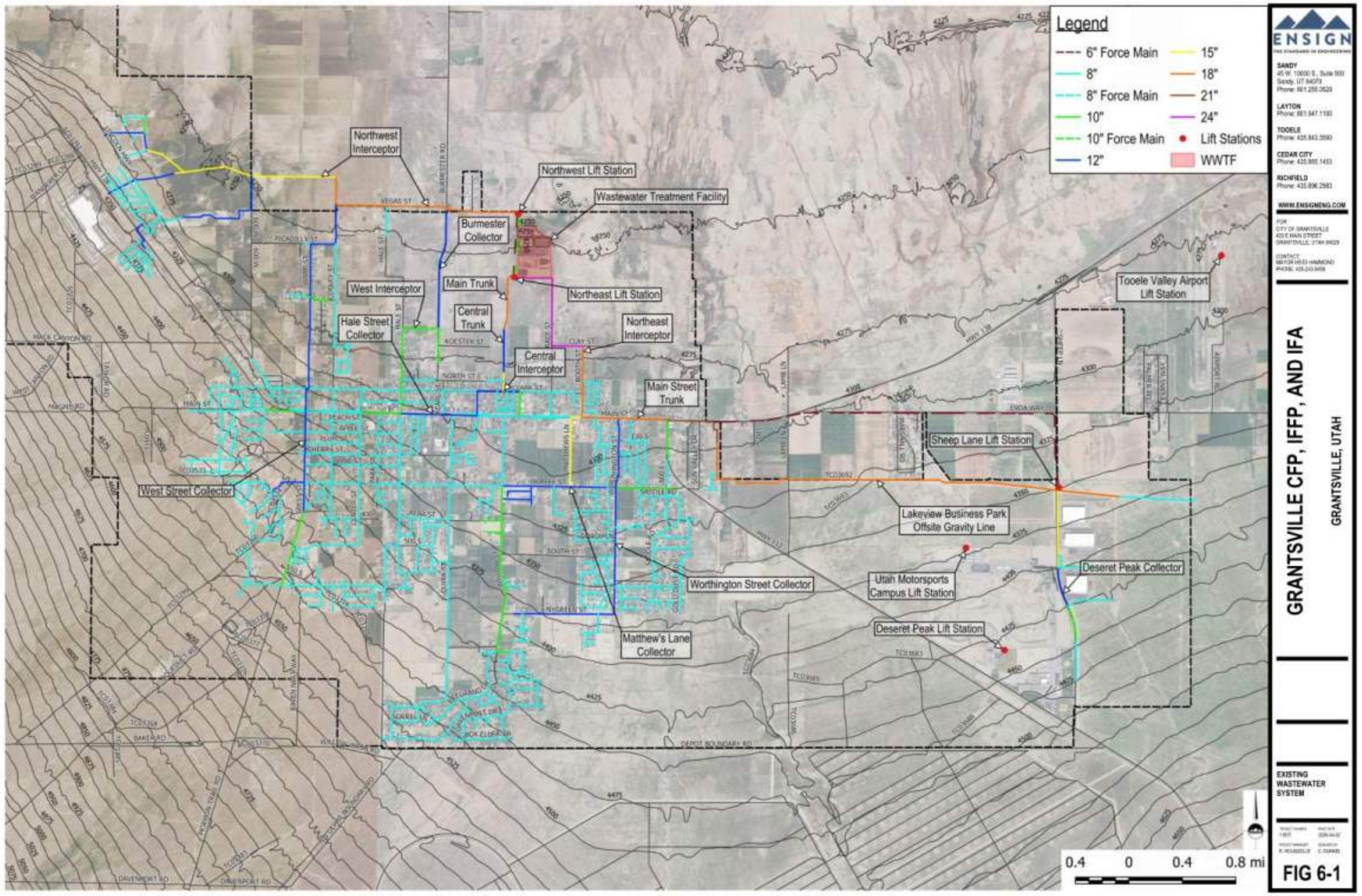
Land Use	Impact Fee
Single Family and Multi-Unit	$3,762.18 per Dwelling Unit

    - Note: Developer constructed parks are shown as not impact fee eligible.

Wastewater (Existing)

- Level of Service

Component	Parameter	Level of Service	
Collection System	Average Day Flow	150 gpd/ERC	
	Peaking Factors	*Miles From WWTF*	*Factor*
		<1	1.85
		>1 and <1.6	2.25
		>1.6	4
Lift Stations	Peak Inflow	0.35 gpm/ERC	
Wastewater Treatment Facility	Average Day Flow	150 gpd/ERC	
	Peak Day Flow	175 gpd/ERC	
	Peak Instantaneous Flow	0.4 gpm/ERC	



Wastewater (Proposed)

- Capital Improvement Projects and Impact Fee Eligible Costs

Project	Construction Year	Current Year (2025) Cost Estimate	Construction Year Cost Estimate	Proportionate Share	Impact Fee Eligible Cost
SR112 Interceptor	2027	$2,988,835.56	$3,201,715.37	0% [2]	$0.00
West Bank Interceptor Segment 1	2027	$376,287.40	$403,088.47	8.8% [4]	$35,294.63
West Bank Interceptor Segment 2	2027	$39,832.00	$42,669.03	13.5% [4]	$5,756.82
West Bank Interceptor Segment 3	2027	$3,927,403.66	$4,207,132.99	0% [2]	$0.00
Southeast Sewer Line	2027	$1,564,982.00	$1,676,447.84	0% [2]	$0.00
Vegas Street Collector	2035	$5,790,294.14	$8,167,781.74	0.0%	$0.00
Northwest Lift Station - Upsize Force Main	2028	$194,363.06	$215,493.80	100%	$215,493.80
Proposed Wastewater Treatment Facility	2026	$48,402,175.15 [3]	$48,402,175.15	12.8%	$6,205,158.85
Public Works Improvements	2035	$1,318,982.50 [1]	$1,860,555.08	27.6%	$512,953.03
Total		**$64,603,155.47**	**$68,177,059.48**		**$6,974,657.14**

[1] The cost shown for the Public Works Improvements project is half of the total cost estimate because this project cost will be split evenly between the wastewater and drinking water utilities.

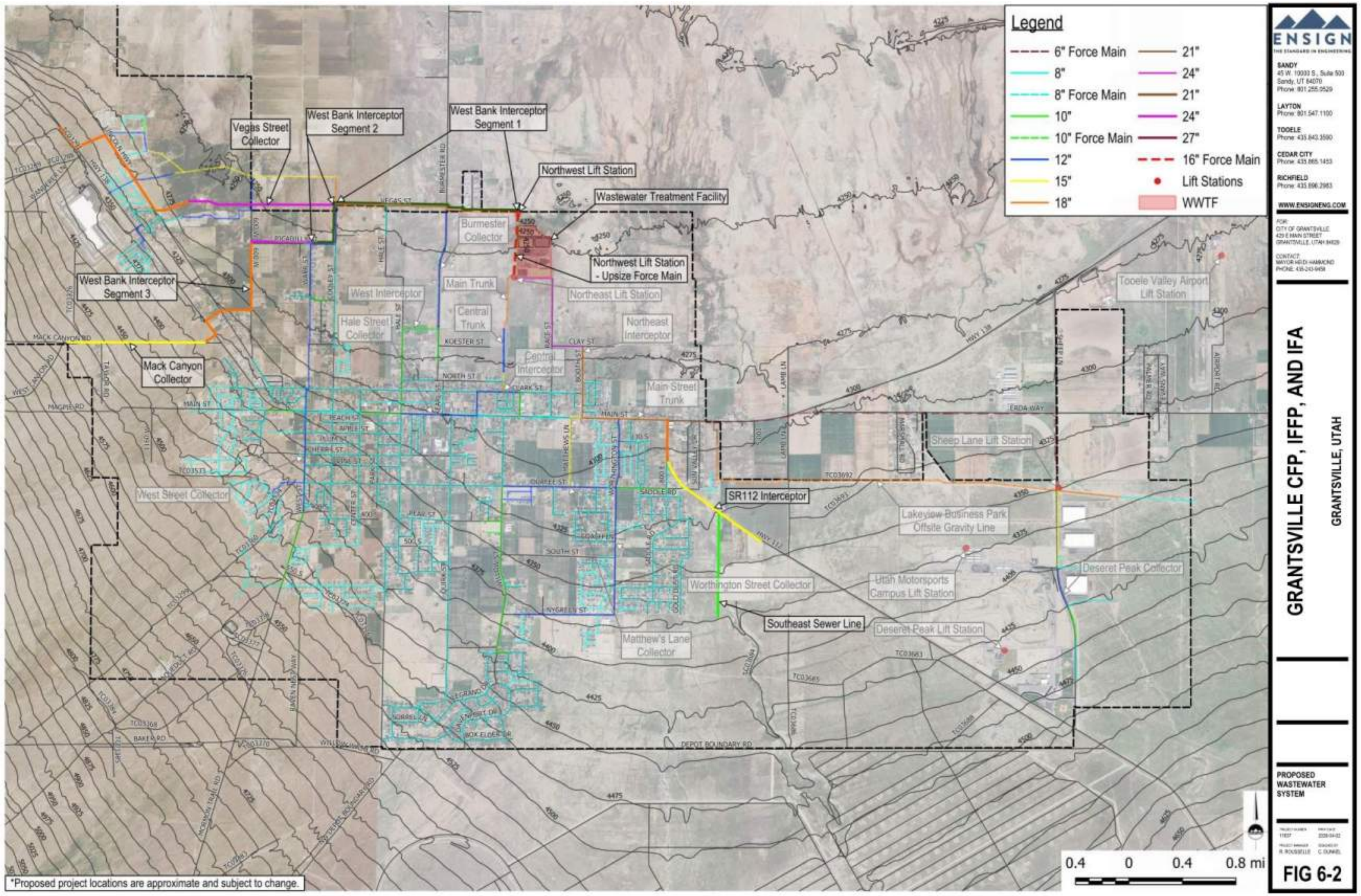
[2] The proportionate share is 0% because the project is expected be constructed by developers.

[3] Proposed WWTF is 2026 cost estimate.

[4] The proportionate share within the planning period for Segment 1 is calculated by dividing planning period ERCs (1,544 ERCs) by upsize capacity [36-inch capacity (26,682 ERCs) - Deseret minimum diameter (9,050 ERCs)]=17,632 ERCs.
The proportionate share within the planning period for Segment 2 is calculated by dividing planning period ERCs (1,544 ERCs) by upsize capacity [36-inch capacity (15,008 ERCs) - Deseret minimum diameter (3,565 ERCs)]=11,443 ERCs.
The costs shown for West Bank Interceptor Segment 1 and 2 in the table are upsize costs only.

Wastewater (Proposed)

- Capital Improvement Projects Figure



Wastewater Impact Fees

- Impact Fees
  - Existing Impact Fees

Water Meter Size (inches)	Maximum Flow Rate (gpm)	ERCs	Impact Fee
3/4	25 [1]	1	$5,949.41
1	40 [1]	1.6	$9,519.05
1 1/2	50 [1]	2	$11,898.81
2	100 [1]	4	$23,797.63
3	200 [2]	8	$47,595.25
4	400 [2]	16	$95,190.50
6	800 [2]	32	$190,381.00
8	1,000 [2]	40	$237,976.25
Non-Residential Development			$247.89 per fixture unit

[1] *From AWWA M6 Table 5-3 Displacement Meters.*

[2] *From AWWA M6 Table 5-3 Electromagnetic and Ultrasonic Meter Type 1.*

  - Proposed Maximum Allowable Impact Fees

Water Meter Size (inches)	Maximum Flow Rate (gpm)	ERCs	Impact Fee
3/4	25 [1]	1	$6,081.18
1	40 [1]	1.6	$9,729.89
1 1/2	50 [1]	2	$12,162.36
2	100 [1]	4	$24,324.72
3	200 [2]	8	$48,649.44
4	400 [2]	16	$97,298.89
6	800 [2]	32	$194,597.77
8	1,000 [2]	40	$243,247.22

[1] *From AWWA M6 Table 5-3 Displacement Meters.*

[2] *From AWWA M6 Table 5-3 Electromagnetic and Ultrasonic Meter Type 1.*

Water Rights Acquisition

- Level of Service

Parameter	Level of Service
Indoor Use	0.218 acre-feet/year/ERC
Outdoor Use	3.33 acre-feet/year/irrigated acre

Water Rights Acquisition

- Existing Impact Fees
  - Category 1 includes single family homes only.
  - Category 2 covers all other types of development not included in Category 1.
  - Proposed Impact Fees
    - Indoor Use

Land Use	Water Right Quantity (ac-ft)	Impact Fee	Unit
Single Family Residential	0.218	$6,322.00	per Dwelling Unit
Multi-Unit Residential	0.107	$3,103.00	per Dwelling Unit
Non-Residential	0.00908	$263.32	per fixture unit

    - Category 1 Outdoor Use (No Waterwise Landscaping)

Category 1 Lot Size	Water Right Quantity (ac-ft)	Impact Fee
7,000 sq ft	0.34	$9,931.90
8,000 sq ft	0.39	$11,350.74
10,000 sq ft	0.49	$14,188.43
14,000 sq ft	0.68	$19,863.80
1/2 acre	1.07	$30,902.40
2/3 acre	1.42	$41,203.20
3/4 acre	1.60	$46,353.60
1.0 acre	2.13	$61,804.80
> 1.0 acre	2.13	$61,804.80

- Category 1 Outdoor Use (Waterwise Landscaping Front Yard Only)

Category 1 Lot Size	Water Right Quantity (ac-ft)	Impact Fee
7,000 sq ft	0.31	$9,051.12
8,000 sq ft	0.36	$10,344.13
10,000 sq ft	0.45	$12,930.17
14,000 sq ft	0.62	$18,102.23
1/2 acre	0.97	$28,161.90
2/3 acre	1.29	$37,549.20
3/4 acre	1.46	$42,242.85
1.0 acre	1.94	$56,323.80
> 1.0 acre	1.94	$56,323.80

- Category 2 Outdoor Use (No Waterwise Landscaping)

Category 2 = (irrigated area, acres) * (3.33 ac-ft/irr. ac) * $29,000

- Category 2 Outdoor Use (Waterwise Landscaping)

Category 2 = (irrigated area, acres) * (2.28 ac-ft/irr. ac) * $29,000

Water Rights Acquisition

- Proposed Maximum Allowable Impact Fees
  - Category 1 includes single family homes only.
  - Category 2 covers all other types of development not included in Category 1.
  - Proposed Impact Fees
    - Indoor Use

Land Use	Water Right Quantity (ac-ft)	Impact Fee	Unit
Single Family Residential	0.218	$6,322.00	per Dwelling Unit
Multi-Unit Residential	0.120	$3,480.00	per Dwelling Unit
Non-Residential	0.00908	$263.32	per fixture unit

- Category 1 Outdoor Use (No Waterwise Landscaping)

Category 1 Lot Size	Water Right Quantity (ac-ft)	Impact Fee
7,000 sq ft	0.34	$9,931.90
8,000 sq ft	0.39	$11,350.74
10,000 sq ft	0.49	$14,188.43
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Storm Drainage

- Level of Service
  - On City's website under "Storm Drainage Design Requirements"

https://www.grantsvilleut.gov/departments/community___economic_development/construction_standards.php

GRANTSVILLE CITY
STORM DRAINAGE DESIGN REQUIREMENTS

1. **Storm Water Collection System Requirements:**

   a) **Design Storms:**
   The storm water pipe collection system shall be designed to convey the 24-hour duration – Annual Exceedance Probability (AEP) 10-percent (10%) storm, 24-hour duration event if there is a continuous pathway to the Great Salt Lake. Collection systems for basin and street shall be sized for the AEP 1-percent (1%) storm, 24-hour duration event when discharging to an approved City release point.

   Note: The AEP 10-percent (10%) storm is equivalent to a 10-year recurrence interval storm and an AEP 1-percent (1%) storm is equivalent to a 100-year recurrence interval storm. The 10-year and 100-year terms are not used by Grantsville City to reduce confusion and accurately convey such storms have a 10-percent or 1-percent chance of occurring in any given year, rather than implying these events happen once every 10-years or 100-years.

   b) **Storm Water Runoff into Street Encroachment Requirements:**
   i. Flow from the AEP 10-percent (10%) storm shall not extend more than halfway into the travel lane adjacent to the curb and a minimum 12-foot wide travel lane shall be maintained for emergency vehicles. If there is a curb then total spread must be no more than 8-feet from the curb face.

   c) **Easement and Access Requirements:**
   i. Easement widths and access for drainage channels, detention/ retention basins, lots line swales, and public storm drainage lines shall be reviewed and approved by the City Engineer. Access easements shall be a minimum width of 15-feet.

   d) **Acceptable Pipe Materials:**
   i. Refer to the current City's preconstruction notes for acceptable pipe materials.

   e) **Minimum Pipe Diameter and Slope:**
   i. The minimum pipe diameter for any public storm water collection system pipe is 15-inches with a minimum slope of 0.50 percent. If pipe diameter and slope is below the minimum standards then approval from the City Engineer is required.

   f) **Manhole Spacing:**
   i. Minimum manhole spacing is 400-feet, unless otherwise approved by the City Engineer.

   g) **Storm Drain Structure Drops:**
   i. Where changes in pipe sizes occur in a manhole, the inlet pipe crown must match or be higher than the larger outlet pipe crown.

   h) **Cover:**
   i. Minimum cover is 18-inches or 6 inches below the pavement section whichever is greater, unless approved by City Engineer. Pipe cover must comply with pipe manufacturer's recommendations.

   i) **Catch Basin Requirements:**
   i. Catch basins will not be allowed on the radius of curves at intersections.
   ii. Flow through catch basins shall not be allowed unless designed as a combination box with manhole lid access. Locked gate access with keys for designate basin maintenance personnel and for City emergency access shall be provided.
   iii. A manufactured snout or similar oil/debris/water separator is required prior to a detention basin, retention basin, or any other discharges from a development into a public drainage. Sump depth in

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catch basin with snout shall be sized as recommended by snout manufacturer.
   iv. Catch basins shall be installed at maximum intervals of 400-feet where channelized flow is occurring.

   j) **Detention/Retention Basin Requirements:**
   i. Public, private, or HOA detention/retention basins shall have 6-foot tall (finish grade to top of sign) telespar, or City approved, post with the following signs:
      a. "Stormwater Basin" 12-inch x 18-inch Sign
      b. "No Trespassing" 12-inch x 18-inch Sign
      c. Each sign shall be RA Type I Engineering Grade Prismatic Reflective Sheeting on 0.080 aluminum.
   ii. Public detention/retention basins with amenities shall have 6-foot tall (finish grade to top of sign) telespar, or City approved, post with the following signs:
      a. "No Dumping" 12-inch x 18-inch Sign
      b. "Stormwater Basin
      Designed to collect runoff from the local storm sewer system following either a rainfall or snowmelt event.
      Basins temporarily hold this stormwater, provides treatment to remove pollutants, and then slowly release the water back to our waterways.
      No swimming, use at your own risk." 18-inch x 24-inch Sign
      c. Each sign shall be RA Type I Engineering Grade Prismatic Reflective Sheeting on 0.080 aluminum.
   iii. Storm water drainage areas need to include front yards and rear yards in the developments calculations if they do not include individual lots detention/ retention basins.
   iv. Retention and detention basins shall completely infiltrate and drain within 72-hours from the beginning of a storm event for vector control. Infiltration tests shall be performed using the double ring infiltrometer test in accordance with ASTM D 3385 for all retention and detention basins. The test shall be completed at the elevation of the bottom of the basin where infiltration will occur. A factor of safety of two (2) shall be used for design and a minimum of two (2) tests shall be completed with a minimum of one (1) test per 10,000 square feet of infiltration area. These tests shall be submitted with drainage calculations to the City for review. If the retention or detention basin is constructed in gravel soils then a percolation test may be used to determine the infiltration rate. The infiltration rate shall be calculated as follows:

Infiltration Rate = (Percolation Rate) / (Reduction Factor)

Where the Reduction Factor is given by**:

$$R_f = \frac{2d_1 - \Delta d}{DIA} + 1$$

With:

d_1 = Initial Water Depth (in.)
Δd = Average/Final Water Level Drop (in.)
DIA = Diameter of the Percolation Hole (in.)

*** The area Reduction Factor accounts for the exfiltration occurring through the sides of percolation hole. It assumes that the percolation rate is affected by the depth of water in the hole and that the percolating surface of the hole is in uniform soil. If there are significant problems with either of these assumptions then other adjustments may be necessary.*

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   v. Storm water dry wells, injections wells, or any underground storm water discharge structure is acceptable in the City, but shall comply with the Utah Department of Environmental Quality (UDEQ) Underground Injection Control (UIC) program requirements. Proof of an application pertaining to the development has been submitted under the UIC program shall be provided to the City for their records. Special consideration shall be given to water quality, groundwater depth, and other factors. Individual or single-family homes may be exempt from these requirements. Please contact the Utah Department of Environmental Quality - Water Quality for clarification. Developments may use percolation tests for underground systems which infiltrate in the horizontal and vertical planes.
   vi. 1-foot freeboard minimum above the AEP 1-percent (1%) storm, 24-hour duration event when discharging water level through spillway is required. Spillway shall be reinforced with concrete per City Detail.
   vii. Detention/retention basin minimum of top berm width shall be 3-feet.
   viii. Maximum water depths shall be 30-inches with a maximum slope of 5:1 for small detention/retention basins serving single lots or less than 5-lots unless approved by the City Engineer. Large basins serving 5-lots or more shall have a maximum slope of 3:1 and, if deeper than 3-feet, shall be provided with ingress and egress at least 12-feet wide at less than 15% grade with a 15% grade all weather surface ramp into the basin.
   ix. Vegetate basins with turf, if irrigated, or native seeded grass for maintenance purposes. If turf is installed, turf soil shall be free draining, not include clay soils, and not impact stormwater infiltration.
   x. Rocks or gravel surfacing of detention/retention basins are not allowed without City approval.
   xi. Detention/retention basins with amenities shall have accessible path to amenity which is a concrete sidewalk meeting ADA standard. Interior slope of detention/retention basin at ramp shall be between 8 Horizontal:1 Vertical to 12 Horizontal:1 Vertical slope.
   xii. Detention/Retention basins with amenities shall have a sediment forebay and be able to pass the AEO 50-percent (50%) storm, 24-hour duration event through the basin without stormwater impacting amenities.

   k) **Manning's n Values:**
   i. n value for linings shall be determined per an approved Engineers Manual based on size and placement of materials. Calculations shall include the reference used for the n value for review by the City Engineer.

Manning's Roughness n for Open Channels			
Channel Type	Manning n		
	Minimum	Normal	Maximum
1. Lined or Constructed Channels			
a. Cement:			
1. Neat, surface	0.01	0.011	0.013
2. Mortar	0.011	0.013	0.015
b. Concrete:			
1. Trowel finish	0.011	0.013	0.015
2. Float finish	0.013	0.015	0.016

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Storm Drainage

- Level of Service (Continued)

Channel Type	Manning n Minimum	Manning n Normal	Manning n Maximum
3. Finished, with gravel on bottom	0.015	0.017	0.02
4. Unfinished	0.014	0.017	0.02
5. Gunite, good section	0.016	0.019	0.023
6. Gunite, wavy section	0.018	0.022	0.025
7. On good excavated rock	0.017	0.02	-
8. On irregular excavated rock	0.022	0.027	-
c. Concrete Bottom Float Finish with sides of:			
1. Dressed stone in mortar	0.015	0.017	0.02
2. Random stone in mortar	0.017	0.02	0.024
3. Cement rubble masonry, plastered	0.016	0.02	0.024
4. Cement rubble masonry	0.02	0.025	0.03
5. Dry rubble or riprap	0.02	0.03	0.035
d. Gravel Bottom with sides of:			
1. Formed concrete	0.017	0.02	0.025
2. Random stone mortar	0.02	0.023	0.026
3. Dry rubble or riprap	0.023	0.033	0.036
e. Brick:			
1. Glazed	0.011	0.013	0.015
2. In cement mortar	0.012	0.015	0.018
f. Masonry:			
1. Cemented rubble	0.017	0.025	0.03
2. Dry rubble	0.023	0.032	0.035
g. Dressed Ashlar / Stone Paving	0.013	0.015	0.017
h. Asphalt:			
1. Smooth	0.013	0.013	0.017
2. Rough	0.016	0.016	0.017
i. Vegetal Lining	0.03	-	0.5
j. Wood:			
1. Planed, untreated	0.01	0.012	0.014
2. Planed, creosoted	0.011	0.012	0.015
3. Unplanned	0.011	0.013	0.015
4. Plank with battens	0.012	0.015	0.018
5. Lined with roofing paper	0.01	0.014	0.017

Channel Type	Manning n Minimum	Manning n Normal	Manning n Maximum
2. Excavated or Dredged Channels			
a. Earth, Straight, and Uniform:			
1. Clean, recently completed	0.016	0.018	0.02
2. Clean, after weathering	0.018	0.022	0.025
3. Gravel, uniform section, clean	0.022	0.025	0.03
4. With short grass, few weeds	0.022	0.027	0.033
b. Earth Winding and Sluggish:			
1. No vegetation	0.023	0.025	0.03
2. Grass, some weeds	0.025	0.03	0.033
3. Dense weeds or aquatic plants in deep channels	0.03	0.035	0.04
4. Earth bottom and rubble sides	0.028	0.03	0.035
5. Stony bottom and weedy banks	0.025	0.035	0.04
6. Cobble bottom and clean sides	0.03	0.04	0.05
c. Dragline-Excavated or Dredged:			
1. No vegetation	0.025	0.028	0.033
2. Light brush on banks	0.035	0.05	0.06
d. Rock Cuts:			
1.Smooth and Uniform	0.025	0.035	0.04
2. Jagged and irregular	0.035	0.04	0.05
e. Channels not Maintained, Weeds and Brush Uncut:			
1. Dense weeds, high as flow depth	0.05	0.08	0.12
2. Clean bottom, brush on sides	0.04	0.05	0.08
3. Same as above, highest stage of flow	0.045	0.07	0.11
4. Dense brush, high stage	0.08	0.1	0.14
3. Main Channels			
a. Clean, straight, full stage, no rifts or deep pools	0.025	0.03	0.033
b. Same as above, but more stones and weeds	0.03	0.035	0.04
c. Clean, winding, some pools and shoals	0.033	0.04	0.045
d. Same as above, but some weeds and stones	0.035	0.045	0.05
e. Same as above, lower stages, more ineffective	0.04	0.048	0.055
f. Same as (d) with more stones	0.045	0.05	0.06
g. Sluggish reaches, weedy, deep pools	0.05	0.07	0.08
h. Very weedy reaches, deep pools, or floodways with heavy stand of timber and underbrush	0.075	0.1	0.15

Channel Type	Manning n Minimum	Manning n Normal	Manning n Maximum
4. Mountain Streams, No Vegetation in Channel, Banks usually Steep, Trees and Brush along Banks Submerged at High Stages			
a. Bottom: gravels, cobbles, and few boulders	0.03	0.04	0.05
b. Bottom: cobbles with large boulders	0.04	0.05	0.07

Source:

(1) ASCE, (1982), Gravity Sanitary Sewer Design and Construction, ASCE Manual of Practice No. 60, New York, NY.

(2) Chow, V.T., (1959), Open Channel Hydraulics, McGraw-Hill, New York, NY.

l) Riprap Sizing:

i. Channel Riprap sizing calculation shall utilize Federal Highway Administration (FHWA) Hydraulic Engineering Circular (HEC) No. 14, Current Edition, Chapter 10 or equivalent standard.

m) Erosion Control:

i. The developer shall provide a copy of their Fugitive Dust Mitigation Plan, Erosion Control Plans, SWPPP, Notice of Intent (NOI), and Notice of Termination (NOT) with the State if their construction project is greater than 1 acre. The SWPPP sign shall be posted on site and visible to adjacent public right-of-way.

2. **Hydrology Requirements:**

a) Rainfall Data:

i. NOAA Atlas 14 shall be used for rainfall in the City of Grantsville (see https://hdsc.nws.noaa.gov/hdsc/pfds_map_cont.html)

b) Design Storms:

i. To reduce post-development storm water runoff, developments must retain and treat the 80th percentile rainfall event. The 80th percentile rainfall event for Grantsville City is 0.50 inches. The Reese method, as shown below, shall be used to calculate the volumetric runoff coefficient used for determining the 80th percentile volume. For developments larger than 10 acres use the SCS Method to determine the 80th percentile volume.

a. Sedimentation basin shall be provided for first flush/80th percentile rainfall events in retention/detention basins and shall be designed to be easily accessed and maintained.

i. Method 1- Reese Method:

1. Comparing the imperviousness of 44 nationwide sites to their respective calculated volumetric runoff coefficient, a simple linear regression equation was created to estimate the volumetric runoff coefficient for small urban catchments. Land uses for these sites were classified as residential, mixed, commercial, industrial, and urban open and nonurban (Schueler, Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs, 1987). Outliers were removed from this dataset by Reese to derive the equation below. Removing outliers from the dataset reduces the impact of erroneous measurements (Reese, 2006). $RV=0.91i-0.0204$

Source: A Guide to Low Impact Development within Utah. Revised August 2020 by Michael Baker International.

ii. Retain/Detain the AEP 1-percent (1%) storm, 24-hour duration event for project site.

iii. Developments may detain the AEP 10-percent (10%) storm event, 24-hour duration if there is a

Storm Drainage

- Level of Service (Continued)

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continuous pathway to the Great Salt Lake.

iv. For West Bank drainage areas, developed drainage may discharge at the following rates if there is a continuous path to the Great Salt Lake:

Table 1: Unit Discharge Requirement for West Bank Watersheds

24-hour Duration Storm Event	Watershed's Peak Unit Discharge (cfs/acre)	All Other Watersheds Peak Unit Discharge (cfs/acre)
10 years	0.003	0.05
100 years	0.01	0.15

Source: Table 17 in Section 5 from the Storm Water Management Study for Baker and Pope Watersheds dated April 2015 by AQUA Engineering.

v. Refer to Table 2 and Figure 1 for a map of West Bank Watersheds.

Table 2: West Bank Sub-basin Number and Name

Subbasin	Subbasin Name
1	South Willow and Coal Pit Canyon
2	North Willow Canyon
3	White Rocks
4	Baker Canyon
5	Pope Canyon
6	West Canyon 1
7	West Canyon 2
8	Dry Canyon
9	Unnamed

Source: Grantsville West Bank Development Stormwater Master Plan Report by Jones & DeMille Engineering

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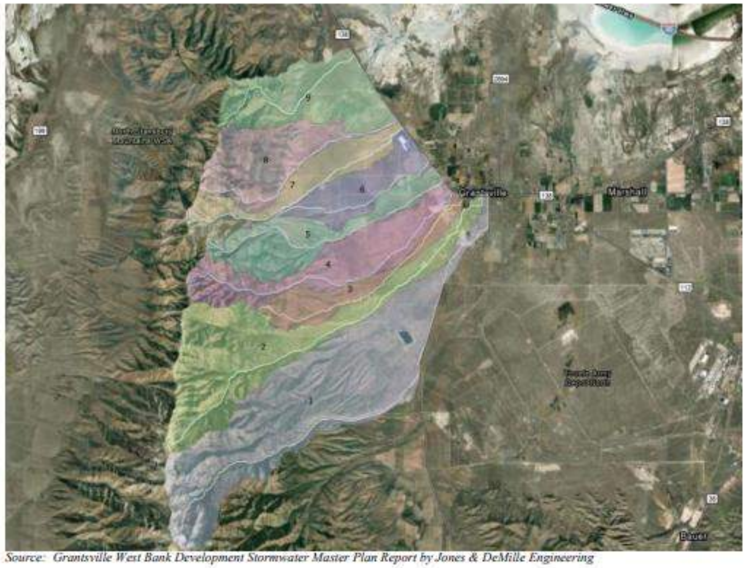
Figure 1: Map of West Bank Watersheds



Source: Grantsville West Bank Development Stormwater Master Plan Report by Jones & DeMille Engineering

vi. The West Bank area consists of alluvial fans which are an accumulation of sediments fanning outwards from a concentrated source of sediments. Alluvial fans are typically formed where flow emerges from a confined channel and is free to spread and infiltrate. Due to these sediments, deposits in an alluvial fan can cause the defined channels to shift courses which is why it is important to construct sedimentation basins at the top of the alluvial fan and reinforce and define channels throughout the fan to discharge safely through existing and proposed development avoiding riverine flooding. Recently the West Bank Area has been identified as an alluvial fan Zone A based on a Base Level Engineering (BLE) analysis. This area is currently being studied by the State in more detail, but the results are currently not available. Channelization through the alluvial fan and sedimentation basins above the alluvial fan are improvements to allow storm water to flow through developments or mitigate alluvial fan hazards. Mitigation measures within the alluvial fan will need to be constructed to remove hazards either regionally or localized. Developers should coordinate with the State and FEMA MT-2 team (LOMR reviewers) along with the City and County to work through development in the alluvial fan.

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3. **Drainage Calculations or Report Requirements:**
   a) If discharge will be above the allowed discharge per area rates shown on Table 1 then a pre and post development hydrologic analysis will be required showing flows will not cause a negative affect downstream. The Rational Method (Q=CiA) may be used in computations for the rate of runoff for urban and small watershed 100 acres or less.
      i. Q = peak rate of runoff, cubic feet per second
      ii. C = runoff coefficient
      iii. i= average rainfall intensity, inches per hour
   b) The SCS method, SCS TR-55 "Urban Hydrology for Small Watershed", HEC-1/HEC-HMS, or other methods shall be used for larger watersheds.
   c) Table 2 shall be used for runoff coefficients unless approved by the City Engineer.

Table 2: Runoff Coefficients

Land Use Type	Runoff Coefficients "C"
Rural	0.25-0.35
Single Family Residential	0.45-0.60
Multi-Residential	0.60-0.70
Neighborhood Commercial	0.85
Community Commercial	0.85
Tourist Commercial	0.85
Office	0.85
Manufacturing	0.85-0.90
Distribution and Warehousing	0.85-0.90
Public Facility	0.50-0.85
Pavement and Concrete Surfaces	0.90-0.95
Park	0.25
Open Space (0-5% grade – vegetated)	0.20-.030
Open Space (0-5% grade – no vegetation)	0.30-0.40
Open Space (5-15% grade – vegetated or unvegetated)	0.40-0.50
Open Space (Over 15% grade – sparsely vegetated, rock or clay soils	0.40-0.60

      i. Weighted values of the runoff coefficient "C" may be required where land use is most accurately described as a mixture of the land uses listed above or where it is a mixture of pervious and impervious areas and not represented by a single entry in Table 2.
   d) Intensity-Duration-Frequency curves for NOAA Atlas 14 shall be used for determining the applicable intensity. (see https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ut)
   e) Definition for Time of Concentration
      i. $t_c = 10$ or $\frac{L}{V \times 60}$ whichever is greater

t_c = initial time of concentration at inlet, minutes
L = Flow line length from uppermost point of watershed to the discharge point, feet
V = channel or overland velocity, feet per second

* Velocity shall be calculated using NRCS Urban Hydrology for Small Watersheds, current edition, or equivalent standards.

Storm Drainage

- Level of Service (Continued)

ii. Given the time of concentration at a design point, the time of concentration at the next design point is determined by adding travel time, expressed as:

iii. $t = \frac{L}{V \times 60}$

t = travel time, minutes
L = length of channel or conduit between design points, feet
V = channel or conduit, feet per second

4. **Submittal Requirements for Drainage Drawings and Report**
   a) **Project Drawings:**
      i. Hydraulic grade line (HGL) profiles, (see sample sheet).
      ii. Location and size of all existing and proposed structures.
      iii. Proposed materials.
      iv. Pertinent elevations and slopes.
      v. Pipe capacity, and the AEP 10-percent (10%) storm, and the AEP 1-percent (1%) storm, 24-hour flows, and velocities.
   b) **Drainage Report or Calculations: (Shown on Drawings)** – The following standards apply to the Drainage Report or Calculations (public and private).
      1. **Title Page:**
         a. Project name.
         b. Preparer's name, firm, date.
         c. Professional engineer's seal of preparer and signature.
      2. **Introduction:**
         a. **Site location:**
            i. Street location, parcel number(s), and section reference.
            ii. Adjacent developments.
         b. **Site Description:**
            i. Topography, ground cover, etc.
            ii. Existing drainage facilities, major drainage facilities, flood hazard areas, irrigation ditches, other site conditions that must be considered.
         c. Proposed project description.
         d. Other previous studies relevant to site.
      3. Historic drainage system (discuss the following):
         a. Major basins and offsite contributions:
            i. Relationship to major drainage facilities.
            ii. Major basin drainage characteristics (topography, runoff, cover, use, erosion, etc.).
         b. Sub-basin and site drainage (i and ii may be tabulated on map):
            i. Minor AEP 10-percent (10%) storm and major AEP 1-percent (1%) storm, 24-hour storm flows for each sub-basin affecting the site.
            ii. Existing drainage patterns: channelized or overland flow, point of discharge, etc.
            iii. Effect of historic flows on adjacent properties.
      4. **Proposed (developed) drainage system:** (discuss each of the following)
         a. **Criteria:**
            i. Size of major basins, tributary sub-basins, and other offsite contributions.
            ii. Hydrologic method to be used for analysis (Rational, SCS, etc.).

iii. Design storm intensities (minor AEP 10-percent (10%) storm, major the AEP 1-percent (1%) storm, 24-hour duration event,) or as required by the City Engineer.

b. **Runoff And Other Contributions:**
   i. Historic storm flow rates and paths.
   ii. Developed storm flow rates and paths for minor and major storms.
   iii. Contributions from open joined system.
   iv. Demonstrate flows are routed to a public system with adequate capacity when/ if available.

c. **Piping:**
   i. Demonstrate the capacity of the storm drain system, including all downstream improvements.
   ii. Verify storm flows and capacity from inlets to ultimate outlets of the drainage system.

d. **Detention/Retention System Including:**
   i. Volume required to hold the AEP 1-percent (1%) storm, 24-hour storm with 1-foot freeboard minimum above the AEP 1-percent (1%) storm, 24-hour event flowing water level through spillway.
   ii. Show the overflow location for volumes over the AEP1-percent (1%) storm, 24-hour duration event when discharging to an approved City release point..
   iii. Passage of storms exceeding the AEP 10-percent (10%) storm up to the AEP 1-percent (1%) storm, 24-hour duration event when discharging to an approved City release point..
   iv. Engineer to provide detailed description of downstream constraints (or none) and design calculations on how to mitigate the problem.
   v. Need for detention/retention shall be clearly identified in the preliminary or schematic report and the necessary detention/retention area shall be identified on preliminary plans.

e. **Streets:** (This information may be shown on the plans.)
   i. Depth and velocity of flow for major and minor storms. Demonstrate a 12-foot clear lane exists for emergency vehicles at all times.
   ii. Drainage system.

f. **Open Channel Flow:** (This information may be shown on the plans.)
   i. Type.
   ii. Depth and velocity.
   iii. Freeboard.
   iv. HEC-RAS analysis when required by the City Engineer.

g. Storm drains and culverts (Show all data on plans.)

5. **Areas within flood hazard zone when applicable:**
   a) Impacts.
   b) Protection.
   c) Compliance with Federal Emergency Management Administration (FEMA) requirements, RMC 18.12 "Flood Hazard Areas", and critical flood zones. Show existing and proposed CLOMR and LOMR information, and show status of submittal and review process.
   d) Provide elevation certificate for occupied structures within current BLE floodway determination. Coordinate with Utah Flood Hazards and Floodplain management for 2-D HEC-RAS model for BFE.
   e) Comply with Grantsville City Code, Chapter 5-3, Flood Damage Prevention Regulations.

6. **Conclusions:**
   a) Benefits.
   b) Adverse effects with solutions for mitigation of impacts.

7. **Appendices:**
   a) **Hydrologic and hydraulic computations:**
      i. List and explain basin assumptions and input factors used.
         1) Tabularized and/or discussed as necessary.
         2) Indicate any sensitivity analysis performed.
         3) Include source tables and references for parameters, such as soil groups, SCS curve numbers, C values, n values, etc.
      ii. **Historic Runoff:**
         1) Off-site.
         2) On-site.
      iii. **Developed Runoff:**
         1) Off-site – Flows that have been concentrated into one area from the project shall not flow higher than the project flow in that area.
         2) On-site.
      iv. Detention for up to the AEP 1-percent (1%) storm, 24-hour duration event when discharging to an approved City release point:
      v. **Hydraulic Computations:**
         1) Hydraulic grade line (HGL) minor storm.
         2) Hydraulic grade line (HGL) major storm.
         3) Inlet/outlet calculations.
      vi. **Rip-rap sizing:**
   b) **Drainage Plan:**
      i. **Site Drainage Plan:**
         1) Show the existing and proposed contours for the property.
         2) The site drainage plan may be at the same scale as the grading plan but must meet legibility requirements for scanned documents. Show all sub-drainage areas per catch basin or channel and tabulate existing and proposed drainage showing length, calculated velocity and time of concentration on various runs of grass, gutters, etc., cumulative time of concentration, average rainfall intensity, area, runoff coefficient (weighted if necessary), and peak flows for the AEP 10-percent (10%) storm and the AEP 1-percent (1%) storm, 24-hour duration event when discharging to an approved City release point.
         3) All inlets and manholes shall be labeled to correspond to tabular numbering system used in drainage report. Pipe sizes, grades, velocities, peak flows and hydraulic grade lines shall be shown for all parts of the system in a tabular form on the plans.
         4) Both location plan (overall drainage) and sub-drainage plan shall be signed and sealed by a Utah Registered Civil Engineer and shall be included in the construction plans for the subdivision/development.
         5) On grading plans show peak flows for the AEP 10-percent (10%) storm and the AEP 10-percent (10%) storm at inlets and other sub-basin points of concentration, at discharge points and in channels. Show peak flows entering and leaving the site; trace path leaving site to nearest major drainage facility without adverse impact to downstream owners.
         6) On plan and profile sheets, show peak flows for the AEP 10-percent (10%) storm and the AEP 1-percent (1%) storm, 24-hour duration event when discharging to an approved City release point at all inlets and in pipes as per above, and in pipes show slope, velocity, and capacity, and hydraulic grade line if surcharged.
         7) If the lot cannot drain the yard to the street, then a basin shall be located in the rear yard to

Storm Drainage

- Level of Service (Continued)

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prevent storm runoff from draining to the neighbors from the back of the property.

ii. Benchmarks – To be shown on plans with benchmarks to match the existing state approved benchmarks.

iii. Existing and proposed property lines.

iv. Existing and proposed drainage easements.

v. Street names, grades, widths and rights-of-way or easements.

vi. Routing and peak flow rate or volume at the upstream and downstream ends of the site and at various critical points on-site for both minor and major runoff. Depth and hydrograph for both storms for all sub basins.

vii. Street cross sections showing the AEP 1-percent (1%) storm, 24-hour duration event when discharging to an approved City release point flood level, no more than one-half way into the outside travel lane for emergency vehicle clear lane.

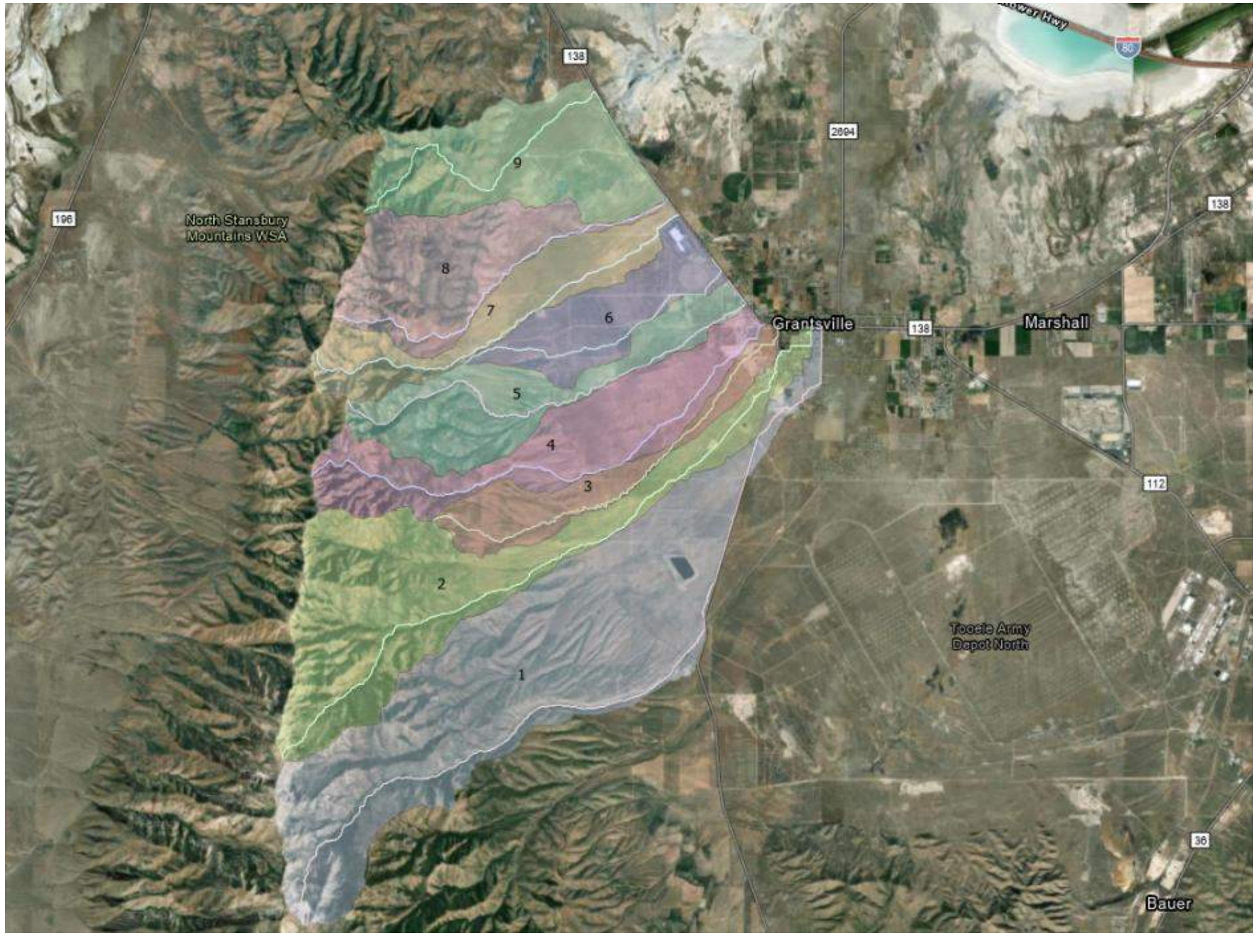
viii. Existing and proposed major drainage facilities.

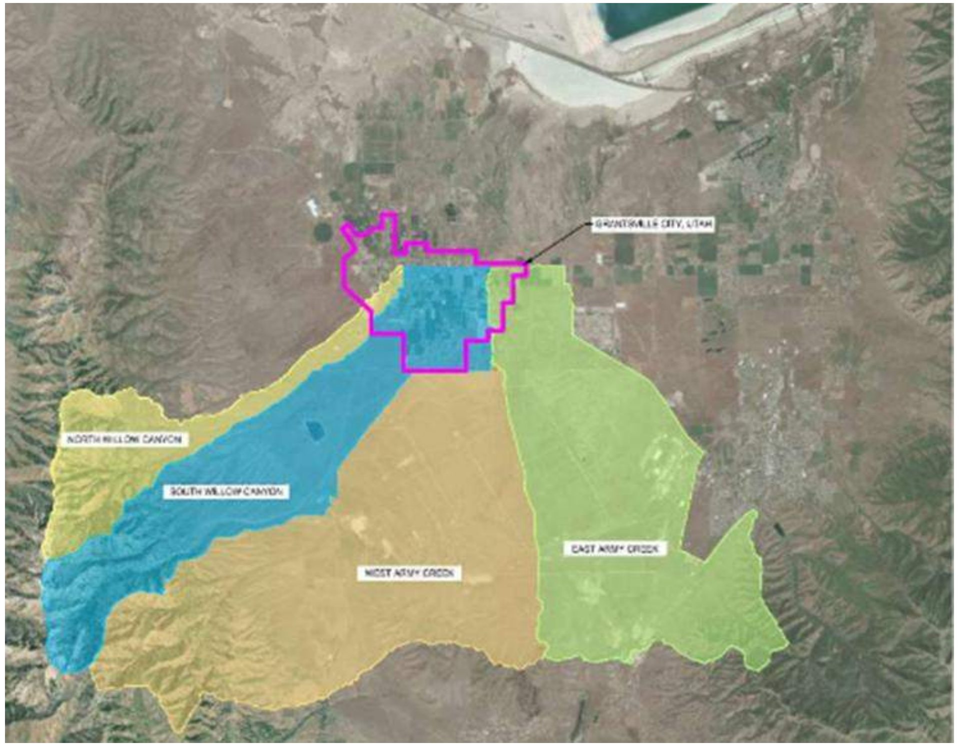
ix. Open channel flow in major channels shall be provided with the following information on plans:

1) Channel and hydraulic grade line (HGL) profiles.
2) Cross sections and required rights-of-way or easements at the AEP 1-percent (1%) storm, 24-hour duration event intervals or changes from the typical section.
3) Location and size of all existing and proposed structures.
4) Channel section and lining details.
5) Freeboard for the AEP 1-percent (1%) storm, 24-hour duration event when discharging to an approved City release point.
6) Channel capacity and storm flows, the AEP 10-percent (10%) storm and the AEP 1-percent (1%) storm, 24-hour duration event when discharging to an approved City release point flows and velocities.

Storm Drainage

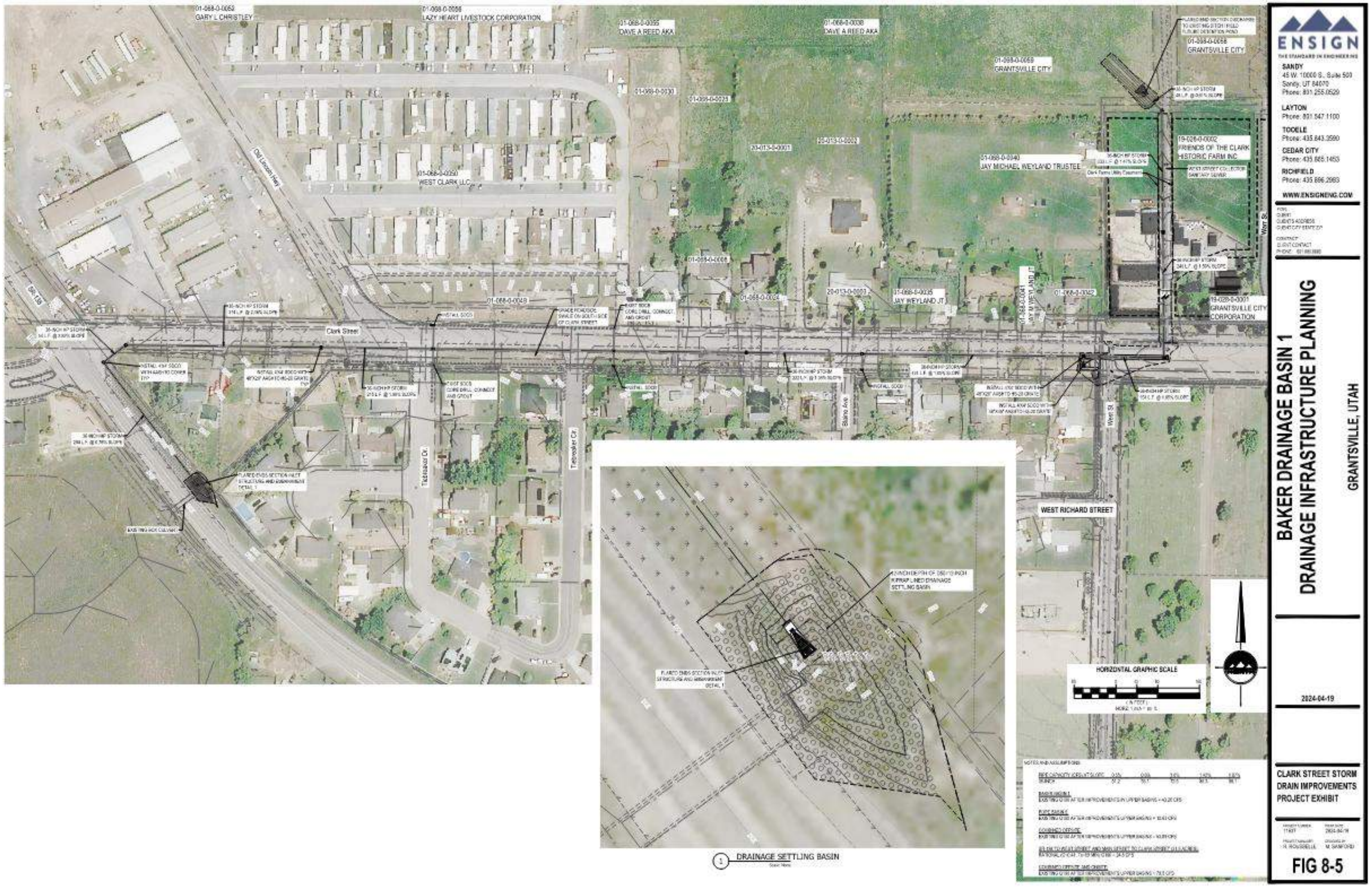
- Existing Storm Drainage Infrastructure





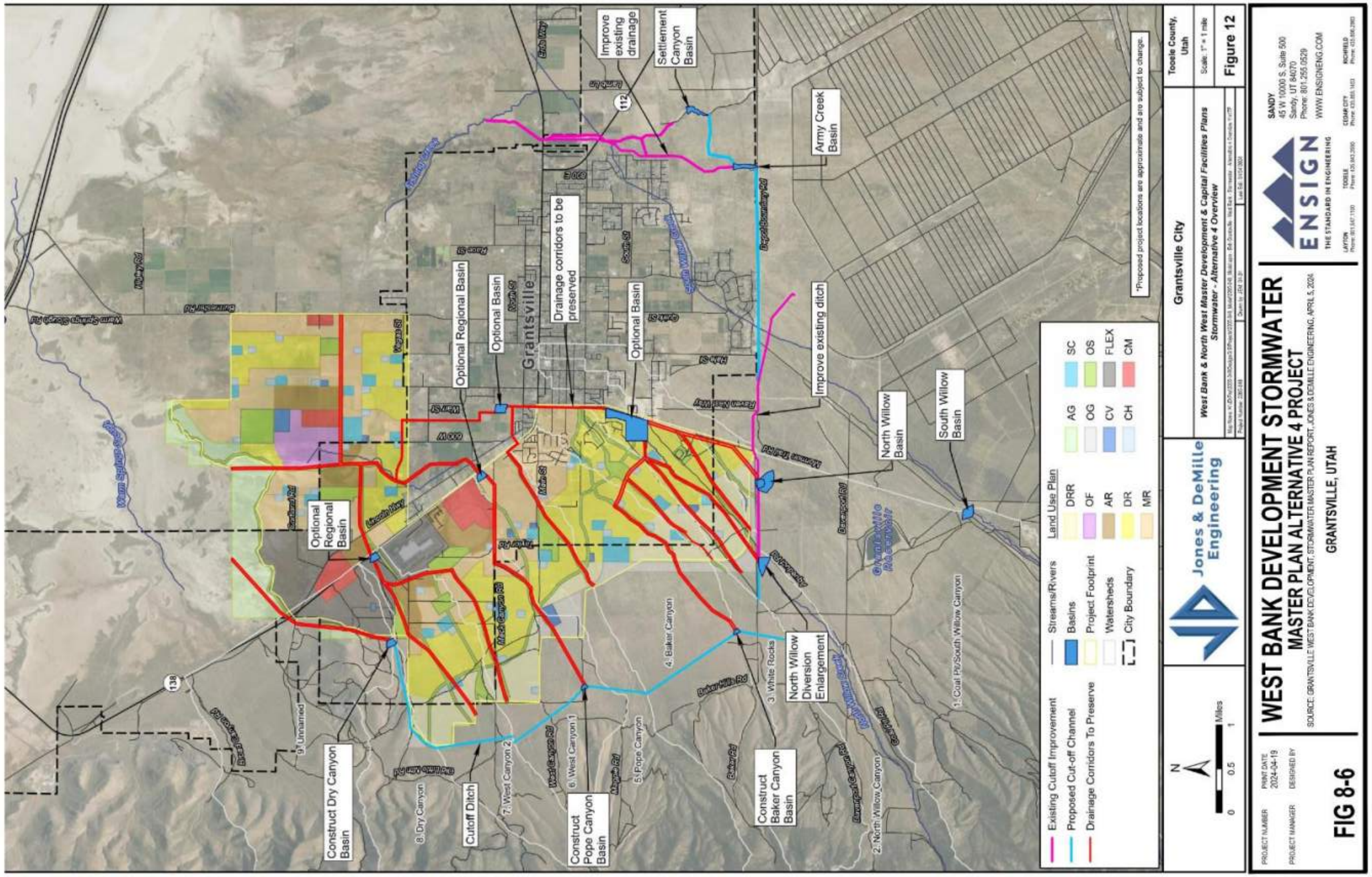
Storm Drainage

- Capital Improvement Projects (Clark Street Storm Drain Improvements Project)



Storm Drainage

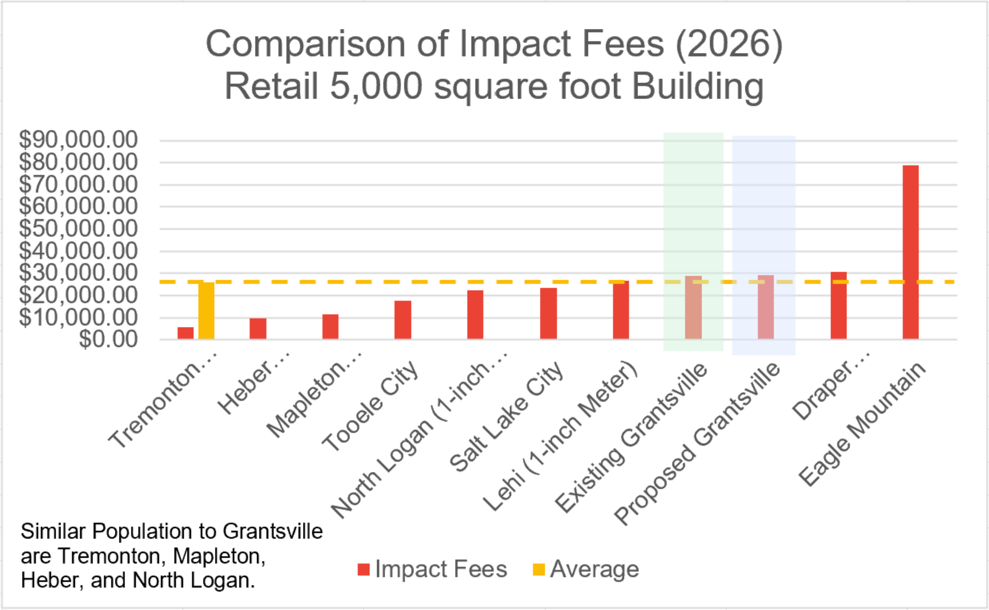
- Capital Improvement Projects (Alternative 4 – West Bank Study)

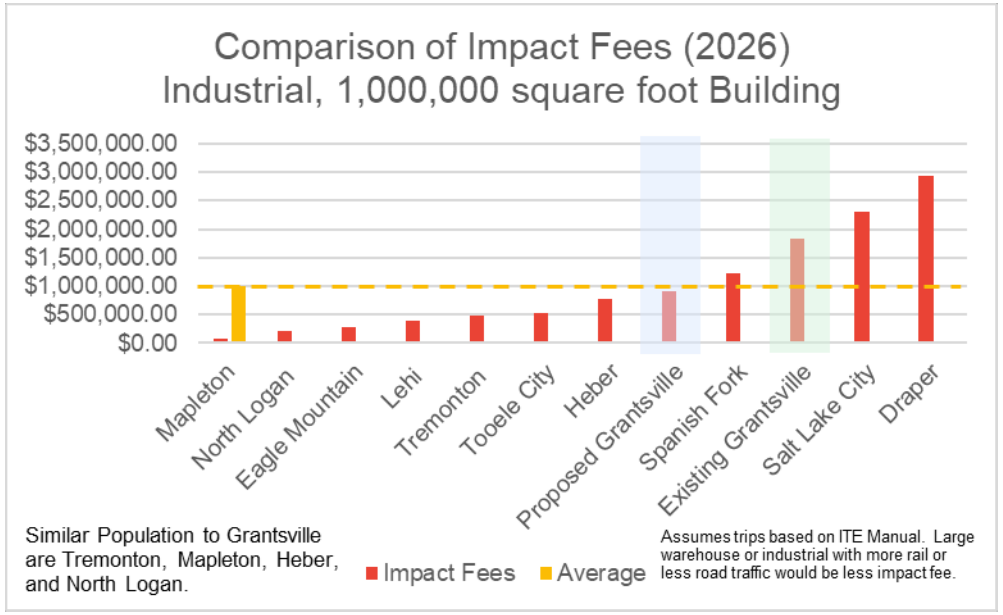


Storm Drainage

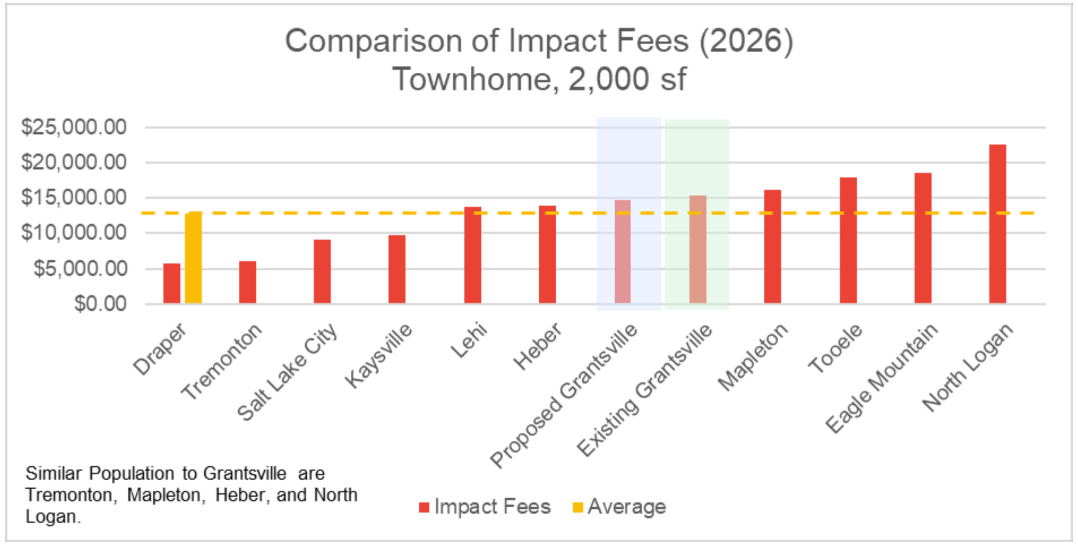
- Impact Fees
  - Not Applicable because Capital Improvement Projects address existing deficiencies.
  - Developers typically also construct improvements necessary to meet the level of service.
  - Does the City want to charge impact fees and storm water user fees in the future for improvements associated with flood plain mapping once updated?

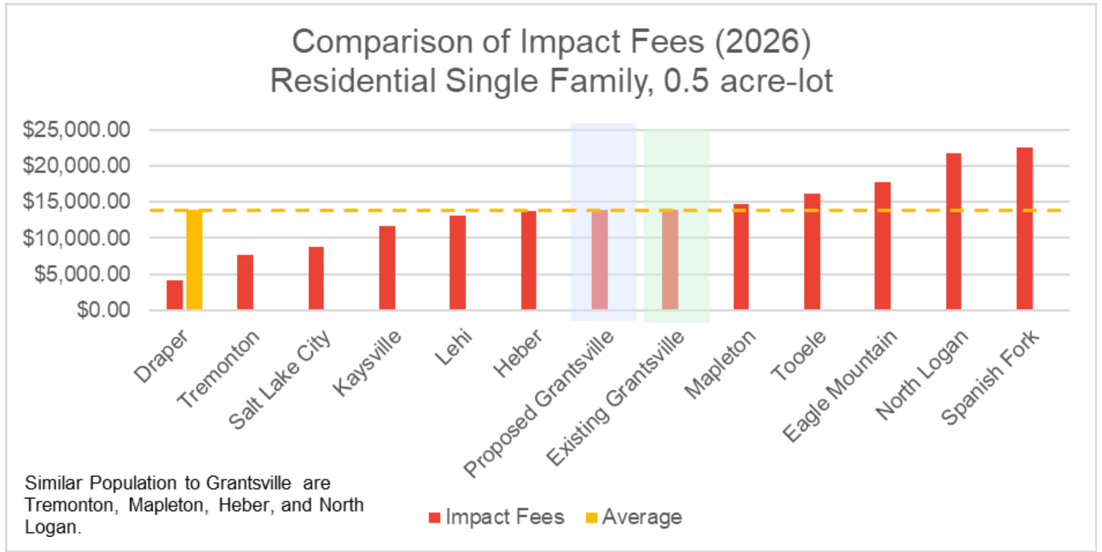
Impact Fee Comparisons





Impact Fee Comparisons





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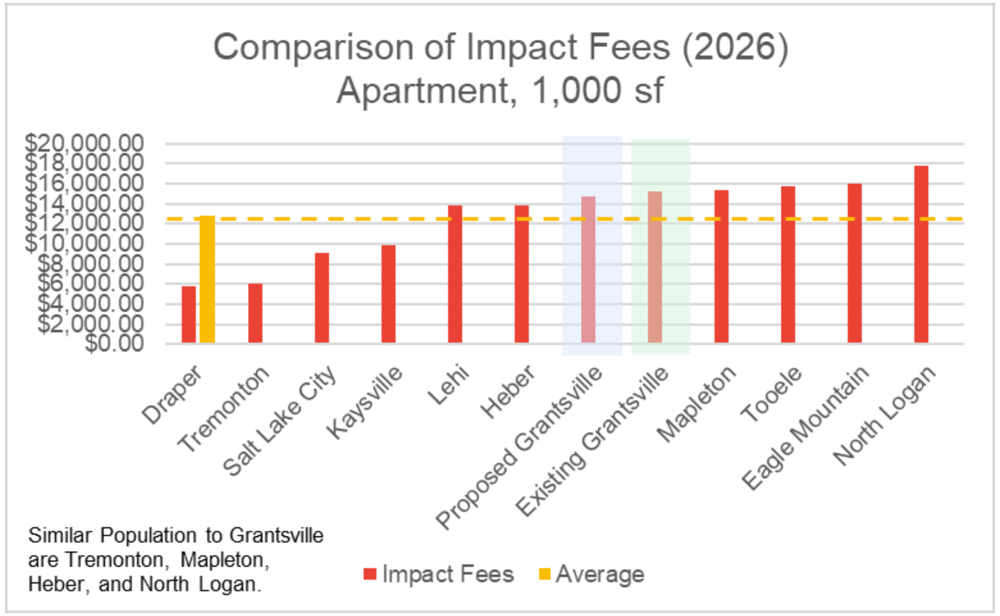

Capital Facilities Plan, Impact Fee Facilities Plan, and Impact Fee Analysis 2026 Amendments

April 2026

Prepared For:
Grantsville City
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Grantsville, Utah 84029

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Acknowledgments

A special thanks to all who contributed to the development of this plan. Its completion was made possible by the effort, support, and collaboration from each person involved. The participation of the following individuals is greatly appreciated.

Grantsville City Council

Mayor Heidi Hammond

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Jason Remick (Fire Chief / Fire Marshal)

Robert Sager (Chief of Police)

Tae-Eun Ko (GIS Analyst / City Planner)

Barry Bunderson (City Engineer)

H.W. Lochner

Brad Lucas

Certification and Declaration of Impact Fee Analysis

In accordance with Utah Code Annotated, 11-36a-306(1) and (2), I, Robert Joseph Rousselle, on behalf of Ensign Engineering and Land Surveying, LLC, certify that I am a Registered Professional Engineer holding Certificate 7885569-2202 in the State of Utah.

I declare, to the best of my knowledge, information, and belief that the Impact Fee Facilities Plan and Impact Fee Analysis included herein include only the costs of public facilities that are:

- Allowed under the Impact Fees Act;
- Actually incurred; or
- Projected to be incurred or encumbered within six (6) years after the day on which each impact fee is paid;
- Does not include costs for operation and maintenance of public facilities;
- Does not include 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;
- Offsets costs with grants or alternate sources of payment;
- Complies in each and every relevant respect with the Impact Fees Act.

I make this certification and declaration with the following conditions:

1. All of the recommendations for implementation of the Capital Facilities Plans (CFP) made in the CFP documents or in the Impact Fee Analysis documents are followed in their entirety by Grantsville City and its elected officials.
2. All information provided to Ensign Engineering and Land Surveying, LLC, its contractors or suppliers is assumed to be correct, complete, and accurate. This includes information provided by Grantsville City and outside sources.

Ensign Engineering and Land Surveying, LLC

Robert Joseph Rousselle
Senior Associate

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Glossary of Technical Terms

80th Percentile Rainfall Event

Storm event in which precipitation is greater than or equal to 80 percent of all storm events averaged over a given period of record.

Average Daily or Day Demand

The average yearly demand volume expressed as a flow rate. Demand is typically used in irrigation or drinking water terminology.

Average Daily or Day Flow

The average yearly flow volume expressed as a flow rate. Term typically used in wastewater terminology.

Average Yearly Demand

Amount of water delivered to consumers by a public water system during a typical year. Demand is typically used in irrigation or drinking water terminology.

Bonds

Fixed-income instrument representing a loan made by an investor to a borrower (typically corporate or governmental). Bonds are used by companies, municipalities, states, and sovereign governments to finance projects and operations.

Build-Out

The maximum number of ERCs or EDUs allowed by the planning jurisdiction in its service area.

Buy-in Costs

Depreciated costs for municipal or service district assets which have excess capacity and can be contributed to existing or future development.

Capital Facilities Plan

A plan to assist a jurisdiction to use its funding wisely and efficiently to maximize funding opportunities. A capital facilities plan will assist in determining needs, prioritizing projects, coordinating related projects, and applying for load, bonds, and grant opportunities.

Collection System

Wastewater system consisting of manholes, gravity pipes, force mains, interceptors, trunk lines, lift stations, and appurtenances.

Collector Line

Sanitary sewer line which receives wastewater flow from lateral sewer lines and conveys flow to a trunk line or an interceptor line.

Cost Estimate

Typically, an Engineer's Estimate of Probably Costs for a project improvement based on recently bid projects and current construction climate. A cost estimate may include design fees, permitting, administrative costs, and contingency.

Curve Number

Empirical parameter used in hydrology for predicting storm water runoff potential for a given drainage area based on land use, soil group, and soil moisture derived by the National Resources Conservation Service (NRCS). Term typically used in storm water terminology.

Debt Service

Money required to cover the payment of interest and principal on a loan or other debt for a particular time period.

Demand

The drinking water flow rate or volume consumed by water system users.

Demographics

Characteristics of human population and population segments.

Detention

Term typically used in storm water terminology to define a storm water storage site which stores and releases storm water at a controlled discharge rate.

Disinfection

A process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents.

Distribution System

Drinking water system's network of pipes, valves, fitting, and appurtenances.

Drinking Water

Water suitable to be ingested by humans. Sometimes referred to as Culinary or Potable Water.

Dwelling Unit(s)

Dwelling Unit (DU) is a structure or the part of a structure used as a home, residence, or sleeping place by one person who maintains a household or by two or more persons who maintain a common household.

Equivalent Residential Connection(s), Dwelling Unit(s) or Residential Unit(s)

An ERC, EDU, or ERU is a unit of measurement used to compare water demand from non-residential connections to residential connections. Water use criteria from source (wells and springs) and metered data are established based on average demand or consumption by residential connections. This is compared with non-residential uses.

Excess Capacity

Excess capacity used for engineering purposes is when the demand is less than capacity. An example of excess capacity is when the water demand (consumption) of drinking water system users is less than the drinking water system supply.

Fixture Unit

A unit of measure expressing the hydraulic loading imposed by any sanitary fixture on the system of pipe work to which it discharges. Fixture units are typically defined in the International Plumbing Code (IPC).

Fire Flow

Available flowrate of water supply for firefighting with a residual pressure of 20 psi. Typically measured as a rate of flow (gpm) for a specific period of time or duration (hours).

Flood Hazard Zone

Flood Hazard Zone is an area identified on a Flood Insurance Rate Map (FIRM) which specifies a Base Flood Elevation (BFE) or flood depth.

Head

Also referred to as Pressure Head is a measurement of water pressure in a hydraulic setting expressed as feet of water. One (1) lbs per square inch (psi) of head equals 2.31 feet.

Head Loss

Measurement of energy dissipated in a fluid system due to friction along the length of a pipe or hydraulic system, and those due to fittings, valves and other system structures.

HEC

Computer software for hydrologic engineering and planning analysis.

HEC-RAS

Computer program which models the hydraulics of water flow through natural rivers and channels.

Hydrology

Scientific study of the properties, distribution, and effects of water on the earth's surface, in the soil and underlying rocks, and in the atmosphere.

Hydrologic Soil Group

Natural Resource Conservative Service (NRCS) classification system in which soils are categorized into four (4) runoff potential groups. This groups consist of soil groups A, B, C, or D.

Indoor Use

Hydraulic loading imposed by any sanitary fixture on the system of pipe work to which it discharges inside a building.

Infiltration

Process by which water enters the soil and recharges streams, lakes, rivers, and underground aquifers. Term typically used in storm water terminology.

Infiltration Rate

Flow rate by which water enters the soil and recharges streams, lakes, rivers, and underground aquifers. Typically, specified in inches per hour. Term typically used in storm water terminology.

Inflation

Rate at which prices for goods and services increases.

Interceptor Lines

Major sanitary sewer line that receives flow from trunk sanitary sewer lines.

Interest

Amount paid to borrow money or the cost charged to lend money. Interest is most often reflected as an annual percentage of the amount of a loan.

Impact Fee

Payment of money imposed upon new development activity as a condition of development approval to mitigate the impact of the new development on public infrastructure.

Impact Fee Analysis

The written analysis of each impact fee required by Utah Code Section 11-36a-303.

Impact Fee Facilities Plan

Plan required by Utah Code Section 11-36a-301.

Impervious

Term typically used in storm water terminology to define an area which is impervious such as asphalt pavement or a concrete sidewalk.

Level of Service

Defined performance standard or unit of demand for each capital component of a public facility within a service area.

LID

Low Impact Development is a storm water management strategy which seeks to mitigate the impacts of increased runoff and storm water pollution by managing runoff as close to its source as possible.

Manning's n

Unitless coefficient which represents the roughness or friction applied to the flow of a conduit or a channel.

Master Plan

Dynamic long-term planning document providing a conceptual layout to guide future growth and development.

Major Head Losses

Major head losses or friction losses is the loss of pressure or "head" in pipe flow due to the effect of the fluid's viscosity near the surface of the pipe or duct.

Minor Head Losses

Minor head losses are local pressure losses or pressure drops of various hydraulic elements such as bends, fittings, valves, elbows, tees or heated channels.

Multi-Unit

Any attached housing units not limited to: town homes, condos, apartments, duplexes, etc..

NOAA ATLAS 14 Precipitation Data

Point precipitation frequency estimates for a specific area in the United States available on NOAA's website.

Non-Residential

A non-residential use such as a warehouse, commercial building, or business.

Occurrence

Term used in storm water terminology to estimate the frequency of a storm water event.

Outdoor Use

Hydraulic loading imposed on the system typically by an irrigation system.

Par

A par rate is the special loan (grant) interest rate that a lender charges for access to a specific loan.

Peak Day Demand

Amount of water utilized by a water supplier on the day of highest consumption, generally expressed in gallons per day (gpd) or millions of gallons per day (MGD). Demand is typically used in irrigation or drinking water terminology.

Peak Day Flow

Amount of wastewater utilized by a wastewater supplier on the day of highest consumption, generally expressed in gallons per day (gpd) or millions of gallons per day (MGD).

Peak Discharge

Maximum rate of flow during a storm event. Term typically used in storm water terminology.

Peaking Factors

Ratio of a peak day or instantaneous flow/demand to the average day or daily flow/demand.

Peak Inflow

Highest inflow of wastewater into a wastewater treatment facility.

Peak Instantaneous Demand

Calculated or estimated highest demand which can be expected through any water main of the distribution network of a water system at any instant in time, generally expressed in gpm or cfs.

Peak Instantaneous Flow

Calculated or estimated highest flowrate which can be expected through any wastewater collection system at any instant in time, generally expressed in gpm or cfs.

Peak Rainfall Depth

The point at which the amount of rain received is at its highest depth.

Percolation Rate

Flow rate by which water enters the soil and recharges streams, lakes, rivers, and underground aquifers. Typically, specified in minutes per inch. Term typically used in storm water terminology.

Pervious

Term typically used in storm water terminology to define an area which is pervious or allows storm water to infiltrate into the soil such as a parking strip or lawn.

Planning Period

The period of time, typically in years, used in a plan. A planning period of 10-years is typically used in Impact Fee Facilities Plans. Master or General Plans may use planning periods from 20 to 50 years.

Pressure Reducing Valve

Valve provided to reduce pressure in a water distribution system. Typically, used to reduce pressure greater than 100 psi to 50 – 65 psi depending on specific distribution system requirements.

Pressure Zone

A pressure zone in a distribution system is established with a minimum and maximum pressure range which is maintained without the use of ancillary control equipment (e.g. booster pumps, pressure reducing valves, etc.). Maximum static pressures in a typical drinking water pressure zone are 100 to 120 psi with minimum static pressures from 50 to 65 psi.

Professional Expenses

Expenses of a professional consultant. An example is engineering design and construction administrative fees from an engineering company.

Proportionate Share

Cost of public facility improvements which are roughly proportionate and reasonably related to the service demands and needs of any development activity.

Retention

Term typically used in storm water terminology to define a storm water storage site which retains storm water without releasing at a controlled discharge rate and instead infiltrates stored storm water into the ground.

Runoff

Precipitation which does not soak or absorb into the soil surface.

Runoff Coefficients

Percentage of precipitation leaving a particular site as runoff.

Safety Factor

Engineering term utilized to describe how much stronger a system or structure is than it is required to be to fulfil its purpose under expected conditions.

SCS Method

Soil Conservation Service (SCS) Method is a hydrologic modeling method for computing the volume of surface runoff for a given rainfall event from small agricultural, forest, and urban watersheds.

Service Area

Geographic area designated by an entity which a facility, or a defined set of facilities, provides service within the area.

Single Family

Residence used by a single private family which serves no other purpose.

Source

Term used in irrigation or drinking water terminology to specify where the supply of water originates. Examples include groundwater wells or springs.

Static Pressure

The pressure exerted by a liquid or gas, especially water or air, on a body at rest.

Storm and Sanitary Analysis

Comprehensive hydrology and hydraulic analysis application which assists in planning and design of storm water and sanitary sewer systems.

Storm Event

Amount of precipitation which occurs during a specific duration and recurrence interval for the location of the storm event. An example is a 100-year storm event during a 24-hour duration.

Surplus Capacity

The amount of surplus or excess capacity a system has available to future development.

SWMM Method

Storm Water Management Model (SWMM) Method is used throughout the world for planning, analysis and design related to storm water runoff, combined and sanitary sewers, and other drainages. SWMM is a Windows-based, open source, desktop program.

Time of Concentration

Time required for water to flow from the most remote point in a watershed to the point of interest within the watershed. It is a function of topography, geology and land use within the watershed and is computed by summing all the travel times for consecutive components of the drainage conveyance system.

Total Dynamic Head

Total Dynamic Head is the total equivalent height that water needs to be pumped or lifted vertically while also factoring in the friction losses of the pipe and minor head losses in valves and fittings.

TR-55

Technical Release 55 (TR-55) presents simplified procedures to calculate storm runoff volume, peak rate of discharge, hydrographs, and storage volumes required for storm water detention or retention.

Transmission Pipeline

For drinking water or irrigation, a transmission pipeline is typically defined as the pipe from a storage reservoir to the distribution system. A transmission pipeline typically does not have any user water connections.

Trunk Line

Sewer line which receives wastewater flow from the collector sanitary sewer lines and conveys this wastewater either to an interceptor line or a wastewater treatment or reclamation facility.

Waterline

A line formed by the surface of the water on a structure.

Water Line

Pipe or conduit which contains and conveys water.

Water Right

The right to use water diverted at a specific location on a water source, and putting it to recognized beneficial uses at set locations.

Water Wise, Waterwise, or Water-Wise

Generally a functional, attractive, and easily maintained landscape in its natural surroundings. A water wise landscape helps conserve water. Note: Local jurisdiction may have specific definition of water wise landscaping.

Abbreviations and Units

ac	acre [area unit of measurement]
ac-ft	acre-foot (1 acre-foot = 325,851 gallons) [volume unit of measurement]
AWWA	American Water Works Association
BFE	Base Flood Elevation
C	Runoff Coefficient
CN	Curve Number(s)
CFP	Capital Facilities Plan
cfs	cubic feet per second [flow rate unit of measurement]
cfs/acre	cubic feet per acre [flow rate per area unit of measurement]
CMP	Corrugated Metal Pipe
d/D	depth to diameter ratio
DIP	Ductile Iron Pipe
DEQ	Department of Environmental Quality
DU	Dwelling Unit(s)
EDU	Equivalent Dwelling Unit(s)
Ensign	Ensign Engineering and Land Surveying
EPA	U.S. Environmental Protection Agency
ERC	Equivalent Residential Connection(s)
ERU	Equivalent Residential Units(s)
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map(s)
ft	foot [length unit of measurement]
ft/s or fps	feet per second [velocity unit of measurement]
FU	Fixture Unit
gal	gallons [volume unit of measurement]
gpd	gallons per day [flow rate unit of measurement]
gpm	gallons per minute [flow rate unit of measurement]
HDPE	High-density Polyethylene [material used for various building materials]
HEC	Hydrologic Engineering Center
HEC-RAS	Hydrologic Engineering Center – River Analysis System
hr	hour [time unit of measurement]
ID	Inside Diameter

IFFP	Impact Fee Facilities Plan
IPC	International Plumbing Code
i	Average Rainfall Intensity (inches per hour)
I&I	Inflow and Infiltration
in.	inch [length unit of measurement]
L	Length (ft)
LID	Low Impact Development
LOS	Level of Service
MG	million gallons [volume unit of measurement]
MGD	millions of gallons per day [flow rate unit of measurement]
mi	mile [length unit of measurement]
min	minute [time unit of measurement]
MP	Master Plan
NOAA	National Oceanic Atmospheric Administration
NOI	Notice of Intent
NOT	Notice of Termination
NRCS	Natural Resources Conservation Service
PF	Peaking Factor
PRV	Pressure Reducing Valve
psi	pounds per square inch [pressure unit of measurement]
PVC	Polyvinyl Chloride [type of plastic pipe]
Q	Flow Rate or Peak Rate of Runoff (cubic feet second)
RCP	Reinforced Concrete Pipe
s	second [time unit of measurement]
SCADA	Supervisory Control And Data Acquisition
SCS	Soil Conservation Service
SF	Safety Factor
SR	State Route
SSA	Storm and Sanitary Analysis
SWMP	Storm Water management Program
SWPPP	Storm Water Pollution Prevention Plan
Tc	Time of Concentration
UAC	Utah Administrative Code
V	Velocity (fs/s or fps)

WSFU	Water Supply Fixture Unit
WW	Wastewater
WWTF	Wastewater Treatment Facility
WWRF	Wastewater Reclamation Facility
yr	year [time unit of measurement]

Executive Summary

The City of Grantsville is amending its Capital Facilities Plan (CFP), Impact Fee Facilities Plan (IFFP), and Impact Fee Analysis (IFA) in order to ensure the current level of service (LOS) provided to citizens meets demands and can be maintained as the City continues to grow. The CFP, IFFP, and IFA contained in this plan update projects identified in the previous Capital Facility Plans, propose new projects, and update impact fees associated with planned development.

First, a demographic analysis of Grantsville City's current population, land-use, development patterns, and development potential was completed. The results of the analysis have been used as a basis for projection of future growth over a 10-year planning period and its distribution throughout the planning area. These future growth projections were used as one of the factors to estimate future utility demands and infrastructure requirements for the community. The existing conditions resulting from this analysis are shown in Table ES 1 and the future growth projections are shown in Table ES 2.

Table ES 1: Existing Demographic Conditions

Service Connection Type	Service Connections	Units	ERC / Unit	ERCs
Single Family	4,609	4,618	1.00	4,618
Multi-Unit	46	290	0.52	151
Trailer	8	208	1.12	233
Commercial	110	155	7.34	1,138
Church	10	11	4.57	50
School	7	12	5.09	61
Construction Water	20	20	6.81	136
City Rate	5	33	10.59	349
Total	**4,815**	**5,347**		**6,736**

Table ES 2: Future Growth Projections

Year:		2025		2026		2027		2028		2029		2030		2031		2032		2033		2034		2035	
Projected Population:		**16,056**		**16,592**		**17,148**		**17,803**		**18,486**		**19,193**		**19,934**		**20,705**		**21,501**		**22,332**		**23,192**	
Residential Growth Rate:		**2.93%**		**3.5%**		**3.5%**		**4.0%**		**4.0%**		**4.0%**		**4.0%**		**4.0%**		**4.0%**		**4.0%**		**4.0%**	
Commercial Growth Rate:		**0.73%**		**0.88%**		**0.88%**		**1.00%**		**1.00%**		**1.00%**		**1.00%**		**1.00%**		**1.00%**		**1.00%**		**1.00%**	
Service Connection Type	**ERC / Unit**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**
Single Family	1.00	4,618	4,618	4,780	4,780	4,947	4,947	5,145	5,145	5,351	5,351	5,565	5,565	5,788	5,788	6,020	6,020	6,261	6,261	6,511	6,511	6,771	6,771
Multi-Unit	0.52	290	151	300	156	311	162	323	168	336	175	349	181	363	189	378	197	393	204	409	213	425	221
Trailer [1]	1.12	208	233	208	233	208	233	208	233	208	233	208	233	208	233	208	233	208	233	208	233	208	233
Commercial	7.34	155	1,138	156	1,145	157	1,152	159	1,167	161	1,182	163	1,196	165	1,211	167	1,226	169	1,240	171	1,255	173	1,270
Church [2]	4.57	11	50	11	50	11	50	12	55	12	55	13	59	13	59	14	64	14	64	15	69	15	69
School [3]	5.09	12	61	12	61	12	61	13	66	13	66	14	71	14	71	15	76	16	81	16	81	17	87
Construction Water	6.81	20	136	21	143	22	150	23	157	24	163	25	170	26	177	27	184	28	191	29	197	30	204
City Rate [4]	10.59	33	349	35	371	36	381	37	392	37	392	39	413	39	413	40	424	41	434	42	445	42	445
Total		**5,347**	**6,736**	**5,523**	**6,939**	**5,704**	**7,136**	**5,920**	**7,383**	**6,142**	**7,617**	**6,376**	**7,888**	**6,616**	**8,141**	**6,869**	**8,424**	**7,130**	**8,708**	**7,401**	**9,004**	**7,681**	**9,300**
Increase from 2025		*-*	*-*	*176*	*203*	*357*	*400*	*573*	*647*	*795*	*881*	*1,029*	*1,152*	*1,269*	*1,405*	*1,522*	*1,688*	*1,783*	*1,972*	*2,054*	*2,268*	*2,334*	*2,564*

[1] Trailer units are not expected to increase.

[2] Church growth rate is 1 church per 1,450 population.

[3] School growth rate is 1 school per 1,330 population.

[4] City Rate growth rate is based on anticipated City projects.

Next, an analysis of the existing facilities for each utility (drinking water, public safety, parks, wastewater, water rights acquisition, storm drainage, and transportation) was completed. A level of service was proposed for each utility which was used to determine the capacity of existing facilities and future projects required to meet the demands of future development. A cost estimate was completed for each proposed project, and proportionate shares were determined based on the proportion of future development expected to be served by the facility within the planning period. The amount of each project which is eligible for impact fees was calculated by multiplying the proportionate share by the estimated project cost (inflated to the proposed construction year). The proposed system improvements for each utility along with the results of these calculations are shown in Table ES 3 through Table ES 6.

Table ES 3: Drinking Water System Improvements

Project	Construction Year	Current Year (2025) Cost Estimate	Construction Year Cost Estimate	Proportionate Share	Impact Fee Eligible Cost
Bates Well	2027	$3,041,918.77	$3,258,579.43	0% [2]	$0.00
West Bank Well	2027	$3,518,067.73	$3,768,642.10	0% [2]	$0.00
Southwest Well	2031	$2,979,952.08	$3,663,121.97	0%	$0.00
Northstar Tank No. 1	2026	$3,387,223.88	$3,505,776.72	0.00%	$0.00
West Bank Tank	2027	$4,898,123.85	$5,246,992.72	0% [2]	$0.00
Southwest Tank	2031	$3,825,690.00	$4,702,749.81	0% [2]	$0.00
Osborne Way Water Line Loop	2026	$76,356.25	$79,028.72	27.6%	$21,788.13
SR-138 Water Line Extension (Developer Portion)	2026	$6,272,971.05	$6,492,525.04	0% [2]	$0.00
Northstar Tank No. 1 Transmission Line	2026	$2,504,135.45	$2,591,780.19	0% [2]	$0.00
SR-138 Water Line Extension	2027	$566,221.70	$606,550.84	27.6%	$167,225.41
Generator	2027	$269,200.00	$288,373.77	27.6%	$79,504.34
SR-112 Water Line Extension	2027	$540,168.75	$578,642.27	0% [2]	$0.00
Southeast Water Line Project	2028	$1,507,959.92	$1,671,902.12	0% [2]	$0.00
Clark Street Water Line Project	2029	$480,299.94	$551,155.23	27.6%	$151,952.90
Burmester and Vegas Street Water Pipeline Project	2031	$973,445.29	$1,196,612.81	27.6%	$329,904.86
Centennial Way Water Line Project	2035	$357,093.75	$503,716.00	27.6%	$138,873.96
Public Works Improvements	2035	$1,318,982.50 [1]	$1,860,555.08	27.6%	$512,953.03
Hale Street Water Line Replacement	2029	$878,172.10	$1,007,722.68	27.6%	$277,828.06
Total		**$37,395,983.01**	**$41,574,427.50**		**$1,680,030.71**

[1] *The cost shown for the Public Works Improvements project is half of the total cost estimate because this project cost will be split evenly between the wastewater and drinking water utilities.*

[2] *The proportionate share is 0% because the project is expected be constructed by developers.*

Table ES 4: Public Safety System Improvements

Project	Construction Year	Current Year (2025) Cost Estimate	Construction Year Cost Estimate	Proportionate Share	Impact Fee Eligible Cost
Animal Control Shelter	2033	$1,567,581.40	$2,064,205.35	14.3%	$295,585.40
Justice Center Police Expansion	2034	$1,246,608.00	$1,698,998.74	34.0%	$578,158.28
Total		**$2,814,189.40**	**$3,763,204.10**		**$873,743.68**

Table ES 5: Parks System Improvements

Project	Construction Year	Current Year (2025) Cost Estimate	Construction Year Cost Estimate	Proportionate Share	Impact Fee Eligible Cost
West Street Park	2026	$297,903.23	$308,329.84	19.7%	$60,752.89
Scenic Slopes Park, Utilities, Pump Track, Site Improvements	2026	$3,170,969.33	$2,420,969.33[2]	100.0%	$2,420,969.33
Desert Edge Park	2027	$2,664,070.11	$2,853,818.50	0% [1]	$0.00
Scenic Slopes Parking, Park Amenities, Ball Courts	2028	$2,447,372.82	$2,713,445.99	100.0%	$2,713,445.99
President's Park	2034	$1,695,904.66	$2,311,343.97	100.0%	$2,311,343.97
Scenic Slopes Park Baseball and Soccer Field	2032	$3,198,537.29	$4,069,432.67	100.0%	$4,069,432.67
Twenty Wells Park	2032	$8,628,500.00	$10,977,861.62	0% [1]	$0.00
Highlands Park	2033	$3,392,678.66	$4,467,509.92	0% [1]	$0.00
Clark Farm Park	2034	$3,405,170.23	$4,640,897.49	0%	$0.00
Total		**$28,901,106.33**	**$34,763,609.34**		**$11,575,944.86**

[1] The proportionate share is 0% because the project is expected be constructed by developers.

[2] Construction Year Cost based on Resolution No. 2025-71 not inflated, without grant of $750k which is not impact fee eligible.

Table ES 6: Wastewater System Improvements

Project	Construction Year	Current Year (2025) Cost Estimate	Construction Year Cost Estimate	Proportionate Share	Impact Fee Eligible Cost
SR112 Interceptor	2027	$2,988,835.56	$3,201,715.37	0% [2]	$0.00
West Bank Interceptor Segment 1	2027	$376,287.40	$403,088.47	8.8% [4]	$35,294.63
West Bank Interceptor Segment 2	2027	$39,832.00	$42,669.03	13.5% [4]	$5,756.82
West Bank Interceptor Segment 3	2027	$3,927,403.66	$4,207,132.99	0% [2]	$0.00
Southeast Sewer Line	2027	$1,564,982.00	$1,676,447.84	0% [2]	$0.00
Vegas Street Collector	2035	$5,790,294.14	$8,167,781.74	0.0%	$0.00
Northwest Lift Station - Upsize Force Main	2028	$194,363.06	$215,493.80	100%	$215,493.80
Proposed Wastewater Treatment Facility	2026	$48,402,175.15 [3]	$48,402,175.15	12.8%	$6,205,158.85
Public Works Improvements	2035	$1,318,982.50 [1]	$1,860,555.08	27.6%	$512,953.03
Total		**$64,603,155.47**	**$68,177,059.48**		**$6,974,657.14**

[1] The cost shown for the Public Works Improvements project is half of the total cost estimate because this project cost will be split evenly between the wastewater and drinking water utilities.

[2] The proportionate share is 0% because the project is expected be constructed by developers.

[3] Proposed WWTF is 2026 cost estimate.

[4] The proportionate share within the planning period for Segment 1 is calculated by dividing planning period ERCs (1,544 ERCs) by upsize capacity [36-inch capacity (26,682 ERCs) - Deseret minimum diameter (9,050 ERCs)]=17,632 ERCs.

The proportionate share within the planning period for Segment 2 is calculated by dividing planning period ERCs (1,544 ERCs) by upsize capacity [36-inch capacity (15,008 ERCs) - Deseret minimum diameter (3,565 ERCs)]=11,443 ERCs. The costs shown for West Bank Interceptor Segment 1 and 2 in the table are upsize costs only.

Impact fees were then calculated considering buy-in costs to be charged for existing facilities with excess capacity, the proposed system improvements, and any loans which are anticipated to fund proposed projects. There is no impact fee charged for storm drainage because the required projects are associated with correcting existing deficiencies, and it is the responsibility of the developers, not the City, to construct facilities required to meet the specified level of service. The impact fee for water rights acquisition is calculated by multiplying the required quantity of water rights shown in Table ES 11 and Table ES 12 by the typical cost of water rights of $29,000 per acre-foot. The proposed impact fees for each utility are shown in Table ES 7 through Table ES 11 with the maximum allowable impact fees for each infrastructure type. Where appropriate, the maximum allowable fee is adjusted to reflect the proportional infrastructure needs of different land use types. In case of excess capacity, new development contributions to existing infrastructure are included to calculate the final recommended impact fee.

Table ES 7: Proposed Drinking Maximum Allowable Water Impact Fees

Water Meter Size (inches)	Maximum Flow Rate (gpm)	ERCs	Impact Fee
3/4	25 [1]	1	$2,841.56
1	40 [1]	1.6	$4,546.49
1 1/2	50 [1]	2	$5,683.11
2	100 [1]	4	$11,366.22
3	200 [2]	8	$22,732.45
4	400 [2]	16	$45,464.89
6	800 [2]	32	$90,929.79
8	1,000 [2]	40	$113,662.24
Non-Residential Development Indoor			$28.97 per fixture unit
Non-Residential Development Outdoor			$17,957.79 per irrigated acre

[1] From AWWA M6 Table 5-3 Displacement Meters.

[2] From AWWA M6 Table 5-3 Electromagnetic and Ultrasonic Meter Type 1.

Table ES 8: Proposed Public Safety Maximum Allowable Impact Fees

Land Use	Impact Fee
Single Family	$712.43 per Dwelling Unit
Multi-Unit	$2,388.62 per Dwelling Unit
Non-Residential	$3,070.10 per Non-Residential Unit

Table ES 9: Proposed Parks Maximum Allowable Impact Fees

Land Use	Impact Fee
Single Family and Multi-Unit	$3,762.18 per Dwelling Unit

Table ES 10: Proposed Wastewater Maximum Allowable Impact Fees

Water Meter Size (inches)	Maximum Flow Rate (gpm)	ERCs	Impact Fee
3/4	25 [1]	1	$6,081.18
1	40 [1]	1.6	$9,729.89
1 1/2	50 [1]	2	$12,162.36
2	100 [1]	4	$24,324.72
3	200 [2]	8	$48,649.44
4	400 [2]	16	$97,298.89
6	800 [2]	32	$194,597.77
8	1,000 [2]	40	$243,247.22
Non-Residential Development			$253.38 per fixture unit

[1] From AWWA M6 Table 5-3 Displacement Meters.

[2] From AWWA M6 Table 5-3 Electromagnetic and Ultrasonic Meter Type 1.

Table ES 11: Indoor Use Water Rights Requirements and Maximum Alllowable Impact Fee

Land Use	Water Right Quantity (ac-ft)	Impact Fee	Unit
Single Family Residential	0.218	$6,322.00	per Dwelling Unit
Multi-Unit Residential	0.120	$3,480.00	per Dwelling Unit
Non-Residential	0.00908	$263.32	per fixture unit

Table ES 12: Outdoor Use Water Rights Requirements

Land Use	Water Right Quantity (ac-ft)
No Waterwise Landscaping	
Category 1	= (lot size[1], acres) * (0.64) * (3.33 ac-ft/irr. ac)
Category 2	= (irrigated area, acres) * (3.33 ac-ft/irr. ac)
Waterwise Landscape Front Yard Only	
Category 1	= (lot size[1], acres) * [(0.18) * (2.28 ac-ft/irr. ac) + (0.46) * (3.33 ac-ft/irr. ac)]
Category 2	= (front yard irrigated area, acres) * (2.28 ac-ft/irr. ac) + (remaining irrigated area, acres) * (3.33 ac-ft/irr. ac)
Waterwise Landscape Entire Lot	
Category 1	Reduction not allowed (use front yard only formula)
Category 2	= (irrigated area, acres) * (2.28 ac-ft/irr. ac)

[1] Lot size capped at 1 acre.

Section 1 Introduction

1.1 Purpose and Scope

Grantsville City is amending its Capital Facilities Plan (CFP), Impact Fee Facilities Plan (IFFP), and Impact Fee Analysis (IFA) to ensure the City's infrastructure will continue to meet the demands of its residents; to plan for improvements needed to meet new demands of future residents; and to collect funding for these projects necessitated by future growth. This plan builds upon information presented in the City's previous CFPs, IFFPs, and IFAs.

1.2 Capital Facilities Plan and Impact Fee Facilities Plan Overview

Capital facilities plans provide a path forward for the City by identifying future capital improvement projects necessary to maintain the current LOS provided by the City to its current and future residents. This capital facilities plan addresses the following:

- Complete a 10-year population and demographic projection within existing City limits by reviewing U.S. Census Data; Utah Division of Drinking Water (UDDW) data; an analysis of recent impact fees paid to the City; Utah State demographic data; and other demographic data sources.
- Identify existing City infrastructure using City records, past and present master plans, and the previous CFP.
- Identify new, proposed, and previously undocumented improvements for each infrastructure and public safety element.
- Calculate existing levels of service (LOS) using specified standards.
- Identify system deficiencies and surpluses.
- Identify present and future demands on the system.
- Identify Capital Improvement Projects (CIP) necessary to remedy deficiencies and meet the demands of new and proposed development.
- Identify and quantify all revenue sources for potential improvements.
- Prioritize and schedule each CIP within the 10-year planning period.
- Solicit and document input from City officials, staff, stakeholders, and affected entities during the CFP process.

Per Impact Fees Act, 11-36a-301, before imposing an impact fee the City shall prepare an impact fee facilities plan to determine the public facilities required to serve development resulting from a new development activity. An impact fee facilities plan shall:

- Identify the existing level of service.
- Establish a proposed level of service.
- Identify any excess capacity to accommodate future growth at the proposed level of service.
- Identify demands placed upon existing public facilities by new development activity at the proposed level of service.
- Identify the means by which the political subdivision or private entity will meet those growth demands.

Impact fees may not be used to directly improve the existing level of service. Existing deficiencies must use funding other than impact fees to be corrected or improved (Impact Fees Act, 11-36a-302).

1.3 Impact Fee Analysis Overview

Per Impact Fees Act, 11-36a-304, an impact fee analysis shall:

- Identify the anticipated impact on or consumption of any existing capacity of a public facility by the development activity.
- Identify system improvements required to maintain the level of service for the anticipated development activity.
- Demonstrate how the anticipated impacts are related to the development activity.
- Estimate the proportionate share of the costs of existing capacity that will be recouped and the cost of system improvements related to the development activity.
- Identify the manner of financing each public facility, and the extent to which development activity will contribute to the financing and cost of existing public facilities and future system improvements.
- Identify the extent to which development activity is entitled to a credit against impact fees, extraordinary costs in servicing the newly developed properties, and the time-price differential of amounts paid at different times.

In calculating an impact fee, a local political subdivision or private entity may include (Impact Fees Act, 11-36a-305):

- The construction contract price.
- The cost of acquiring land, improvements, materials, and fixtures.
- The cost for planning, surveying, and engineering fees for services provided for and directly related to the construction of the system improvements.
- For a political subdivision, debt service charges, if the political subdivision might use impact fees as a revenue stream to pay the principal and interest on bonds, notes, or other obligations issued to finance the costs of the system improvements.
- One or more expenses for overhead.

In addition to preparing an impact fee analysis, a summary of the impact fee analysis shall be prepared so that it can be understood by a layperson (Impact Fees Act, 11-36a-303).

1.4 Impact Fee Requirements

The authority to implement impact fees in Utah was established with the Impact Fee Act, Utah Code – Title 11 – Chapter 36a. The Impact Fees Act grants the City the ability to impose fair impact fees on new development in accordance with requirements set forth in the act to maintain existing levels of service. Impact fees on new development help distribute the cost associated with providing expanded services to a greater population over a larger area to ensure that the existing LOS is not diminished with new and anticipated development. In order to establish an impact fee, the City must complete an Impact Fee Facilities Plan and Impact Fee Analysis which meet the provisions of the Impact Fees Act as discussed in Sections 1.2 and 1.3. Additionally, the City must comply with the Impact Fees Act requirements of enactment, notice, proceeds, and challenges discussed below. Refer to Appendix B for the City's current Impact Fee Ordinance. The details of the Impact Fees Act described in this plan are a summary of the code for reference purposes; the original and complete text of Utah Code 11-36a should be referred to in conjunction with this document.

1.4.1 Prohibitions

The City may not in accordance with Utah Code Section 11-36a-202:

- Impose an impact fee to:
  - Cure deficiencies in a public facility serving existing development.
  - Raise the established level of service of a public facility serving existing development.
  - Recoup more than the local political subdivision's or private entity's costs actually incurred for excess capacity in an existing system improvement.
- Delay the construction of a school or charter school because of a dispute with the school or charter school over impact fees.
- Impose or charge any other fees as a condition of development approval unless those fees are a reasonable charge for the service provided.
- Impose an impact fee on:
  - Residential components of development to pay for a public safety facility that is a fire suppression vehicle.
  - A school district or charter school for a park, recreation facility, open space, or trail.

1.4.2 Enactment

In order to impose impact fees, an impact fee enactment shall be passed in accordance with Section 11-36a-402. The imposed impact fees may not exceed the highest fee justified by the impact fee analysis and may not take effect until 90 days after the impact fee enactment is approved. An impact fee enactment shall contain:

- A provision establishing one or more service areas within which the City calculates and imposes impact fees for various land use categories.
- A schedule of impact fees for each type of development activity that specifies the amount of the impact fee to be imposed for each type of system improvement or the formula that the City will use to calculate each impact fee.
- A provision authorizing the City to adjust the standard impact fee at the time the fee is charged to:
  - Respond to unusual circumstances; or
  - Respond to a request for a prompt and individualized impact fee review for the development activity of the State, a school district, or a charter school and an

offset or credit for a public facility for which an impact fee has been or will be collected; and
    - Ensure that the impact fees are imposed fairly.
- A provision governing the calculation of the amount of the impact fee to be imposed on a particular development that permits adjustment of the amount of the impact fee based upon studies and data submitted by the developer.
- A provision that allows a developer, including a school district or a charter school, to receive a credit against or proportionate reimbursement of an impact fee if the developer:
    - Dedicates land for a system improvement;
    - Builds and dedicates some or all of a system improvement; or
    - Dedicates a public facility that the City and the developer agree will reduce the need for a system improvement.
- A provision that requires a credit against impact fees for any dedication of land for, improvement to, or new construction of, any system improvements provided by the developer if the facilities are system improvements or are dedicated to the public and offset the need for an identified system improvement.

1.4.3 Notice

Before preparing or amending an impact fee facilities plan, a local political subdivision or private entity shall provide written notice in accordance with Section 11-36a Part 5 of its intent to prepare or amend an impact fee facilities plan that shall:

- Indicate that the local political subdivision or private entity intends to prepare or amend an impact fee facilities plan.
- Describe or provide a map of the geographic area where the proposed impact fee facilities will be located.
- Be provided for the geographic area where the proposed impact fee facilities will be located, as a class A notice under Section 63G-30-102, for at least 10 days.

Before adopting or amending the impact fee facilities plan, the City shall:

- Give public notice of the plan or amendment at least 10 days before the day on which the public hearing is scheduled.

- Make a copy of the plan or amendment, together with a summary designed to be understood by a lay person, available to the public.
- Place a copy of the plan or amendment and summary in each public library within the local political subdivision.
- Hold a public hearing to hear public comment on the plan or amendment.

Before preparing or contracting to prepare an impact fee analysis, the City shall provide a public notice, as a class A notice under Section 63G-30-102, for at least 10 days. Before adopting an impact fee enactment, the City shall:

- Comply with the notice requirements of Section 10-9a-205 as if the impact fee enactment were a land use regulation.
- Hold a hearing in accordance with Section 10-9a-502 as if the impact fee enactment were a land use regulation.
- Receive the protections of Section 10-9a-801 as if the impact fee were a land use regulation.
- At least 10 days before the day on which a public hearing is scheduled:
    - Make a copy of the impact fee enactment available to the public.
    - Provide notice of the City's intent to enact or modify the impact fee, specifying the type of impact fee being enacted or modified, as a class A notice under Section 63G-30-102, for at least 10 days.
- Submit a copy of the impact fee analysis and a copy of the summary of the impact fee analysis on its website or to each public library within the local political subdivision.

1.4.4 Proceeds

To collect impact fees in accordance with Section 11-36a Part 6 the City shall:

- Establish a separate interest-bearing ledger account for each type of public facility for which an impact fee is collected.
- Deposit a receipt for an impact fee in the appropriate ledger account.
- Retain the interest earned on each fund or ledger account in the fund or ledger account.
- At the end of each fiscal year, prepare a report that:
    - For each fund or ledger account, shows the source and amount of all money collected, earned, and received by the fund or ledger account during the fiscal year and each expenditure from the fund or ledger account.

- Accounts for all impact fee funds that the local political subdivision has on hand at the end of the fiscal year.
- Identifies the impact fee funds by:
  - The year in which the impact fee funds were received;
  - The project from which the impact fee funds were collected;
  - The project for which the impact fee funds are budgeted; and
  - The projected schedule for expenditure.
- Is:
  - In a format developed by the state auditor;
  - Certified by the local political subdivision's chief financial officer; and
  - Transmitted to the state auditor within 180 days after the day on which the fiscal year ends.

The City may expend impact fees only for a system improvement identified in the impact fee facilities plan and for the specific public facility type for which the fee was collected. The City shall expend or encumber an impact fee collected with respect to a lot for a permissible use and within six years after the impact fee with respect to that lot is collected. The City may hold the fees for longer than six years if it identifies, in writing an extraordinary and compelling reason why the fees should be held longer than six years and an absolute date by which the fees will be expended.

The City shall refund any impact fee paid by a developer, plus interest earned, when the developer does not proceed with the development activity and has filed a written request for a refund, the fee has not been spent or encumbered, and no impact has resulted.

1.4.5 Challenges

In accordance with Utah Code Section 11-36a Part 7.

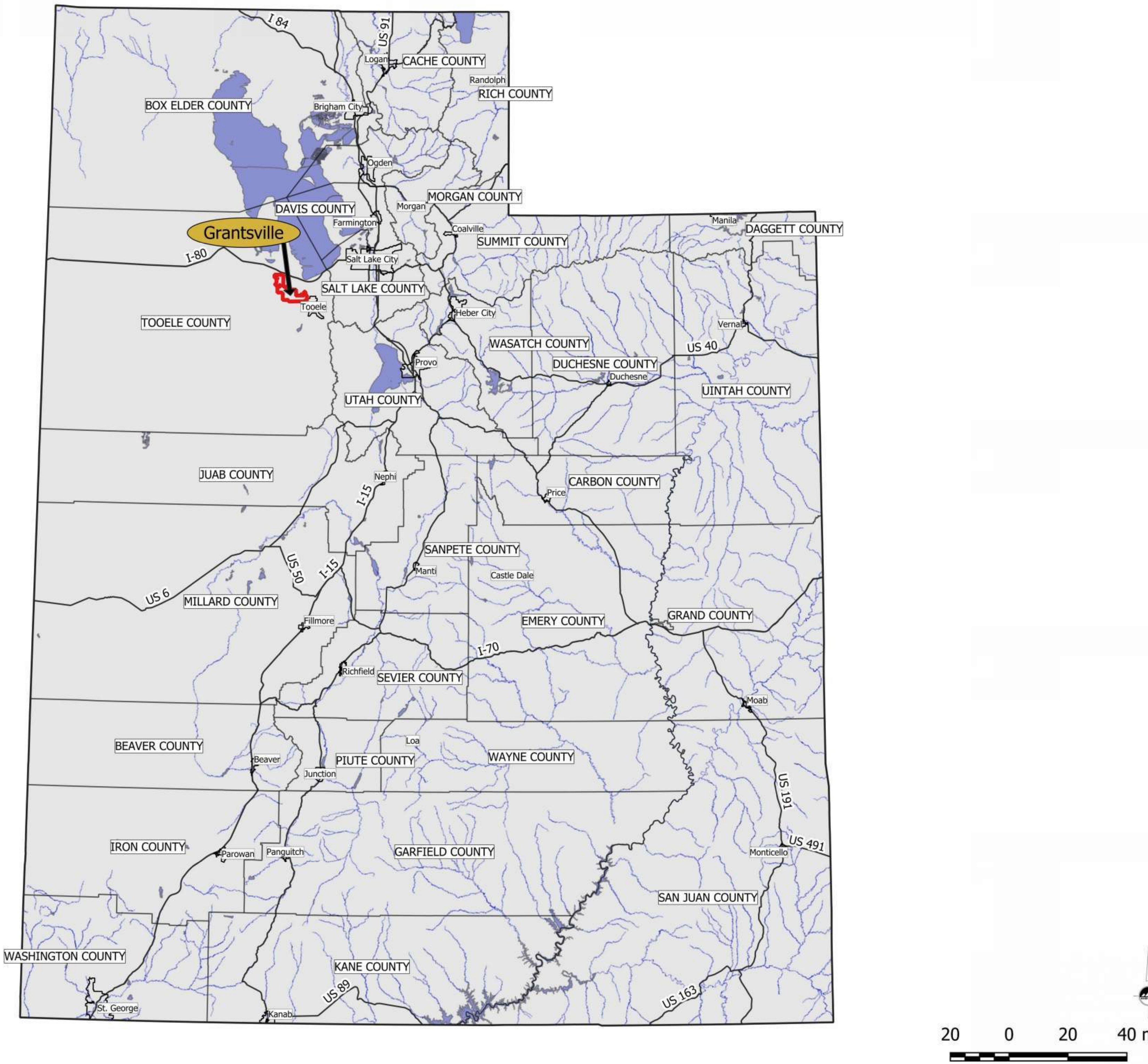
- A person or an entity residing in or owning property within a service area, or an organization, association, or a corporation representing the interests of persons or entities owning property within a service area, has standing to file a declaratory judgment action challenging the validity of an impact fee.
- A person or entity required to pay an impact fee who believes the impact fee does not meet the requirements of law may file a written request for information with the City.

- Within two weeks after the receipt of the request for information, the City shall provide the person or entity with the impact fee analysis, the impact fee facilities plan, and any other relevant information relating to the impact fee.
- A person or entity that has paid an impact fee that the City imposed may challenge whether the City complied with the notice and other procedural requirements of the Impact Fees Act with respect to the imposition of the impact fee.
- If a challenge is successful, the remedy shall be a refund of the difference between what the person or entity paid as an impact fee and the amount the impact fee should have been if it had been correctly calculated.
- If an impact fee that is the subject of an advisory opinion is listed as a cause of action in litigation, the substantially prevailing party on that cause of action may collect reasonable attorney fees and court costs pertaining to the development of that cause of action and shall be refunded an impact fee held to be in violation of the Impact Fees Act, based on the difference between the impact fee paid and what the impact fee should have been if it had been correctly calculated.

1.5 Background

Grantsville City is situated in Tooele County at the northwestern end of the Tooele Valley and at the south end of the Great Salt Lake. The City's location is shown in Figure 1-1 and Figure 1-2. Grantsville is located both in the floor of the valley with western portions of the City entering into the foothills of the Stansbury Mountains to the west. The Tooele Valley is on the eastern end of the basin and range topography of the Great Basin Desert.

Grantsville City, like much of Utah, has experienced rapid growth in the past decade and is projected to continue for the next decade and beyond. This growth is coinciding with a transition period for the City as it grows from a bedroom community supported largely by jobs in the greater Tooele Valley or Salt Lake City metropolitan area, to a City with a sizable commercial presence. From the Wal-Mart distribution center in the northwest corner of the city to the Purple Mattress warehouse and Lakeview Business Center in the Deseret Peak portion of the City, the City is poised for continued growth in these sectors. Recent residential growth in the southern and western portions of the City indicate a growing local population to service these new industries. Additional dwelling units (ADU) are becoming more prevalent as the City grows, and for the sake of this plan shall only be considered impact fee eligible if they are an independent or detached structure. An ADU could be considered a duplex, townhomes, a commercial center with multiple store fronts, or etc. The number of units an ADU can qualify for is determined by the number of independent connections to the system. As the cost of real-estate rises in the Salt Lake Valley and it nears build-out capacity, jobs that Grantsville City residents formerly commuted to could instead be re-located to Grantsville City itself. This growth and associated developments will bring needed improvements and extensions of the City's existing infrastructure to maintain existing levels of service.



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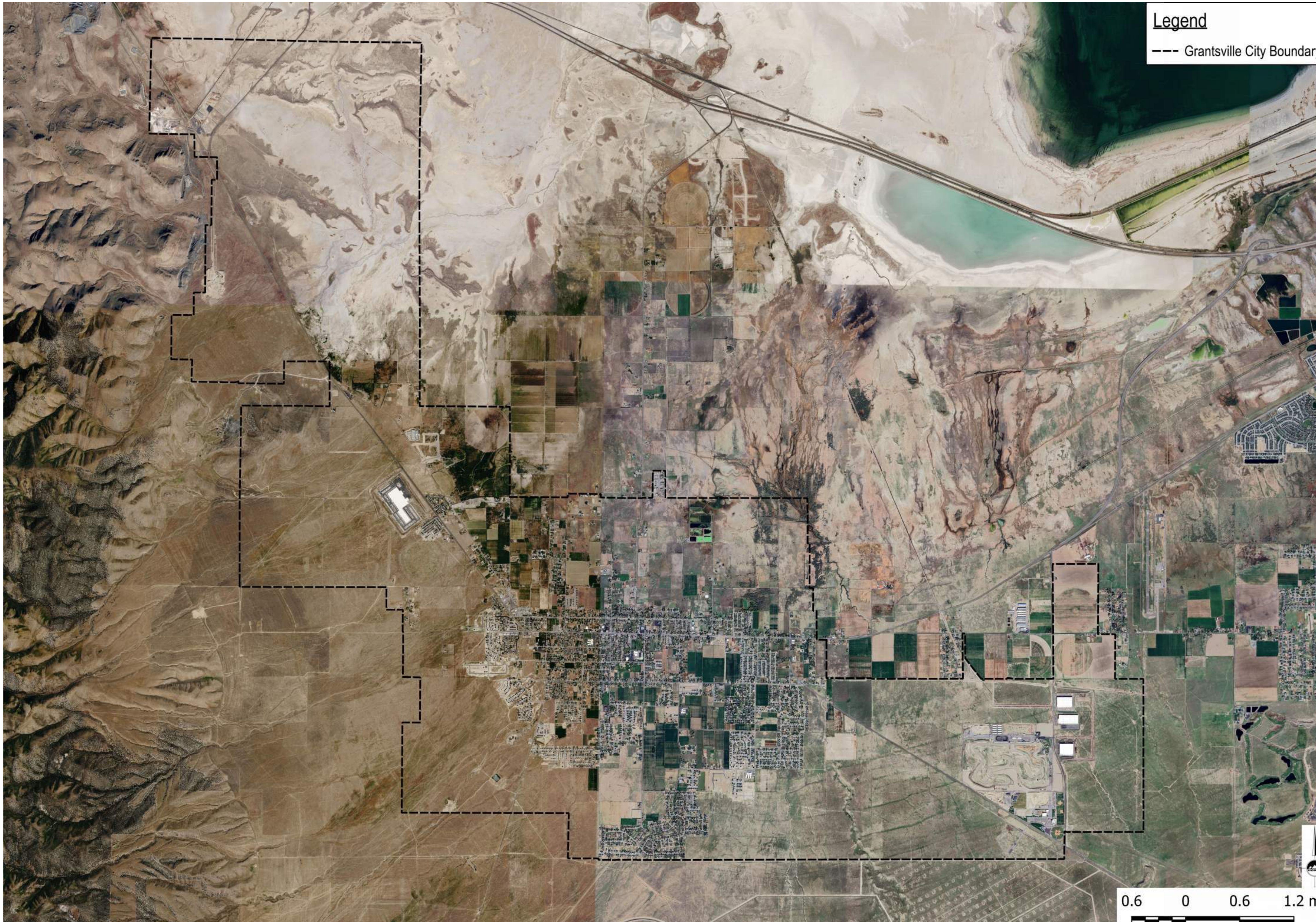
GRANTSVILLE CFP, IFFP, AND IFA

GRANTSVILLE, UTAH

LOCATION MAP

PROJECT NUMBER	PRINT DATE
11637	2026-04-02
PROJECT MANAGER	DESIGNED BY
R. ROUSSELLE	M. SANFORD

FIG 1-1



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GRANTSVILLE CFP, IFFP, AND IFA

GRANTSVILLE, UTAH

CITY AERIAL OVERVIEW

PROJECT NUMBER 11637
PRINT DATE 2026-04-02
PROJECT MANAGER R. ROUSSELLE
DESIGNED BY M. SANFORD

FIG 1-2

1.6 Inflation Rate

Inflation must be accounted for when calculating impact fees, so for the purposes of this CFP, IFFP, and IFA an annual inflation rate of 3.5% is used. It is recognized that the current economic climate is unpredictable and inflation rates vary significantly, but these rates are predicted to stabilize over time so 3.5% is believed to be a reasonably accurate rate. If this predicted rate is not consistent with actual inflation rates over time, then the City should revisit and update any cost-estimates contained in this plan to reflect an accurate inflation rate.

Section 2 Demographics

2.1 Introduction

Grantsville City is transitioning from a small bedroom community supporting the regional economy to a small city experiencing rapid growth. Many residents commute to work in the Salt Lake Valley, while others increasingly work locally providing services for the County and the community. Local work is concentrated in mineral extraction and waste disposal companies located in the West Desert and around the south arm of the Great Salt Lake along with warehousing, distribution, and manufacturing located in the Tooele Valley. Warehousing and distribution jobs increased in recent years with the arrival of a Walmart Distribution Center in the northwest corner of the City and a Purple Mattress warehouse in the southeast. The construction of the Lakeview Business Park, adjacent to the Utah Motorsports Campus in the Deseret Peak area of the City, will result in a substantial increase in warehousing and distribution jobs in the future. It is anticipated that the Flux and West areas of the City will see a significant increase in residential and commercial development. Even with this considerable anticipated growth, the City recognizes the importance in preserving its character and rural community.

A demographic analysis of Grantsville City's current population, land-use, development patterns, and development potential has been completed. The results of the analysis have been used as a basis for projection of future growth and its distribution throughout the planning area. These future growth projections will be used as one of the factors to estimate future utility demands and infrastructure requirements for the community.

2.2 Planning Period

This plan focuses on growth projected in the next 10 years to determine future capital facility needs. The planning period begins at the end of 2025 and finishes at the end of 2035. Anytime a year is stated throughout this plan it is referring to the end of the specified year.

2.3 Planning Areas

In order to identify areas that are showing recent growth trends and more accurately determine needed improvements, the entire planning area has been divided into six distinct planning areas: Flux, North, Central, South, West, and Deseret Peak (see Figure 2-1). Major roads, transitions in existing development density, or changes in land use have been used as boundaries to the extent possible to define these planning areas.

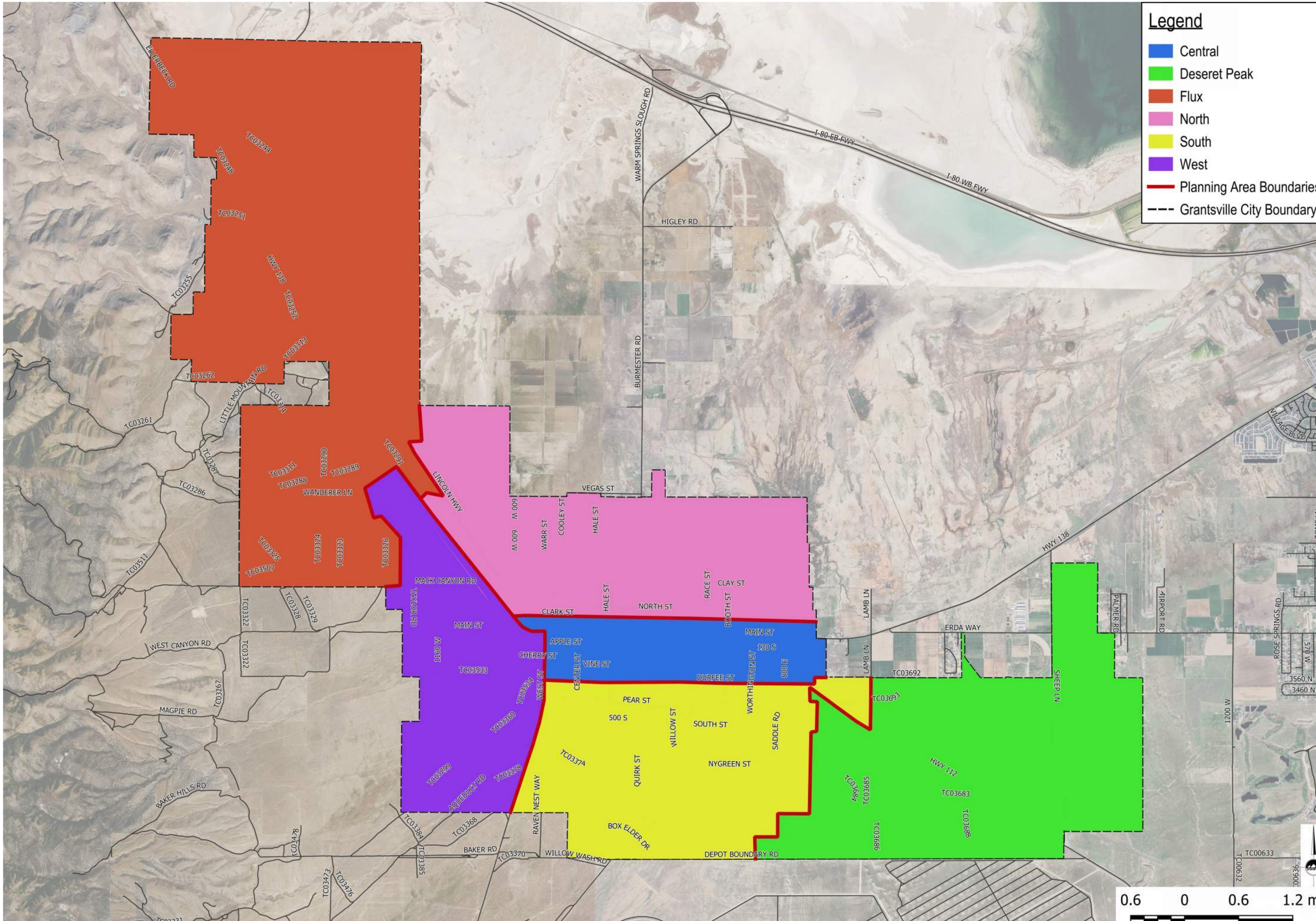
2.4 Land Use and Build Out Capacity

Grantsville City limits encompass approximately 25,522 gross acres. Much of this land is currently undeveloped, particularly in the area northwest of the City along SR 138 (Flux and West areas) and the Deseret Peak area. Future land use areas per the City's current zoning designations are shown in Figure 2-2. The Grantsville City General Plan provides values for maximum allowable densities for each land use type (Table 2-1), and Ensign assumed an actual build-out density for each land use type in order to project future development.

Table 2-1: Land Use Densities

Land Use	Maximum Land Use Density (Units/Acre)	Assumed Density (Units/Acre)
Commercial	-	3
Mixed-Use Density	10 to 15	5
High Single Family Residential	6	3.5
Medium Density Residential	3	1.75
Low Density Residential	2	1
Rural Residential-1	0.1 to 1	0.5
Rural Residential-2	0.1 to 0.2	0.15
Industrial	-	0.25
Municipal / School	-	0.1
Park & Open Space	-	0.01
General Manufacturing	-	0.25

Note: Assumed density was assigned to Park and Open Space to be able to determine future infrastructure improvements.



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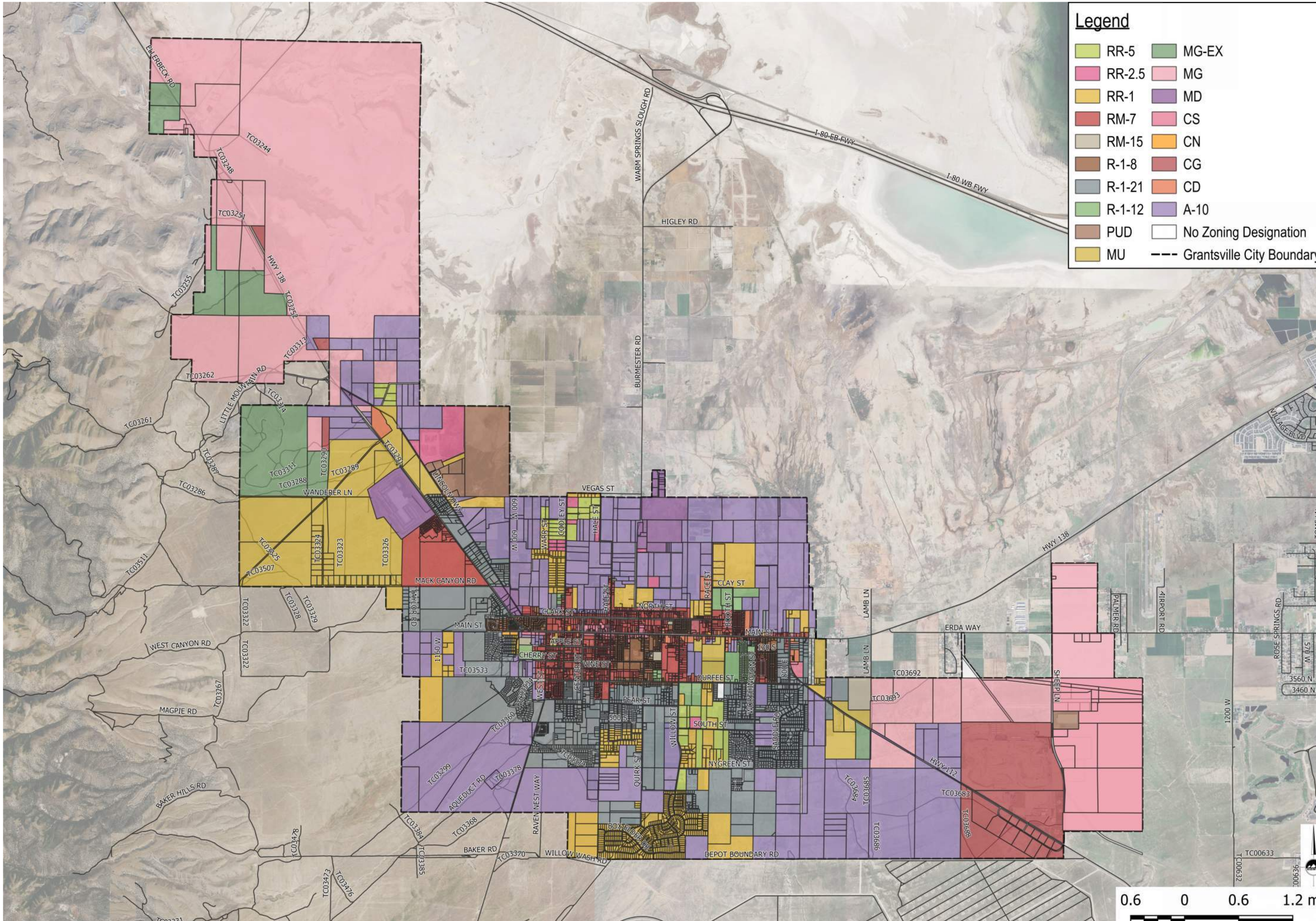
GRANTSVILLE CFP, IFFP, AND IFA

GRANTSVILLE, UTAH

PLANNING AREAS

PROJECT NUMBER	PRINT DATE
11637	2026-04-02
PROJECT MANAGER	DESIGNED BY
R. ROUSSELLE	M. SANFORD

FIG 2-1



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GRANTSVILLE, UTAH

FUTURE LAND USE MAP

PROJECT NUMBER	PRINT DATE
11637	2026-04-02
PROJECT MANAGER	DESIGNED BY
R. ROUSSELLE	M. SANFORD

FIG 2-2

2.5 Planning Conversions

The Equivalent Residential Connection (ERC) is the recognized standard planning unit when planning for future utility infrastructure needs. One ERC represents a single-family dwelling with known demand characteristics or requirements. Other types of uses are typically factored based upon comparison of their demand versus the residential single-family unit. The types of uses for Grantsville City are categorized as shown in Table 2-2. The Construction Water connection type represents water drawn from a hydrant for construction use, and the City Rate connection is water usage from City buildings and parks.

In order to determine the total number of ERCs, it is necessary to convert the number of physical units and metered service connections on the system to ERCs. The existing numbers of units and service connections for Grantsville were determined from the City's monthly water meter reports. The conversion between service connections and ERCs has been calculated (Appendix C) using approved methods as outlined in the State of Utah Administrative Code R309-510, and the results are summarized in Table 2-2.

Table 2-2: Existing Service Connections and ERCs

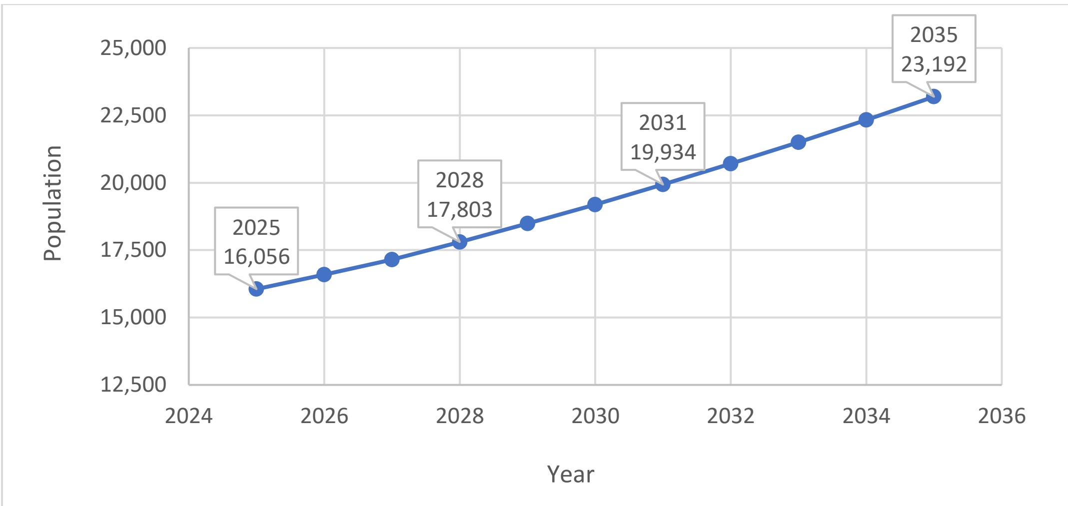
Service Connection Type	Service Connections	Units	ERC / Unit	ERCs
Single Family	4,609	4,618	1.00	4,618
Multi-Unit	46	290	0.52	151
Trailer	8	208	1.12	233
Commercial	110	155	7.34	1,138
Church	10	11	4.57	50
School	7	12	5.09	61
Construction Water	20	20	6.81	136
City Rate	5	33	10.59	349
Total	**4,815**	**5,347**		**6,736**

2.6 Population

The Utah Division of Drinking Water (UDDW) estimated Grantsville's 2018 population to be 10,660. The 2020 Census estimated Grantsville's population to be 12,617 and a Census Bureau estimate completed in 2023 estimated the population to be 15,267. Based on this information and the number of ERCs in the respective years, Ensign determined a ratio of 3.21 persons per residential ERC to estimate the City's population. These residential ERCs include the Single

Family, Multi-Unit, and Trailer service connection types. Based on the number of residential ERCs shown in Table 2-2, the City's estimated current (2026) population is 16,592. The following graph illustrates the projected population growth over the planning period. The method of estimating the future growth is discussed in Section 2.7.

Figure 2-3: 10-Year Population Projection



2.7 Growth Projections

Like much of Utah, Grantsville City experienced steady growth of approximately 1.5% to 2.5% between 2010 and 2014, with a growth rate that has accelerated exponentially since 2015. Looking back at recent history, an article from the Deseret News dated April 26, 1999, had projected that Grantsville's population at the time, 5,800, would increase 72% by the year 2020. The City ended up growing by 121% during this timeframe. Municipalities in Salt Lake Valley have seen this type of exponential growth in the 2000s to keep up with the booming economy. An example of this growth was Draper which grew from a population of 25,220 persons in 2000 to 42,275 persons in 2010 (67.6% growth) according to the U.S. Census Bureau. This high level of growth is expected to continue in Grantsville as a large majority of current development in Salt Lake Valley is higher-density residential infill projects, leaving people looking for affordable single-family homes to venture farther from the Salt Lake Valley into Tooele Valley. Additionally, a significant amount of future development in Grantsville is currently in the planning process. The West Bank and Northwest areas along with the Lakeview Business Park in the Deseret Peak planning area are anticipated to be the largest contributors to the growth of the City in the next 10 years.

Recently, Grantsville has observed annual growth rates of about 4% from 2016-2019 and approximately 3-10% from 2019-2025. Reviewing growth rates for various size cities throughout America, 75 to 80% growth in 10 years is the highest rate observed for a city similar in size to Grantsville. Considering the proposed developments, input from City staff, and the predicted growth in the Salt Lake and Tooele Valley and surrounding cities, a growth rate shown in Table 2-3 is anticipated in the next 10 years. Due to the significant change of growth rates seen in recent years along with an unstable economic climate and varying construction pricing and supplies available, the actual City growth may differ from these estimated projections. Therefore, the City should revisit the demographic projections of this plan on a yearly basis and compare them with the actual growth rates occurring in the City. If the actual growth differs significantly from the projections, then the demographic projections need to be amended, and this CFP/IFFP/IFA in its entirety needs to be amended, as the results contained throughout this plan are based on the assumption that the demographic projections accurately represent future conditions of the City.

The yearly unit and ERC projections over the planning period for each connection type are shown in Table 2-3. The annual growth rate was applied to Single-Family, Multi-Unit, Commercial, and Construction Water connection types to project the number of future units and thus ERCs. New trailer units are not expected to be constructed in Grantsville, so the future number of trailer units and ERCs are shown to remain unchanged. Future Church and School units were projected by maintaining a set unit density relative to the City's population, which were determined by the existing conditions in 2025. At this time, there was one church per 1,460 residents and one school per 1,340 residents. Lastly, the City Rate growth was estimated based on anticipated City projects and their predicted construction years.

2.8 Distribution of Growth

Uncertainties arise in predicting growth in a City due to different factors that can influence when and where it may occur. An analysis of past impact fee locations can provide an indication as to where growth is likely to continue. This, coupled with longer historic growth patterns, proximity to existing infrastructure, and input from the City can allow for a reasonable projection of growth. Considering each of these factors, the percentages of growth expected to occur in each planning area were determined and used to project units and ERCs per area for the planning period, shown in Table 2-4.

Table 2-3: Projected Units and ERCs

Year:		2025		2026		2027		2028		2029		2030		2031		2032		2033		2034		2035	
Projected Population:		**16,056**		**16,592**		**17,148**		**17,803**		**18,486**		**19,193**		**19,934**		**20,705**		**21,501**		**22,332**		**23,192**	
Residential Growth Rate:		**2.93%**		**3.5%**		**3.5%**		**4.0%**		**4.0%**		**4.0%**		**4.0%**		**4.0%**		**4.0%**		**4.0%**		**4.0%**	
Commercial Growth Rate:		**0.73%**		**0.88%**		**0.88%**		**1.00%**		**1.00%**		**1.00%**		**1.00%**		**1.00%**		**1.00%**		**1.00%**		**1.00%**	
Service Connection Type	**ERC / Unit**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**
Single Family	1.00	4,618	4,618	4,780	4,780	4,947	4,947	5,145	5,145	5,351	5,351	5,565	5,565	5,788	5,788	6,020	6,020	6,261	6,261	6,511	6,511	6,771	6,771
Multi-Unit	0.52	290	151	300	156	311	162	323	168	336	175	349	181	363	189	378	197	393	204	409	213	425	221
Trailer [1]	1.12	208	233	208	233	208	233	208	233	208	233	208	233	208	233	208	233	208	233	208	233	208	233
Commercial	7.34	155	1,138	156	1,145	157	1,152	159	1,167	161	1,182	163	1,196	165	1,211	167	1,226	169	1,240	171	1,255	173	1,270
Church [2]	4.57	11	50	11	50	11	50	12	55	12	55	13	59	13	59	14	64	14	64	15	69	15	69
School [3]	5.09	12	61	12	61	12	61	13	66	13	66	14	71	14	71	15	76	16	81	16	81	17	87
Construction Water	6.81	20	136	21	143	22	150	23	157	24	163	25	170	26	177	27	184	28	191	29	197	30	204
City Rate [4]	10.59	33	349	35	371	36	381	37	392	37	392	39	413	39	413	40	424	41	434	42	445	42	445
Total		**5,347**	**6,736**	**5,523**	**6,939**	**5,704**	**7,136**	**5,920**	**7,383**	**6,142**	**7,617**	**6,376**	**7,888**	**6,616**	**8,141**	**6,869**	**8,424**	**7,130**	**8,708**	**7,401**	**9,004**	**7,681**	**9,300**
Increase from 2025		*-*	*-*	*176*	*203*	*357*	*400*	*573*	*647*	*795*	*881*	*1,029*	*1,152*	*1,269*	*1,405*	*1,522*	*1,688*	*1,783*	*1,972*	*2,054*	*2,268*	*2,334*	*2,564*

[1.1] Trailer units are not expected to increase.

[2] Church growth rate is 1 church per 1,460 population.

[3] School growth rate is 1 school per 1,340 population.

[4] City Rate growth rate is based on anticipated City projects.

Table 2-4: Distribution of Projected Units and ERCs

Year:		2025		2026		2027		2028		2029		2030		2031		2032		2033		2034		2035	
Projected Population:		**16,056**		**16,592**		**17,148**		**17,803**		**18,486**		**19,193**		**19,934**		**20,705**		**21,501**		**22,332**		**23,192**	
Residential Growth Rate		**2.93%**		**3.5%**		**3.5%**		**4.0%**		**4.0%**		**4.0%**		**4.0%**		**4.0%**		**4.0%**		**4.0%**		**4.0%**	
Commercial Growth Rate:		**0.73%**		**0.88%**		**0.88%**		**1.00%**		**1.00%**		**1.00%**		**1.00%**		**1.00%**		**1.00%**		**1.00%**		**1.00%**	
Area	**Percentage of Growth**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**	**Units**	**ERCs**
Central	8.10%	2,245	2,806	2,259	2,822	2,274	2,838	2,291	2,858	2,309	2,877	2,328	2,899	2,347	2,919	2,368	2,942	2,389	2,965	2,411	2,989	2,434	3,013
Increase from 2025		-	-	*14*	*16*	*29*	*32*	*46*	*52*	*64*	*71*	*83*	*93*	*103*	*114*	*123*	*137*	*144*	*160*	*166*	*184*	*189*	*208*
Deseret Peak	16.02%	148	355	176	387	205	419	240	459	275	496	313	539	351	580	392	625	434	671	477	718	522	766
Increase from 2025		-	-	*28*	*33*	*57*	*64*	*92*	*104*	*127*	*141*	*165*	*185*	*203*	*225*	*244*	*270*	*286*	*316*	*329*	*363*	*374*	*411*
Flux	39.80%	314	409	384	490	456	568	542	666	631	760	724	867	819	968	920	1,081	1,024	1,194	1,132	1,312	1,243	1,429
Increase from 2025		-	-	*70*	*81*	*142*	*159*	*228*	*258*	*316*	*351*	*410*	*458*	*505*	*559*	*606*	*672*	*710*	*785*	*817*	*903*	*929*	*1,020*
North	2.38%	582	908	586	913	591	918	596	924	601	929	607	936	612	942	618	948	625	955	631	962	638	969
Increase from 2025		-	-	*4*	*5*	*8*	*10*	*14*	*15*	*19*	*21*	*24*	*27*	*30*	*33*	*36*	*40*	*42*	*47*	*49*	*54*	*56*	*61*
South	10.26%	1,659	1,837	1,677	1,858	1,696	1,878	1,718	1,903	1,741	1,927	1,765	1,955	1,789	1,981	1,815	2,010	1,842	2,039	1,870	2,070	1,899	2,100
Increase from 2025		-	-	*18*	*21*	*37*	*41*	*59*	*66*	*82*	*90*	*106*	*118*	*130*	*144*	*156*	*173*	*183*	*202*	*211*	*233*	*239*	*263*
West	23.44%	399	421	440	469	482	515	533	573	585	628	640	691	696	751	755	817	817	884	880	953	946	1,022
Increase from 2025		-	-	*41*	*48*	*84*	*94*	*134*	*152*	*186*	*207*	*241*	*270*	*297*	*329*	*357*	*396*	*418*	*462*	*481*	*532*	*547*	*601*
Total		**5,347**	**6,736**	**5,523**	**6,939**	**5,704**	**7,136**	**5,920**	**7,383**	**6,142**	**7,617**	**6,376**	**7,888**	**6,616**	**8,141**	**6,869**	**8,424**	**7,130**	**8,708**	**7,401**	**9,004**	**7,681**	**9,300**
Increase from 2025		-	-	*176*	*203*	*357*	*400*	*573*	*647*	*795*	*881*	*1,029*	*1,152*	*1,269*	*1,405*	*1,522*	*1,688*	*1,783*	*1,972*	*2,054*	*2,268*	*2,334*	*2,564*

Section 3 Drinking Water

3.1 Capital Facilities Plan and Impact Fee Facilities Plan

3.1.1 Inventory of Existing Facilities

Grantsville City's drinking water system consists of water sources (Table 3-1), storage tanks (Table 3-2), booster pump stations (Table 3-3), and a distribution system (Figure 3-1). The water system provides drinking water (indoor use), irrigation water (outdoor use), and fire suppression for the City. The City's system supplies irrigation water for approximately 2/3 of the City, and the Grantsville Irrigation Company supplies the remaining 1/3 of the City.

Table 3-1: Existing Sources

Source	Type/ Equipment	Casing, (inches) / Depth (feet)	Pump Setting (feet)	Equipped Capacity (gpm)	Well Completion Date	Cost [2]
Cherry Street (Park) Well	Well / 150 Hp Vertical Turbine Pump and Motor	12 / 480	150	1,030	1975	$9,618.00 [3]
South Willow Well	Well / 100 Hp Sub. Pump and Motor	16 / 395	254	620	May 15, 1998	$2,600.00 [3]
Hunsaker Well	Well / 125 Hp Sub. Pump and Motor	16 / 650	470	350 [1]	October 20, 2004	$265,003.92 [4]
South Well	Well / 100 Hp Hollow Shaft Pump and Motor	16 / 520	420	750	December 22, 1995	$197,555.36 [3]
North Well	Well / 150 Hp Sub. Pump and Motor	16 / 550	510	1,200	February 20, 2019	$1,499,501.65
Marshall Well	Well / 450 Hp Vertical Turbine Pump and Motor	16 / 610	410	2,500	2024	N/A [5]
Total				**6,450**		**$1,974,278.93**

[1] The Hunsaker Well is equipped and able to pump at 500 gpm however, the drawdown in the well limits pumping to approximately 350 gpm.
[2] The costs shown are historical costs which may include initial construction, acquiring land, improvements, planning, and engineering.
[3] The City does not have records of the original construction costs, but recorded costs of improvements made to the wells are included.
[4] The Hunsaker Well original construction cost was excluded because Tooele County constructed the well at its own cost. The cost of improvements paid for by the City are included.
[5] The Marshall Well cost was excluded because it was paid for by the Redevelopment Agency (RDA).

The City's existing storage tanks along with historic construction costs are listed in Table 3-2.

Table 3-2: Existing Storage Tanks

Tank	Diameter / Dimensions (feet)	Depth (feet)	Primary Supply Source(s)	Equipped Capacity (Million Gallons)	Cost [1]
North Tank (Rect.)	49.5 x 50.5	12.5	North Well and Cherry Street Well	0.225	N/A
North Tank (Circ.)	80	14	North Well and Cherry Street Well	0.5	N/A
South Tank	94	21	South Well	1.0	N/A
South Willow Tank	83	25.5	South Willow Well, Hunsaker Well, and Marshall Well	1.0	$12,308.53 [2]
Lakeview Business Park Tank	92	26	South Willow Well and Marshall Well	1.2	$1,746,515.04
Total				**3.925**	**$1,758,823.57**

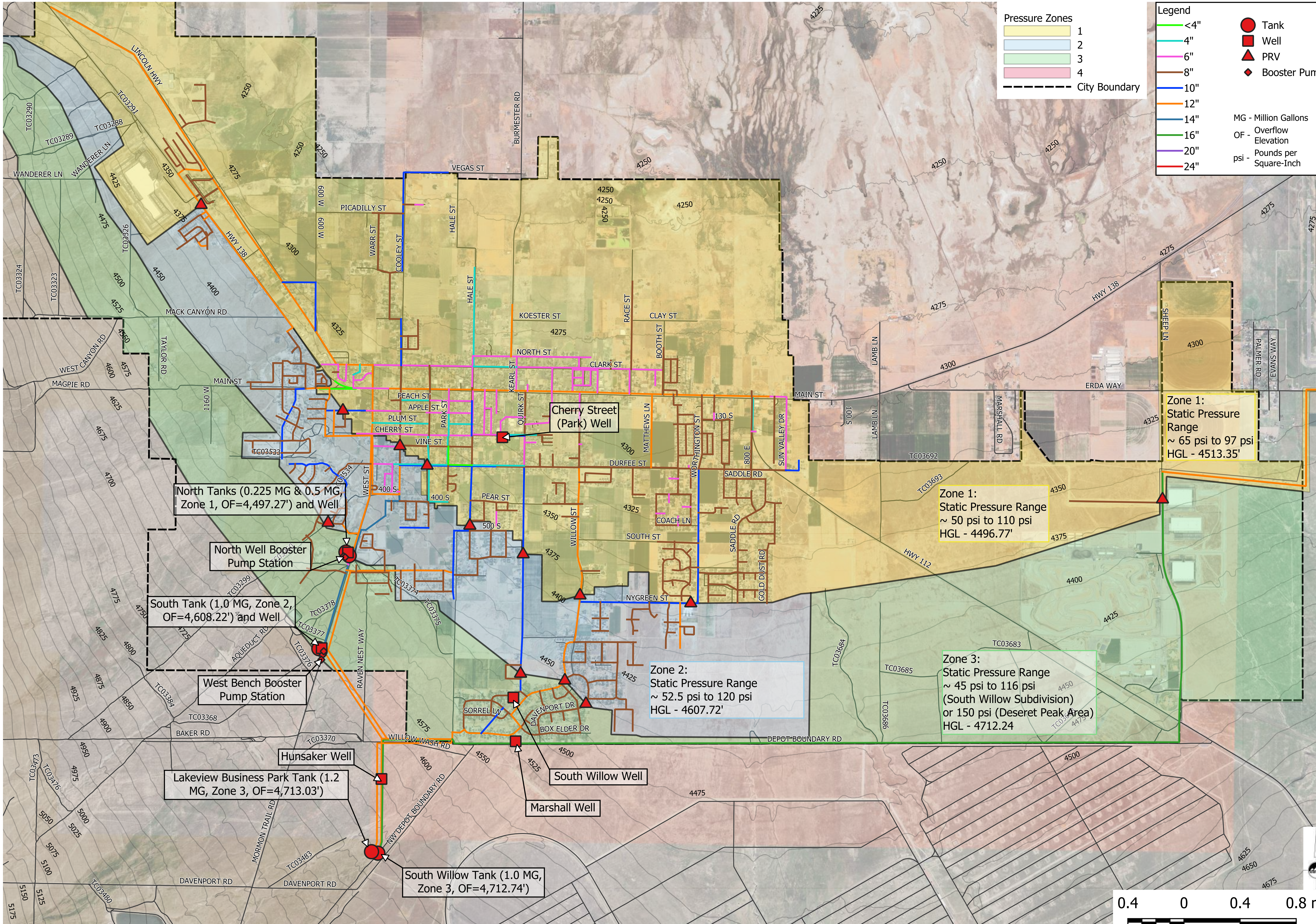
[1] The costs shown are historical costs which may include initial construction, acquiring land, improvements, planning, and engineering.
[2] The City does not have records of the original construction cost, but recorded costs of improvements made to the tank are included.

Grantsville's existing distribution system is shown in Figure 3-1. The City's booster pump stations are listed in Table 3-3. The total recorded historic cost for the distribution system is $18,410,022.79.

Table 3-3: Existing Booster Pump Stations

Booster Pump Station	Primary Supply	Equipped Capacity (gpm)	Completion Date	Cost [2]
West Bank Booster Pump Station	South Tank	540 (1 pump), 995 (2 pumps), 1,350 (3 pumps) [1]	2015	N/A
North Well Booster Pump Station	North Well	300 (1pumps), 600 (2 pumps), 900 (3 pumps), 1,200 (4 pumps), 1,500 gpm (5 pumps)	2023	$200,688.73 [3]

[1] Equipped capacities assume both the Hunsaker and South Willow Wells are pumping to the South Willow Tank at the same time the booster pump station is operating.
[2] The costs shown are historical costs which may include initial construction, acquiring land, improvements, planning, and engineering.
[3] The City does not have records of the original construction costs, but recorded costs of improvements made to the booster pumps are included.



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GRANTSVILLE CFP, IFFP, AND IFA

GRANTSVILLE, UTAH

EXISTING DRINKING WATER SYSTEM

PROJECT NUMBER	PRINT DATE
11637	2026-04-03
PROJECT MANAGER	DESIGNED BY
R. ROUSSELLE	C. DUNKEL

FIG 3-1

The existing Public Works Building serves both drinking water and wastewater facilities. The building was constructed in 2021 for a cost of $222,483.40 attributed to water facilities.

The City has long-term debt associated with a bond issued to finance improvements to the distribution system as shown in Table 3-4.

Table 3-4: Existing Water Long-Term Debt

Bond	Date of Issue	Interest Rate	Final Maturity Date	Original Bond, Note Issue	Principal Outstanding at June 30, 2025	Total Interest Payments (2025-2035)
Water Revenue Bond, Series 2018	December, 2018	1.50%	August, 2039	$2,700,000.00	$2,700,000.00	$293,430.00

3.1.2 Level of Service

The proposed level of service (LOS) standards, listed below, were previously established in the Grantsville City Capital Facilities Plan dated May 2022 by Ensign Engineering and Land Surveying. The City's recent water usage data (2022-2024) was analyzed and determined to be consistent with the previously established level of service.

- **Unit Average Day Demand = 807 gpd/ERC (0.618 ac-ft/year/ERC)**
  - Indoor Demand = 195 gpd/ERC (0.218 ac-ft/year/ERC)
  - Outdoor Demand = 612 gpd/ERC (0.400 ac-ft/year/ERC)
- **Unit Peak Day Demand = 1,416 gpd/ERC (0.983 gpm/ERC)**
  - Indoor Demand = 275 gpd/ERC (0.191 gpm/ERC)
  - Outdoor Demand = 1,141 gpd/ERC (0.792 gpm/ERC)
- **Peak Instantaneous Demand:**
  - Indoor Demand = $10.8*(\text{ERCs})^{0.64}$ gpm/ERC
  - Outdoor Demand = 1.58 gpm/ERC
- **Fire Flow:**
  - Industrial/Commercial Buildings = 2,050 gpm for 4 hours (492,000 gallons)
  - Residential = 1,500 for 2 hours

Drinking Water System Capacity Requirements:

- **Sources:**
  - Supply Peak Day Demand
- **Storage:**
  - Storage for Average Day Demand plus Fire Flow (Industrial/Commercial Buildings Fire Flow)
- **Distribution:**
  - Per UAC R309-105-9, distribution systems should maintain a minimum pressure at all points in the system during;
    - Peak Day Demand plus Fire Flow - 20 psi
    - Peak Instantaneous Demand – 30 psi
    - Peak Day Demand – 40 psi
  - Max Velocity Requirements:
    - Peak Day and Peak Instantaneous Demand - 5 fps
    - Peak Day Demand plus Fire Flow – 10 fps

3.1.3 Capacity of Existing Facilities

As mentioned in Section 3.1.2, source capacity requirements are based on peak day demand. The current peak day demand was calculated based on demographic projections established in Section 2.7 and the source level of service shown in Section 3.1.2. This demand was compared with the equipped capacity to determine the source deficit shown in Table 3-5.

Table 3-5: Capacity of Existing Sources

Current (2025) ERCs	Peak Day LOS (gpm/ERC)	Peak Day Demand (gpm)	Equipped Capacity (gpm)	Excess / (Deficit) (gpm)
6,736	0.983	6,621	6,450	(171.49)

The City's current average day demand plus the fire flow storage requirement shown in Section 3.1.2 was compared with the equipped storage capacity to calculate the current storage deficit as shown in Table 3-6.

Table 3-6: Capacity of Existing Storage

Current (2025) ERCs	Average Day LOS (gpd/ERC)	Fire Storage (gal)	Average Day Demand (gpd)	Average Day Demand Plus Fire Storage (gal)	Equipped Capacity (gal)	Excess / (Deficit) (gal)
6,736	807	492,000	5,435,952	5,927,952	3,925,000	(2,002,952)

Drinking water distribution systems are pressurized and the City of Grantsville is capable of pumping drinking water from its lowest pressure zone, zone 1, to its highest-pressure zone, zone 3. It is also capable of distributing from its pressure zone 3 tanks to all its pressure zones. Therefore, the distribution system serves the entire City equally and has excess capacity to accommodate any future development.

3.1.4 Demands of Future Development

The future requirements for the drinking water system (Table 3-7) were determined by utilizing the projected growth in the planning period shown in Table 2-3 and the levels of service from Section 3.1.2.

Table 3-7: Future Drinking Water Requirements

Year	ERCs	Sources: Peak Day Demand (gpm)	Sources: Excess / (Deficit) (gpm)	Storage: Average Day Demand (gpd)	Storage: Average Day Demand Plus Fire Storage (gal)	Storage: Excess / (Deficit) (gal)
2025	6,736	6,621	(171.49)	5,435,952	5,927,952	(2,002,952)
2026	6,939	6,821	(371)	5,599,773	6,091,773	(2,166,773)
2027	7,136	7,015	(565)	5,758,752	6,250,752	(2,325,752)
2028	7,383	7,257	(807)	5,958,081	6,450,081	(2,525,081)
2029	7,617	7,488	(1,038)	6,146,919	6,638,919	(2,713,919)
2030	7,888	7,754	(1,304)	6,365,616	6,857,616	(2,932,616)
2031	8,141	8,003	(1,553)	6,569,787	7,061,787	(3,136,787)
2032	8,424	8,281	(1,831)	6,798,168	7,290,168	(3,365,168)
2033	8,708	8,560	(2,110)	7,027,356	7,519,356	(3,594,356)
2034	9,004	8,851	(2,401)	7,266,228	7,758,228	(3,833,228)
2035	9,300	9,142	(2,692)	7,505,100	7,997,100	(4,072,100)

Future requirements for the distribution system were determined based on the distribution of growth throughout the City shown in Table 2-4.

3.1.5 Proposed Projects

Proposed projects were determined to meet the demands of future development shown in the previous section and located by utilizing the distribution of growth in the planning period, see Figure 3-2. The proposed wells and storage tanks are shown in Table 3-8 and Table 3-9, along with the planning year, construction year, and cost estimates (Appendix D).

Table 3-8: Proposed Source Projects

Source	Type / Equipment	Casing (inches) / Depth (feet)	Pump Setting (feet)	Equipped Capacity (gpm)	Construction Priority: Begin Planning	Construction Priority: Begin Construction	Current Year (2025) Cost Estimate
Bates Well	Well / Line Shaft Pump	16 / 600	450	2,000	2024	2026	$3,041,918.77
West Bank Well	Well / Line Shaft Pump	16 / 600	550	2,000	2026	2027	$3,518,067.73
Southwest Well	Well / Line Shaft Pump	16 / 600	450	1,500	2030	2031	$2,979,952.08
Total				**5,500**			**$9,539,938.58**

Table 3-9: Proposed Storage Projects

Storage	Equipped Capacity (gal)	Construction Priority		Current Year (2025) Cost Estimate
		Begin Planning	Begin Construction	
Northstar Tank No. 1	2,000,000	2024	2026	$3,387,223.88 [1]
West Bank Tank	1,500,000	2026	2027	$4,898,123.85
Southwest Tank	1,500,000	2030	2031	$3,825,690.00
North Tank No. 3	2,000,000	2039	2040	$3,970,468.68 [2]
Total	**7,000,000**			**$16,081,506.41**

[1] Actual construction cost and includes $142k for engineering design and construction management.

[2] North Tank No. 3 is shown even though it falls outside the 10-year planning period, as it may be constructed prior to the Southwest Tank. This will be evaluated on an annual basis.

Proposed distribution system projects are shown in Table 3-10. These projects are required to extend water service to future development while providing vital distribution looping for the water system.

Table 3-10: Proposed Distribution System Projects

Distribution Project	Description	Construction Priority		Current Year (2025) Cost Estimate
		Begin Planning	Begin Construction	
Osborne Way Water Line Loop	Construct approximately 425 linear feet of 10-inch diameter water line from Osborne Way to Cherry Wood Lane	2024	2025	$76,356.25
SR-138 Water Line Extension (Developer Portion)	Extend approximately 300 linear feet of 8-inch diameter water line, 6,300 linear feet of 12-inch diameter water line, and 21,700 linear feet of 16-inch diameter water line along SR 138 and install a PRV Station.	2024	2025	$6,272,971.05
Northstar Tank No. 1 Transmission Line	Construct approximately 3,660 linear feet of 12-inch diameter and 10,750 linear feet of 16-inch diameter water line for the Northstar Tank No. 1 and install a PRV station.	2024	2025	$2,504,135.45
SR-138 Water Line Extension	Extend approximately 188 linear feet of 8-inch diameter water line and 1,760 linear feet of 12-inch diameter water line along SR 138.	2024	2026	$566,221.70
Generator	Purchase 350 kW Trailer Mounted Diesel Generator including cables, connectors, and appurtenances.	2024	2026	$269,200.00
SR-112 Water Line Extension	Extend approximately 3,950 linear feet of 12-inch diameter water line along SR 112.	2025	2026	$540,168.75
Apple Street Water Line Replacement	Replace approximately 920 linear feet of 6-inch diameter water line in Apple Street with 8-inch diameter water line.	2025	2026	$319,629.60

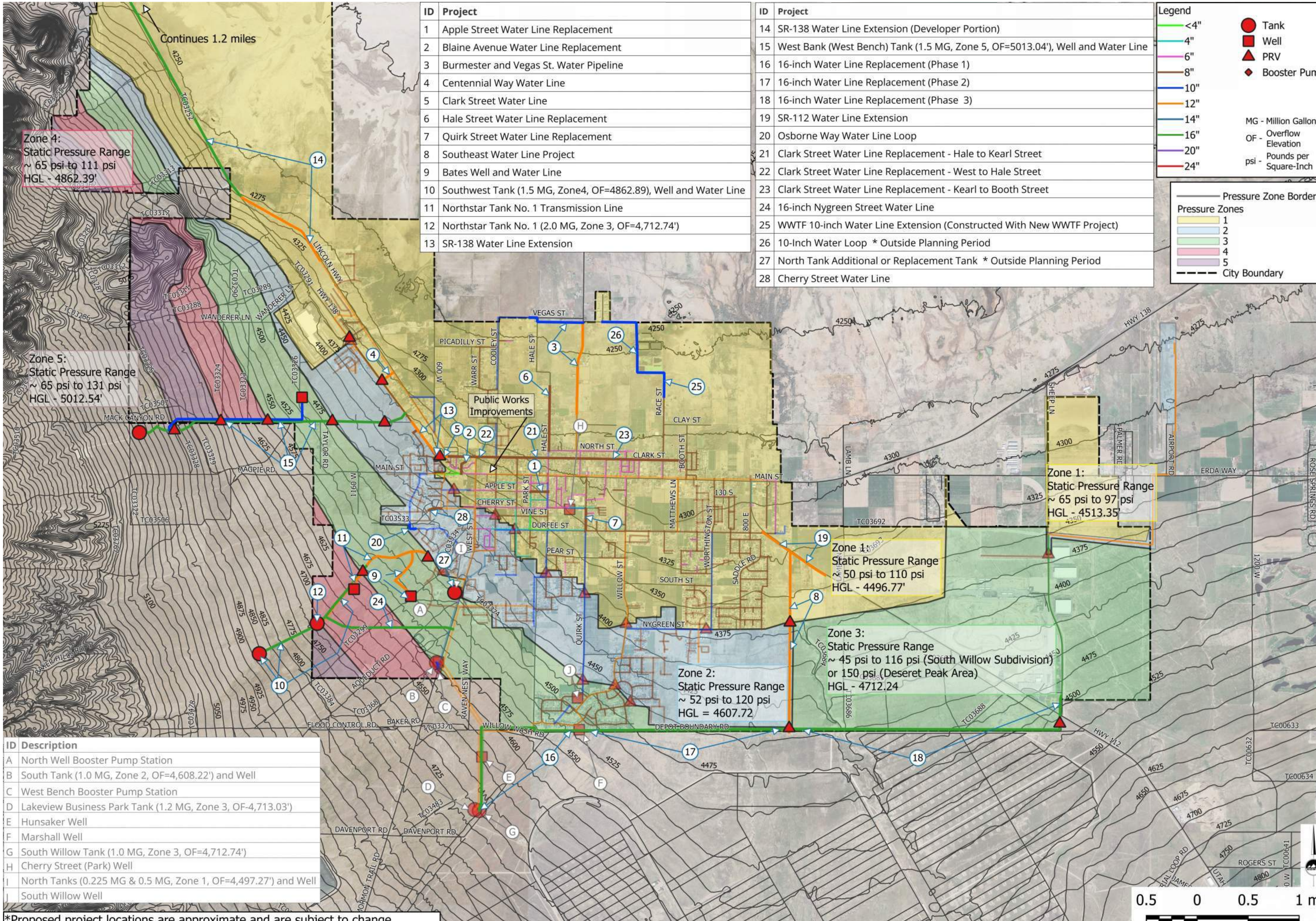
Distribution Project	Description	Construction Priority		Current Year (2025) Cost Estimate
		Begin Planning	Begin Construction	
Apple Street Water Line Replacement	Replace approximately 920 linear feet of 6-inch diameter water line in Apple Street with 8-inch diameter water line.	2025	2026	$319,629.60
Southeast Water Line Project	Construct approximately 9,380 linear feet of 12-inch diameter water line in the southeast portion of the City and two PRV Stations.	2026	2027	$1,507,959.92
Blaine Avenue Water Line Replacement	Replace approximately 1,070 linear feet of 6-inch diameter water line in Blaine Avenue with 8-inch diameter water line.	2026	2027	$357,991.20
Hale Street Water Line Replacement	Replace approximately 3,240 linear feet of 6-inch diameter water line in Hale Street with 8-inch diameter water line.	2027	2028	$878,172.10
16-inch Water Line Replacement Phase 1	Replace approximately 9,300 linear feet of damaged 16-inch diameter water line from the South Willow Tank to the Marshall Well with 16-inch diameter water line.	2027	2028	$2,510,954.37
Clark Street Water Line Project	Construct approximately 612 linear feet of 12-inch diameter water line along Clark Street and install a PRV station.	2027	2028	$480,299.94
Quirk Street Water Line Replacement	Replace approximately 1,200 linear feet of 6-inch diameter water line in Quirk Street with 8-inch diameter water line.	2028	2029	$408,871.50
Burmester Road and Vegas St. Water Pipeline Project	Extend approximately 7,757 linear feet of 12-inch diameter water line along Burmester Street.	2029	2030	$973,445.29
16-inch Water Line Replacement Phase 2	Replace approximately 10,800 linear feet of damaged 16-inch diameter water line from the Marshall Well to the Twenty Wells connection with 16-inch diameter water line.	2029	2031	$2,659,736.68
Centennial Way Water Line Project	Construct approximately 810 linear feet of 12-inch diameter water line along Centennial Way and install a PRV station.	2033	2034	$357,093.75
16-inch Water Line Replacement Phase 3	Replace approximately 14,900 linear feet of damaged 16-inch diameter water line from the Twenty Wells connection to Sheep Lane with 16-inch diameter water line and install a PRV station.	2033	2034	$4,437,861.29

Distribution Project	Description	Construction Priority		Current Year (2025) Cost Estimate
		Begin Planning	Begin Construction	
Hale to Kearl Street Clark Street Water Line Replacement Project	Replace approximately 1,640 linear feet of 6-inch diameter water line with 8-inch diameter water line along Clark Street from Hale Street to Kearl Street.	2026	2027	$913,693.52
West to Hale Street Clark Street Water Line Replacement Project	Replace approximately 3,780 linear feet of 6-inch diameter water line with 8-inch diameter water line along Clark Street from West Street to Hale Street.	2029	2030	$2,105,952.14
Kearl to Booth Street Clark Street Water Line Replacement Project	Replace approximately 3,780 linear feet of 6-inch diameter water line with 8-inch diameter water line along Clark Street from West Street to Hale Street.	2032	2033	$3,078,144.34
Total				**$31,579,427.84**

The City also plans to expand the Public Works site to add a shop area, expected to begin construction in 2035. The estimated cost is $1.86 million and will be split evenly between the drinking water and wastewater utility.

3.1.6 Methods of Financing

The intent is to fund the majority of the projects through impact fees. The portion of the projects not eligible for impact fees may be funded through grants, loans, developer dedications, or reserves in the Water Fund.



ID	Project
1	Apple Street Water Line Replacement
2	Blaine Avenue Water Line Replacement
3	Burmester and Vegas St. Water Pipeline
4	Centennial Way Water Line
5	Clark Street Water Line
6	Hale Street Water Line Replacement
7	Quirk Street Water Line Replacement
8	Southeast Water Line Project
9	Bates Well and Water Line
10	Southwest Tank (1.5 MG, Zone4, OF=4862.89), Well and Water Line
11	Northstar Tank No. 1 Transmission Line
12	Northstar Tank No. 1 (2.0 MG, Zone 3, OF=4,712.74')
13	SR-138 Water Line Extension
14	SR-138 Water Line Extension (Developer Portion)
15	West Bank (West Bench) Tank (1.5 MG, Zone 5, OF=5013.04'), Well and Water Line
16	16-inch Water Line Replacement (Phase 1)
17	16-inch Water Line Replacement (Phase 2)
18	16-inch Water Line Replacement (Phase 3)
19	SR-112 Water Line Extension
20	Osborne Way Water Line Loop
21	Clark Street Water Line Replacement - Hale to Kearl Street
22	Clark Street Water Line Replacement - West to Hale Street
23	Clark Street Water Line Replacement - Kearl to Booth Street
24	16-inch Nygreen Street Water Line
25	WWTF 10-inch Water Line Extension (Constructed With New WWTF Project)
26	10-Inch Water Loop * Outside Planning Period
27	North Tank Additional or Replacement Tank * Outside Planning Period
28	Cherry Street Water Line

ID	Description
A	North Well Booster Pump Station
B	South Tank (1.0 MG, Zone 2, OF=4,608.22') and Well
C	West Bench Booster Pump Station
D	Lakeview Business Park Tank (1.2 MG, Zone 3, OF-4,713.03')
E	Hunsaker Well
F	Marshall Well
G	South Willow Tank (1.0 MG, Zone 3, OF=4,712.74')
H	Cherry Street (Park) Well
I	North Tanks (0.225 MG & 0.5 MG, Zone 1, OF=4,497.27') and Well
J	South Willow Well

*Proposed project locations are approximate and are subject to change

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GRANTSVILLE CFP, IFFP, AND IFA

GRANTSVILLE, UTAH

PROPOSED DRINKING WATER SYSTEM

PROJECT NUMBER 11637
PRINT DATE 2026-04-02
PROJECT MANAGER R. ROUSSELLE
DESIGNED BY C. DUNKEL

FIG 3-2

3.2 Impact Fee Analysis

3.2.1 Existing Facilities

As shown in Section 3.1.3, there is no excess source or storage capacity so no buy-in cost can be charged for source or storage facilities. The existing distribution system has excess capacity to serve future development and benefits all of the City proportionally as the City is able to pump or gravity flow water throughout the drinking water system. Therefore, the proportionate share for the existing distribution system was calculated based on the proportion of future ERCs expected to be served within the planning period as shown in Table 3-11. The existing Public Works Building will utilize the same proportionate share as it is considered beneficial to both existing and future development. Another item eligible to charge a buy-in cost for is the interest payment amount due within the planning period for the Water Revenue Bond shown in Table 3-4. This loan was used to fund past improvements to the distribution system which benefited existing and future development, so the buy-in cost was calculated using the same proportionate share as the existing distribution system. The proportionate share for each existing facility was multiplied by the historic construction costs in order to calculate the impact fee eligible buy-in costs (Table 3-12).

Table 3-11: Existing Drinking Water Facilities Proportionate Share

Facility	Total ERCs (Year 2035)	Increase in ERCs (Year 2025-2035)	Proportionate Share
Existing Distribution System, Public Works Building, and Water Revenue Bond Interest Payments	9,300	2,564	27.6%

Table 3-12: Drinking Water Buy-In Costs

Facility	Cost [1]	Proportionate Share	Buy-In Cost
Existing Distribution System	$18,182,119.15	27.6%	$5,012,790.70
Public Works Building	$222,483.40 [2]	27.6%	$61,338.43
Water Revenue Bond Interest Payments (2025-2035)	$293,430.00	27.6%	$80,898.34
Matthews Lane Water Line Project	$495,746.06	27.6%	$136,676.66
Durfee Street Water Line Project	$60,750.85	27.6%	$16,748.94
Total			**$5,308,453.07**

[1] The costs shown are historical costs which may include initial construction, acquiring land, improvements, planning, and engineering.

[2] The cost shown for the Public Works Building is the cost associated with drinking water facilities.

3.2.2 System Improvements

The drinking water system improvements needed to accommodate future development within the planning period were determined in Section 3.1.5. The proportionate shares for sources and storage were calculated based on the increase in system capacity to meet the level of service, as shown in Table 3-13 and Table 3-14. Any portion of a project associated with correcting an existing deficiency was excluded from the proportionate share calculation. The City does not charge impact fees for projects which are expected to be constructed by developers so they have a proportionate share of 0%. If it is determined the City will pay for any portion of these projects as the development agreements are finalized then this plan should be amended to include the project.

Table 3-13: Proposed Source Projects Proportionate Share

Project	Equipped Capacity (gpm)	Existing (2025) Deficit (gpm)	Future (2035) Deficit (gpm)	Proportionate Share
Bates Well	2,000	171.49	2,692	0% [1]
West Bank Well	2,000	371	692	0% [1]
Southwest Well	1,500	565	0	0% [1]

[1] The proportionate share is 0% because the project is expected be constructed by developers.

Table 3-14: Proposed Storage Projects Proportionate Share

Project	Equipped Capacity (gal)	Existing (2025) Deficit (gal)	Future (2035) Deficit (gal)	Proportionate Share
Northstar Tank No. 1	2,000,000	2,002,952	4,072,100	0.00%
West Bank Tank	1,500,000	2,166,773	2,072,100	0% [1]
Southwest Tank	1,500,000	2,325,752	572,100	0% [1]

[1] The proportionate share is 0% because the project is expected be constructed by developers.

The proposed distribution system projects and the Public Works Improvements project were determined to be beneficial to both existing and future development, so the proportionate share was calculated based on the ERCs expected to be served within the planning period as shown in Table 3-15.

Table 3-15: Proposed Distribution System and Public Works Proportionate Share

Project	Total ERCs (Year 2035)	Increase in ERCs (Year 2025-2035)	Proportionate Share
Distribution Projects and Public Works Improvements	9,300	2,564	27.6%

The cost of each project which is attributed to new development in the planning period, and therefore eligible for impact fees, was calculated by multiplying the total project cost by the proportionate share as shown in Table 3-16. In order to account for the time-price differential inherent with future costs, the current year cost estimates were inflated at a rate of 3.5% to the anticipated construction year.

Table 3-16: Drinking Water Impact Fee Eligible Costs

Project	Construction Year	Current Year (2025) Cost Estimate	Construction Year Cost Estimate	Proportionate Share	Impact Fee Eligible Cost
Bates Well	2027	$3,041,918.77	$3,258,579.43	0% [2]	$0.00
West Bank Well	2027	$3,518,067.73	$3,768,642.10	0% [2]	$0.00
Southwest Well	2031	$2,979,952.08	$3,663,121.97	0%	$0.00
Northstar Tank No. 1	2026	$3,387,223.88	$3,505,776.72	0.00%	$0.00
West Bank Tank	2027	$4,898,123.85	$5,246,992.72	0% [2]	$0.00
Southwest Tank	2031	$3,825,690.00	$4,702,749.81	0% [2]	$0.00
Osborne Way Water Line Loop	2026	$76,356.25	$79,028.72	27.6%	$21,788.13
SR-138 Water Line Extension (Developer Portion)	2026	$6,272,971.05	$6,492,525.04	0% [2]	$0.00
Northstar Tank No. 1 Transmission Line	2026	$2,504,135.45	$2,591,780.19	0% [2]	$0.00
SR-138 Water Line Extension	2027	$566,221.70	$606,550.84	27.6%	$167,225.41
Generator	2027	$269,200.00	$288,373.77	27.6%	$79,504.34
SR-112 Water Line Extension	2027	$540,168.75	$578,642.27	0% [2]	$0.00
Southeast Water Line Project	2028	$1,507,959.92	$1,671,902.12	0% [2]	$0.00
Clark Street Water Line Project	2029	$480,299.94	$551,155.23	27.6%	$151,952.90
Burmester and Vegas Street Water Pipeline Project	2031	$973,445.29	$1,196,612.81	27.6%	$329,904.86
Centennial Way Water Line Project	2035	$357,093.75	$503,716.00	27.6%	$138,873.96
Public Works Improvements	2035	$1,318,982.50 [1]	$1,860,555.08	27.6%	$512,953.03
Hale Street Water Line Replacement	2029	$878,172.10	$1,007,722.68	27.6%	$277,828.06
Total		**$37,395,983.01**	**$41,574,427.50**		**$1,680,030.71**

[1] The cost shown for the Public Works Improvements project is half of the total cost estimate because this project cost will be split evenly between the wastewater and drinking water utilities.

[2] The proportionate share is 0% because the project is expected be constructed by developers.

In addition to impact fee eligible project costs, planning costs can also be included in the calculation of impact fees. Due to the uncertainty which comes with long-term development projections, this plan is expected to be amended annually. The future professional expenses expected to occur within the planning period were inflated at a 3.5% rate as shown in Table 3-17.

Table 3-17: Drinking Water Professional Expenses

Year	Cost
2025	$8,300.00
2026	$8,590.50
2027	$8,891.17
2028	$9,202.36
2029	$9,524.44
2030	$9,857.80
2031	$10,202.82
2032	$10,559.92
2033	$10,929.52
2034	$11,312.05
2035	$11,707.97
Total	**$109,078.53**

3.2.3 Methods of Financing

The drinking water system improvements are expected to be funded through impact fees, loans, developer dedications, and Water Fund reserves as discussed in Section 3.1.6. As shown in Table 3-18, the City is financing the Northstar Tank No. 1 project with a loan through the Utah Drinking Water Board, which is necessary to prevent the impact fee fund balance from going negative (see Section 3.2.5). This loan is a 20-year bond with a 2.0% interest rate and 1.5% loan origination fee. The interest cost for this bond attributed to development within the planning period can be included in the impact fee calculation.

Table 3-18: Drinking Water Future Debt Financing

Project	Proceeds	Par Amount [1]	Debt Service (Interest)	Debt Service (Principal + Interest)	Proportionate Share	Impact Fee Eligible Debt Service (Interest)
Northstar Tank No. 1	$3,294,000.00	$3,326,940.00	$742,354.64	$4,069,294.64	0.00%	$0.00

[1] *Includes cost of issuance, bond insurance, and surety policy.*

3.2.4 Impact Fee Calculation

As shown in Table 3-19, impact fees to be charged per ERC were calculated by dividing the impact fee eligible costs by the number of ERCs expected to be served within the planning period, determined from Table 2-3. The City does not charge impact fees to the construction water and City rate connection types so they were excluded from the calculation.

Table 3-19: Drinking Water Impact Fee Calculation

Project	Impact Fee Eligible Cost	Planning Period (2025-2035) ERCs [1]	Cost per ERC
Buy-In Cost	$5,308,453.07	2,400	$2,211.86
Northstar Tank No. 1	$0.00	2,400	$0.00
Northstar Tank No. 1 Debt Service (Interest)	$0.00	2,400	$0.00
Osborne Way Water Line Loop	$21,788.13	2,400	$9.08
SR-138 Water Line Extension	$167,225.41	2,400	$69.68
Generator	$79,504.34	2,400	$33.13
Clark Street Water Line Project	$151,952.90	2,400	$63.31
Burmester and Vegas Street Water Pipeline Project	$329,904.86	2,400	$137.46
Centennial Way Water Line Project	$138,873.96	2,400	$57.86
Public Works Improvements	$512,953.03	2,400	$213.73
Professional Expenses	$109,078.53	2,400	$45.45
Total			**$2,841.56**

[1] *Does not include Construction Water or City Rate ERCs.*

The City charges impact fees to residential users based on their water meter size. A 3/4-inch water meter was determined to be equivalent to one ERC, and the remaining meter sizes were converted to ERCs based on the maximum flow rates from AWWA Manual M6, Table 5-3. Non-residential users are charged impact fees based on the number of fixture units in a development. A typical ERC was determined to have 24 fixture units as calculated in Appendix E. The results of these impact fee calculations are summarized in Table 3-20.

Table 3-20: Proposed Drinking Maximum Allowable Water Impact Fees

Water Meter Size (inches)	Maximum Flow Rate (gpm)	ERCs	Impact Fee
3/4	25 [1]	1	$2,841.56
1	40 [1]	1.6	$4,546.49
1 1/2	50 [1]	2	$5,683.11
2	100 [1]	4	$11,366.22
3	200 [2]	8	$22,732.45
4	400 [2]	16	$45,464.89
6	800 [2]	32	$90,929.79
8	1,000 [2]	40	$113,662.24
Non-Residential Development Indoor			$28.97 per fixture unit
Non-Residential Development Outdoor			$17,957.79 per irrigated acre

[1] *From AWWA M6 Table 5-3 Displacement Meters.*
[2] *From AWWA M6 Table 5-3 Electromagnetic and Ultrasonic Meter Type 1.*

3.2.5 Impact Fee Cashflow

The anticipated impact fee revenues and expenses over the 10-year planning period are shown in Table 3-21. The expenses represent only what is attributable to planning period development and include capital project costs, the expenditure of buy-in costs, and proposed bond payments. The impact fee cashflow (Table 3-22) estimates the end of year impact fee fund balance throughout the planning period by comparing the impact fee revenues, total expenses, and interest income calculated at 3.0% of the fund balance.

3.2.6 Impact Fee Credits

There are procedures in place for credits, appeals, and exemptions of impact fees for Grantsville City. Refer to Appendix B for the City’s current impact fee ordinance.

Table 3-21: Drinking Water Impact Fee Revenues and Expenses

Year	ERCs [1]	Annual ERC Increase [1]	Impact Fee Revenues	Impact Fee Eligible Project Costs	Bond Payments	Bond Proceeds	Buy-In Cost Expenses	Professional Expenses	Total Expenses
2025	6,251	-	-	-	-	-	-	($8,300.00)	($8,300.00)
2026	6,425	174	$494,430.73	($21,788.13)	-	-	($384,862.85)	($8,590.50)	($415,241.48)
2027	6,605	180	$511,480.07	($246,729.75)	-	-	($398,133.98)	($8,891.17)	($653,754.90)
2028	6,834	229	$650,716.31	-	-	-	($506,514.90)	($9,202.36)	($515,717.26)
2029	7,062	228	$647,874.75	($429,780.96)	-	-	($504,303.04)	($9,524.44)	($943,608.45)
2030	7,305	243	$690,498.09	-	-	-	($537,480.87)	($9,857.80)	($547,338.67)
2031	7,551	246	$699,022.76	($329,904.86)	-	-	($544,116.44)	($10,202.82)	($884,224.12)
2032	7,816	265	$753,012.32	-	-	-	($586,141.69)	($10,559.92)	($596,701.61)
2033	8,083	267	$758,695.44	-	-	-	($590,565.40)	($10,929.52)	($601,494.92)
2034	8,362	279	$792,794.11	-	-	-	($617,107.67)	($11,312.05)	($628,419.72)
2035	8,651	289	$821,209.67	($651,826.99)	-	-	($639,226.22)	($11,707.97)	($1,302,761.19)
Total		**2,400**	**$6,819,734.25**	**($1,680,030.71)**			**($5,308,453.07)**	**($109,078.53)**	**($7,097,562.31)**

[1] Does not include Construction Water or City Rate ERCs.

Table 3-22: Drinking Water Impact Fee Cashflow

Year	Impact Fee Revenues	Total Expenses	Interest Income	End of Year Balance
2025	-	($8,300.00)	-	$1,321,360.81
2026	$494,430.73	($415,241.48)	$39,640.82	$1,440,190.89
2027	$511,480.07	($653,754.90)	$43,205.73	$1,341,121.78
2028	$650,716.31	($515,717.26)	$40,233.65	$1,516,354.49
2029	$647,874.75	($943,608.45)	$45,490.63	$1,266,111.43
2030	$690,498.09	($547,338.67)	$37,983.34	$1,447,254.20
2031	$699,022.76	($884,224.12)	$43,417.63	$1,305,470.46
2032	$753,012.32	($596,701.61)	$39,164.11	$1,500,945.29
2033	$758,695.44	($601,494.92)	$45,028.36	$1,703,174.16
2034	$792,794.11	($628,419.72)	$51,095.22	$1,918,643.78
2035	$821,209.67	($1,302,761.19)	$57,559.31	$1,494,651.57

Section 4 Public Safety

4.1 Capital Facilities Plan and Impact Fee Facilities Plan

4.1.1 Inventory of Existing Facilities

Grantsville City's public safety services consist of a Police Department, Animal Control, and Fire Department. There is also an Emergency Medical Technician (EMT)/ambulance service which the City has contracted with through Mountain West Hospital, but this will not be included in impact fee calculations because it is not a City run service.

The Utah Impact Fees Act defines a public safety facility as "a building constructed or leased to house police, fire, or other public safety entities; or a fire suppression vehicle costing in excess of $500,000." The City does not currently have any fire suppression vehicles which cost more than $500,000. The existing buildings associated with City's public safety services are listed in Table 4-1 along with the floor area and historical construction cost. The City Hall building is included in the public safety section of this plan, but it is not eligible for impact fees because it does not house any public safety services.

Table 4-1: Existing Public Safety Facilities

Facility	Construction Year	Floor Area (sq ft)	Cost [1]
Justice Center (Police Station)	2017	8,450 [2]	$3,905,831.64
Animal Shelter	1983	1,155	$10,006.00
Fire Station	2007	15,500	$2,376,472.15
City Hall	1996	7,000	$526,910.54
Total			**$6,819,220.33**

[1] The costs shown are historical costs which may include initial construction, acquiring land, improvements, planning, and engineering.

[2] The Justice Center is shared between the Police Department and the Justice Court. The total building floor area is 12,947 square feet, but the area of the portion occupied by the Police Department is 8,450 square feet.

The locations of these facilities are shown in Figure 4-1. See Appendix F for more detailed information about the Police Department staffing and Justice Center layout.

The City does have long-term debt associated with existing public safety facilities in the form of revenue bonds issued for the Fire Station and Justice Center. The details of these bonds are shown in Table 4-2.

Table 4-2: Existing Public Safety Long-Term Debt

Bond	Date of Issue	Interest Rate	Final Maturity Date	Original Bond, Note Issue	Principal Outstanding at June 30, 2024	Total Interest Payments (2024-2034)
MBA Lease Revenue Bond, Series 2006 (Fire Station)	May 25, 2006	3.50%	January, 2037	$2,000,000.00	$1,048,000.00	$241,780.00
MBA Lease Revenue Bond, Series 2016 (Justice Center)	December, 2016	2.50%	October, 2047	$2,700,000.00	$2,236,000.00	$470,875.00
Total				**$4,700,000.00**	**$3,284,000.00**	**$712,655.00**

4.1.2 Level of Service

The proposed levels of service for each public safety department (Table 4-3) were determined based on input from Police Chief Sager and Fire Chief Smith regarding the needs of each department. More information about these requirements can be found in Appendix F.

Table 4-3: Public Safety Level of Service

Department	Staff Level of Service	Facility Level of Service
Police	1.87 staff per 1,000 population [1]	232.1 sq ft building area per staff member
Fire	3.14 firefighters per 1,000 population	0.0565 fire stations per 1,000 population
Animal Control	0.156 officers per 1,000 population	90.3 sq ft building area per 1,000 population

[1] *Police staff LOS does not include animal control officers, crossing guards, or victim advocate volunteers.*

4.1.3 Capacity of Existing Facilities

The capacity of existing public safety facilities was calculated based on the current City population and the appropriate levels of service for each facility type, as shown in the following three tables.

Table 4-4: Capacity of Existing Police Facilities

Population (2024)	Police Staff per 1,000 Population	Police Staff Required	Building Area per Staff Member (sq ft)	Building Area Required (sq ft)	Existing Building Area (sq ft)	Excess / (Deficit) (sq ft)
16,056	1.87	30	232.1	6,963	8,450	1,487

Table 4-5: Capacity of Existing Fire Facilities

Population (2024)	Stations Per 1,000 Population	Number of Stations Required	Existing Number of Stations	Excess / (Deficit)
16,056	0.0565	0.91	1	0.09

Table 4-6: Capacity of Existing Animal Control Facilities

Population (2024)	Building Area per 1,000 Population (sq ft)	Building Area Required (sq ft)	Existing Building Area (sq ft)	Excess / (Deficit) (sq ft)
16,056	90.3	1,450	1,155	(295)

4.1.4 Demands of Future Development

Based on the demographic projections discussed in Section 2.7 and the levels of service established in Section 4.1.2, the requirements for public safety facilities to accommodate future development were calculated as shown in Table 4-7.

Table 4-7: Future Public Safety Requirements

Year	Population	Police			Fire		Animal Control	
		Police Staff Required	Building Area Required (sq ft)	Excess / (Deficit) (sq ft)	Number of Stations Required	Excess / (Deficit)	Building Area Required (sq ft)	Excess / (Deficit) (sq ft)
2025	16,056	30	6,963	1,487	0.91	0.09	1,450	(295)
2026	16,592	31	7,195	1,255	0.94	0.06	1,498	(343)
2027	17,148	32	7,427	1,023	0.97	0.03	1,548	(393)
2028	17,803	33	7,659	791	1.01	(0.01)	1,608	(453)
2029	18,486	35	8,124	327	1.04	(0.04)	1,669	(514)
2030	19,193	36	8,356	94	1.08	(0.08)	1,733	(578)
2031	19,934	37	8,588	(138)	1.13	(0.13)	1,800	(645)
2032	20,705	39	9,052	(602)	1.17	(0.17)	1,870	(715)
2033	21,501	40	9,284	(834)	1.21	(0.21)	1,942	(787)
2034	22,332	42	9,748	(1,298)	1.26	(0.26)	2,017	(862)
2035	23,192	43	9,980	(1,530)	1.31	(0.31)	2,094	(939)

4.1.5 Proposed Projects

The proposed public safety projects which are required to meet the demands of future development within the planning period are shown in Table 4-8 along with the anticipated planning and construction years as well as the estimated costs (Appendix G). These projects are shown in Figure 4-1, however the locations are subject to change as the planning process begins. The Justice Center Renovations project will consist of converting the conference room into additional cubicle space to accommodate the required future staff. The Justice Center Police Expansion project will be renovating the Justice Center to allow the Police Department to expand into the space currently being used by the court. This project is expected to occur after the New City Hall Building project is constructed and the Existing City Hall Renovations project occurs to allow the court to move into the existing City Hall.

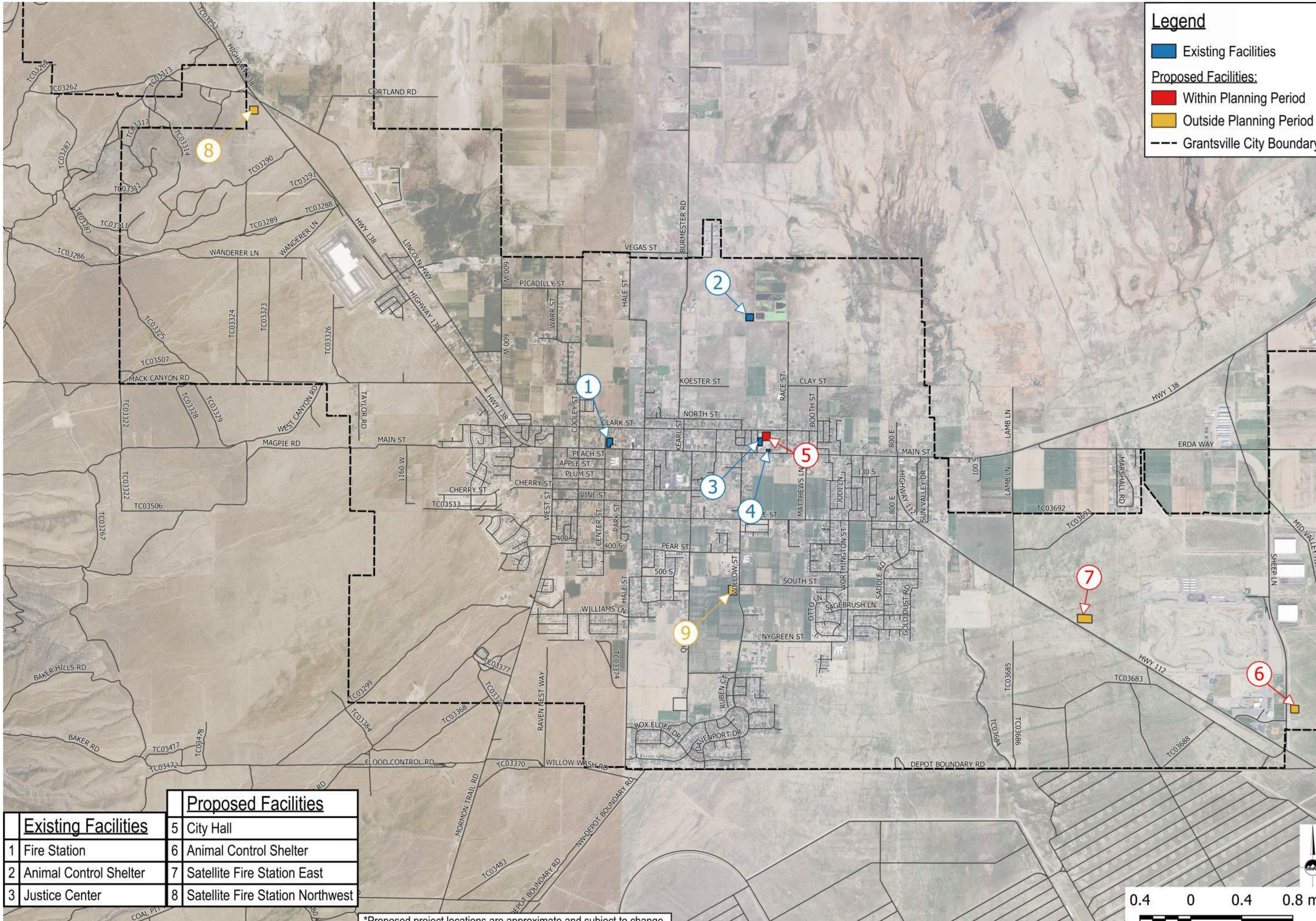
Table 4-8: Proposed Public Safety Projects

Project	Building Area (sq ft)	Construction Priority		Current Year (2025) Cost Estimate
		Begin Planning	Completion	
Animal Control Shelter	4,500	2025	2033	$1,567,581.40 [1]
Justice Center Renovations	N/A	2028	2029	$19,580.00 [1]
Justice Center Police Expansion	4,497	2033	2034	$1,246,608.00 [1]
New City Hall Building	20,000	2032	2034	$9,681,145.54 [1]
Existing City Hall Renovations	N/A	2033	2034	$2,425,500.00 [1]
Future Satellite Fire Station and Ladder Truck	N/A	N/A	N/A	$0.00
Total				**$14,940,414.94**

[1] *Cost estimates are based on rough costs per square footage. These should be updated when project details are determined.*
[2] *Assumed that 50% of the Animal Control Shelter will be jointly paid and constructed in 2033*

4.1.6 Methods of Financing

Funding for the City's public safety facilities typically comes from impact fees, grants, loans, taxes, and reserves in the Capital Project Fund. At this time, it is not expected that any of the proposed projects listed above will be funded through grants.



	Existing Facilities
1	Fire Station
2	Animal Control Shelter
3	Justice Center

	Proposed Facilities
5	City Hall
6	Animal Control Shelter
7	Satellite Fire Station East
8	Satellite Fire Station Northwest

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GRANTSVILLE CFP, IFFP, AND IFA

GRANTSVILLE, UTAH

PUBLIC SAFETY FACILITIES

PROJECT NUMBER 11637 | PRINT DATE 2026-04-02
PROJECT MANAGER R. ROUSSELLE | DESIGNED BY C. DUNKEL

FIG 4-1

4.2 Impact Fee Analysis

4.2.1 Existing Facilities

As determined in Section 4.1.3, the Justice Center and Fire Station have excess capacity to serve future development. Proportionate shares for these projects were calculated by dividing the excess capacity by the existing capacity. The proportionate share was multiplied by the historic project cost in order to calculate a buy-in cost, as shown in Table 4-9. The interest payments due within the planning period for the existing loans associated with each facility are also eligible for buy-in costs, calculated based on the proportionate share for the facility which the loan funded.

Table 4-9: Public Safety Buy-In Costs

Facility	Cost [1]	Existing Capacity	Excess Capacity	Proportionate Share	Buy-In Cost
Justice Center (Police Station)	$3,905,831.64	8,450 sq ft	1,487 sq ft	17.6%	$687,333.92
Justice Center Revenue Bond Interest Payments (2025-2035)	$470,875.00	N/A	N/A	17.6%	$82,862.86
Fire Station	$2,376,472.15	1 station	0.09 station	9.3%	$220,622.17
Fire Station Revenue Bond Interest Payments (2025-2035)	$241,780.00	N/A	N/A	9.3%	$22,445.89
Total					**$1,013,264.83**

[1] The costs shown are historical costs which may include initial construction, acquiring land, improvements, planning, and engineering.

4.2.2 System Improvements

The system improvements for public safety facilities proposed in the planning period were determined in Section 4.1.5. The proposed City Hall projects are not impact fee eligible as they do not directly serve any public safety facilities. Proportionate shares were calculated in Table 4-10 based on the requirements to meet the level of service for future development at the end of the planning period, excluding any portion of the project associated with correcting an existing deficiency. The fire vehicles associated with the proposed fire station were calculated at the same proportionate share as the station. However, the proposed vehicles which cost less than $500,000 are not eligible for impact fees per Utah Code Section 11-36a-102.

Table 4-10: Proposed Public Safety Projects Proportionate Share

Project	Building Area (sq ft)	Existing (2025) Deficit	Future (2035) Deficit	Proportionate Share
Animal Control Shelter	4,500	295 sq ft	939 sq ft	14.3%
Justice Center Police Expansion	4,497	N/A	1,530 sq ft	34.0%

[1] The Satellite Fire Station East and Vehicles project is placed outside the planning period until demographics east of Grantsville City is determined.

The cost of each project which is eligible for impact fees is based on the portion of the project associated with serving future development in the planning period, excluding any portion of the project attributed to correcting the existing deficiency. This was calculated in Table 4-11 by multiplying the total project cost by the proportionate share shown above. In order to account for the time-price differential inherent with future costs, the current year cost estimates were inflated at a rate of 3.5% to the anticipated construction year.

Table 4-11: Public Safety Impact Fee Eligible Costs

Project	Construction Year	Current Year (2025) Cost Estimate	Construction Year Cost Estimate	Proportionate Share	Impact Fee Eligible Cost
Animal Control Shelter	2033	$1,567,581.40	$2,064,205.35	14.3%	$295,585.40
Justice Center Police Expansion	2034	$1,246,608.00	$1,698,998.74	34.0%	$578,158.28
Total		**$2,814,189.40**	**$3,763,204.10**		**$873,743.68**

In addition to impact fee eligible project costs, planning costs can also be included in the calculation of impact fees. Due to the uncertainty that comes with long-term development projections, this plan is expected to be amended annually. The future professional expenses expected to occur within the planning period were inflated at a 3.5% rate as shown in Table 4-12.

Table 4-12: Public Safety Professional Expenses

Year	Cost
2025	$5,300.00
2026	$5,485.50
2027	$5,677.49
2028	$5,876.20
2029	$6,081.87
2030	$6,294.74
2031	$6,515.05
2032	$6,743.08
2033	$6,979.09
2034	$7,223.36
2035	$7,476.17
Total	**$69,652.56**

4.2.3 Methods of Financing

As discussed in Section 4.1.6, public safety system improvements are expected to be financed through impact fees, loans, and reserves in the Capital Project Fund. There is no debt expected to be incurred during this planning period. In the future the City expects to finance a future Satellite Fire Station project with a loan.

4.2.4 Impact Fee Calculation

Impact fees for public safety facilities are calculated based on the building area of proposed development and police computer aided dispatch (CAD) calls in order to make the fees equitable for the varying demands of different development types (see Appendix F). The number of CAD calls used in Table 4-13 was provided by the City to determine calls per unit. This rate was then applied to convert the projected annual increase in units into an increase in calls, as shown in the Future Calls and Units table (see Appendix F). The construction water and City rate development types were excluded from these calculations because there are no buildings associated with construction water and the City does not charge impact fees for their own buildings. Per Utah Code Section 11-36a-202, impact fees for fire suppression vehicles can only be charged to non-residential development. When a satellite fire station is constructed, these vehicles will be included in the impact fee calculation.

Table 4-13: Calls Per Unit

Type	Units	Calls	Calls/Unit
Single Family	4,618	2,655	0.575
Multi-Family	290	559	1.928
Non-Residential	178	441	2.478

Table 4-14: Public Safety Impact Fee Calculation

Project	Impact Fee Eligible Cost	Planning Period (2025-2035) Calls	Cost per Call
Buy-In Cost	$1,013,264.83	1,579	$641.71
Animal Control Shelter	$295,585.40	1,579	$187.20
Justice Center Police Expansion	$578,158.28	1,579	$366.15
Professional Expenses	$69,652.56	1,579	$44.11
Total			**$1,239.18**

In order to simplify the process of charging impact fees, the fees for residential development are charged based dwelling or non-residential unit. The results of these impact fee calculations are summarized in Table 4-15.

Table 4-15: Proposed Public Safety Maximum Allowable Impact Fees

Land Use	Impact Fee
Single Family	$712.43 per Dwelling Unit
Multi-Unit	$2,388.62 per Dwelling Unit
Non-Residential	$3,070.10 per Non-Residential Unit

Single family and multi-family units are self-explanatory, but non-residential units are different. An example of non-residential units are a strip mall with one building with 10 units or shops. Another example is a 1,000,000 square foot warehouse which only has one tenant/business accounting for one (1) unit. There may also be multiple commercial buildings on one property which are one (1) unit each if they are different businesses.

4.2.5 Impact Fee Cashflow

The anticipated impact fee revenues and expenses over the 10-year planning period are shown in Table 4-16. The expenses represent only what is attributable to planning period development and include capital project costs, the expenditure of buy-in costs, and proposed bond payments. The impact fee cashflow (Table 4-17) estimates the end of year impact fee fund balance throughout the planning period by comparing the impact fee revenues, total expenses, and interest income calculated at 3.0% of the fund balance.

4.2.6 Impact Fee Credits

The City currently has procedures in place for credits, appeals, and exemptions of impact fees, refer to Appendix B for the City’s current impact fee ordinance.

Table 4-16: Public Safety Impact Fee Revenues and Expenses

Year	Single Family Residential Units Increase	Multi-Family Residential Units Increase	Non-Residential Units Increase	Impact Fee Revenues	Impact Fee Eligible Project Costs	Bond Payments	Bond Proceeds	Buy-In Cost Expenses	Professional Expenses	Total Expenses
2025	-	-	-	-	-	-	-	-	($5,300.00)	($5,300.00)
2026	162	10	1	$142,370.47	-	-	-	($104.60)	($5,485.50)	($5,590.10)
2027	167	11	1	$148,321.25	-	-	-	($107.81)	($5,677.49)	($5,785.30)
2028	198	12	4	$182,005.59	-	-	-	($129.63)	($5,876.20)	($6,005.83)
2029	206	13	2	$183,953.48	-	-	-	($133.48)	($6,081.87)	($6,215.35)
2030	214	13	4	$195,793.14	-	-	-	($139.89)	($6,294.74)	($6,434.63)
2031	223	14	2	$198,453.47	-	-	-	($144.39)	($6,515.05)	($6,659.44)
2032	232	15	4	$213,394.18	-	-	-	($151.44)	($6,743.08)	($6,894.52)
2033	241	15	3	$216,735.98	($295,585.40)	-	-	($156.58)	($6,979.09)	($302,721.07)
2034	250	16	3	$225,536.50	($578,158.28)	-	-	($162.35)	($7,223.36)	($585,543.99)
2035	260	16	3	$232,660.83	-	-	-	($168.77)	($7,476.17)	($7,644.94)
Total	**2,153**		**27**	**$1,939,224.88**	**($873,743.68)**			**($1,398.93)**	**($69,652.56)**	**($944,795.17)**

Table 4-17: Public Safety Impact Fee Cashflow

Year	Impact Fee Revenues	Total Expenses	Interest Income	End of Year Balance
2025	-	($5,300.00)	-	$93,980.30
2026	$142,370.47	($5,590.10)	$2,819.41	$233,580.08
2027	$148,321.25	($5,785.30)	$7,007.40	$383,123.43
2028	$182,005.59	($6,005.83)	$11,493.70	$570,616.89
2029	$183,953.48	($6,215.35)	$17,118.51	$765,473.53
2030	$195,793.14	($6,434.63)	$22,964.21	$977,796.25
2031	$198,453.47	($6,659.44)	$29,333.89	$1,198,924.16
2032	$213,394.18	($6,894.52)	$35,967.72	$1,441,391.54
2033	$216,735.98	($302,721.07)	$43,241.75	$1,398,648.20
2034	$225,536.50	($585,543.99)	$41,959.45	$1,080,600.16
2035	$232,660.83	($7,644.94)	$32,418.00	$1,338,034.04

Section 5 Parks

5.1 Capital Facilities Plan and Impact Fee Facilities Plan

5.1.1 Inventory of Existing Facilities

Grantsville City's existing City parks are shown in Figure 5-1. These parks have a varying level of amenities as listed in Table 5-1. The City does not have any long-term debt associated with its park facilities.

Table 5-1: Existing Park Facilities

Facility	Area (ac)	Amenities	Cost [1]
Old Lincoln Park	1.08	Restroom, dog park, pavilion, playground, and drinking fountains	$240,986.42
Academy Square	0.65	Pavilion	N/A
Rodeo Grounds	6.26	Arena	$98,353.45
Scott Bevan Memorial Park	1.73	Flex trail and playground	$555,549.34
Cherry Street Park	19.58	Playground, picnic benches, soccer fields, tennis courts, baseball fields, softball fields, restrooms, skate park, four pavilions, T-ball field, water fountain, tot park, pickleball courts	$1,096,726.37
Hollywood Park	12.69	Shaded playground, restrooms, pavilion, basketball hoops, soccer field, ball field, splash pad	$1,696,554.79
Total	**41.99**		**$3,688,170.37**

[1] The costs shown are historical costs which may include initial construction, acquiring land, improvements, planning, and engineering.

5.1.2 Level of Service

The existing level of service for park facilities is 4 acres of park area per 1,000 population, as established in the City's previous Capital Facilities Plans as well as the Grantsville General Plan dated January 15, 2020. This CFP/IFFP will continue to use the established level of service of 4 acres per 1,000 population.

5.1.3 Capacity of Existing Facilities

The capacity of existing park facilities was calculated based on the park area needed to meet the level of service at the City's current population compared to the existing park area, as shown in Table 5-2.

Table 5-2: Capacity of Existing Parks

Population (2024)	Park Area LOS (ac/1,000 Population)	Park Area Required (ac)	Existing Park Area (ac)	Excess / (Deficit) (ac)
16,056	4	64.22	41.99	(22.23)

5.1.4 Demands of Future Development

Utilizing the demographic projections from Section 2.7, the park area required to meet the level of service throughout the planning period was calculated as shown in Table 5-3.

Table 5-3: Future Park Requirements

Year	Population	Park Area Required (ac)	Excess / (Deficit) (ac)
2025	16,056	64.22	(22.23)
2026	16,592	66.37	(24.38)
2027	17,148	68.59	(26.60)
2028	17,803	71.21	(29.22)
2029	18,486	73.94	(31.95)
2030	19,193	76.77	(34.78)
2031	19,934	79.74	(37.75)
2032	20,705	82.82	(40.83)
2033	21,501	86.00	(44.01)
2034	22,332	89.33	(47.34)
2035	23,192	92.77	(50.78)

5.1.5 Proposed Projects

Grantsville City plans to construct the parks listed in Table 5-4 within the planning period to satisfy the future park area requirements. Also shown in the table are the proposed areas, recommended years to begin planning and complete the project by, and the current year cost estimates (see Appendix H).

Table 5-4: Proposed Park Projects

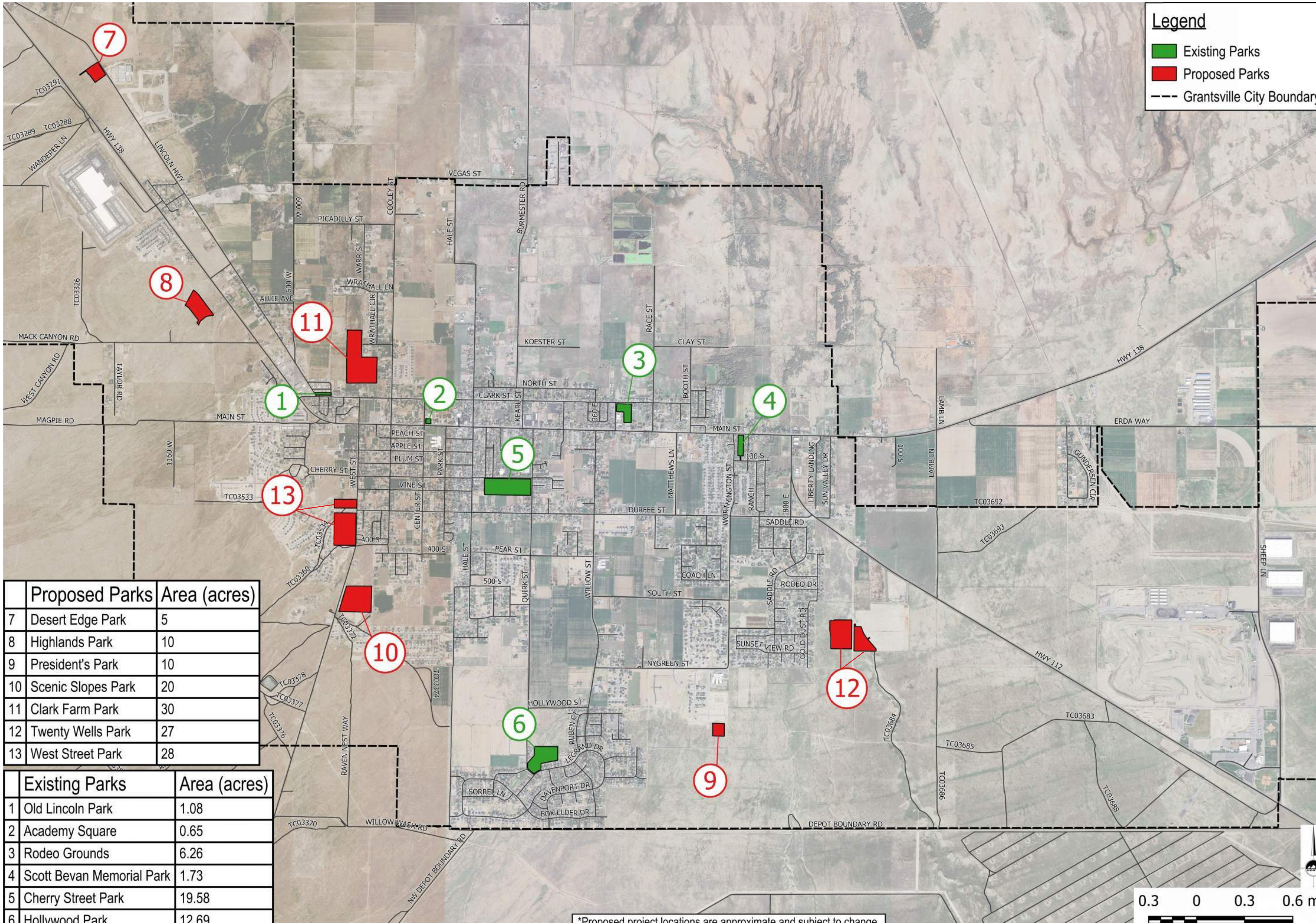
Project	Proposed Area (ac)	Construction Priority		Current Year (2025) Cost Estimate
		Begin Planning	Completion	
West Street Park	27.69	N/A [1]	2026	$297,903.23
Scenic Slopes Park, Utilities, Pump Track, Site Improvements	6.98	2025	2026	$3,170,969.33[2]
Desert Edge Park	5	2025	2027	$2,664,070.11
Scenic Slopes Parking, Park Amenities, Ball Courts	5.39	2026	2028	$2,447,372.82
President's Park	10	2026	2028	$1,695,904.66
Scenic Slopes Park Baseball and Soccer Field	7.05	2028	2030	$3,198,537.29
Twenty Wells Park	27	2030	2032	$8,628,500.00
Highlands Park	10	2031	2033	$3,392,678.66
Clark Farm Park	30	2032	2034	$3,405,170.23
Total	**129.11**			**$28,901,106.33**

[1] *The City has already begun the planning process.*
[2] *Cost Estimate based on Resolution 2025-71.*

The proposed locations of these parks are shown in Figure 5-1, but these are approximate locations which are subject to change, and the exact locations will be determined during the planning phase of each project. It should be noted the City does not maintain parks less than 10 acres but will work with developers for impact fee credits associated with parks less than 10 acres which are HOA maintained. The City also has the option to utilize parks as retention/detention basins, although this is typically not permitted.

5.1.6 Methods of Financing

The City funds park projects as much as possible through grants and impact fees. Parks may also be funded through loans, developer dedications, taxes, and reserves in the Capital Project Fund.



	Proposed Parks	Area (acres)
7	Desert Edge Park	5
8	Highlands Park	10
9	President's Park	10
10	Scenic Slopes Park	20
11	Clark Farm Park	30
12	Twenty Wells Park	27
13	West Street Park	28

	Existing Parks	Area (acres)
1	Old Lincoln Park	1.08
2	Academy Square	0.65
3	Rodeo Grounds	6.26
4	Scott Bevan Memorial Park	1.73
5	Cherry Street Park	19.58
6	Hollywood Park	12.69

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GRANTSVILLE CFP, IFFP, AND IFA

GRANTSVILLE, UTAH

PARK FACILITIES

PROJECT NUMBER 11637
PRINT DATE 2026-04-02
PROJECT MANAGER R. ROUSSELLE
DESIGNED BY C. DUNKEL

FIG 5-1

5.2 Impact Fee Analysis

5.2.1 Existing Facilities

As discussed in Section 5.1.3, there is no excess capacity for existing parks to serve future development. Therefore, no buy-in cost can be charged for existing park facilities.

5.2.2 System Improvements

The system improvements for park facilities which are needed to meet the demands of future development in the planning period were determined in Section 5.1.5. A proportionate share for each new park project was calculated based on the added park acreage to meet the level of service, as shown in Table 5-5. Any portion of a project associated with correcting an existing deficiency was excluded from the proportionate share calculation. The City does not charge impact fees for projects which are expected to be constructed by developers so they have a proportionate share of 0%. If it is determined the City will pay for any portion of these projects as the development agreements are finalized then this plan should be amended to include the project.

Table 5-5: Proposed Parks Proportionate Share

Project	Park Area (ac)	Existing (2025) Deficit (ac)	Future (2035) Deficit (ac)	Proportionate Share
West Street Park	27.69	22.23	50.78	19.7%
Scenic Slopes Park, Utilities, Pump Track, Site Improvements	6.98	0	23.09	100%
Desert Edge Park	5	0	16.11	0% [1]
Scenic Slopes Parking, Park Amenities, Ball Courts	5.39	0	11.11	100%
President's Park	10	0	23.09	100%
Scenic Slopes Park Baseball and Soccer Field	7.05	0	13.09	100%
Twenty Wells Park	27	0	6.04	0% [1]
Highlands Park	10	0	0	0% [1]
Clark Farm Park	30	0	0	0%

[1] *The proportionate share is 0% because the project is expected be constructed by developers.*

The cost of each project which is eligible for impact fees is based on the portion of the project associated with serving future development in the planning period, excluding any portion of the project attributed to correcting an existing deficiency. This was calculated in Table 5-6 by multiplying the total project cost by the proportionate share shown above. In order to account for the time-price differential inherent with future costs, the current year cost estimates were inflated at a rate of 3.5% to the anticipated construction year.

Table 5-6: Parks Impact Fee Eligible Costs

Project	Construction Year	Current Year (2025) Cost Estimate	Construction Year Cost Estimate	Proportionate Share	Impact Fee Eligible Cost
West Street Park	2026	$297,903.23	$308,329.84	19.7%	$60,752.89
Scenic Slopes Park, Utilities, Pump Track, Site Improvements	2026	$3,170,969.33	$2,420,969.33[2]	100.0%	$2,420,969.33
Desert Edge Park	2027	$2,664,070.11	$2,853,818.50	0% [1]	$0.00
Scenic Slopes Parking, Park Amenities, Ball Courts	2028	$2,447,372.82	$2,713,445.99	100.0%	$2,713,445.99
President's Park	2034	$1,695,904.66	$2,311,343.97	100.0%	$2,311,343.97
Scenic Slopes Park Baseball and Soccer Field	2032	$3,198,537.29	$4,069,432.67	100.0%	$4,069,432.67
Twenty Wells Park	2032	$8,628,500.00	$10,977,861.62	0% [1]	$0.00
Highlands Park	2033	$3,392,678.66	$4,467,509.92	0% [1]	$0.00
Clark Farm Park	2034	$3,405,170.23	$4,640,897.49	0%	$0.00
Total		**$28,901,106.33**	**$34,763,609.34**		**$11,575,944.86**

[1] *The proportionate share is 0% because the project is expected be constructed by developers.*

[2] *Construction Year Cost based on Resolution No. 2025-71 not inflated, without grant of $750k which is not impact fee eligible.*

In addition to impact fee eligible project costs, planning costs can also be included in the calculation of impact fees. Due to the uncertainty that comes with long-term development projections, this plan is expected to be amended annually. The future professional expenses expected to occur within the planning period were inflated at a 3.5% rate as shown in Table 5-7.

Table 5-7: Parks Professional Expenses

Year	Cost
2025	$5,300.00
2026	$5,485.50
2027	$5,677.49
2028	$5,876.20
2029	$6,081.87
2030	$6,294.74
2031	$6,515.05
2032	$6,743.08
2033	$6,979.09
2034	$7,223.36
2035	$7,476.17
Total	**$69,652.56**

5.2.3 Methods of Financing

As discussed in Section 5.1.6, the parks system improvements are expected to be funded through impact fees, loans, developer dedications, taxes, and Capital Project Fund reserves. The City expects to finance the Scenic Slopes Park Amenities project with a loan, which is necessary to prevent the impact fee fund balance from going negative (see Section 5.2.5). This loan was assumed to be a 30-year bond with a 4.0% interest rate, 1.5% cost of issuance, 0.5% bond insurance, and a $20,000 surety policy. The interest cost for this bond attributed to development within the planning period can be included in the impact fee calculation. Table 5-8 shows the details of this bond along with the impact fee eligible interest cost.

Table 5-8: Parks Future Debt Financing

Project	Proceeds	Par Amount [1]	Debt Service (Interest)	Debt Service (Principal + Interest)	Proportionate Share	Impact Fee Eligible Debt Service (Interest)
Scenic Slopes Parking, Park Amenities, Ball Courts	$2,713,445.99	$1,403,857.46	$1,031,699.02	$2,435,556.48	100.0%	$1,031,699.02

[1] Includes cost of issuance, bond insurance, and surety policy. It is assumed bond will be 50% of construction cost.

5.2.4 Impact Fee Calculation

Impact fees for parks are charged based on the number of dwelling units. Per Utah Code Section 11-36a-202, it is prohibited to charge schools impact fees for park facilities. Additionally, park facilities only benefit residential development in the City, so only single family and multi-unit developments are charged impact fees for parks and were the only development types considered in the impact fee calculation shown in Table 5-9. The growth of these development types was projected in Table 2-3. The proposed impact fees are summarized in Table 5-10.

Table 5-9: Parks Impact Fee Calculation

Project	Impact Fee Eligible Cost	Planning Period (2025-2035) Dwelling Units [1]	Cost per Dwelling Unit
West Street Park	$60,752.89	2,288	$26.55
Scenic Slopes Park, Utilities, Pump Track, Site Improvements	$2,420,969.33	2,288	$1,058.12
Scenic Slopes Parking, Park Amenities, Ball Courts	$2,713,445.99	2,288	$1,185.95
Scenic Slopes Parking, Park Amenities, Ball Courts Debt Service (Interest)	$1,031,699.02	2,288	$450.92
President's Park	$2,311,343.97	2,288	$1,010.20
Twenty Wells Park	$0.00	2,288	$0.00
Professional Expenses	$69,652.56	2,288	$30.44
Total			**$3,762.18**

[1] *Includes only residential dwelling units (single family and multi-unit).*

Table 5-10: Proposed Parks Maximum Allowable Impact Fees

Land Use	Impact Fee
Single Family and Multi-Unit	$3,762.18 per Dwelling Unit

5.2.5 Impact Fee Cashflow

The anticipated impact fee revenues and expenses over the 10-year planning period are shown in Table 5-11. The expenses represent only what is attributable to planning period development and include capital project costs, the expenditure of buy-in costs, and proposed bond payments. The impact fee cashflow (Table 5-12) estimates the end of year impact fee fund balance throughout the planning period by comparing the impact fee revenues, total expenses, and interest income calculated at 3.0% of the fund balance.

5.2.6 Impact Fee Credits

The City currently has procedures in place for credits, appeals, and exemptions of impact fees, refer to Appendix B for the City's current impact fee ordinance.

Table 5-11: Parks Impact Fee Revenues and Expenses

Year	Dwelling Units [1]	Annual Dwelling Unit Increase [1]	Impact Fee Revenues	Impact Fee Eligible Project Costs	Bond Payments	Bond Proceeds	Professional Expenses	Total Expenses
2025	4,908	-	-	-	-	-	($5,300.00)	($5,300.00)
2026	5,080	172	$647,094.65	($2,481,722.23)	-	-	($5,485.50)	($2,487,207.73)
2027	5,258	178	$669,667.72	-	-	-	($5,677.49)	($5,677.49)
2028	5,468	210	$790,057.43	($2,713,445.99)	-	$2,713,445.99	($5,876.20)	($5,876.20)
2029	5,687	219	$823,917.03	-	($81,185.22)	-	($6,081.87)	($87,267.09)
2030	5,914	227	$854,014.46	-	($81,185.22)	-	($6,294.74)	($87,479.95)
2031	6,151	237	$891,636.24	-	($81,185.22)	-	($6,515.05)	($87,700.27)
2032	6,398	247	$929,258.02	($4,069,432.67)	($81,185.22)	-	($6,743.08)	($4,157,360.96)
2033	6,654	256	$963,117.62	-	($81,185.22)	-	($6,979.09)	($88,164.30)
2034	6,920	266	$1,000,739.41	($2,311,343.97)	($81,185.22)	-	($7,223.36)	($2,399,752.54)
2035	7,196	276	$1,038,361.19	-	($81,185.22)	-	($7,476.17)	($88,661.39)
Total		**2,288**	**$8,607,863.77**	**($11,575,944.86)**			**($69,652.56)**	**($9,500,447.93)**

[1] Includes only residential dwelling units (single family and multi-unit)

Table 5-12: Parks Impact Fee Cashflow

Year	Impact Fee Revenues	Total Expenses	Interest Income	End of Year Balance
2025	-	($5,300.00)	-	$1,413,470.27
2026	$647,094.65	($2,487,207.73)	$42,404.11	($384,238.69)
2027	$669,667.72	($5,677.49)	-	$279,751.54
2028	$790,057.43	($5,876.20)	$8,392.55	$1,072,325.30
2029	$823,917.03	($87,267.09)	$32,169.76	$1,841,145.01
2030	$854,014.46	($87,479.95)	$55,234.35	$2,662,913.86
2031	$891,636.24	($87,700.27)	$79,887.42	$3,546,737.24
2032	$929,258.02	($4,157,360.96)	$106,402.12	$425,036.42
2033	$963,117.62	($88,164.30)	$12,751.09	$1,312,740.83
2034	$1,000,739.41	($2,399,752.54)	$39,382.22	($46,890.08)
2035	$1,038,361.19	($88,661.39)	-	$902,809.72

Section 6 Wastewater

6.1 Capital Facilities Plan and Impact Fee Facilities Plan

6.1.1 Inventory of Existing Facilities

Grantsville City's wastewater collection system consists of trunk lines, interceptor lines, collector lines, lift stations, force mains, and the Wastewater Treatment Facility (WWTF), as shown in Figure 6-1. The major gravity sewer lines and their historic construction costs are listed in **Error! Reference source not found.**. The minor gravity sewer lines owned by the City (all sewer lines not listed in **Error! Reference source not found.**) have historic construction costs totaling $12,632,038.68.

Table 6-1: Existing Major Gravity Sewer Lines

Pipeline	Diameter	Material	Length (ft)	Minimum Slope	Flow Capacity (gpm) [2]	Cost [3]
Main Trunk	18-inch	Concrete	2,340	0.113% [1]	1,252	N/A
Central Trunk	(2) parallel 12-inch	PVC	1,690	0.194% [1]	1,113	N/A
Central Interceptor	12-inch and 15-inch	PVC	2,480	0.194% [1]	556	N/A
Hale Street Collector	12-inch	PVC	3,990	0.37%	768	$1,060,736.07
Northwest Interceptor	12-inch, 15-inch, and 18-inch	PVC	17,770	0.12%	1,289 [4]	$749,254.71
Burmester Collector	12-inch	PVC	4,730	0.194% [1]	556	$226,236.98
West Interceptor	10-inch	PVC	6,440	0.25%	388	$1,712,065.24
Northeast Interceptor	18-inch and 24-inch	PVC	9,180	0.345%	2,186	$1,083,869.01
Matthew's Lane Collector	12-inch and 15-inch	PVC	7,670	0.20%	564	$2,039,059.07
Worthington Street Collector	12-inch	PVC	11,760	0.194% [1]	556	$193,636.00
Main Street Trunk	18-inch	PVC	2,460	0.20%	1,664	$653,987.65
Lakeview Business Park Offsite Gravity Line	18-inch and 21-inch	PVC	20,440	0.06%	912	$3,398,037.81
Deseret Peak Collector	8-inch, 10-inch, 12-inch, and 15-inch	PVC	7,630	1.60%	542	$190,270.90
West Street Collector	12-inch	PVC	6,600	1.06%	1,300	$1,324,885.24 [5]
Cooley Street Collector	8-inch	PVC	4,048	0.80%	383	
Total			**109,228**			**$12,632,038.68**

[1] *The regulatory minimum slope per UAC R317-3-2 is used when the actual minimum slope is unknown.*
[2] *The flow capacity was calculated based on d/D=0.67 and the minimum slope of the pipeline.*
[3] *The costs shown are historical costs which may include initial construction, acquiring land, improvements, planning, and engineering.*
[4] *The flow capacity is 944 gpm for the 15-inch portion of the pipeline and 1,289 gpm for the 18-inch portion, but the 18-inch is the controlling portion because it collects significantly more flow than the 15-inch.*

[5] *Cost does not include the amount paid for by a grant.*

The City's existing lift stations and associated force mains are detailed in Table 6-2. Additional existing lift stations include the Sheep Lane, Deseret Peak, Utah Motorsports Campus (UMC), and Tooele Valley Airport Lift Stations. However, the Sheep Lane Lift Station is no longer in use, the Deseret Peak Lift Station is County owned, and the UMC and Tooele Valley Airport Lift Stations are privately owned so these are not included in the table.

Table 6-2: Existing Lift Stations

Lift Station	Associated Force Main(s)	Flow Capacity (gpm)	Cost [1]
Northwest	6-inch and 10-inch	1,200	$500,000.00
Northeast	8-inch	2,170	$400,000.00
Total			**$900,000.00**

[1] *The costs shown are historical costs which may include initial construction, acquiring land, improvements, planning, and engineering.*

The capacity and historic cost of the City's Wastewater Treatment Facility is shown in Table 6-3. The WWTF was originally designed to treat an average day flow of 1.5 million gallons per day (MGD), but in 2019 permit requirements were updated to require greater nutrient removal which limits the average day capacity of the facility to 1 MGD (per the 2022 Wastewater Treatment Plant Study by AQUA Engineering).

Table 6-3: Existing Wastewater Treatment Facility

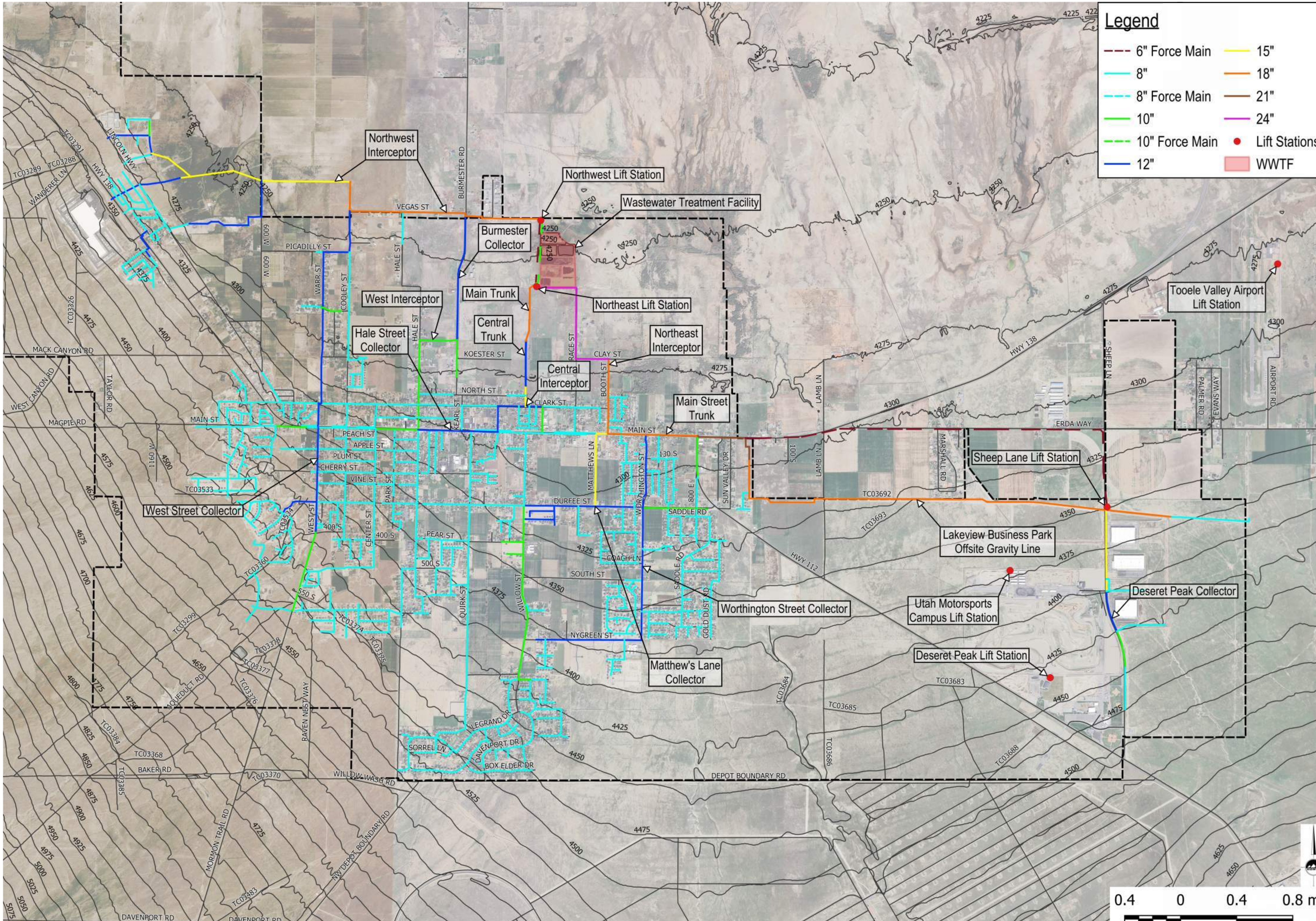
Facility	Capacity		Cost [2]
	Average Day Flow (MGD)	Peak Day Flow (MGD)	
Wastewater Treatment Facility	1.00 [1]	2.25	$5,559,563.47

[1] *The WWTF was originally designed to treat an average day flow of 1.5 MGD, but currently can only treat 1 MGD due to updated nutrient removal requirements.*

[2] *The costs shown are historical costs which may include initial construction, acquiring land, improvements, planning, and engineering.*

As discussed in Section 3.1.1, the existing Public Works Building serves both drinking water and wastewater facilities. The building was constructed in 2021 for a cost of $222,483.40 attributed to wastewater utilities.

The City has long-term debt associated with existing wastewater facilities in the form of a revenue bond, as detailed in Table 6-4. This Sewer Revenue Bond was used to finance improvements to the collection system.



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GRANTSVILLE CFP, IFFP, AND IFA

GRANTSVILLE, UTAH

EXISTING WASTEWATER SYSTEM

PROJECT NUMBER	PRINT DATE
11637	2026-04-02
PROJECT MANAGER	DESIGNED BY
R. ROUSSELLE	C. DUNKEL

FIG 6-1

Table 6-4: Existing Wastewater Long-Term Debt

Bond	Date of Issue	Interest Rate	Final Maturity Date	Original Bond, Note Issue	Principal Outstanding at June 30, 2025	Total Interest Payments (2025-2035)
Sewer Revenue Bond, Series 2018	December, 2018	1.75%	August, 2049	$4,880,000.00	$4,232,000.00	$628,057.00

6.1.2 Level of Service

The level of service standards to be used for this plan, shown in Table 6-5, were previously established in the Grantsville City Capital Facilities Plan dated May 2022. These standards were calculated based on measured flow data (see Appendix I), and peaking factors were determined from the Grantsville City – Sanitary Sewer Flow Monitoring 2018 – Flow and Model Summary by AQUA Engineering. The City's recent wastewater flow data (2022-2025) was analyzed and determined to be consistent with the previously established level of service.

Table 6-5: Wastewater Level of Service

Component	Parameter	Level of Service	
Collection System	Average Day Flow	150 gpd/ERC	
	Peaking Factors	*Miles From WWTF*	*Factor*
		<1	1.85
		>1 and <1.6	2.25
		>1.6	4
Lift Stations	Peak Inflow	0.35 gpm/ERC	
Wastewater Treatment Facility	Average Day Flow	150 gpd/ERC	
	Peak Day Flow	175 gpd/ERC	
	Peak Instantaneous Flow	0.4 gpm/ERC	

6.1.3 Capacity of Existing Facilities

The capacity of the City's major gravity sewer lines was determined by modeling the existing conditions of the entire wastewater collection system and then analyzing the flow in each of the major sewer lines. The total capacity of each pipe is defined as the flow by which the depth to diameter ratio (d/D) is equal to 0.67, also stated as the pipe flowing 67% full by depth. The excess capacity for each pipeline was calculated by dividing the estimated current flow in the pipe by the total capacity flow of the pipe at the most critical point (largest d/D) along the whole pipeline. The resulting excess capacities for each major gravity sewer line are shown in Table 6-6.

Table 6-6: Capacity of Existing Major Gravity Sewer Lines

Pipeline	Current (2025) Peak Hour Flow (gpm)	Flow Capacity (gpm)	Excess / (Deficit) (gpm)
Main Trunk	583	1,252	669
Central Trunk	583	1,113	530
Central Interceptor	441	556	115
Hale Street Collector	385	768	383
Northwest Interceptor	781	1,289	508
Burmester Collector	489	556	67
West Interceptor	260	388	128
Northeast Interceptor	1,138	2,186	1,048
Matthew's Lane Collector	252	564	312
Worthington Street Collector	69	556	487
Main Street Trunk	704	1,664	960
Lakeview Business Park Offsite Gravity Line	299	912	613
Deseret Peak Collector	274	542	268
West Street Collector	278	1,300	1,022

It was not feasible to complete a pipe by pipe analysis of every single sewer line in the collection system beyond the major sewer lines, and any inaccuracies in the modeled conditions would be emphasized in these smaller diameter sewer lines which are upstream of the major sewer lines. The sewer lines other than the major pipelines are typically constructed to serve a single subdivision and designed to have sufficient capacity to serve the build-out conditions of the subdivision. Therefore, all of these existing minor sewer lines should have excess capacity to serve any future development in their service area and are considered beneficial to both future and existing development. Additionally, the majority of existing and future development connect or will connect to a minor sewer line, as opposed to connecting directly to a major pipeline, so the system of minor sewer lines as a whole can be considered to be beneficial to the entire City, even though each line individually serves only a limited portion of the City. For the purposes of this plan, the minor sewer lines (all pipes not listed in Table 6-6) are considered to be a whole system which serves the entire City and has excess capacity to accommodate any future development.

The capacities of the City's existing lift stations were calculated by comparing the current modeled inflow with the total capacity of each lift station. The total capacities were determined by the design flows of the equipped pumps excluding any redundant or standby pumps. These results are shown in Table 6-7.

Table 6-7: Capacity of Existing Lift Stations

Lift Station	Current (2025) Peak Day Flow (gpm)	Flow Capacity (gpm)	Excess / (Deficit) (gpm)
Northwest	781	1,200	419
Northeast	1,138	2,170	1,032

The Wastewater Treatment Facility's capacity was determined by comparing the flow capacity for both average day and peak day conditions with the current inflow at the facility, which was calculated based on existing ERCs and the level of service, as shown in Table 6-8.

Table 6-8: Capacity of Existing Wastewater Treatment Facility

Current (2025) ERCs	Average Day			Peak Day		
	Current Flow (MGD)	Flow Capacity (MGD)	Excess / (Deficit) (MGD)	Current Flow (MGD)	Flow Capacity (MGD)	Excess / (Deficit) (MGD)
6,736	1.010	1.50	0.490	1.18	2.25	1.07

The WWTF was originally designed to treat an average day flow of 1.5 MGD. The practical capacity is 1.0 MGD to meet the nutrient limits. Grantsville is currently in a 5-year grace period until the new plant is constructed which is anticipated to be complete summer of 2028.

6.1.4 Demands of Future Development

The future requirements for sewer lines and lift stations were determined by adding the demands of future development to the sewer model and analyzing when and where any deficiencies appear in the system. These estimated demands were based on the demographic projections per planning area shown in Table 2-4 and the level of service from Section 6.1.2. The future requirements for the WWTF were determined from the level of service and the projected ERCs for the whole City, as shown in Table 6-9.

Table 6-9: Future Wastewater Treatment Facility Requirements

Year	ERCs	Average Day Flow (MGD)	Excess / (Deficit) (MGD)	Peak Day Flow (MGD)	Excess / (Deficit) (MGD)
2025	6,736	1.010	0.490	1.18	1.07
2026	6,939	1.041	0.459	1.21	1.04
2027	7,136	1.07	0.430	1.25	1.00
2028	7,383	1.11	0.393	1.29	0.958
2029	7,617	1.14	0.357	1.33	0.917
2030	7,888	1.18	0.317	1.38	0.870
2031	8,141	1.22	0.279	1.42	0.825
2032	8,424	1.26	0.236	1.47	0.776
2033	8,708	1.31	0.194	1.52	0.726
2034	9,004	1.35	0.149	1.58	0.674
2035	9,300	1.40	0.105	1.63	0.623

6.1.5 Proposed Projects

The wastewater projects required to meet the demands of development within the planning period were determined based on future deficiencies identified in the sewer model analysis as well as development anticipated to occur in areas of the City not currently served by sewer infrastructure. The locations of the proposed projects can be seen in Figure 6-2. The proposed gravity sewer lines (Table 6-10) were sized to have sufficient capacity to serve projected development for 30 years beyond the expected construction date. The minimum slope for each pipeline was chosen as the larger of the minimum existing ground slope along the expected alignment or the minimum regulatory slope per UAC R317-3-2. Since these existing ground slopes will likely change as roads are built and development will probably occur at a rate and in locations somewhat different than projected in this plan, the City should reevaluate and amend this plan periodically and consider the proposed diameters and alignments may change when the project is designed. The cost estimates for the gravity sewer projects were calculated based on the costs per linear foot for each diameter are shown in Appendix J.

Table 6-10: Proposed Gravity Sewer Lines

Pipeline	Diameter (in)	Length (ft)	Minimum Slope	Flow Capacity (gpm)	Construction Priority		Current Year (2025) Cost Estimate
					Begin Planning	Begin Construction	
Willow Street Sewer Improvements	12	3,380	0.25%	628	2035	2036	$1,310,628.80
SR112 Interceptor	15 and 18	6,914	0.13%	825 and 1,342	2026	2027	$2,988,835.56
West Bank Interceptor Segment 1	36	7,444	0.07%	6,252	2026	2027	$3,748,798.40
West Bank Interceptor Segment 2	36	2,695	0.07%	6,252	2026	2027	$1,357,202.00
West Bank Interceptor Segment 3	18 and 24	8,884	0.50%, 0.12%, and 0.07%	2,631and 2,776	2026	2027	$3,927,403.66
Southeast Sewer Line	10	4,120	1.27%	875	2026	2027	$1,564,982.00
Vegas Street Collector	18, and 24	12,966	0.08%, and 0.08%	1,053 and 2,267	2034	2035	$5,790,294.14
Total							**$20,688,144.56**

Note: Willow Street Sewer Improvements project is shown, but construction is outside the 10-year planning period so it won't be included in impact fee calculations.

Results from the sewer model analysis show the Northwest Lift Station is predicted to reach its capacity within the planning period. As shown in Table 6-11, it is proposed to replace the existing 6-inch diameter force main of the Northwest Lift Station with a 16-inch diameter force main. This would increase the flow capacity of the lift station from 1,200 gpm to 1,600 gpm which is enough to serve future development for the entire planning period. Additionally, when the Northwest Lift Station eventually reaches its capacity and needs to be replaced, the proposed 16-inch force main can be utilized as a part of the replacement project which significantly extends the design life of this project.

Table 6-11: Proposed Lift Station Projects

Project	Description	Length (ft)	Flow Capacity (gpm)	Construction Priority		Current Year (2025) Cost Estimate
				Begin Planning	Begin Construction	
Northwest Lift Station - Upsize Force Main	Upsize 6" diameter force main to 16"	2,380	1,600	2027	2028	$194,363.06

The existing WWTF was predicted to exceed its capacity in 2025. The City plans to correct this with the construction of a new WWTF as detailed in the 2022 Wastewater Treatment Plant Study by AQUA Engineering. The new WWTF is proposed to have the capacities shown in Table 6-12 and is expected to begin construction in 2026. The cost estimate was provided by AQUA Engineering.

Table 6-12: Proposed Wastewater Treatment Facility

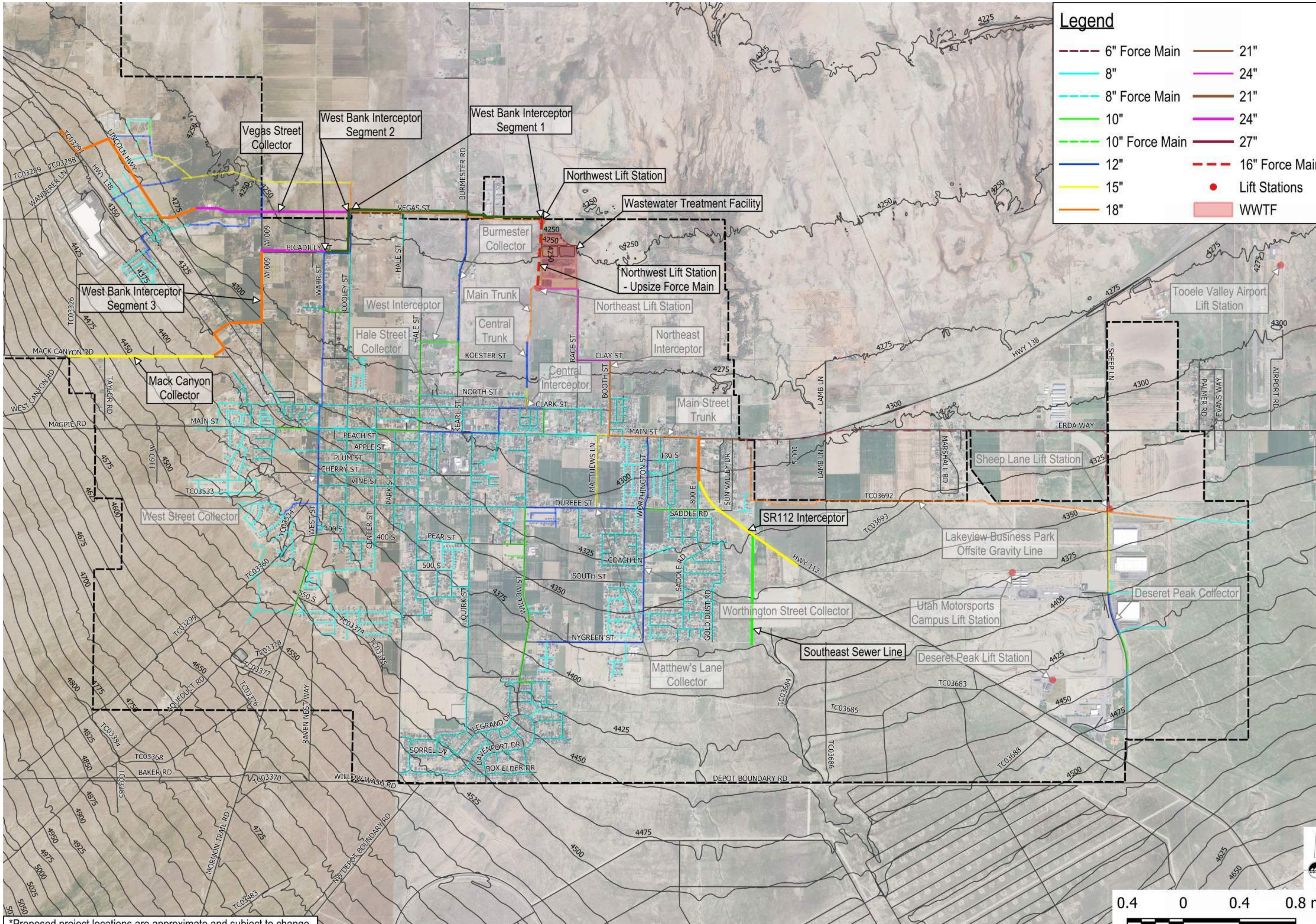
Project	Capacity		Construction Priority		Current Year (2025) Cost Estimate
	Average Day Flow (MGD)	Peak Hour Flow (MGD)	Begin Planning	Begin Construction	
Proposed Wastewater Treatment Facility	3.0	7.0	N/A [1]	2026	$48,402,175.15

[1] *The City has already begun the design process.*

As mentioned in Section 3.1.5, the City also plans to expand the Public Works site to add a shop area, expected to begin construction in 2035. The estimated cost is $1.86 million and will be split evenly between the drinking water and wastewater utility.

6.1.6 Methods of Financing

Each project will be funded to the extent possible through impact fees. The portion of each project not eligible for impact fees may be funded through grants, loans, developer dedications, or reserves in the Sewer Fund.



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GRANTSVILLE CFP, IFFP, AND IFA

GRANTSVILLE, UTAH

PROPOSED WASTEWATER SYSTEM

PROJECT NUMBER	PRINT DATE
11637	2026-04-02
PROJECT MANAGER	DESIGNED BY
R. ROUSSELLE	C. DUNKEL

FIG 6-2

6.2 Impact Fee Analysis

6.2.1 Existing Facilities

Grantsville City's existing wastewater facilities which have excess capacity to serve future development are listed in Table 6-14. Also shown are the historic construction costs for each project as well as the total and excess capacities which were discussed in Section 6.1.3. Proportionate shares were calculated by dividing the anticipated flow due to growth in the planning period by the total capacity. As discussed in Section 6.1.3, the City's existing minor gravity sewer lines also have excess capacity to accommodate future growth and are considered to be a whole system which benefits both existing and future development. Therefore, the proportionate share for minor sewer lines was calculated based on the proportion of future ERCs expected to be served within the planning period, as shown in Table 6-13. The existing Public Works Building will utilize this same proportionate share as it is also considered beneficial to both existing and future development. Another item eligible to charge a buy-in cost for is the interest payments amount due within the planning period for the Sewer Revenue Bond (Section 6.1.1). This loan was used to fund past improvements to the collection system which benefit existing and future development, so the buy-in cost was calculated utilizing the same proportionate share as the minor sewer lines. The proportionate share for each existing facility was multiplied by the historic construction cost in order to calculate the impact fee eligible buy-in costs (Table 6-14). The City has elected to not charge a buy-in cost for the WWTF, even though it technically has excess capacity for typical wastewater treatment but not for nutrients. The WWTF is needed for nutrient removal and will be replaced within the planning period.

Table 6-13: Existing Wastewater Facilities Proportionate Share

Facility	Total ERCs (Year 2035)	Increase in ERCs (Year 2025-2035)	Proportionate Share
Minor Sewer Lines, Public Works Building, and Sewer Revenue Bond Interest Payments	9,300	2,564	27.6%

Table 6-14: Wastewater Buy-In Costs

Facility	Cost [1]	Flow Capacity (gpm)	Planning Period (2025-2035) Flow (gpm)	Proportionate Share	Buy-In Cost
Main Trunk	N/A	1,252	115	9.18%	$0.00
Central Trunk	N/A	1,113	115	10.33%	$0.00
Central Interceptor	N/A	556	87	15.63%	$0.00
Hale Street Collector	$1,060,736.07	768	76	9.90%	$105,001.07
Northwest Interceptor	$749,254.71	1,289	508	39.4%	$230,953.43 [4]
Burmester Collector	$226,236.98	556	97	17.43%	$39,434.93
Northeast Interceptor	$1,083,869.01	2,186	743	34.0%	$368,428.33
Matthew's Lane Collector	$2,039,059.07	564	73	12.93%	$263,700.72
Worthington Street Collector	$193,636.00	556	20	3.59%	$6,959.24
Main Street Trunk	$653,987.65	1,664	444	26.7%	$174,475.51
Lakeview Business Park Offsite Gravity Line	$3,398,037.81	912	136	14.9%	$506,977.22
Deseret Peak Collector	$190,270.90	542	125	23.1%	$43,921.05
West Street Collector	$1,324,885.24	1,300	186	14.31%	$189,632.13
Northwest Lift Station	$500,000.00	1,200	419	34.9%	$174,583.33
Northeast Lift Station	$400,000.00	2,170	743	34.2%	$136,958.53
Wastewater Treatment Facility	$5,559,563.47	1.50 (MGD)	0.490 (MGD)	32.64%	$0.00 [2]
Minor Gravity Sewer Lines	$10,053,823.31	N/A	N/A	27.6%	$2,771,828.28
Public Works Building	$222,483.40 [3]	N/A	N/A	27.6%	$61,338.43
Sewer Revenue Bond Interest Payments (2025-2035)	$628,057.00	N/A	N/A	27.6%	$173,154.64
Total					**$5,247,346.84**

[1] The costs shown are historical costs which may include initial construction, acquiring land, improvements, planning, and engineering.

[2] The City is not charging a buy-in cost for the WWTF because it is expected to be replaced.

[3] The cost shown for the Public Works Building is the cost associated with wastewater facilities.

[4] The Northwest Interceptor remains in place and will be used for future development. The West Street Collector and Cooley Street are expected to be diverted to the West Bank Interceptor which frees up capacity in the Northwest Interceptor.

6.2.2 System Improvements

The wastewater system improvements needed to accommodate future development within the planning period were determined in Section 6.1.5. A proportionate share for each of these projects was calculated by estimating the flow to each facility contributed by the anticipated planning period development, which was divided by the total flow capacity of the facility (see Table 6-15). The City does not charge impact fees for projects which are expected to be constructed by developers so they have a proportionate share of 0%. If it is determined the City will pay for any portion of these projects as the development agreements are finalized then this plan should be amended to include the project. The Public Works Improvements project was determined to be beneficial to both existing and future development, so the proportionate share was calculated based on the ERCs expected to be served within the planning period as shown in Table 6-16.

Table 6-15: Proposed Wastewater Projects Proportionate Share

Project	Flow Capacity (gpm)	Planning Period (2025-2035) Flow (gpm)	Proportionate Share
SR112 Interceptor	825 and 1,342	108	0% [4]
West Bank Interceptor Segment 1	6,252	305	4.9% [5]
West Bank Interceptor Segment 2	6,252	305	4.9% [5]
West Bank Interceptor Segment 3	2,631and 2,776	305	0% [4]
Southeast Sewer Line	875	36.1	0% [4]
Vegas Street Collector	1,053 and 2,267	0, and 0	0% [4]
Northwest Lift Station - Upsize Force Main	400 [2]	154.4 [3]	100%
Proposed Wastewater Treatment Facility	3.0 (MGD)	0.38 (MGD)	12.8%

[1] A proportionate share was calculated for each diameter of the project, which was scaled based on the length of each stretch then added together.

[2] The increase in flow capacity resulting from the proposed project upgrades is shown as opposed to the total capacity of the facility.

[3] The flow shown is the planning period flow exceeding the existing capacity of the facility before the proposed project upgrades.

[4] The proportionate share is 0% because the project is expected be constructed by developers.

Table 6-16: Proposed Public Works Improvements Proportionate Share

Project	Total ERCs (Year 2035)	Increase in ERCs (Year 2025-2035)	Proportionate Share
Public Works Improvements	9,300	2,564	27.6%

The cost of each project which is attributed to new development in the planning period, and therefore eligible for impact fees, was calculated by multiplying the total project cost by the proportionate share as shown in Table 6-17. In order to account for the time-price differential inherent with future costs, the current year cost estimates were inflated at a rate of 3.5% to the anticipated construction year.

Table 6-17: Wastewater Impact Fee Eligible Costs

Project	Construction Year	Current Year (2025) Cost Estimate	Construction Year Cost Estimate	Proportionate Share	Impact Fee Eligible Cost
SR112 Interceptor	2027	$2,988,835.56	$3,201,715.37	0% [2]	$0.00
West Bank Interceptor Segment 1	2027	$376,287.40	$403,088.47	8.8% [4]	$35,294.63
West Bank Interceptor Segment 2	2027	$39,832.00	$42,669.03	13.5% [4]	$5,756.82
West Bank Interceptor Segment 3	2027	$3,927,403.66	$4,207,132.99	0% [2]	$0.00
Southeast Sewer Line	2027	$1,564,982.00	$1,676,447.84	0% [2]	$0.00
Vegas Street Collector	2035	$5,790,294.14	$8,167,781.74	0.0%	$0.00
Northwest Lift Station - Upsize Force Main	2028	$194,363.06	$215,493.80	100%	$215,493.80
Proposed Wastewater Treatment Facility	2026	$48,402,175.15 [3]	$48,402,175.15	12.8%	$6,205,158.85
Public Works Improvements	2035	$1,318,982.50 [1]	$1,860,555.08	27.6%	$512,953.03
Total		**$64,603,155.47**	**$68,177,059.48**		**$6,974,657.14**

[1] The cost shown for the Public Works Improvements project is half of the total cost estimate because this project cost will be split evenly between the wastewater and drinking water utilities.
[2] The proportionate share is 0% because the project is expected be constructed by developers.
[3] Proposed WWTF is 2026 cost estimate.
[4] The proportionate share within the planning period for Segment 1 is calculated by dividing planning period ERCs (1,544 ERCs) by upsize capacity [36-inch capacity (26,682 ERCs) - Deseret minimum diameter (9,050 ERCs)]=17,632 ERCs.
The proportionate share within the planning period for Segment 2 is calculated by dividing planning period ERCs (1,544 ERCs) by upsize capacity [36-inch capacity (15,008 ERCs) - Deseret minimum diameter (3,565 ERCs)]=11,443 ERCs.
The costs shown for West Bank Interceptor Segment 1 and 2 in the table are upsize costs only.

In addition to impact fee eligible project costs, planning costs can also be included in the calculation of impact fees. Due to the uncertainty that comes with long-term development projections, this plan is expected to be amended annually. The future professional expenses expected to occur within the planning period were inflated at a 3.5% rate as shown in Table 6-18.

Table 6-18: Wastewater Professional Expenses

Year	Cost
2025	$8,300.00
2026	$8,590.50
2027	$8,891.17
2028	$9,202.36
2029	$9,524.44
2030	$9,857.80
2031	$10,202.82
2032	$10,559.92
2033	$10,929.52
2034	$11,312.05
2035	$11,707.97
Total	**$109,078.53**

6.2.3 Methods of Financing

As discussed in Section 6.1.6, the wastewater system improvements are expected to be funded through impact fees, loans, developer dedications, and Sewer Fund reserves. The City received a $16,000,000 Utah Water Quality Board 30-year loan with a 0.75% interest rate and $160,000 loan origination fee. The City is also anticipating obtaining a private bond in the amount of $25,152,175.15 assumed to be a 30-year bond with a 5.052% interest rate, 1.5% cost of issuance, 0.5% bond insurance, and a $20,000 surety policy. The interest cost for this bond attributed to development within the planning period can be included in the impact fee calculation. Additionally, a portion of the engineering cost of the Wastewater Treatment Facility project will be funded through a $1 million bond with a 0% interest rate. This is a 20-year bond and has a $33,000 issuance fee along with a $10,000 loan origination fee. Table 6-19 shows the details of these bonds along with the impact fee eligible interest cost.

Table 6-19: Wastewater Future Debt Financing

Project - Loan or Bond	Proceeds	Par Amount [1]	Debt Service (Interest)	Debt Service (Principal + Interest)	Proportionate Share	Impact Fee Eligible Debt Service (Interest)
Proposed WWTF - Private Bond	$25,152,175.15	$25,675,218.65	$15,711,571.94	$41,386,790.59	12.8%	$2,014,223.52
Proposed WWTF - Engineering Loan	$1,000,000.00	$1,043,000.00	$0.00	$1,043,000.00	12.8%	$0.00
Proposed WWTF - Utah Water Quality Board Loan	$16,000,000.00	$16,160,000.00	$1,946,388.33	$18,106,388.33	12.8%	$249,526.98

[1] *Includes cost of issuance, bond insurance, and surety policy.*

6.2.4 Impact Fee Calculation

As shown in Table 6-20, impact fees to be charged per ERC for each project were calculated by dividing the impact fee eligible costs by the number of ERCs expected to be served within the planning period, determined from Table 2-3. The construction water and City rate connection types were excluded from this calculation because construction water is not served by wastewater facilities and the City does not charge themselves impact fees.

Table 6-20: Wastewater Impact Fee Calculation

Project	Impact Fee Eligible Cost	Planning Period (2025-2035) ERCs [1]	Cost per ERC
Buy-In Cost	$5,247,346.84	2,400	$2,186.39
West Bank Interceptor Segment 1	$35,294.63	2,400	$14.71
West Bank Interceptor Segment 2	$5,756.82	2,400	$2.40
West Bank Interceptor Segment 3	$0.00	2,400	$0.00
Vegas Street Collector	$0.00	2,400	$0.00
Northwest Lift Station - Upsize Force Main	$215,493.80	2,400	$89.79
Proposed Wastewater Treatment Facility	$6,205,158.85	2,400	$2,585.48
Proposed Wastewater Treatment Facility Debt Service (Interest)	$2,263,750.51	2,400	$943.23
Public Works Improvements	$512,953.03	2,400	$213.73
Professional Expenses	$109,078.53	2,400	$45.45
Total			**$6,081.18**

[1] *Does not include Construction Water or City Rate ERCs.*

The City charges impact fees to residential users based on their water meter size. A 3/4-inch water meter was determined to be equivalent to one ERC, and the remaining meter sizes were converted to ERCs based on the maximum flow rates from AWWA Manual M6, Table 5-3. Non-residential users are charged impact fees based on the number of fixture units in a development. A typical ERC was determined to have 24 fixture units as calculated in Appendix I. The results of these impact fee calculations are summarized in Table 6-21.

Table 6-21: Proposed Wastewater Maximum Allowable Impact Fees

Water Meter Size (inches)	Maximum Flow Rate (gpm)	ERCs	Impact Fee
3/4	25 [1]	1	$6,081.18
1	40 [1]	1.6	$9,729.89
1 1/2	50 [1]	2	$12,162.36
2	100 [1]	4	$24,324.72
3	200 [2]	8	$48,649.44
4	400 [2]	16	$97,298.89
6	800 [2]	32	$194,597.77
8	1,000 [2]	40	$243,247.22

[1] *From AWWA M6 Table 5-3 Displacement Meters.*
[2] *From AWWA M6 Table 5-3 Electromagnetic and Ultrasonic Meter Type 1.*

6.2.5 Impact Fee Cashflow

The anticipated impact fee revenues and expenses over the 10-year planning period are shown in Table 6-22. The expenses represent only what is attributable to planning period development and include capital project costs, the expenditure of buy-in costs, and proposed bond payments. The impact fee cashflow (Table 6-23) estimates the end of year impact fee fund balance throughout the planning period by comparing the impact fee revenues, total expenses, and interest income calculated at 3.0% of the fund balance.

6.2.6 Impact Fee Credits

The City currently has procedures in place for credits, appeals, and exemptions of impact fees, refer to Appendix B for the City’s current impact fee ordinance.

Table 6-22: Wastewater Impact Fee Revenues and Expenses

Year	ERCs [1]	Annual ERC Increase [1]	Impact Fee Revenues	Impact Fee Eligible Project Costs	Bond Payments	Bond Proceeds	Buy-In Cost Expenses	Professional Expenses	Total Expenses
2025	6,251	-	-	-	-	$128,200.00	-	($8,300.00)	$119,900.00
2026	6,425	174	$1,058,125.39	($6,205,158.85)	($6,410.00)	$3,224,508.85	($380,432.65)	($8,590.50)	($3,376,083.15)
2027	6,605	180	$1,094,612.48	($41,051.45)	($381,801.79)	$2,051,200.00	($393,551.01)	($8,891.17)	$1,225,904.58
2028	6,834	229	$1,392,590.32	($215,493.80)	($298,410.34)	-	($500,684.34)	($9,202.36)	($1,023,790.84)
2029	7,062	228	$1,386,509.14	-	($298,410.34)	-	($498,497.95)	($9,524.44)	($806,432.73)
2030	7,305	243	$1,477,726.84	-	($298,410.34)	-	($531,293.87)	($9,857.80)	($839,562.00)
2031	7,551	246	$1,495,970.38	-	($298,410.34)	-	($537,853.05)	($10,202.82)	($846,466.21)
2032	7,816	265	$1,611,512.81	-	($298,410.34)	-	($579,394.55)	($10,559.92)	($888,364.80)
2033	8,083	267	$1,623,675.17	-	($298,410.34)	-	($583,767.34)	($10,929.52)	($893,107.19)
2034	8,362	279	$1,696,649.34	-	($298,410.34)	-	($610,004.07)	($11,312.05)	($919,726.45)
2035	8,651	289	$1,757,461.14	($512,953.03)	($298,410.34)	-	($631,868.02)	($11,707.97)	($1,454,939.36)
Total		**2,400**	**$14,594,833.02**	**($6,974,657.14)**			**($5,247,346.84)**	**($109,078.53)**	**($9,702,668.13)**

[1] Does not include Construction Water or City Rate ERCs.

Table 6-23: Wastewater Impact Fee Cashflow

Year	Impact Fee Revenues	Total Expenses	Interest Income	End of Year Balance
2025	-	$119,900.00	-	$352,296.11
2026	$1,058,125.39	($3,376,083.15)	$10,568.88	($1,955,092.76)
2027	$1,094,612.48	$1,225,904.58	-	$365,424.30
2028	$1,392,590.32	($1,023,790.84)	$10,962.73	$745,186.51
2029	$1,386,509.14	($806,432.73)	$22,355.60	$1,347,618.51
2030	$1,477,726.84	($839,562.00)	$40,428.56	$2,026,211.91
2031	$1,495,970.38	($846,466.21)	$60,786.36	$2,736,502.45
2032	$1,611,512.81	($888,364.80)	$82,095.07	$3,541,745.53
2033	$1,623,675.17	($893,107.19)	$106,252.37	$4,378,565.89
2034	$1,696,649.34	($919,726.45)	$131,356.98	$5,286,845.75
2035	$1,757,461.14	($1,454,939.36)	$158,605.37	$5,747,972.91

Section 7 Water Rights Acquisition

7.1 Capital Facilities Plan and Impact Fee Facilities Plan

7.1.1 Inventory of Existing Facilities

Grantsville City currently holds an estimated 10,286.86 acre-feet of municipal use water rights as shown in Appendix K. The historic cost to purchase these water rights totals $38,582,861.42, which represents all available records of water rights purchases but does not account for the full quantity of water rights held by the City. There is no existing long-term debt associated with water rights acquisition.

Most of the City's water rights have been quantified through the Change Application process, and these water rights total 5,787.39 ac-ft. A few of the City's water rights (15-376,15-516, and 15-1699) were originally established as municipal flow rights that total 6.215 cfs, and therefore have an estimated maximum of 4,499.46 ac-ft.

The majority of the City's water rights (totaling 5,775.39 ac-ft) have been acquired for new development since 2000, including water rights that have been dedicated to the City for completed developments, water rights that have been dedicated to the City for pending or planned developments, water rights that have been banked with the City for future development under Water Right Banking Agreements, and water rights that have been purchased by the City using water supply impact fee funds (i.e., "fee in lieu" funds).

Four of the City's water rights (15-376, 15-516, 15-1699, and 15-1060) were originally established by the City for municipal and irrigation purposes. These water rights have an estimated maximum of 4,511.46 ac-ft. As of 2000, which was prior to developers being required to dedicate water rights to the City per City Code, the City had a reported use of 896.43 ac-ft, as shown in the *Division of Water Rights Public Water Supplier Information* website. The remaining 3,615.03 ac-ft represents the maximum "available" water; i.e., water that the City may be able to use to support new development. It is questionable if the City will be able to fully develop this water as it may require the City to pump the full flow continuously, which may not be feasible. Using a "buffer" of 80%, the City estimates that it may be able to develop 2,892.02 ac-ft of the "available" water rights. This "available" water has been committed to future commercial and residential developments, including the Lakeview Business Park and the Deseret Development.

The estimated total of the City's water rights is 9,563.84 ac-ft (which is the sum of 5,775.39 ac-ft of water rights acquired for development, plus 896.43 ac-ft of water used to serve the City prior to dedications, plus 2,892.02 ac-ft of available water under the City's original water rights).

Tooele Valley is closed to water rights appropriations except for small amounts of shallow ground water that would otherwise flow to the Great Salt Lake. Therefore, the City can only acquire additional water rights through developer contributions or by purchasing existing water rights and, if needed, filing change applications to convert them to municipal use.

7.1.2 Level of Service

The level of service standards for water rights acquisition are determined based on the drinking water levels of service discussed in Section 3.1.2. The indoor water use level of service was determined from the drinking water indoor average day demand, which was calculated from the City's water use data. The outdoor use level of service was determined based on state standards and assuming an irrigation efficiency of 60%. These levels of service are shown in Table 7-1. For the purposes of estimating city-wide water rights demands, it is assumed there is an average of 0.12 irrigated acres per ERC based on an analysis of residential lots in Grantsville and estimates made by nearby cities.

Table 7-1: Water Rights Level of Service

Parameter	Level of Service
Indoor Use	0.218 acre-feet/year/ERC
Outdoor Use	3.33 acre-feet/year/irrigated acre

7.1.3 Capacity of Existing Facilities

The capacity of the City's held water rights to serve future development is difficult to accurately estimate. Based on the estimated quantity of the City's water rights and the level of service, an excess capacity of unused water rights can be estimated as shown in
Table 7-2. The actual quantity of water rights the City has available for future development is less than the amount shown in Appendix K. One reason for this, as discussed in Section 7.1.1, is the total quantity of water rights is expected to be less than what is estimated to be held. Additionally, some of the water rights held by the City have been allocated to developments yet to be built or have been banked for future development, which further reduces the excess

capacity of existing water rights. Lastly, in order to calculate the city-wide water demand the broad assumption of 0.12 irrigated acres per ERC was made, which most likely does not reflect the true outdoor water demand. Therefore, the estimated excess capacity shown in Table 7-2 should be considered a high-level estimate which overestimates the actual excess quantity of water rights the City currently holds. Furthermore, whatever excess of water rights does exist needs to be maintained in order to cover existing platted subdivisions and other such commitments while accounting for the uncertainty in quantity, possible reductions and cuts due to ongoing droughts, and being able to vary diversion through the year rather than a presumed constant pumping. For the purposes of this plan there is considered to be no excess capacity of water rights available to accommodate future growth.

Table 7-2: Estimated Capacity of Water Rights

Current (2025) ERCs	Water Demand				Existing Water Rights (ac-ft)	Excess / (Deficit) (ac-ft)
	Indoor Use (ac-ft)	Outdoor Use (ac-ft)	Committed to Future Development	Total (ac-ft)		
6,736	1,471.33	2,694.40	2,892.02	7,057.75	9,563.84	2,506.09

7.1.4 Demands of Future Development

The future water rights demand of development anticipated in the planning period (Table 7-3) was estimated based on the demographics calculated in Section 2.7 and the level of service from Section 7.1.2. Due to the reasons discussed in Section 7.1.3, these results should be considered high-level estimates, serving as a general guideline for the City's planning purposes.

Table 7-3: Future Water Rights Requirements

Year	ERCs	Water Demand		
		Indoor Use (ac-ft)	Outdoor Use (ac-ft)	Total (ac-ft)
2025	6,736	1,471.33	2,694.40	4,165.73
2026	6,939	1,515.67	2,775.60	4,291.27
2027	7,136	1,558.70	2,854.40	4,413.10
2028	7,383	1,612.65	2,953.20	4,565.85
2029	7,617	1,663.77	3,046.80	4,710.57
2030	7,888	1,722.96	3,155.20	4,878.16
2031	8,141	1,778.22	3,256.40	5,034.62
2032	8,424	1,840.04	3,369.60	5,209.64
2033	8,708	1,902.07	3,483.20	5,385.27
2034	9,004	1,966.73	3,601.60	5,568.33
2035	9,300	2,031.38	3,720.00	5,751.38

7.1.5 Proposed Projects

The City does not need to acquire the full quantity of water rights anticipated to be required by future development because it is expected many of these developments will acquire the water rights themselves and then transfer them to the City. The City requires large developments to contribute the water rights themselves, but smaller developments have the option to pay an impact fee in lieu of contributing water rights. Therefore, the City only needs to acquire the quantity of water rights anticipated to be paid for by impact fees, but this quantity is not able to be accurately predicted. Additionally, since it is desired to maintain an excess of water rights, as discussed in Section 7.1.3, and due to the increasingly limited availability of water rights for sale in the Tooele Valley, the City should plan to purchase any water rights listed for a reasonable price as soon as they become available. So, there are no specifically proposed water rights acquisition projects, but instead there is the ongoing consideration that the City should continue to seek out available water rights to purchase. It is expected water rights will typically cost around $29,000 per acre-foot, based on recent listings for water rights in the Tooele Valley and recent purchases made by the City.

7.1.6 Methods of Financing

The City expects to finance water rights acquisitions solely through developer contributions and impact fees.

7.2 Impact Fee Analysis

7.2.1 Existing Facilities

As discussed in Section 7.1.3, for the purposes of this plan there is considered to be no excess capacity of water rights and therefore no buy-in costs to be charged.

7.2.2 System Improvements

There is no specific system improvements proposed for water rights acquisition, as mentioned in Section 7.1.5. The City will purchase additional water rights as they become available.

7.2.3 Methods of Financing

The City will finance water rights purchases with impact fees, and other demands for water rights will be met through developer contributions.

7.2.4 Impact Fee Calculation

As discussed in Section 7.1.5, the City requires large developments to contribute the required quantity of water rights themselves, but smaller developments have the option to pay an impact fee in lieu of water rights. The impact fee is calculated as the required quantity of water rights multiplied by $29,000 per acre-foot (the current average cost of water rights in the Tooele Valley). The required quantity of water rights is determined based on various conditions of the development, and are calculated separately for indoor and outdoor water usage.

7.2.4.1 Indoor Use

The indoor use water right quantity for single family residential and multi-unit residential connections was determined by multiplying the indoor level of service (Table 7-1) times the equivalent ERCs per unit (Table 2-2). The indoor quantity for non-residential development is based on fixture units and was calculated using 24 fixture units per ERC (Appendix E). The required water rights quantity and the equivalent impact fees for each development type are summarized in Table 7-4.

Table 7-4: Indoor Use Water Rights Requirements

Land Use	Water Right Quantity (ac-ft)	Impact Fee	Unit
Single Family Residential	0.218	$6,322.00	per Dwelling Unit
Multi-Unit Residential	0.120	$3,480.00	per Dwelling Unit
Non-Residential	0.00908	$263.32	per fixture unit

7.2.4.2 Outdoor Use

Additional land use classifications were established for the calculation of required outdoor water rights. Category 1 includes single family homes only, while Category 2 covers all other types of development not included in Category 1. Water rights for Category 1 are calculated based on total lot size assuming that on average 64% of the lot area will be irrigated (see Appendix K). Additionally, it was found that as lot sizes increase above an acre the irrigated area does not increase proportionally. Therefore, the lot size for Category 1 is capped at 1 acre, so any lots larger than this would still use 1 acre in the calculation. The calculation for Category 2 is based directly on irrigated area. The formulas for the required water rights quantity (in ac-ft) are as follows:

- <u>Category 1</u> = (lot size, acres) * (0.64) * (3.33 ac-ft/irr. ac)
- <u>Category 2</u> = (irrigated area, acres) * (3.33 ac-ft/irr. ac)

The outdoor water rights requirements for typical residential lot sizes, without waterwise landscaping, are listed in Table 7-5.

Table 7-5: Outdoor Use Requirements (No Waterwise Landscaping)

Category 1 Lot Size	Water Right Quantity (ac-ft)	Impact Fee
7,000 sq ft	0.34	$9,931.90
8,000 sq ft	0.39	$11,350.74
10,000 sq ft	0.49	$14,188.43
14,000 sq ft	0.68	$19,863.80
1/2 acre	1.07	$30,902.40
2/3 acre	1.42	$41,203.20
3/4 acre	1.60	$46,353.60
1.0 acre	2.13	$61,804.80
> 1.0 acre	2.13	$61,804.80

The outdoor water rights impact fee for Category 2 developments with no waterwise landscaping is calculated as follows:

- **<u>Category 2</u> = (irrigated area, acres) * (3.33 ac-ft/irr. ac) * $29,000**

7.2.4.3 Waterwise Landscaping

In order to promote water conservation efforts for future development, the City allows a reduction in the required outdoor use water rights for developments which implement waterwise landscaping. The definition of waterwise landscaping is intended as “landscaping for water conservation with (1) no more than 35% of the total landscaped area planted in lawn, (2) planting beds and landscape plants watered with a drip-irrigation system, (3) watering zones separate for lawn and landscape plants, (4) back flow preventer required (5) and landscape plants should be waterwise, adapted to our local climate, able to thrive on less water.” Refer to the Grantsville City Municipal Code and Land Use Code for the most current version of the waterwise landscaping definition. To qualify for the waterwise landscaping reduction, the waterwise landscaping and irrigation must be installed entirely during initial construction. Due to the challenges associated with monitoring and enforcing the requirements in residential backyards, the City only allows Category 1 development to receive a reduction for waterwise landscaping in the front yard. For purposes of calculating water rights requirements, the definition of front yard is intended to be “a yard extending across the full width of a parcel measured perpendicularly from the front boundary of the parcel to the front wall(s) of the main building situated on the parcel. For corner lots the front yard would include the side yard to the privacy fence, assumed to be located 5 feet forward from the back of the house.” See Appendix K for a sketch depicting this definition, and refer to the Grantsville City Municipal Code and Land Use Code for the most current definition. Category 2 development can choose to receive a waterwise landscaping reduction for landscaping in the front yard only or the entire irrigated area. The outdoor use level of service is reduced from 3.33 to 2.28 acre-feet/year/irrigated acre for waterwise landscaping (see Appendix K for calculations). It was estimated the average residential front yard irrigated area in Grantsville is 18% of the total lot size. The lot size for Category 1 is again capped at 1 acre as done for the no waterwise calculation. The formulas to calculate outdoor use water rights for waterwise landscaping in the front yard only are:

- <u>Category 1</u> = (lot size, acres) * [(0.18) * (2.28 ac-ft/irr. ac) + (0.46) * (3.33 ac-ft/irr. ac)]
- <u>Category 2</u> = (front yard irrigated area, acres) * (2.28 ac-ft/irr. ac) + (remaining irrigated area, acres) * (3.33 ac-ft/irr. ac)

The outdoor water rights requirements for typical residential lot sizes, for waterwise landscaping in the front yard only, are given in Table 7-6.

Table 7-6: Outdoor Use Requirements (Waterwise Landscaping Front Yard Only)

Category 1 Lot Size	Water Right Quantity (ac-ft)	Impact Fee
7,000 sq ft	0.31	$9,051.12
8,000 sq ft	0.36	$10,344.13
10,000 sq ft	0.45	$12,930.17
14,000 sq ft	0.62	$18,102.23
1/2 acre	0.97	$28,161.90
2/3 acre	1.29	$37,549.20
3/4 acre	1.46	$42,242.85
1.0 acre	1.94	$56,323.80
> 1.0 acre	1.94	$56,323.80

The outdoor water rights impact fee for Category 2 developments with waterwise landscaping in the front yard only is calculated as follows:

- **Category 2 = (front yard irrigated area, acres) * (2.28 ac-ft/irr. ac) + (remaining irrigated area, acres) * (3.33 ac-ft/irr. ac) * $29,000**

Category 1 developments utilizing waterwise landscaping for the entire lot would still use the front yard only formula above. Category 2 developments which are waterwise landscaping the entire lot calculate outdoor use water rights quantity with the following formula:

- Category 2 = (irrigated area, acres) * (2.28 ac-ft/irr. ac)

The outdoor water rights impact fee for Category 2 developments with waterwise landscaping on the entire lot is calculated as follows:

- **Category 2 = (irrigated area, acres) * (2.28 ac-ft/irr. ac) * $29,000**

A summary of all the water rights quantity formulas for each land use and landscaping condition discussed above is shown in Table 7-7.

Table 7-7: Summary of Outdoor Use Water Rights Requirements

Land Use	Water Right Quantity (ac-ft)
No Waterwise Landscaping	
Category 1	= (lot size[1], acres) * (0.64) * (3.33 ac-ft/irr. ac)
Category 2	= (irrigated area, acres) * (3.33 ac-ft/irr. ac)
Waterwise Landscape Front Yard Only	
Category 1	= (lot size[1], acres) * [(0.18) * (2.28 ac-ft/irr. ac) + (0.46) * (3.33 ac-ft/irr. ac)]
Category 2	= (front yard irrigated area, acres) * (2.28 ac-ft/irr. ac) + (remaining irrigated area, acres) * (3.33 ac-ft/irr. ac)
Waterwise Landscape Entire Lot	
Category 1	Reduction not allowed (use front yard only formula)
Category 2	= (irrigated area, acres) * (2.28 ac-ft/irr. ac)

[1] Lot size capped at 1 acre.

7.2.4.4 Example Calculations

For example, the impact fee for a single-family development on a 2-acre lot with waterwise landscaping would be calculated as follows:

- Indoor use quantity = <u>0.218 ac-ft</u>
- Outdoor use quantity = (1 ac) * [(0.18) * (2.28 ac-ft/irr. ac) + (0.46) * (3.33 ac-ft/irr. ac)] = <u>1.9422 ac-ft</u>
- Total quantity = (0.218 ac-ft) + (1.9422 ac-ft) = <u>2.16 ac-ft</u>
- Total impact fee = (2.16 ac-ft) * $29,000 = <u>$62,640</u>

For an apartment building with 15 units, 1/8-acre irrigated area, and waterwise landscaping for the entire lot, the impact fee is calculated as:

- Indoor use quantity = (15 units) * (0.120 ac-ft/unit) = <u>1.800 ac-ft</u>
- Outdoor use quantity = (1/8 ac) * (2.28 ac-ft/irr. ac) = <u>0.285 ac-ft</u>
- Total quantity = (1.800 ac-ft) + (0.285 ac-ft) = <u>2.09 ac-ft</u>
- Total impact fee = (2.09 ac-ft) * $29,000 = <u>$60,610</u>

The impact fee for a commercial development with 50 fixture units that will be irrigating 2,000 square feet and will not utilize waterwise landscaping would be calculated as follows:

- Indoor use quantity = (50 fixture units) * (0.00908 ac-ft/fixture unit) = <u>0.454 ac-ft</u>
- Outdoor use quantity = (2,000 sq ft) / (43,560 sq ft/ac) * (3.33 ac-ft/irr. ac) = <u>0.153 ac-ft</u>
- Total quantity = (0.454 ac-ft) + (0.153 ac-ft) = <u>0.61 ac-ft</u>
- Total impact fee = (0.61 ac-ft) * $29,000 = <u>$17,690</u>

7.2.5 Impact Fee Credits

Water rights can be transferred to the City in lieu of paying the impact fees. The quantity to be transferred is calculated as discussed in Section 7.2.4. The water rights required must be transferred to City as 100% owner. If the quantity of water rights required is only a portion of the total right pledged, the City must be identified as the owner of the required portion, or the required portion must be segregated from the base right and transferred to City as 100% owner. Additionally, the water rights transferred to cover the indoor use requirement must be municipal use rights or change applications prepared to convert water rights to municipal rights. For the outdoor use requirement, municipal use water rights, change applications prepared to convert water rights to municipal rights, or Grantsville Irrigation Co. shares are accepted by the City. Refer to the Grantsville City Municipal Code and Land Use Code for the requirements to transfer Grantsville Irrigation Co. shares. The City currently has procedures in place for credits, appeals, and exemptions of impact fees, see Appendix B for the City's current impact fee ordinance.

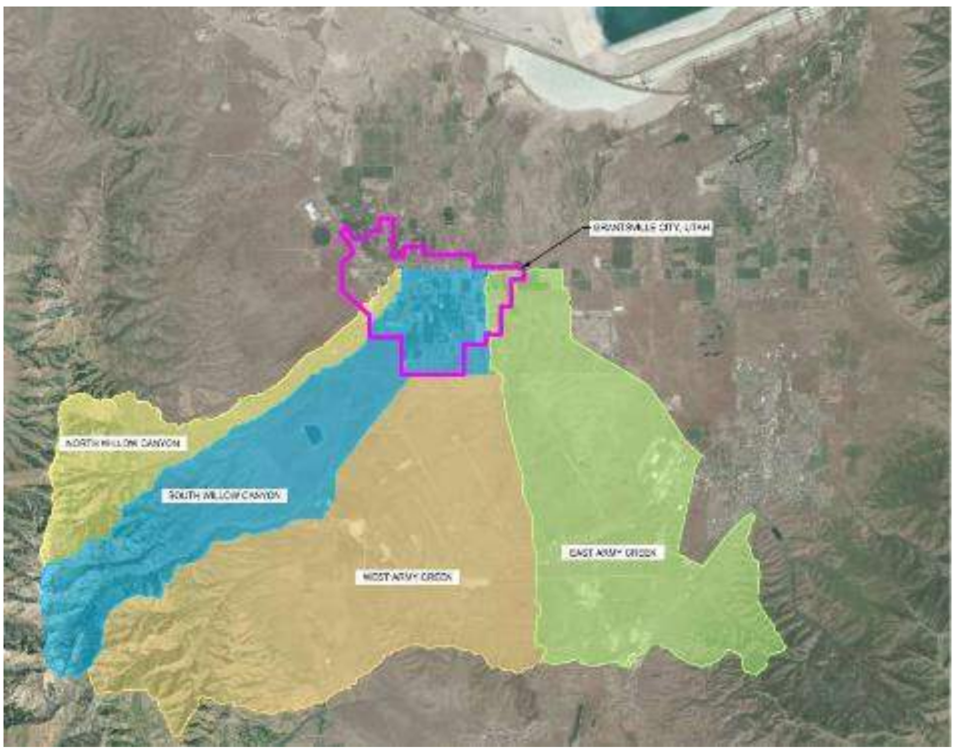
Section 8 Storm Drainage

8.1 Capital Facilities Plan and Impact Fee Facilities Plan

8.1.1 Inventory of Existing Facilities

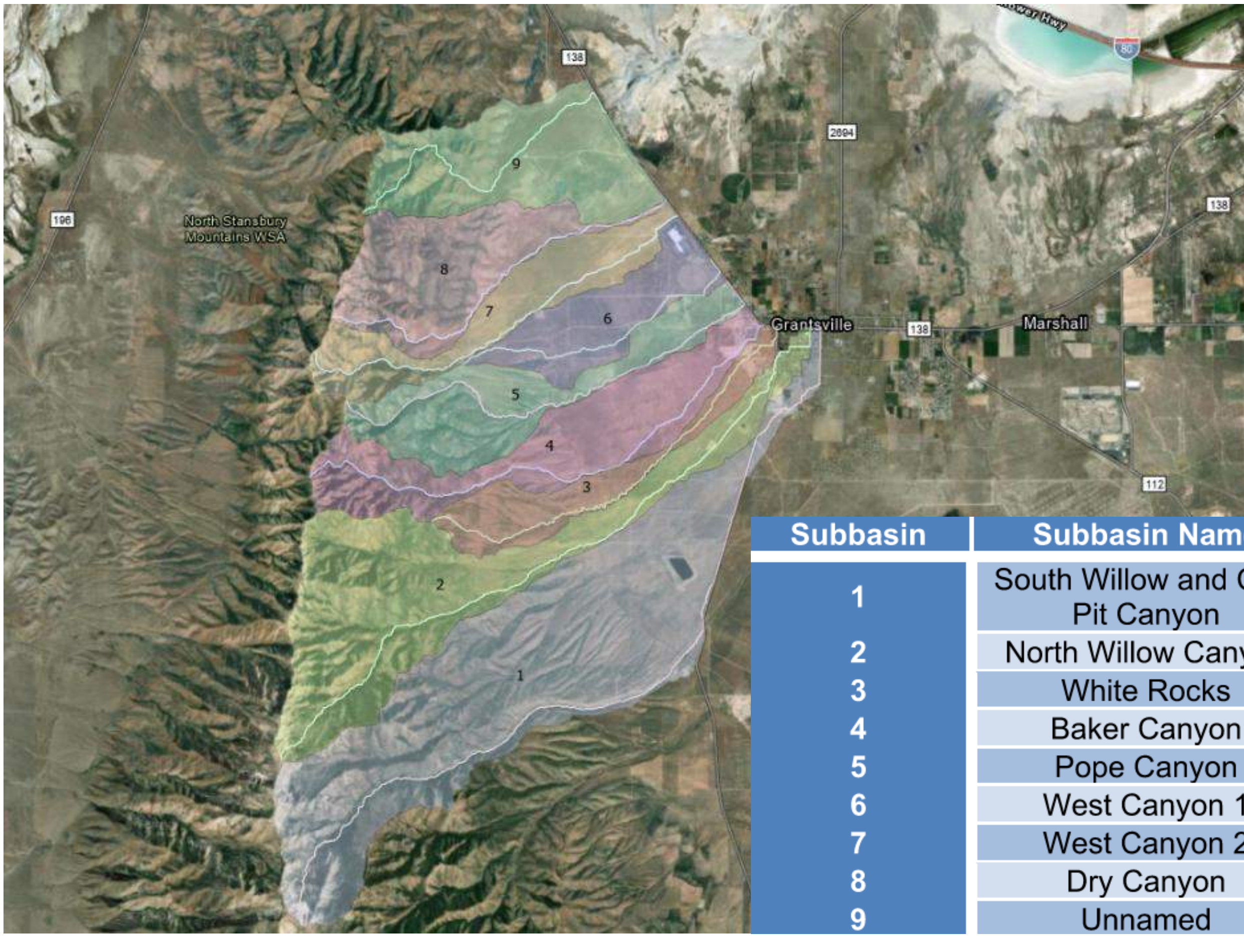
Grantsville City is situated at the base of the Stansbury Mountains and about six (6) miles south of the Great Salt Lake. The terrain of the City slopes gently northeasterly closer to the Stansbury Mountains and then northerly for the remainder of the City. The watersheds surrounding the City are shown in Figure 8-1 and Figure 8-2.

Figure 8-1: Existing Grantsville City Watersheds (Four Major)



Source: Figure 2-1 from Grantsville City FEMA BRIC Flood Protection Scoping Study dated February 6, 2024 by Jones & DeMille Engineering

Figure 8-2: Existing Grantsville City Watersheds (West Bank Area)

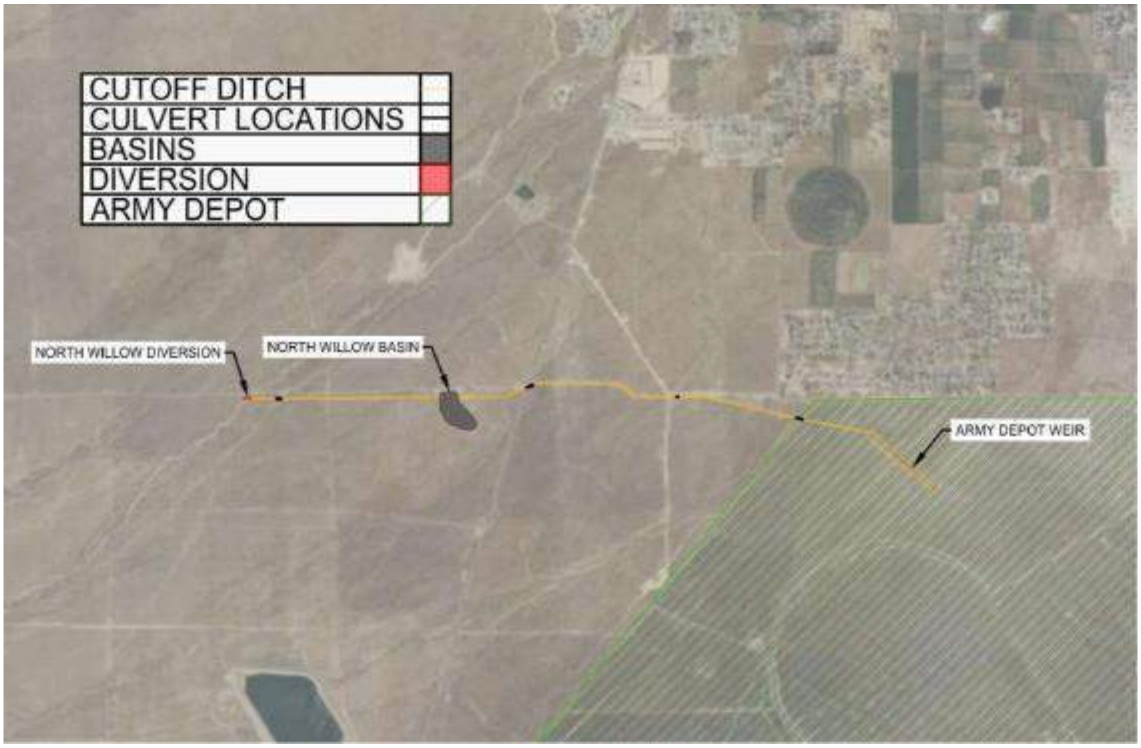


Subbasin	Subbasin Name
1	South Willow and Coal Pit Canyon
2	North Willow Canyon
3	White Rocks
4	Baker Canyon
5	Pope Canyon
6	West Canyon 1
7	West Canyon 2
8	Dry Canyon
9	Unnamed

Source: Figures 1 and 2 of 2024 Final Draft Grantsville West Bank Development Stormwater Master Plan Report by Jones & DeMille Engineering.

Tooele County has constructed flood control facilities, consisting of debris/detention basins and a cut-off ditch, which are located just south of the City (Figure 8-3).

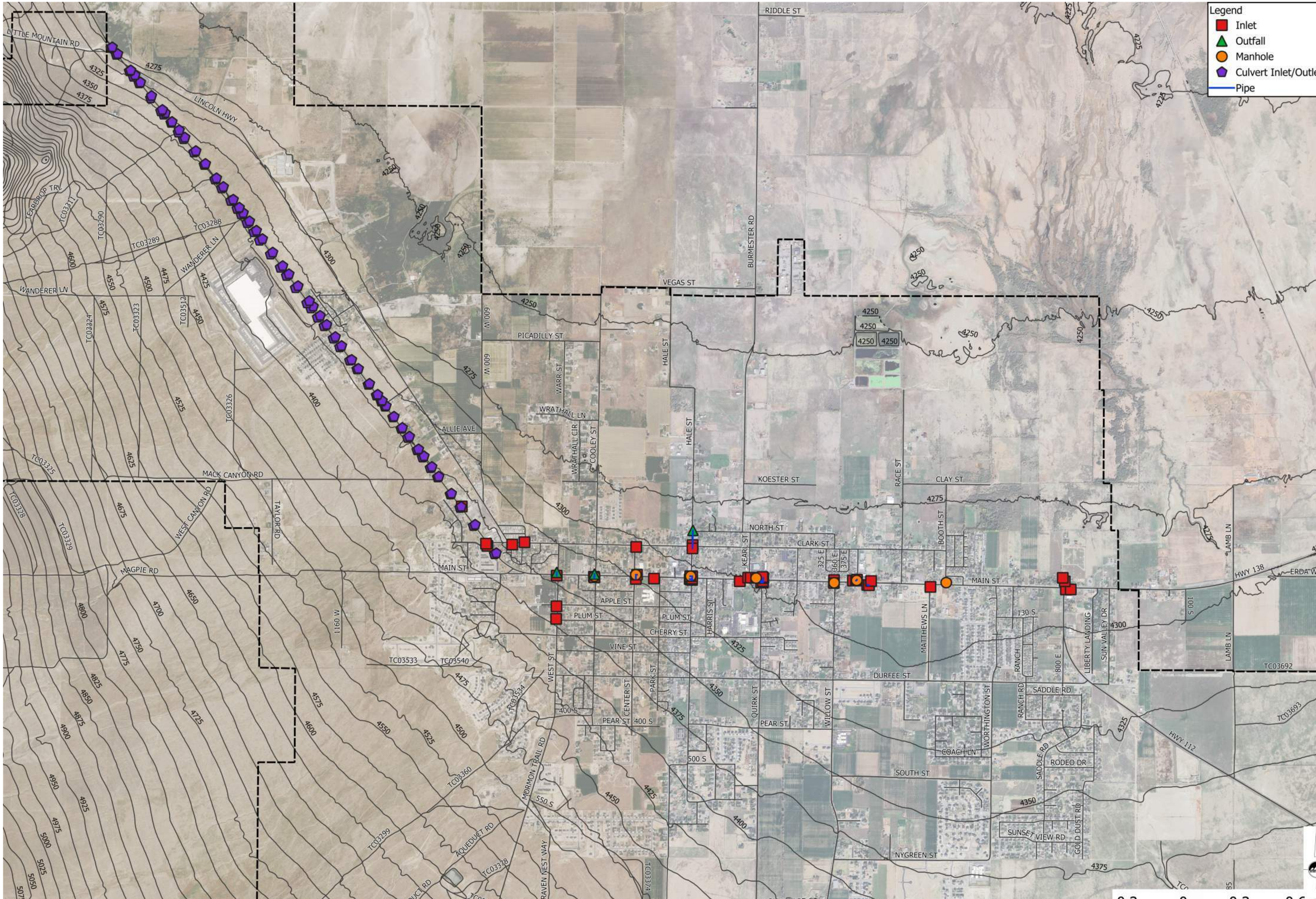
Figure 8-3: Existing Flood Protection Infrastructures



Source: Figure 4-1 from Grantsville City FEMA BRIC Flood Protection Scoping Study dated February 6, 2024 by Jones & DeMille Engineering

These facilities intercept runoff from the North Willow, South Willow Canyon, and West Army Creek and discharge east of Grantsville into an existing natural drainage. Also south of the City is the existing Grantsville Irrigation Company Reservoir, which collects the majority of flows from the South Willow Canyon and discharges any overflow into the County's flood control facilities. Grantsville City's storm drainage system consists of gutters, grates, detention/retention ponds, storm inlets, pipes, and culverts. There are upwards of 50 culverts crossing SR-138 ranging from corrugated metal pipe to an 8-foot wide by 4-foot-tall concrete box culvert. The main drainage system within the City is located mostly along Main Street and Clark Street as shown in Figure 8-4. The City does not currently have costs of past storm drain projects, therefore historical construction costs have not been listed.

The City has constructed the Clark Street Storm Drain Improvements project with a construction cost of $1,755,075.52. The City has received funding through Utah State via a Water Infrastructure Grant to construct this project. This project is shown in Figure 8-5.



This figure was created using information gathered from construction drawings for the capital water and sewer project and Google Earth imagery. Due to this limited information, this figure is likely not a complete representation of the City's storm drainage system and may contain minor inaccuracies. However, a more in-depth analysis of the existing system is outside the scope of this plan, and the figure is sufficient for the purposes of this plan.

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GRANTSVILLE CFP, IFFP, AND IFA

GRANTSVILLE, UTAH

EXISTING STORM DRAINAGE SYSTEM

PROJECT NUMBER:	PRINT DATE:
11637	04-02-2026
DRAWN BY: M. SANFORD	CHECKED BY: R. ROUSSELLE
PROJ. MANAGER: R. ROUSSELLE	

FIG 8-4

1 DRAINAGE SETTLING BASIN
Scale: None

NOTES AND ASSUMPTIONS:

PIPE CAPACITY (CFS) AT SLOPE	0.5%	0.6%	1.0%	1.42%	1.87%
36-INCH	51.2	56.1	72.5	86.3	99.1

BAKER BASIN 1:
EXISTING Q100 AFTER IMPROVEMENTS IN UPPER BASINS = 43.26 CFS

POPE BASIN 6:
EXISTING Q100 AFTER IMPROVEMENTS UPPER BASINS = 10.63 CFS

COMBINED OFFSITE:
EXISTING Q100 AFTER IMPROVEMENTS UPPER BASINS = 53.89 CFS

SR-138 TO WEST STREET AND MAIN STREET TO CLARK STREET (31.5 ACRES):
RATIONAL (C=0.41, Tc=59 MIN) Q100 = 24.8 CFS

COMBINED OFFSITE AND ONSITE:
EXISTING Q100 AFTER IMPROVEMENTS UPPER BASINS = 79.5 CFS

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BAKER DRAINAGE BASIN 1
DRAINAGE INFRASTRUCTURE PLANNING

GRANTSVILLE, UTAH

2024-04-19

CLARK STREET STORM DRAIN IMPROVEMENTS PROJECT EXHIBIT

PROJECT NUMBER	PRINT DATE
11637	2024-04-19
PROJECT MANAGER	DESIGNED BY
R. ROUSSELLE	M. SANFORD

FIG 8-5

8.1.2 Level of Service

The level of service standards to be used for this plan are shown in Appendix L which were established by the Grantsville City Storm Drainage Design Guidelines with the current version available on the City's website.

8.1.3 Capacity of Existing Facilities

Existing Grantsville City storm drainage studies, Storm Water Management Study for Baker and Pope Watersheds Grantsville City and Tooele County dated April 2015 by AQUA Engineering, Grantsville City FEMA BRIC Study Flood Protection Scoping Study dated February 6, 2024 by Jones & DeMille Engineering, and Grantsville West Bank Development Stormwater Master Plan Report dated August, 2024 by Jones & DeMille Engineering all identify the need for upstream diversion, detention, and retention to protect the existing developed areas of Grantsville City. The existing storm drainage system is not sufficient to meet the level of service, and there is no surplus capacity.

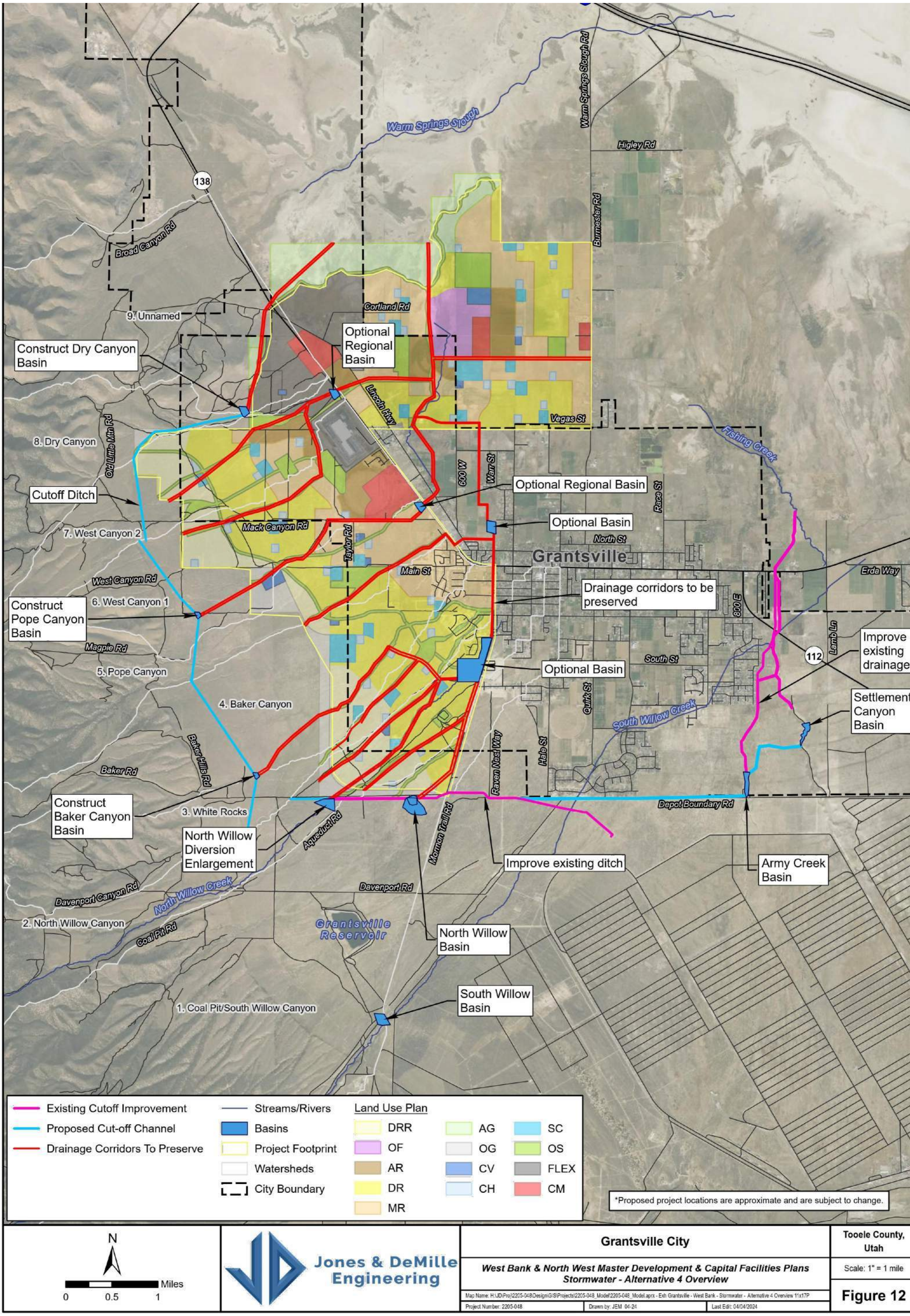
8.1.4 Demands of Future Development

The requirements for future development are based on the level of service requirements stated in Section 8.1.2. It is anticipated developers will construct future storm drainage improvements.

8.1.5 Proposed Projects

The future requirements for the storm drainage system outside of development constructed improvements were determined in the FEMA BRIC Study and West Bank Development Stormwater Master Plan. The FEMA BRIC Study analyzed the North Willow Canyon, South Willow Canyon, West Army Creek, and East Army Creek. These watersheds and storm drainage improvements were also incorporated into the West Bank Development Stormwater Master Plan.

Four alternatives of proposed projects were established for the West Bank Development Stormwater Master Plan. Alternative 4 was the selected alternative in the study. Alternative 4 would construct five debris/detention basins across the watersheds with smaller cutoff ditches to convey flows to these basins as depicted in Figure 8-6 at a cost of $143,215,000 (Appendix M).



PROJECT NUMBER

PRINT DATE 2024-04-19

PROJECT MANAGER

DESIGNED BY

FIG 8-6

WEST BANK DEVELOPMENT STORMWATER
MASTER PLAN ALTERNATIVE 4 PROJECT

SOURCE: GRANTSVILLE WEST BANK DEVELOPMENT, STORMWATER MASTER PLAN REPORT, JONES & DEMILLE ENGINEERING, APRIL 5, 2024

GRANTSVILLE, UTAH

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8.1.6 Methods of Financing

The projects listed are not attributable to new growth, so impact fees cannot be charged. Storm drainage projects may be funded through grants, loans, developer dedications, taxes, or the Capital Project Fund.

8.2 Impact Fee Analysis

As discussed in Section 8.1.3, there is no surplus capacity for existing facilities so no buy-in costs can be charged. There are no proposed storm drainage projects which are eligible for impact fees at this time because the required projects are associated with correcting existing deficiencies in the system. Additionally, it is the responsibility of the developers, not the City, to construct facilities required to meet the specified level of service. Thus, the City will not construct additional storm drainage projects to accommodate new development and have no storm drainage facilities for which to charge impact fees.

The State is currently mapping floodplains throughout Utah and specifically Tooele Valley where floodplains have not previously been mapped. This establishment of floodplains for the City of Grantsville will require projects to help existing and future developments. If any of these improvements are constructed by the City regionally and not by developers than impact fees might need to be reconsidered for storm drainage.

Appendix A References

1. Impact Fees Act. Title 11, Chapter 36a, Utah State Code
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Appendix B Grantsville City Current Impact Fee Ordinance

Chapter 13-1 General Provisions

(Adopted by ordinance 2017-10, effective July 11, 2017)

13-1-1 Definitions

A. The definitions referred to in Utah Code Annotated § 11-36a-102, 2014 as amended, shall apply to the terms used in this chapter. (Adopted 07-16-1997 by Ord. No. 97-28; amended 10-15-1997 by Ord. No. 97-33, included unrevised in Ord. No. 2006-01 on 02-1-06.)

B. The term "Service Area" as used in this chapter and the area of Grantsville City, which will be served by the impact fees imposed by this chapter, shall constitute the entire corporate boundaries of Grantsville City, Tooele County, Utah unless otherwise indicated. (Adopted 07-16-1997 by Ord. No. 97-28; amended 10-15-1997 by Ord. No. 97-33.)

C. Equivalent Residential Connection (ERC) for the purposes of Section 30-1-7 (Culinary Water Capital Facilities Impact Fee) of this Chapter is defined as the storage and distribution requirement that will allow a peak usage of 900 gallons of water per day with an average flow of 475 gallons of water per day per connection for each single family dwelling unit. The Culinary Water Capital Facilities impact fee for nonresidential development shall be calculated by estimating the water service demands of the use and then converting it to an ERC, which shall then be multiplied by the impact fee specified in Section 30-1-7 herein for each ERC. Equivalent Residential Connection may also be specified as an equivalent residential user/unit or ERU. (Adopted 10-15-1997 by Ord. No. 97-33, amended on 02-1-06 by Ord. No. 2006-01)

D. Equivalent Residential Connection (ERC) for the purposes of Section 30-1-8 (Water Source Impact Fee) shall be calculated as follows: The water right required for indoor use is based upon two criteria; a) that the water right will allow the extraction of 800 gallons per day per connection, and b) that the yearly extraction be sufficient to provide 0.45 acre-feet per connection. The indoor water source (rights) acquisition impact fee for nonresidential development shall be calculated by estimating the indoor water service demands of the use and then converting it to an ERC, which shall then be multiplied by the impact fee specified in Section 30-1-8 herein for each ERC. No development, however, shall pay a water source impact fee of less than required for one ERC. The ERC for outdoor water use is based on .12 irrigated acres per ERC, 3.96 gallons per irrigated acre (.0099 cfs/acre) and 3.0 acre feet of water rights for each irrigated acre. Equivalent Residential Connection may also be specified as an equivalent residential user/unit or ERU. (Subsection (D) adopted 02-1-06 by Ord. No. 2006-01)

E. Equivalent Residential Connection (ERC) for the purposes of Section 30-1-9 (Wastewater Capital facilities Impact Fee) of this Chapter is defined as 280 gallons of wastewater per day. The wastewater impact fee for a nonresidential development shall be calculated by estimating the wastewater flow per day and then converting it to an ERC, which shall then be multiplied by the impact fee specified in Section 30-1-9 herein for each ERC. Equivalent Residential Connection may also be specified as an equivalent residential user/unit or ERU. (Subsection (E) adopted 02-1-06 by Ord. No. 2006-01)

13-1-2 Collection Procedures-Exemptions

After the effective date of this Ordinance, no application for a building permit as set forth herein, shall be approved by Grantsville City unless the applicable impact fee has been paid or is adjusted or waived by the City Council.

The impact fees imposed by this Ordinance shall not apply to the following development activities:

A. Residential development activities that do not increase the number of residential dwelling units.
B. Nonresidential development activities that do not increase the total square footage in an existing nonresidential development.
C. Proposed development for which a building permit has been issued prior to the effective date of the enactment of an impact fee.
D. Any new subdivision or planned unit development(except minor subdivisions or small planned unit developments of six or less lots), shall be required to provide, prior to final approval, sufficient water rights to the City or dedicated private water resources to provide for all of the indoor and outdoor water uses required for the development.
E. Low income housing and other development activities with broad public purposes may be exempted from the payment of impact fees by the City Council. Low income housing shall be defined by the regulations adopted or used by the Tooele County Housing Authority.

(Originally adopted 07-16-1997 by Ord. No. 97-28; Subsection (D) was added by Ord. No. 99-13 on 04-21-1999; Subsection (E) was added by Ord. No. 2002-1 on 01-09-2002.)

13-1-3 Accounting

The City Treasurer shall establish separate interest-bearing ledger accounts for each type of public facility for which an impact fee is collected. The City shall also deposit impact fee receipts in the appropriate ledger account and retain the interest earned on each fund or account in the fund. The City Treasurer shall, at the end of each fiscal year prepare and submit a report to the City Council on each fund or account showing the source and amount of all monies collected, earned or received by the fund or account and each expenditure from the fund or account including other expenditures to support this impact fee process.

(Adopted on 07-16-1997 by Ord. No.97-28, included unrevised in Ord. No.99-13, adopted 4-21-1999.)

13-1-4 Refunds - Credits - Challenges - Appeals

A. Refunds. The City shall refund any impact fee paid by a developer, plus interest earned when:
    1. The developer does not proceed with the development activity and has filed a written request for a refund; or
    2. The fees have not been timely spent or encumbered as required by law; or

3. No impact has resulted.

B. Credits. Credits against the amount of an impact fee due from a proposed development may be provided for by the dedication of land or the provision of City resources or facilities by an applicant when such land, facilities or resources are determined to provide additional City facilities or resource capacity to meet the demand generated by the development and when either:

   1. Costs. The costs of such land, facilities or resources have been included in the City impact fee calculation methodology or the land dedicated or facilities provided is determined by the City Council to be a reasonable substitute for the cost of facilities or resources which are included in the City's impact fee calculation methodology. Applications for a credit will be made to the City and will be submitted at or before the time when the impact fee is due. The application for a credit will be accompanied by relevant documentary evidence indicating the eligibility of the applicant for the credit. The City Recorder will present an application for any credit to the City Council, accompanied by a recommendation by the Mayor. Any credit determined appropriate by the City Council shall be applied against the impact fee calculated to be due; provided, however, that in no event shall a credit be granted in an amount exceeding the impact fee due.

   2. Unusual Circumstances. The City Council may adjust the impact fee at the time the fee is charged, to respond to unusual circumstances in specific cases and ensure that the impact fees are imposed fairly. The City Council may also adjust an impact fee based upon studies and data submitted by a developer.

C. Challenges. Any person claiming that the impact fee required by this ordinance has no reasonable relationship to the needs created by or benefits conferred upon the proposed development and does not demonstrably benefit the new development or is otherwise constitutionally invalid or unlawful pursuant to the standards of applicable case law or statutes then in effect, must file a written challenge with the City Recorder in order to obtain a final determination regarding the application of the impact fee to the development by the City Council, which may include a request for a credit against the impact fees paid. Such a determination shall be a necessary prerequisite before filing any legal challenge to the basis of or the amount of the impact fee in question. Any challenge to an impact fee must be filed within 30 days after paying an impact fee. The City Council shall make its decision no later than 30 days after the date the challenge to the impact fee is filed.

D. Arbitration. In addition to the procedure under the foregoing paragraph to challenge an impact fee, a person or entity may submit an impact fee challenge to arbitration, if the person or entity resides in or owns property within the impact fee service area or is an organization, association, or corporation representing the interests of a person or entity owning property within the impact fee service area and files a written request for arbitration with the Grantsville City Council within 30 days after the day the impact fee is paid. If a person or entity files a written request for arbitration an arbitrator or arbitration panel shall be selected as follows:

   1. the City Council and the person or entity filing the request may agree on a single arbitrator within ten days after the day the request for arbitration is filed; or

   2. if a single arbitrator is not agreed to, an arbitration panel shall be created with the following members:

      a. each party shall select an arbitrator within 20 days after the date the request is filed; and

b. the arbitrators selected by each party shall select a third arbitrator.

3. The arbitration panel shall hold a hearing on the challenge within 30 days after the date the single arbitrator is agreed upon or within 30 days after the two arbitrators are selected. The arbitrator or arbitration panel shall issue a decision in writing within ten days from the date the hearing is completed. Except as provided in this section, each arbitration shall be governed by Utah Code Ann. Title 78B, Chapter 11, Utah Uniform Arbitration Act. The parties may agree to binding arbitration, formal, nonbinding arbitration or informal, nonbinding arbitration. If the parties agree in writing to binding arbitration, the arbitration shall be binding, the decision of the arbitration panel shall be final, neither party may appeal the decision of the arbitration panel and notwithstanding Subsection (C) above, the person or entity challenging the impact fee may not file an action under Subsection (C) or Utah Code Ann. §11-36a-701, et al. If the parties agree to formal, nonbinding arbitration, the arbitration shall be governed by the provisions of Utah Code Ann. Title 63G, Chapter 4, Administrative Procedures Act. For purposes of applying Utah Code Ann. Title 63G, Chapter 4, Administrative Procedures Act, to a formal, nonbinding arbitration under this section, notwithstanding Utah Code Ann. §63G-4-502, "agency" means a local political subdivision. An appeal from a decision in an informal, nonbinding arbitration may be filed with the district court in which Grantsville City is located. Each authorized appeal to the district court shall be filed within 30 days after the date the arbitration panel issues a decision. The district court shall consider de novo each appeal filed from an informal, nonbinding arbitration filed under this subsection. A person or entity that files an appeal to the district court after an informal nonbinding arbitration decision under this subsection may not file an action under Subsection (C) of this provision or Utah Code Ann. §11-36a-701, et al. The filing of a valid written request for arbitration within 30 days after the date the impact fee is paid tolls all time limitations under Utah Code Ann. §11-36a-701, et al. until the date the arbitration panel issues a decision. The person or entity filing a request for arbitration and Grantsville City shall equally share all costs of an arbitration proceeding under this section. Except as provided for herein, this subsection shall not be construed to prohibit a person or entity from challenging an impact fee as provided in Subsection (C) or Utah Code Ann. §11-36a-701, et al.

E. Oversized Water Services - No Appeal Allowed. If the developer or owner of property knowingly requests or installs a water service, at its option, that is larger than is required by this Chapter or any other part of this Code, the impact fees associated with the requested service size, shall be charged and collected by the City. No credit, challenge, appeal or arbitration related to the impact or other fees knowingly paid for an oversized service, shall be allowed under this Chapter, after the impact fee has been paid to the City. If an oversized water service has been installed and the impact fee for the same has not been paid, the developer or owner may replace the oversized service, with a properly sized service, provided the City is paid for its costs to inspect the new installation. (Adopted 02-04-2009 by Ord. 2009-03).

(Section 30-1-4 originally adopted on 02-05-1997, amended and renumbered on 07-16-1997 by Ord. No.97-28, amended 04-21-99 by Ord. No. 99-13.)

13-1-5 Parks And Recreation Facilities Impact Fee

As a condition for the issuance of a building permit for the new construction or placement of any structure for a single or multi-family dwelling within Grantsville City's Boundaries, the developer, owner or builder shall pay an impact fee of $936.00 for each single family dwelling unit and $3,952.56 for each individual dwelling unit in a multi-family dwelling. The City council may adjust the standard impact fee at the time of the fee is charged to respond to unusual circumstances in specific cases and ensure that the impact fees are imposed fairly.

(Originally adopted on 02-05-1997 by Ord. No. 97-5, included unrevised and renumbered in Ord. No. 99-13 adopted 04-21-99)

HISTORY
Amended by Ord. 2024-32 on 11/6/2024

13-1-6 Public Safety (Fire And Police) Capital Facilities Impact Fees

As a condition for the issuance of a building permit for the new construction or placement of any structure for a single or multi-family dwelling within Grantsville City's Boundaries, the developer, owner or builder shall pay a public safety (fire and police) capital facilities impact fee of $996.12 for each single-family dwelling unit and $430.33 per unit for each individual dwelling unit in a multi-family dwelling. Prior to the issuance of a building permit for any nonresidential development activity within the District's boundaries, the developer, owner or builder thereof, shall pay a public safety facilities impact fee of $953.80 per 1,000 sq ft building area. The City Council may adjust the standard impact fee at the time the fee is charged to respond to unusual circumstances in specific cases and ensure that the impact fees are imposed fairly.

(Adopted 07-16-1997 by Ord.No.97-28, amended 07-08-1998 by Ord. No. 98-17, included unrevised in Ord. No. 99-13 adopted 04-21-99).

HISTORY
Amended by Ord. 2024-32 on 11/6/2024

13-1-7 Culinary Water Capital Facilities Impact Fee

As a condition for the issuance of a building permit or as a condition of obtaining culinary water service for any new residential construction or development within Grantsville City's boundaries that requires a new or expanded culinary water service, the developer, owner or builder shall pay a culinary water (source development, storage and distribution) capital facilities impact fee based upon the size of the culinary water service meter connection necessary for the development as follows:

Meter Size in Inches	Max Flow Rate (GPM)	ERC's	Impact Fee per Meter Size
3/4"	25	1.00	$3,432.76
1"	40	1.60	$5,492.42
1 1/2"	50	2.00	$6,865.52
2"	100	4.00	$13,731.05
3"	150	6.00	$27,462.09
4"	200	8.00	$54,924.19
6"	500	20.00	$109,848.38

As a condition for the issuance of a building permit or as a condition of obtaining culinary water service for any new residential construction or development or any other activity within Grantsville City's boundaries that requires a new or expanded culinary water service, the developer, owner or builder shall pay a culinary water (source development, storage and distribution) capital facilities impact fee based upon the number of fixture units for indoor water use or the number of fixture units per acre for outdoor water use as follows:

Non-Residential (Indoor Use) $35.00 per fixture unit
Non-Residential (Outdoor Use) $21,694.03 per irrigated acre

The City council may adjust the standard water capital facilities impact fee at the time of the fee is charged, to respond to unusual circumstances in specific cases and ensure that the impact fees are imposed fairly. (Originally adopted 07-16-1997 by Ord. No. 97-28, amended 04-21-1999 by Ord. No. 99-13; amended 02-1-06 by Ord. No. 2006-01)

13-1-8 Water Rights Acquisition Impact Fee

A. As a condition for the issuance of a building permit or as a condition of obtaining Citywater service for any new residential or commercial construction or development or any other activity within Grantsville City's boundaries that requires City water for indoor or outdoor use or a new or expanded City water service, the developer, owner or builder, when required by this ordinance, shall pay an indoor and outdoor water right acquisition impact fee for the development as follows:

    1. Single Family Residential: :$5,450.00 per Dwelling Unit. (0.218 acre-feet per year per Equivalent Residential Connection (ERC)x $25,000.00 per acre foot of water)

       Multi-Unit Residential: $3,000.00 per Dwelling Unit. (0.120 acre-feet per Dwelling Unit x $25,000.00 per acre-foot of water)

       Non-Residential: $227.00per Fixture Unit. (0.00908 acre-feet per Fixture Unit x $25,000.00 per acre-foot of water)

2. Outdoor Use Impact Fee:

Outdoor use impact fee shall be calculated utilizing the Grantsville Water Rights Dedication Requirements and then multiplying the resulting acre feet of required water for the lot by $25,000.00.&

No additional outdoor use impact fee shall be charged for single family residential lots (Category 1) over one acre in size and therefore the outdoor use impact fee is capped at $53,280.00 (no waterwise landscaping) and $48,555.00 (waterwise landscape front yard only) for single family residential lots (Category 1) of one acre in size or larger; provided that irrigation of more than 0.64 acres per lot may be temporarily or permanently terminated by Resolution, as provided in subsection (F)

Example: A single family residential lot of 8,000 total square feet, no waterwise landscaping = (8,000 square feet / 43,560 square feet per acre x 0.64= irrigated area of 0.1175 acre x 3.33 = .39 acre feet of water x $25,000.00 = $9,785.12 as the outdoor use impact fee.

*See the Impact Fee Analysis for more examples

(Adopted 04-21-1999 by Ord. No. 99-13; amended 12-19-2001 by Ord. No. 2001-19)

B. Developments providing a permanent secondary water source (non-City waterworks sources) for outdoor use on the property may petition the City Council for a waiver of the Outdoor Use Impact Fee, which may be granted, provided that said water right can be verified as supplying adequate water for outdoor purposes on the property and adequate assurance is given that no Grantsville City will be used for outdoor purposes on the property in perpetuity. Adequate assurance for purposes of the waiver may be by transfer to the City of water shares to be held by the City foruse on the property or within the City. Secondary water user fees and related charges may be collected by the City from the owner or tenant of the property in connection with the City's billing for culinary water and other City services. (Adopted 04-21-1999 by Ord. No. 99-03; amended 12-03-2003 by Ord. 2003-29).All charges provided for hereunder shall be charged with the City sewer and water fees and shall constitute one charge. If any part of the account for either the secondary water assessment or the City sewer or charges becomes delinquent, as in this Code provided, the City shall discontinue the water service until all delinquencies have been paid in full, including the reconnection fee. (Included 03-02-2005 by Ord. No.2005-04)C. Subsection (C) was repealed on October 17, 2007 by Ord. No. 2007-36)D. Any new subdivision or planned unit development (except(i) developments of one to four family dwellings, and (ii) amendments to existing platted subdivisions that require only up to a total of two acre-feet of additional indoor water and only up to a total of eight acre-feet of additional outdoor water for full development,shall be required to provide, prior to final approval, sufficient water rights to the City or dedicated private water resources to provide for all of the indoor and outdoor water uses required for the development. Unless otherwise provided for, the impact fees specified in this Section shall apply to all development in subdivisions and planned unit developments initiated prior to April 23, 1999 and shall be collected as provided in subsection (A) above. (Adopted 04-21-1999 by Ord. No. 99-13; amended 12-19-2001 by Ord. No.2001-19).

A. The Outdoor Use Impact fee is based upon a typical irrigated single family residential lot (Category 1) or development as defined in the Grantsville Water Rights Dedication Requirements.. The Outdoor Use Impact fee for residential lots (Category 1) up to one acre in size shall be strictly applied without regard to claims of restricted irrigation areas, since these claims can rarely be verified or enforced. The water rights acquisition fee for all development that does not fall under Category 1 as defined in the Grantsville Water Rights Dedication Requirements shall be based upon an estimate of the indoor and outdoor water usage specified for the project, (Adopted 04-21-1999 by Ord. No. 99-13; amended 12-19-2001 by Ord. No. 2001-19)
B. No owner or possessor of real property within Grantsville City has the right to use City water for outdoor use (irrigation) on more than the irrigated acreage as defined in subsection (A) above or in the development plan as otherwise approved by the City. Owners or possessors of such real property, who do not have access to non-City secondary water, may at their option irrigate more than the specified irrigated acreage of their property or lot with City y water until such time as the City determines by a formally adopted Resolution that itsCity water supply is insufficient to continue to allow such irrigation. Any such Resolution may temporarily terminate the use of culinary water on more than the allowed irrigated acreage until the water shortage abates or the Resolution may permanently terminate such use. Any person who irrigates more of their property than the allowed irrigated acreage as defined herein, after a Resolution prohibiting said use is adopted, shall be guilty of guilty of a Class "C" Misdemeanor. Nothing contained in this Section shall prohibit the City from otherwise limiting the outside use of Citywater in times of emergency or shortage. (Adopted 12-19-2001 by Ord. No.2001-19)

HISTORY
Amended by Ord. 2024-11 on 5/1/2024
Amended by Ord. 2024-32 on 11/6/2024

13-1-9 Wastewater Capital Facilities Impact Fee

As a condition for the issuance of a building permit or as a condition of obtaining wastewater (sewer) service for any new residential construction or development within Grantsville City's boundaries that requires a new or expanded wastewater service, the developer, owner or builder shall pay a wastewater capital facilities impact fee based upon the size of the wastewater service meter connection necessary for the development as follows:

Meter Size In	(GPM)	(ERC's)	Impact Fee Meter Size
3/4"	20	1.00	$5,120.79
1"	38	1.90	$8,193.26
1 1/2"	48	2.38	$10,241.58
2"	95	4.75	$20,483.15
3"	143	7.13	$40,966.30
4"	190	9.50	$81,932.61
6"	475	23.75	$163,865.22

As a condition for the issuance of a building permit or as a condition of obtaining wastewater (sewer) service for any new commercial construction or development or any other activity within Grantsville City's boundaries that requires a new or expanded wastewater service, the developer, owner or builder shall pay a wastewater capital facilities impact fee based upon the number of fixture units necessary for the development as follows:

Non-Residential Wastewater $213.37 per fixture unit

(Originally adopted 7-16-1997 by Ord. No. 97-28, amended and renumbered on 04-21-1999 by Ord. No. 99-13; amended 02-01-2006 by Ord. No. 2006-01).

HISTORY
Amended by Ord. 2024-32 on 11/6/2024

13-1-10 Transportation Impact Fee

As a condition for the issuance of a building permit for any new residential construction or development within Grantsville City's boundaries, impact fees for transportation will be based on development type.

Development Type	Peak Hour Trips Rate	Impact Fee	Units
Single Family	0.99	$2,754.42	per Dwelling Unit
Multi-Unit	0.56	$1,558.05	per Dwelling Unit
Trailer	0.46	$1,279.83	per Dwelling Unit
Industrial/Manufacturing	0.37	$1,029.43	per 1,000 sf Building Area
Warehousing	0.09	$250.40	per 1,000 sf Building Area
Retail	3.295	$9,167.48	per 1,000 sf Building Area
Church	0.049	$136.33	per 1,000 sf Building Area
School	0.0665	$185.07	per Student

HISTORY
Amended by Ord. 2024-32 on 11/6/2024

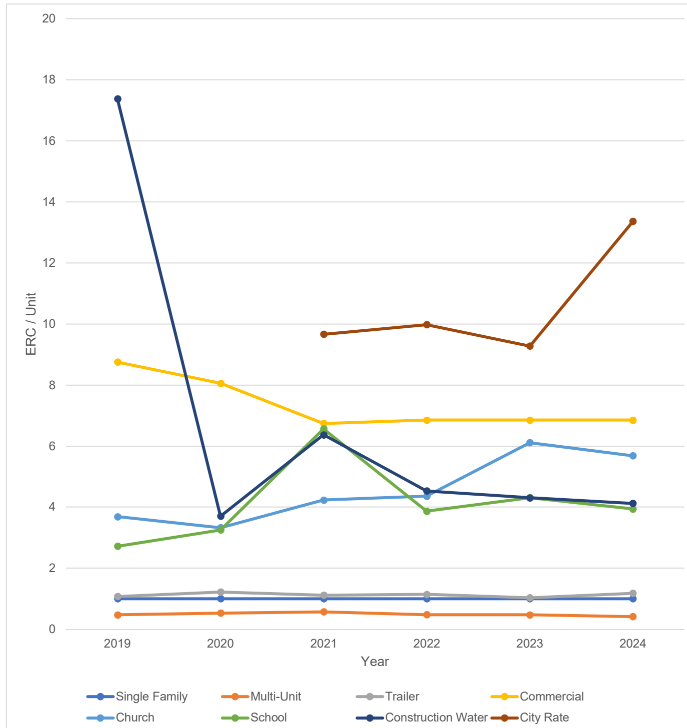
Appendix C Demographic Calculations

ERC / Unit Summary:

Service Connection Type	2019	2020	2021	2022	2023	2024	2025	Average
Single Family	1.000	1.000	1.000	1.000	1.000	1.000	1.000	**1.000**
Multi-Unit	0.472	0.532	0.572	0.476	0.474	0.419	0.716	**0.523**
Trailer	1.074	1.222	1.116	1.143	1.033	1.179	1.039	**1.115**
Commercial	8.753	8.056	6.744	6.852	6.851	6.849	7.247	**7.336**
Church	3.689	3.326	4.234	4.360	6.119	5.681	4.572	**4.569**
School	2.726	3.254	6.566	3.865	4.314	3.938	10.974	**5.091**
Construction Water	17.373	3.709	6.372	4.533	4.308	4.121	7.261	**6.811**
City Rate			9.663	9.976	9.281	13.363	10.685	**10.594**

Year 2025:

Service Connection Type	Avg Units	Avg Monthly Usage (gal)	Usage (gal) / Unit	ERC / Unit
Single Family	4,560	42,805,833	9,387.59	1.000
Multi-Unit	292	1,959,250	6,721.27	0.716
Trailer	213	2,075,500	9,751.76	1.039
Commercial	154	10,487,583	68,027.57	7.247
Church	11	472,167	42,924.24	4.572
School	12	1,236,250	103,020.83	10.974
Construction Water	16	1,102,042	68,167.53	7.261
City Rate	33	3,310,167	100,308.08	10.685



Year 2024:

Service Connection Type	Avg Units	Avg Monthly Usage (gal)	Usage (gal) / Unit	ERC / Unit
Single Family	4,417	38,437,000	8,701.57	1.000
Multi-Unit	291	1,058,167	3,642.57	0.419
Trailer	213	2,188,000	10,256.25	1.179
Commercial	153	9,098,833	59,599.34	6.849
Church	11	543,750	49,431.82	5.681
School	12	405,500	34,267.61	3.938
Construction Water	16	567,742	35,857.39	4.121
City Rate	33	3,866,167	116,275.69	13.363

Year 2023:

Service Connection Type	Avg Units	Avg Monthly Usage (gal)	Usage (gal) / Unit	ERC / Unit
Single Family	4,208	32,012,917	7,607.78	1.000
Multi-Unit	285	1,027,917	3,603.56	0.474
Trailer	218	1,715,917	7,859.16	1.033
Commercial	146	7,627,417	52,123.58	6.851
Church	11	512,083	46,553.03	6.119
School	11	361,000	32,818.18	4.314
Construction Water	15	475,234	32,774.79	4.308
City Rate	34	2,400,667	70,607.84	9.281

Year 2022:

Service Connection Type	Avg Units	Avg Monthly Usage (gal)	Usage (gal) / Unit	ERC / Unit
Single Family	4,012	33,274,417	8,293.38	1.000
Multi-Unit	272	1,075,333	3,951.01	0.476
Trailer	224	2,119,000	9,480.98	1.143
Commercial	143	8,130,917	56,826.44	6.852
Church	11	397,750	36,159.09	4.360
School	12	371,250	32,050.36	3.865
Construction Water	20	767,546	37,594.08	4.533
City Rate	35	2,854,250	82,731.88	9.976

Year 2021:

Service Connection Type	Avg Units	Avg Monthly Usage (gal)	Usage (gal) / Unit	ERC / Unit
Single Family	3,737	31,404,250	8,403.97	1.000
Multi-Unit	264	1,267,417	4,809.93	0.572
Trailer	227	2,132,417	9,376.69	1.116
Commercial	138	7,835,333	56,675.11	6.744
Church	11	388,417	35,580.15	4.234
School	11	602,417	55,183.21	6.566
Construction Water	22	1,169,167	53,549.62	6.372
City Rate	32	2,558,083	81,208.99	9.663

Year 2020:

Service Connection Type	Avg Units	Avg Monthly Usage (gal)	Usage (gal) / Unit	ERC / Unit
Single Family	3,428	31,442,292	9,171.97	1.000
Multi-Unit	268	1,307,667	4,880.87	0.532
Trailer	225	2,517,167	11,208.16	1.222
Commercial	130	9,605,250	73,886.54	8.056
Church	11	335,545	30,504.13	3.326
School	11	328,333	29,848.48	3.254
Construction Water	22	731,426	34,019.81	3.709
City Rate				

Year 2019:

Service Connection Type	Avg Units	Avg Monthly Usage (gal)	Usage (gal) / Unit	ERC / Unit
Single Family	3,185	27,138,200	8,521.52	1.000
Multi-Unit	270	1,085,750	4,020.06	0.472
Trailer	227	2,075,250	9,148.79	1.074
Commercial	126	9,366,583	74,584.61	8.753
Church	11	345,833	31,439.39	3.689
School	11	255,500	23,227.27	2.726
Construction Water	20	2,899,199	148,044.21	17.373
City Rate				

Appendix D Drinking Water Cost Estimates

ENGINEERS ESTIMATE OF PROBABLE COSTS

These costs are opinions only and should not be considered as a formal construction estimate. These quantites and costs are based on information derived from the master plan and are therefore subject to change. Ensign has no control over costs of labor, materials, bidding procedures, unidentified field conditions, or other factors. Ensign cannot and does not make any warranty, promise, or guarantee as to the accuracy of this estimate.

ENSIGN
THE STANDARD IN ENGINEERING

Project: Grantsville City CFP, IFFP, and IFA
By: Dylan Cooper
Date: 3/16/2026

Project No.: 11637
Checked By: Robert Rousselle

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST [1]	COST
Bates Well					
1	Well Flush Line	LS	1	$50,000.00	$50,000.00
2	Exploratory and Municipal Production Well Drilling and Completion	LF	600	$2,400.00	$1,440,000.00
3	Municipal Well Equipment, Connection to Existing Infrastructure, and Modification to Electrical/Controls	LS	1	$890,000.00	$890,000.00
4	Mobilization	LS	1	$18,000.00	$18,000.00
5	Furnish and Install 12-inch Water Main Including Fittings and Appurtenances	LF	3,110	$85.00	$264,350.00
6	Furnish and Install 12-inch Isolation Valve	EA	2	$2,300.00	$4,600.00
7	Furnish and Install 12-inch Tee and (3) 12-inch Butterfly Valves, Including Fittings and Appurtenances	EA	1	$12,000.00	$12,000.00
8	Furnish and Install 2-inch Combination Air Vac Valve	EA	1	$13,000.00	$13,000.00
9	Disinfection and Testing Water Line	LF	3,110	$0.55	$1,710.50
10	Revegetation	SF	124,400	$0.06	$7,464.00
11	Easement Acquisition	AC	1.43	$45,000.00	$64,256.20
				Subtotal	**$2,765,380.70**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)				$276,538.07
				Total Bates Well Cost	**$3,041,918.77**
Southwest Well					
1	Well Flush Line	LS	1	$50,000.00	$50,000.00
2	Exploratory and Municipal Production Well Drilling and Completion	LF	600	$2,400.00	$1,440,000.00
3	Municipal Well Equipment, Connection to Existing Infrastructure, and Modification to Electrical/Controls	LS	1	$890,000.00	$890,000.00
4	Mobilization	LS	1	$16,000.00	$16,000.00
5	Furnish and Install 10-inch Water Main Including Fittings and Appurtenances	LF	220	$75.00	$16,500.00
6	Furnish and Install 12-inch Water Main Including Fittings and Appurtenances	LF	2,410	$85.00	$204,850.00
7	Furnish and Install 12-inch Isolation Valve	EA	2	$2,300.00	$4,600.00
8	Furnish and Install 12-inch x 10-inch Tee, (2) 12-inch Butterfly Valves, and (1) 10-inch Butterfly Valve, Including Fittings and Appurtenances	EA	1	$12,000.00	$12,000.00
9	Furnish and Install 2-inch Combination Air Vac Valve	EA	1	$13,000.00	$13,000.00
10	Disinfection and Testing Water Line	LF	2,630	$0.55	$1,446.50
11	Revegetation	SF	105,200	$0.06	$6,312.00
12	Easement Acquisition	AC	1.21	$45,000.00	$54,338.84
				Subtotal	**$2,709,047.34**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)				$270,904.73
				Total Southwest Well Cost	**$2,979,952.08**
West Bank Well					
1	Well Flush Line	LS	1	$50,000.00	$50,000.00
2	Exploratory and Municipal Production Well Drilling and Completion	LF	600	$2,400.00	$1,440,000.00
3	Municipal Well Equipment, Connection to Existing Infrastructure, and Modification to Electrical/Controls	LS	1	$890,000.00	$890,000.00
4	Mobilization	LS	1	$39,000.00	$39,000.00
5	Furnish and Install 10-inch Water Main Including Fittings and Appurtenances	LF	7,385	$75.00	$553,875.00
6	Furnish and Install 10-inch Isolation Valve	EA	6	$2,000.00	$12,000.00
7	Furnish and Install 2-inch Combination Air Vac Valve	EA	3	$13,000.00	$39,000.00
8	Disinfection and Testing Water Line	LF	7,385	$0.55	$4,061.75
9	Revegetation	SF	295,400	$0.06	$17,724.00
10	Easement Acquisition	AC	3.39	$45,000.00	$152,582.64
				Subtotal	**$3,198,243.39**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)				$319,824.34
				Total West Bank Well Cost	**$3,518,067.73**
Southwest Tank					
1	Mobilization	LS	1	$171,000.00	$171,000.00
2	Site Clearing and Grubbing	LS	1	$16,000.00	$16,000.00
3	Earthwork / Fine Grading	CY	7,500	$11.50	$86,250.00
4	Construct 1.5 M.G. Buried Tank	LS	1	$2,250,000.00	$2,250,000.00
5	Furnish and Install Tank Valve Vault	LS	1	$130,000.00	$130,000.00
6	Electrical and Telemetry	LS	1	$125,000.00	$125,000.00
7	Disinfection and Testing Tank	LS	1	$21,000.00	$21,000.00
8	Revegetation	LS	1	$30,000.00	$30,000.00
9	Furnish and Install 16-inch Water Main Including Fittings and Appurtenances	LF	3,580	$115.00	$411,700.00
10	Furnish and Install 12-inch Water Main Including Fittings and Appurtenances	LF	1,090	$85.00	$92,650.00
11	Furnish and Install 16-inch Isolation Valve	EA	3	$4,500.00	$13,500.00
12	Furnish and Install 12-inch Isolation Valve	EA	1	$2,300.00	$2,300.00
13	Furnish and Install 16-inch x 12-inch Tee, (2) 16-inch Butterfly Valves, and (1) 12-inch Butterfly Valve, Including Fittings and Appurtenances	EA	1	$19,000.00	$19,000.00
14	Furnish and Install 4-inch Combination Air Vac Valve	EA	1	$17,000.00	$17,000.00
15	Furnish and Install 10-inch PRV Station	EA	1	$100,000.00	$100,000.00
16	Disinfection and Testing Water Line	LF	4,670	$0.55	$2,568.50
17	Easement Acquisition	AC	2.14	$45,000.00	$96,487.60
				Subtotal	**$3,584,456.10**
	Engineering, Surveying, and Construction Management and Inspection Costs (6.73%)				$241,233.90
				Total Southwest Tank Cost	**$3,825,690.00**
West Bank Tank					
1	Mobilization	LS	1	$219,000.00	$219,000.00

2	Site Clearing and Grubbing	LS	1	$16,000.00	$16,000.00
3	Earthwork / Fine Grading	CY	10,000	$11.50	$115,000.00
4	Construct 1.5 M.G. Buried Tank	LS	1	$2,250,000.00	$2,250,000.00
5	Furnish and Install Tank Valve Vault	LS	1	$130,000.00	$130,000.00
6	Electrical and Telemetry	LS	1	$125,000.00	$125,000.00
7	Disinfection and Testing Tank	LS	1	$21,000.00	$21,000.00
8	Revegetation	LS	1	$30,000.00	$30,000.00
9	Furnish and Install 16-inch Water Main Including Fittings and Appurtenances	LF	9,880	$115.00	$1,136,200.00
11	Furnish and Install 16-inch Isolation Valve	EA	7	$4,500.00	$31,500.00
14	Furnish and Install 4-inch Combination Air Vac Valve	EA	4	$17,000.00	$68,000.00
15	Furnish and Install 16-inch PRV Station	EA	1	$200,000.00	$200,000.00
16	Connect to Water Main	EA	2	$19,000.00	$38,000.00
17	Disinfection and Testing Water Line	LF	9,880	$0.55	$5,434.00
18	Easement Acquisition	AC	4.54	$45,000.00	$204,132.23
				Subtotal	$4,589,266.23
	Engineering, Surveying, and Construction Management and Inspection Costs (6.73%)				$308,857.62
				Total West Bank Tank Cost	$4,898,123.85
Northstar Tank No. 1 Transmission Line					
1	Mobilization	LS	1	$108,000.00	$108,000.00
2	Furnish and Install 16-inch Water Main Including Fittings and Appurtenances	LF	10,750	$115.00	$1,236,250.00
3	Furnish and Install 12-inch Water Main Including Fittings and Appurtenances	LF	3,660	$85.00	$311,100.00
4	Furnish and Install 16-inch Isolation Valve	EA	8	$4,500.00	$36,000.00
5	Furnish and Install 12-inch Isolation Valve	EA	3	$2,300.00	$6,900.00
6	Furnish and Install 16-inch Tee and (3) 16-inch Butterfly Valves, Including Fittings and Appurtenances	EA	1	$19,000.00	$19,000.00
7	Furnish and Install 4-inch Combination Air Vac Valve	EA	4	$17,000.00	$68,000.00
8	Furnish and Install 2-inch Combination Air Vac Valve	EA	1	$13,000.00	$13,000.00
9	Furnish and Install 10-inch PRV Station	EA	1	$100,000.00	$100,000.00
10	Connect to Water Main	EA	2	$19,000.00	$38,000.00
11	Disinfection and Testing Water Line	LF	14,410	$0.55	$7,925.50
12	Revegetation	SF	576,400	$0.06	$34,584.00
13	Easement Acquisition	AC	6.62	$45,000.00	$297,727.27
				Subtotal	$2,276,486.77
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)				$227,648.68
				Total Northstar Tank No. 1 Transmission Line Cost	$2,504,135.45
Matthews Lane Water Line Project [2]					
1	Mobilization	LS	1	$16,000.00	$16,000.00
2	12" Tee	EA	3	$1,600.00	$4,800.00
3	12" C900 DR18 PVC	LF	2,711	$90.00	$243,990.00
4	Fire Hydrants Assembly	EA	7	$9,000.00	$63,000.00
				Subtotal	$327,790.00
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)				$32,779.00
				Total Matthews Lane Water Line Project Cost	$360,569.00
SR-112 Water Line Extension					
1	Mobilization	LS	1	$23,000.00	$23,000.00
2	Saw Cut Asphalt	LF	3,950	$4.50	$17,775.00
3	Furnish and Install 12-inch Water Main Including Fittings and Appurtenances	LF	3,950	$85.00	$335,750.00
4	Furnish and Install 12-inch Isolation Valve	EA	3	$2,300.00	$6,900.00
5	Furnish and Install 12-inch Tee and (3) 12-inch Butterfly Valves, Including Fittings and Appurtenances	EA	1	$12,000.00	$12,000.00
6	Furnish and Install 2-inch Combination Air Vac Valve	EA	1	$13,000.00	$13,000.00
7	Connect to Water Main	EA	1	$19,000.00	$19,000.00
8	Disinfection and Testing Water Line	LF	3,950	$0.55	$2,172.50
9	Pavement Restoration	LF	3,950	$6.70	$26,465.00
10	Traffic Control	LS	1	$35,000.00	$35,000.00
				Subtotal	$491,062.50
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)				$49,106.25
				Total SR-112 Water Line Extension Cost	$540,168.75
Southeast Water Line Project					
1	Mobilization	LS	1	$65,000.00	$65,000.00
2	Furnish and Install 12-inch Water Main Including Fittings and Appurtenances	LF	9,380	$85.00	$797,300.00
3	Furnish and Install 12-inch Isolation Valve	EA	7	$2,300.00	$16,100.00
4	Furnish and Install 2-inch Combination Air Vac Valve	EA	4	$13,000.00	$52,000.00
5	Furnish and Install 10-inch PRV Station	EA	2	$100,000.00	$200,000.00
6	Connect to Water Main	EA	1	$19,000.00	$19,000.00
7	Disinfection and Testing Water Line	LF	9,380	$0.55	$5,159.00
8	Revegetation	SF	375,200	$0.06	$22,512.00
9	Easement Acquisition	AC	4.306703398	$45,000.00	$193,801.65
				Subtotal	$1,370,872.65
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)				$137,087.27
				Total Southeast Water Line Project Cost	$1,507,959.92
Public Works Improvements [3]					
1	Mobilization	LS	1	$114,000.00	$114,000.00
2	Shop Area	SF	6,330	$255.00	$1,614,150.00
3	Equipment (Crane Rail, Pit Lift, Exhaust Removal System, etc.)	LS	1	$170,000.00	$170,000.00
4	Salt Shed	LS	1	$500,000.00	$500,000.00
				Subtotal	$2,398,150.00
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)				$239,815.00
				Total Public Works Improvements Cost	$2,637,965.00
North Tank No. 3					
1	Mobilization	LS	1	$177,000.00	$177,000.00
2	Site Clearing and Grubbing	LS	1	$16,000.00	$16,000.00
3	Earthwork / Fine Grading	CY	10,000	$11.50	$115,000.00
4	Construct 2.0 M.G. Buried Tank	LS	1	$3,000,000.00	$3,000,000.00
5	Furnish and Install Tank Valve Vault	LS	1	$130,000.00	$130,000.00
6	Electrical and Telemetry	LS	1	$125,000.00	$125,000.00
7	Disinfection and Testing Tank	LS	1	$21,000.00	$21,000.00
8	Revegetation	LS	1	$30,000.00	$30,000.00
9	Furnish and Install 16-inch Water Main Including Fittings and Appurtenances	LF	500	$115.00	$57,500.00
11	Furnish and Install 16-inch Isolation Valve	EA	0	$4,500.00	$0.00

14	Furnish and Install 4-inch Combination Air Vac Valve	EA	0	$17,000.00	$0.00
15	Furnish and Install 16-inch PRV Station	EA	0	$200,000.00	$0.00
16	Connect to Water Main	EA	2	$19,000.00	$38,000.00
17	Disinfection and Testing Water Line	LF	500	$0.55	$275.00
18	Easement Acquisition	AC	0.23	$45,000.00	$10,330.58
				Subtotal	**$3,720,105.58**
				Engineering, Surveying, and Construction Management and Inspection Costs (6.73%)	$250,363.11
				Total North Tank No. 3 Cost	**$3,970,468.68**

[1] Unit costs are from the 2022 Grantsville CFP/IFA and inflated to current year (2025).

ENGINEERS ESTIMATE OF PROBABLE COSTS

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Project: Osborne Way Water Line Loop: Osborne Way to Cherry Wood Lane
By: Ensign Engineering and Land Surveying
Date: 3/10/2026

Project No.: 11637
Checked By: Robert Rousselle

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
SITE WORK					
1	Mobilization	1	L.S.	$3,500.00	$3,500.00
				Sub Total	**$3,500.00**
CULINARY WATER					
1	Furnish and Install 10-inch Water Line with Fittings and Appurtenances	425	L.F.	$75.00	$31,875.00
2	Cross with Four (4) Gate Valves	1	E.A.	$10,500.00	$10,500.00
3	Connect to Existing Water Line	2	E.A.	$5,000.00	$10,000.00
				Sub Total	**$52,375.00**
MISCELLANEOUS ITEMS					
Traffic Control					
1	Traffic Control Implementation	1	L.S.	$2,500.00	$2,500.00
Erosion Control					
1	SWPPP/Maintenance	1	L.S.	$1,500.00	$1,500.00
				Sub Total	**$4,000.00**
				Construction Subtotal	**$59,875.00**
				Continency (15%)	**$8,981.25**
				Survey and Engineering (Design and CM)	**$7,500.00**
				Construction Total	**$76,356.25**

Desert Edge PH1 OFFSITE WATER LINE

FOCUS ENGINEERING & SURVEY

CONSTRUCTION BID 02/05/2025

ITEM NO.	DESCRIPTION	UNIT	QTY	UNIT PRICE	AMOUNT
	WATER DISTRIBUTION SYSTEM				
1	Earthwork Haul Trench Spoils to Adjacent Properties	CY	4,400.00	$5.90	$25,960.00
2	Culinary Water 12" PVC W/ Fittings	LF	6,300.00	$74.75	$470,925.00
3	Culinary Water 8" PVC W/ Fittings	LF	300.00	$51.80	$15,540.00
4	Pipe Jacking / Boring 16" Casing For 8" PVC (blue grass crossing)	LF	40.00	$2,762.10	$110,484.00
5	Excavation Pothole Existing Utilities	EACH	72.00	$750.00	$54,000.00
6	Culinary Water 12" PVC Loop W/ Insulation Install With Steel Casing 24"	EACH	11.00	$18,970.00	$208,670.00
7	Culinary Water 12" Pressurized Reducing Valve -Cut In On Existing; Detail Provided For PRV	EACH	1.00	$87,750.00	$87,750.00
8	Culinary Water 12" PVC Loop - Lateral For PRV	EACH	1.00	$7,405.00	$7,405.00
9	Culinary Water 12" Gate Valve W/ Concrete Collar	EACH	18.00	$5,830.00	$104,940.00
10	Culinary Water 8" Gate Valve W/ Concrete Collar	EACH	4.00	$3,385.00	$13,540.00
11	CW End-Of-Line Connection 12" PVC	EACH	5.00	$5,965.00	$29,825.00
12	Fire Hydrant Assembly	EACH	12.00	$10,275.00	$123,300.00
13	Fire Hydrant Assembly - Cut In On Existing Line	EACH	2.00	$11,860.00	$23,720.00
14	CW Air Vac Assembly 2"	EACH	10.00	$8,630.00	$86,300.00
15	Culinary Water Import Select Backfill	TON	4,500.00	$17.00	$76,500.00
16	Asphalt Pavement 6" Remove & Replace	SF	750.00	$31.00	$23,250.00
17	Hold Power Poles For Waterline Install	EACH	7.00	$1,750.00	$12,250.00
TOTAL WATER IMPROVEMENTS:					*$1,474,359.00*
GRAND TOTAL					***$ 1,474,359.00***

ENGINEERS ESTIMATE OF PROBABLE COSTS

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ENSIGN
THE STANDARD IN ENGINEERING

Project: SR-138 Water Line Extension - Broken Arrow
By: Ensign Engineering and Land Surveying
Date: 3/10/2026

Project No.: 11637
Checked By: Robert Rousselle

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
SITE WORK					
1	Mobilization	1	L.S.	$200,000.00	$200,000.00
				Sub Total	**$200,000.00**
CULINARY WATER					
1	16-inch C-900 PVC Culinary Water Line with Fittings and Appurtenances	21,700	L.F.	$140.00	$3,038,000.00
2	Steel Casing Sleeve at Drainage Crossings	2	E.A.	$64,000.00	$128,000.00
3	Fire Hydrant Assembly (Complete)	17	E.A.	$7,500.00	$127,500.00
4	2-inch Air/Vacuum Combination Valve Station	1	E.A.	$10,000.00	$10,000.00
5	Jack and Bore with Steel Casing at SR-112 and Sheep Lane	125	L.F.	$1,600.00	$200,000.00
6	Blow Off Valve	1	E.A.	$5,000.00	$5,000.00
7	Connect to Existing Water Line	3	E.A.	$20,000.00	$60,000.00
				Sub Total	**$3,568,500.00**
MISCELLANEOUS ITEMS					
Traffic Control					
1	Traffic Control Implementation	1	L.S.	$100,000.00	$100,000.00
Erosion Control					
1	SWPPP/Maintenance	1	L.S.	$80,000.00	$80,000.00
				Sub Total	**$180,000.00**
				Construction Subtotal	**$3,948,500.00**
				Continency (15%)	**$592,275.00**
				Survey and Engineering (Design and CM)	**$257,837.05**
				Construction Total	**$4,798,612.05**

ENGINEERS ESTIMATE OF PROBABLE COSTS

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ENSIGN
THE STANDARD IN ENGINEERING

Project: SR-138 Water Line Extension - Broken Arrow
By: Ensign Engineering and Land Surveying
Date: 3/10/2026

Project No.: 11637
Checked By: Robert Rousselle

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
SITE WORK					
1	Mobilization	1	L.S.	$200,000.00	$200,000.00
				Sub Total	**$200,000.00**
CULINARY WATER					
1	16-inch C-900 PVC Culinary Water Line with Fittings and Appurtenances	21,700	L.F.	$140.00	$3,038,000.00
2	Steel Casing Sleeve at Drainage Crossings	2	E.A.	$64,000.00	$128,000.00
3	Fire Hydrant Assembly (Complete)	17	E.A.	$7,500.00	$127,500.00
4	2-inch Air/Vacuum Combination Valve Station	1	E.A.	$10,000.00	$10,000.00
5	Jack and Bore with Steel Casing at SR-112 and Sheep Lane	125	L.F.	$1,600.00	$200,000.00
6	Blow Off Valve	1	E.A.	$5,000.00	$5,000.00
7	Connect to Existing Water Line	3	E.A.	$20,000.00	$60,000.00
				Sub Total	**$3,568,500.00**
MISCELLANEOUS ITEMS					
Traffic Control					
1	Traffic Control Implementation	1	L.S.	$100,000.00	$100,000.00
Erosion Control					
1	SWPPP/Maintenance	1	L.S.	$80,000.00	$80,000.00
				Sub Total	**$180,000.00**
				Construction Subtotal	**$3,948,500.00**
				Continency (15%)	**$592,275.00**
				Survey and Engineering (Design and CM)	**$257,837.05**
				Construction Total	**$4,798,612.05**

HADCO® CONSTRUCTION
EST. 1989

1850 N 1450 W P.O. BOX 437
Lehi, UT 84043

office 801-766-7611
fax 801-766-7604

To:	Grantsville	**Contact:**	
Address:	(Not Provided)	**Phone:**	(801) 884-3411
		Fax:	
Project Name:	SR 138 Waterline Extension - BUDGET CONCEPT	**Bid Number:**	
Project Location:	SR138 Bluegrass - Clark, Grantsville, UT	**Bid Date:**	3/12/2025

HADCO CONSTRUCTION CORDIALLY OFFERS THE FOLLOWING PROPOSAL

PRELIMINARY CONCEPT, SUBJECT TO CHANGE AND REVIEW WITH FINAL PLANS.

Line #	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
SR138 EXTENSION					
1	Mobilization & Demobilization	1.00	LS	$14,385.00	$14,385.00
2	Traffic Control / Barricades	1.00	LS	$5,315.00	$5,315.00
3	Culinary Water 12" PVC	1,710.00	LF	$91.90	$157,149.00
4	Culinary Water 8" PVC	188.00	LF	$80.40	$15,115.20
5	Culinary Water 12" PVC Loop W/ Insulation Install With Steel Casing 24"	1.00	EACH	$26,210.00	$26,210.00
6	Culinary Water 12" Gate Valve W/ Concrete Collar	2.00	EACH	$7,240.00	$14,480.00
7	Culinary Water 8" Gate Valve W/ Concrete Collar	1.00	EACH	$3,585.00	$3,585.00
8	CW Inline Connection 8" PVC W/ Sleeve & Tee In Right-Of-Way	1.00	EACH	$9,955.00	$9,955.00
9	CW Fitting 8" Ductile Iron	3.00	EACH	$1,425.00	$4,275.00
10	CW Fitting 12" Ductile Iron	5.00	EACH	$1,710.00	$8,550.00
11	Fire Hydrant	4.00	EACH	$11,165.00	$44,660.00
12	CW Service 12x1" -Crossing Existing Roadway	1.00	EACH	$5,110.00	$5,110.00
13	Earthwork Haul Trench Spoils To Adjacent Properties	1,650.00	CY	$14.50	$23,925.00
14	Culinary Water Import Select Backfill	1,750.00	TON	$19.50	$34,125.00
15	Asphalt Pavement 6" Remove & Replace	1,800.00	SF	$30.20	$54,360.00
100	Traffic Control / Barricades -UDOT Permits	1.00	LS	$3,705.00	$3,705.00
				Total Price for above SR138 EXTENSION Items:	**$424,904.20**
BLUE GRASS UPSIZE					
101	CW Inline Connection 12" PVC W/ Sleeve, Gate Valve & 90 In Right-Of-Way	1.00	EACH	$18,745.00	$18,745.00
102	Demo & Remove Culinary Water Pipe 8" PVC / Casing -Install New Casing - Flowable Fill Backfill	50.00	LF	$943.00	$47,150.00
103	Culinary Water 12" PVC	50.00	LF	$116.00	$5,800.00
104	Demo & Remove Culinary Water Pipe 8" PVC	30.00	LF	$22.70	$681.00
105	CW Fitting 12" Ductile Iron	1.00	EACH	$3,400.00	$3,400.00
106	Culinary Water 12" Gate Valve W/ Concrete Collar	3.00	EACH	$7,240.00	$21,720.00
107	CW Fitting 8" Ductile Iron	4.00	EACH	$226.00	$904.00
108	Earthwork Haul Trench Spoils To Adjacent Properties	120.00	CY	$14.50	$1,740.00
109	Culinary Water Import Select Backfill	45.00	TON	$19.50	$877.50
110	Asphalt Pavement UDOT 7" Remove & Replace	500.00	SF	$33.00	$16,500.00
				Total Price for above BLUE GRASS UPSIZE Items:	**$117,517.50**

Total Bid Price: $542,421.70

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Project Name: SR 138 Waterline Extension - BUDGET CONCEPT		**Bid Number:**	
Project Location: SR138 Bluegrass - Clark, Grantsville, UT		**Bid Date:**	3/12/2025

Notes:

- **ESCALATION FOR PVC, HDPE, ADS: Due to the volatile nature of raw material supplies and the energy and transportation markets required for the production and delivery of these products, suppliers do not guarantee firm material pricing. It is Hadco's aim to maintain the quoted pricing. In the event of supplier price increases, Hadco reserves the right to adjust pricing based on pricing issued at the time of material shipment.**
- **The quoted asphalt paving price is based on the Asphalt Paving Subcontractor's ability to purchase the required materials, in particular liquid asphalt oil, at the quoted price. The quoted price for liquid asphalt oil (PG 64-22 or PG 58-28), at the date of this proposal, is $640.00 per ton. Any increase in price, including freight and taxes, which the Asphalt Paving Subcontractor must pay, will be billed to and paid for by the Client/Owner.**
- **Fuel Escalation/Surcharge: Fuel pricing included in this proposal is based on the Rocky Mountain Fuel Index Dated [03/10/2025]. If fuel prices increase, each billing will include a 3% fuel surcharge for each $.01 increase beyond the established baseline.**
- Proposal based on plans set dated **CONCEPT NOTED GOOGLE MAP**
- Proposal includes only items specifically included in line item pricing above.
- Imported aggregate, soil and material will be billed by truck delivery tickets and/or pit scale weight tickets.
- Proposal includes no engineering nor surveying.
- Proposal excludes placement and installation of survey monuments.
- Amount paid to be based on actual quantities installed.
- Proposal excludes demolition and disposal of existing homes and structures.
- Proposal excludes tree removal and disposal.
- Proposal excludes municipal connection fees and impact fees.
- Trenching for power lines & dry utility crossings are estimated values only.
- Proposal excludes street lighting.
- Proposal includes grading in right-of-way only. Lot grading is excluded.
- Proposal excludes landscaping work, including restoration of existing landscaping disturbed and import of topsoil.
- Proposal excludes bonding.
- Proposal excludes rock excavation beyond standard machine capability.
- Proposal excludes dewatering.
- Prices are valid for 60 days from date of proposal.
- Proposal excludes provisions for ground heaters, blanketing and cold weather concrete placement (e.g. 7 bag mix, hot water admixture, etc.). If required, pricing will be provided for cold weather conditions prior to proceeding with the work.
- **PROPOSAL EXCLUDES THE FOLLOWING:** Enginnering, Surveying, Structure Demolition, Tree Removal, Electrical, Telecommunications, Natural Gas, Landscaping

ACCEPTED:	**CONFIRMED:**
The above prices, specifications and conditions are satisfactory and are hereby accepted.	**HADCO CONSTRUCTION LLC**
Buyer: ______________________	
Signature: ______________________	**Authorized Signature:** ______________________
Date of Acceptance: ______________________	**Estimator:** Kendall Page (801) 420-4750 KPage@HadcoConstruction.com

From:	Mat Wangsgaard <mwangsgaard@focus-es.com> on behalf of Mat Wangsgaard
Sent:	Friday, January 17, 2025 10:24 AM
To:	Shelby Moore
Cc:	Sherrie Broadbent; ncritchlow@grantsvilleut.gov; Tysen Barker; Markus Seat; gmillward@grantsvilleut.gov; Christy Montierth; Cody Christensen; Braydee Baugh; Jason Smith; Robert Rousselle; Ben Duzett
Subject:	RE: SR-138 Water Line Extension from Bluegrass to Clark Street - Concept Drawing

Shelby,

I wasn't able to get a contractor to give me a price for Robert's exhibit. They said they haven't had time to look at it yet. I am hoping they can get me numbers next week.

1. Our fee would be $23,800 for survey of the area, final design, construction staking, record drawings and GIS.

I will push them to get the costs for items 2 & 3 as soon as possible.

Thanks,
Mat

From: Shelby Moore <smoore@grantsvilleut.gov>
Sent: Thursday, January 16, 2025 2:27 PM
To: Mat Wangsgaard <mwangsgaard@focus-es.com>
Cc: Sherrie Broadbent <sbroadbent@grantsvilleut.gov>; ncritchlow@grantsvilleut.gov; Tysen Barker <tbarker@grantsvilleut.gov>; Markus Seat <mseat@grantsvilleut.gov>; gmillward@grantsvilleut.gov; Christy Montierth <cmontierth@grantsvilleut.gov>; Cody Christensen <cchristensen@grantsvilleut.gov>; Braydee Baugh <bbaugh@grantsvilleut.gov>; Jason Smith <firechief@grantsvilleut.gov>; Robert Rousselle <rrousselle@ensignutah.com>
Subject: Re: SR-138 Water Line Extension from Bluegrass to Clark Street - Concept Drawing

Mat,

Do you have an update on this request?

SHELBY MOORE
Planning & Zoning Administrator
Department of Public Works
Office: (435) 884-4604
Email: Smoore@Grantsvilleut.gov

On Thu, Jan 9, 2025 at 6:52 PM Robert Rousselle <rrousselle@ensignutah.com> wrote:

Mat,

Good evening. Following up on our phone conversation yesterday, 1/8, attached is a concept drawing showing the scope for the SR-138 Water Line Extension from Bluegrass to Clark Street. Per our discussion, please provide the following costs so the City can review and make a decision on these costs which would be paid by the City.

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    a. City will pay for upsize costs art this crossing.
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3. Construction Cost from Bluegrass Way along SR-138 to Clark Street Connection

Please let me know if there are any questions. Please send me these cost by the end of next week, 1/17, if possible. Thank you.

Robert Rousselle, P.E., LEED-AP | Senior Associate
Main 801.255.0529 | Cell 801.859.4759
rrousselle@ensignutah.com | ensignutah.com

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ENGINEERS ESTIMATE OF PROBABLE COSTS

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ENSIGN
THE STANDARD IN ENGINEERING

Project: Apple Street Water Line Replacement: Hale Street to Park Street
By: Ensign Engineering and Land Surveying
Date: 3/10/2026

Project No.: 11637
Checked By: Robert Rousselle

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
SITE WORK					
1	Mobilization	1	L.S.	$12,500.00	$12,500.00
2	3-inch Asphalt	7,776	S.F.	$2.90	$22,550.40
3	6-inch Untreated Base Course	7,776	S.F.	$2.00	$15,552.00
4	Sawcut and Remove Asphalt or Concrete	7,776	S.F.	$1.60	$12,441.60
5	Mill and Overlay	11,040	S.F.	$2.50	$27,600.00
6	24-inch Collection Curb and Gutter w/Base Course	20	L.F.	$78.00	$1,560.00
7	Striping	1	L.S.	$5,000.00	$5,000.00
				Sub Total	**$97,204.00**
CULINARY WATER					
1	8-inch C-900 PVC Culinary Water Line with Fittings and Appurtenances	920	L.F.	$65.00	$59,800.00
2	Reconnect 3/4-inch Culinary Water Service	21	E.A.	$1,500.00	$31,500.00
3	Fire Hydrant Assembly (Complete)	2	E.A.	$7,500.00	$15,000.00
4	Connect to Existing Water Line	4	E.A.	$5,000.00	$20,000.00
				Sub Total	**$126,300.00**
MISCELLANEOUS ITEMS					
Traffic Control					
1	Traffic Control Implementation	1	L.S.	$13,000.00	$13,000.00
Erosion Control					
1	SWPPP/Maintenance	1	L.S.	$11,000.00	$11,000.00
				Sub Total	**$24,000.00**
				Construction Subtotal	**$247,504.00**
				Continency (15%)	**$37,125.60**
				Survey and Engineering Design and CM	**$35,000.00**
				Construction Total	**$319,629.60**

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ENSIGN
THE STANDARD IN ENGINEERING

Project: Blaine Avenue Water Line Replacement: Clark to Main
By: Ensign Engineering and Land Surveying
Date: 3/10/2026

Project No.: 11637
Checked By: Robert Rousselle

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
SITE WORK					
1	Mobilization	1	L.S.	$14,000.00	$14,000.00
2	3-inch Asphalt	8,932	S.F.	$2.90	$25,902.80
3	6-inch Untreated Base Course	8,932	S.F.	$2.00	$17,864.00
4	Sawcut and Remove Asphalt or Concrete	8,932	S.F.	$1.60	$14,291.20
5	Mill and Overlay	12,840	S.F.	$2.50	$32,100.00
6	6-inch Thick Concrete Sidewalk w/ Base Course	50	S.F.	$26.00	$1,300.00
7	24-inch Collection Curb and Gutter w/Base Course	10	L.F.	$78.00	$780.00
8	4-foot Concrete Waterway	10	L.F.	$90.00	$900.00
9	Striping	1	L.S.	$2,500.00	$2,500.00
				Sub Total	**$109,638.00**
CULINARY WATER					
1	8-inch C-900 PVC Culinary Water Line with Fittings and Appurtenances	1,070	L.F.	$65.00	$69,550.00
2	Reconnect 3/4-inch Culinary Water Service	17	E.A.	$1,500.00	$25,500.00
3	Fire Hydrant Assembly (Complete)	3	E.A.	$7,500.00	$22,500.00
4	2-inch Air/Vacuum Combination Valve Station	1	E.A.	$2,500.00	$2,500.00
5	Connect to Existing Water Line	5	E.A.	$5,000.00	$25,000.00
				Sub Total	**$145,050.00**
MISCELLANEOUS ITEMS					
Traffic Control					
1	Traffic Control Implementation	1	L.S.	$13,000.00	$13,000.00
Erosion Control					
1	SWPPP/Maintenance	1	L.S.	$11,000.00	$11,000.00
				Sub Total	**$24,000.00**
				Construction Subtotal	**$278,688.00**
				Continency (15%)	**$41,803.20**
				Survey and Engineering (Design and CM)	**$37,500.00**
				Construction Total	**$357,991.20**

ENGINEERS ESTIMATE OF PROBABLE COSTS

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ENSIGN
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Project: Hale Street Water Line Replacement: North Street to 528
By: Ensign Engineering and Land Surveying
Date: 3/10/2026

Project No.: 11637
Checked By: Robert Rousselle

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
SITE WORK					
1	Mobilization	1	L.S.	$36,000.00	$36,000.00
2	3-inch Asphalt	26,536	S.F.	$2.90	$76,954.40
3	6-inch Untreated Base Course	26,536	S.F.	$2.00	$53,072.00
4	Sawcut and Remove Asphalt or Concrete	26,536	S.F.	$1.60	$42,457.60
5	Mill and Overlay	38,904	S.F.	$2.50	$97,260.00
6	6-inch Thick Concrete Sidewalk w/ Base Course	50	S.F.	$26.00	$1,300.00
7	24-inch Collection Curb and Gutter w/Base Course	10	L.F.	$78.00	$780.00
8	4-foot Concrete Waterway	10	L.F.	$90.00	$900.00
9	Striping	1	L.S.	$2,500.00	$2,500.00
				Sub Total	**$311,224.00**
CULINARY WATER					
1	8-inch C-900 PVC Culinary Water Line with Fittings and Appurtenances	3,242	L.F.	$65.00	$210,730.00
2	Reconnect 3/4-inch Culinary Water Service	35	E.A.	$1,500.00	$52,500.00
3	Fire Hydrant Assembly (Complete)	7	E.A.	$7,500.00	$52,500.00
4	2-inch Air/Vacuum Combination Valve Station	1	E.A.	$2,500.00	$2,500.00
5	Connect to Existing Water Line	2	E.A.	$5,000.00	$10,000.00
				Sub Total	**$328,230.00**
MISCELLANEOUS ITEMS					
Traffic Control					
1	Traffic Control Implementation	1	L.S.	$39,000.00	$39,000.00
Erosion Control					
1	SWPPP/Maintenance	1	L.S.	$33,000.00	$33,000.00
				Sub Total	**$72,000.00**
				Construction Subtotal	**$711,454.00**
				Continency (15%)	**$106,718.10**
				Survey and Engineering (Design and CM)	**$60,000.00**
				Construction Total	**$878,172.10**

ENGINEERS ESTIMATE OF PROBABLE COSTS

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Project: 16-inch Water Transmission Line Replacement: South Willow Tank to Marshall Well (Phase 1)
Project No.: 11637
By: Ensign Engineering and Land Surveying
Checked By: Robert Rousselle
Date: 3/10/2026

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
SITE WORK					
1	Mobilization	1	L.S.	$102,000.00	$102,000.00
2	Gravel Surface Course	46,500	S.F.	$2.50	$116,250.00
				Sub Total	**$218,250.00**
CULINARY WATER					
1	16-inch C-900 PVC Culinary Water Line with Fittings and Appurtenances	9,300	L.F.	$140.00	$1,302,000.00
2	Steel Casing Sleeve at Drainage Crossings	3	E.A.	$64,000.00	$192,000.00
3	Fire Hydrant Assembly (Complete)	8	E.A.	$7,500.00	$60,340.91
4	2-inch Air/Vacuum Combination Valve Station and 16-inch Isolation Valve	8	E.A.	$16,500.00	$132,750.00
5	Connect to Existing Water Line	3	E.A.	$20,000.00	$60,000.00
				Sub Total	**$1,747,090.91**
MISCELLANEOUS ITEMS					
Traffic Control					
1	Traffic Control Implementation	1	L.S.	$52,000.00	$52,000.00
Erosion Control					
1	SWPPP/Maintenance	1	L.S.	$42,000.00	$42,000.00
				Sub Total	**$94,000.00**
				Construction Subtotal	**$2,059,340.91**
				Continency (15%)	**$308,901.14**
				Survey and Engineering (Design and CM)	**$142,712.33**
				Construction Total	**$2,510,954.37**

ENGINEERS ESTIMATE OF PROBABLE COSTS

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ENSIGN
THE STANDARD IN ENGINEERING

Project: 16-inch Water Transmission Line Replacement: Marshall Well to Twenty Wells Connection (Phase 2)
By: Ensign Engineering and Land Surveying
Date: 3/10/2026

Project No.: 11637
Checked By: Robert Rousselle

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
SITE WORK					
1	Mobilization	1	L.S.	$110,000.00	$110,000.00
2	Gravel Surface Course	54,000	S.F.	$2.50	$135,000.00
				Sub Total	**$245,000.00**
CULINARY WATER					
1	16-inch C-900 PVC Culinary Water Line with Fittings and Appurtenances	10,800	L.F.	$140.00	$1,512,000.00
2	Steel Casing Sleeve at Drainage Crossings	1	E.A.	$64,000.00	$64,000.00
3	Fire Hydrant Assembly (Complete)	9	E.A.	$7,500.00	$68,863.64
4	2-inch Air/Vacuum Combination Valve Station and 16-inch Isolation Valve	9	E.A.	$16,500.00	$151,500.00
5	Connect to Existing Water Line	2	E.A.	$20,000.00	$40,000.00
				Sub Total	**$1,836,363.64**
MISCELLANEOUS ITEMS					
Traffic Control					
1	Traffic Control Implementation	1	L.S.	$55,000.00	$55,000.00
Erosion Control					
1	SWPPP/Maintenance	1	L.S.	$45,000.00	$45,000.00
				Sub Total	**$100,000.00**
				Construction Subtotal	**$2,181,363.64**
				Continency (15%)	**$327,204.55**
				Survey and Engineering (Design and CM)	**$151,168.50**
				Construction Total	**$2,659,736.68**

ENGINEERS ESTIMATE OF PROBABLE COSTS

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ENSIGN
THE STANDARD IN ENGINEERING

Project: 16-inch Water Transmission Line Replacement: Twenty Wells Connection to Sheep Lane (Phase 3)
Project No.: 11637
By: Ensign Engineering and Land Surveying
Checked By: Robert Rousselle
Date: 3/10/2026

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
SITE WORK					
1	Mobilization	1	L.S.	$180,000.00	$180,000.00
2	Gravel Surface Course	74,500	S.F.	$2.50	$186,250.00
				Sub Total	**$366,250.00**
CULINARY WATER					
1	16-inch C-900 PVC Culinary Water Line with Fittings and Appurtenances	14,900	L.F.	$140.00	$2,086,000.00
2	Steel Casing Sleeve at Drainage Crossings	2	E.A.	$64,000.00	$128,000.00
3	Fire Hydrant Assembly (Complete)	12	E.A.	$7,500.00	$92,159.09
4	2-inch Air/Vacuum Combination Valve Station and 16-inch Isolation Valve	12	E.A.	$16,500.00	$202,750.00
5	Jack and Bore with Steel Casing at SR-112 and Sheep Lane	250	L.F.	$1,600.00	$400,000.00
6	12-inch PRV Station	1	E.A.	$175,000.00	$175,000.00
7	Connect to Existing Water Line	2	E.A.	$20,000.00	$40,000.00
				Sub Total	**$3,123,909.09**
MISCELLANEOUS ITEMS					
Traffic Control					
1	Traffic Control Implementation	1	L.S.	$90,000.00	$90,000.00
Erosion Control					
1	SWPPP/Maintenance	1	L.S.	$71,500.00	$71,500.00
				Sub Total	**$161,500.00**
				Construction Subtotal	**$3,651,659.09**
				Continency (15%)	**$547,748.86**
				Survey and Engineering (Design and CM)	**$238,453.34**
				Construction Total	**$4,437,861.29**

ENGINEERS ESTIMATE OF PROBABLE COSTS

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ENSIGN
THE STANDARD IN ENGINEERING

Project: Clark Street Water Line Extension
By: Ensign Engineering and Land Surveying
Date: 3/10/2026

Project No.: 11637
Checked By: Robert Rousselle

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
SITE WORK					
1	Mobilization	1	L.S.	$20,000.00	$20,000.00
2	3-inch Asphalt	4,200	S.F.	$2.90	$12,180.00
2	6-inch Untreated Base Course	4,200	S.F.	$2.00	$8,400.00
2	Sawcut and Remove Asphalt or Concrete	4,200	S.F.	$1.60	$6,720.00
2	Mill and Overlay	6,144	S.F.	$2.50	$15,360.00
2	Striping	1	L.S.	$2,500.00	$2,500.00
				Sub Total	**$65,160.00**
CULINARY WATER					
1	12-inch C-900 PVC Culinary Water Line with Fittings and Appurtenances	612	L.F.	$80.00	$48,960.00
2	Reconnect 3/4-inch Culinary Water Service	4	E.A.	$1,500.00	$6,000.00
3	Fire Hydrant Assembly (Complete)	2	E.A.	$7,500.00	$15,000.00
4	10-inch PRV Station	1	E.A.	$100,000.00	$100,000.00
5	Jack and Bore with Steel Casing at SR-138 and Clark Street	100	L.F.	$1,200.00	$120,000.00
6	Connect to Existing Water Line	2	E.A.	$7,500.00	$15,000.00
				Sub Total	**$304,960.00**
MISCELLANEOUS ITEMS					
Traffic Control					
1	Traffic Control Implementation	1	L.S.	$10,000.00	$10,000.00
Erosion Control					
1	SWPPP/Maintenance	1	L.S.	$7,500.00	$7,500.00
				Sub Total	**$17,500.00**
				Construction Subtotal	**$387,620.00**
				Continency (15%)	**$58,143.00**
				Survey and Engineering (Design and CM)	**$34,536.94**
				Construction Total	**$480,299.94**

ENGINEERS ESTIMATE OF PROBABLE COSTS

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ENSIGN
THE STANDARD IN ENGINEERING

Project: Quirk Street Water Line Replacement: Cherry Street to Durfee Street
By: Ensign Engineering and Land Surveying
Date: 3/10/2026

Project No.: 11637
Checked By: Robert Rousselle

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
SITE WORK					
1	Mobilization	1	L.S.	$16,000.00	$16,000.00
2	3-inch Asphalt	9,900	S.F.	$2.90	$28,710.00
3	6-inch Untreated Base Course	9,900	S.F.	$2.00	$19,800.00
4	Sawcut and Remove Asphalt or Concrete	9,900	S.F.	$1.60	$15,840.00
5	Mill and Overlay	14,400	S.F.	$2.50	$36,000.00
6	24-inch Collection Curb and Gutter w/Base Course	20	L.F.	$78.00	$1,560.00
7	Striping	1	L.S.	$5,000.00	$5,000.00
				Sub Total	**$122,910.00**
CULINARY WATER					
1	8-inch C-900 PVC Culinary Water Line with Fittings and Appurtenances	1,200	L.F.	$65.00	$78,000.00
2	Reconnect 3/4-inch Culinary Water Service	10	E.A.	$1,500.00	$15,000.00
3	Fire Hydrant Assembly (Complete)	5	E.A.	$7,500.00	$37,500.00
4	Connect to Existing Water Line	7	E.A.	$5,000.00	$35,000.00
				Sub Total	**$165,500.00**
MISCELLANEOUS ITEMS					
Traffic Control					
1	Traffic Control Implementation	1	L.S.	$15,500.00	$15,500.00
Erosion Control					
1	SWPPP/Maintenance	1	L.S.	$12,500.00	$12,500.00
				Sub Total	**$28,000.00**
				Construction Subtotal	**$316,410.00**
				Continency (15%)	**$47,461.50**
				Survey and Engineering Design and CM	**$45,000.00**
				Construction Total	**$408,871.50**

Total Project Estimate

Project Name: **Burmester and Vegas Water Pipeline** Engineer: **Civil Proj-Ex, Inc**

Location: **Grantsville, Utah** Stage of Design: **100%**

ITEM NUMBER	CWS #	DESCRIPTION	UNIT	UNIT QTY	UNIT COST	TOTAL
	1	**General Requirements**				
0101	01 31 19	Preconstruction Conference and Progress Schedule	LS	1.0	$2,500.00	$ 2,500.00
0102	01 45 00	Quality Control (materials testing and documentation)	LS	1.0	$9,170.14	$ 9,170.14
0103	01 55 26	Traffic Control	LS	1.0	$5,486.41	$ 5,486.41
0104	01 57 00	Temporary Controls (SWPPP, Erosion Control)	LS	1.0	$4,389.13	$ 4,389.13
0105	01 71 13	Mobilization and Demobilization	LS	1.0	$35,269.76	$ 35,269.76
0107	01 78 39	Project Record Documents	LS	1.0	$3,526.98	$ 3,526.98
0108	01 78 50	Closeout Procedures	LS	1.0	$1,959.43	$ 1,959.43
		TOTAL GENERAL REQUIREMENTS				$ 62,301.83
	2	**EXISTING CONDITIONS**				
0208	02 41 14	Pavement Removal	SF	7238.0	$0.98	$ 7,093.24
		TOTAL EXISTING CONDITIONS				$ 7,093.24
	31	**EARTHWORK**				
3101	31 05 13	Trench Foundation Stabilization Material	CY	290.8	$38.50	$ 11,196.37
3104	31 11 00	Site Clearing	LS	1.0	$37,025.00	$ 37,025.00
3105	31 23 16	Locate Utilities	LS	1.0	$5,000.00	$ 5,000.00
		TOTAL EARTHWORK				$ 53,221.37
	33	**UTILITIES**				
3303	33 05 25	Unpaved Road Restoration	SF	2993.0	$0.86	$ 2,573.98
3304	33 05 25	Pavement Restoration, PG64-22-DM-1/2	SF	7238.0	$3.65	$ 26,418.70
3305	33 05 07	PVC Pipe, 8-inch, C900 SDR 18 with import backfill	LF	14	$43.25	$ 605.50
3306	33 05 07	PVC Pipe, 12-inch, C900 SDR 18 with import backfill	LF	1565	$55.35	$ 86,622.75
3307	33 05 07	PVC Pipe, 8-inch, C900 SDR 18	LF	81	$37.00	$ 2,997.00
3308	33 05 07	PVC Pipe, 12-inch, C900 SDR 18	LF	6192	$49.00	$ 303,408.00
3310	33 12 16	Gate Valve, 12-inch, AWWA C509	EA	17.0	$5,470.00	$ 92,990.00
3311	33 12 16	Gate Valve, 8-inch, AWWA C509	EA	4.0	$3,090.00	$ 12,360.00
3312	33 12 19	Fire Hydrant, AWWA C502	EA	13.0	$7,265.00	$ 94,445.00
3333	33 12 33	Potable Water Service, 1-inch, CIY STD	EA	3.0	$2,025.00	$ 6,075.00
3345	34 41 00	CPP Storm Drain Pipe, 15-inch, APWA 382	LF	80.0	$46.00	$ 3,680.00
3349	34 41 00	"V" Ditch 1 FT Deep w/ 4:1 (H:V) Side Slopes	LF	4140.0	$7.00	$ 28,980.00
		TOTAL UTILITIES				$ 661,155.93

Divisions Total	$ 783,772.37
Contingency @ 20%	$ 156,754.47
Estimate Total	$ 940,526.85

ENGINEERS ESTIMATE OF PROBABLE COSTS

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ENSIGN
THE STANDARD IN ENGINEERING

Project: Centennial Way Water Line
By: Ensign Engineering and Land Surveying
Date: 3/10/2026

Project No.: 11637
Checked By: Robert Rousselle

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
SITE WORK					
1	Mobilization	1	L.S.	$15,000.00	$15,000.00
2	3-inch Asphalt	6,552	S.F.	$2.90	$19,000.80
2	6-inch Untreated Base Course	6,552	S.F.	$2.00	$13,104.00
2	Sawcut and Remove Asphalt or Concrete	6,552	S.F.	$1.60	$10,483.20
2	Mill and Overlay	9,720	S.F.	$2.50	$24,300.00
2	Striping	1	L.S.	$2,500.00	$2,500.00
				Sub Total	**$84,388.00**
CULINARY WATER					
1	12-inch C-900 PVC Culinary Water Line with Fittings and Appurtenances	810	L.F.	$80.00	$64,800.00
2	Reconnect 3/4-inch Culinary Water Service	2	E.A.	$1,500.00	$3,000.00
3	Fire Hydrant Assembly (Complete)	1	E.A.	$7,500.00	$7,500.00
4	10-inch PRV Station	1	E.A.	$100,000.00	$100,000.00
5	Connect to Existing Water Line	2	E.A.	$7,500.00	$15,000.00
				Sub Total	**$190,300.00**
MISCELLANEOUS ITEMS					
Traffic Control					
1	Traffic Control Implementation	1	L.S.	$7,500.00	$7,500.00
Erosion Control					
1	SWPPP/Maintenance	1	L.S.	$6,000.00	$6,000.00
				Sub Total	**$13,500.00**
				Construction Subtotal	**$288,188.00**
				Continency (15%)	**$43,228.20**
				Survey and Engineering (Design and CM)	**$25,677.55**
				Construction Total	**$357,093.75**

3.02

3.02 *Unit Price Bids*

A. Bidder will perform the following Work at the indicated unit prices:

BID SCHEDULE					
Item No.	Item Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
1-1	Mobilization	L.S.	1	XXX	200,000.00
1-2	Quality Control Testing	L.S.	1	XXX	50,000.00
1-3	Survey Staking	L.S.	1	XXX	10,000.00
1-4	Clearing and Grubbing	L.S.	1	XXX	5,475.00
1-5	Tank Excavation and Site Grading	L.S.	1	XXX	265,000.00
1-6	Seeding (Plan Quantity)	Acre	1.44	7,187.50	10,350.00
1-7	6 Foot Chain Link Fencing	L.F.	975	50.00	48,750.00
1-8	Chain Link Double Gate 16 Feet	Each	1	2,050.00	2,050.00
1-9	Chain Link Single Gate 4 Feet	Each	1	500.00	500.00
1-10	Scada and Telemetry	L.S.	1	XXX	47,725.00
1-11	Concrete Headwall	L.S.	1	XXX	17,465.00
1-12	Riprap	C.Y.	10	351.00	3,510.00
1-13	16-Inch Dia. PVC Inlet/Outlet Pipe	L.F.	117	635.00	74,295.00
1-14	16-Inch Butterfly Valve	Each	3	15,630.00	46,890.00
1-15	8' x 18.75' Deep Precast Concrete Valve Vault (Inlet/Outlet Valves)	Each	1	32,000.00	32,000.00
1-16	8' x24.75' Deep Precast Concrete Valve Vault (Drain Valve)	Each	1	38,000.00	38,000.00
1-17	Inlet/Outlet Vault Pipiping (Detail C-501/D5)	L.S.	1	XXX	99,580.00
1-18	Drain Vault Pipiping (Detail C-501/A1)	L.S.	1	XXX	67,590.00
1-19	16-Inch Dia. PVC C900 Overflow Pipe	L.F.	805	170.00	136.850.00
1-20	12-Inch Gate Valve	Each	1	8,700.00	8,700.00
1-21	Air Valve Assembly	Each	1	8,430.00	8,430.00
1-22	12-Inch PVC C900 Drain Pipe	L.F.	44	167.00	7,348.00
1-23	16" Steel to PVC Coupler with Cathodic Protection	Each	3	7,400.00	22,200.00
1-24	16" 22.5 Bend with Cathodic Protection	Each	1	3,600.00	3,600.00
1-25	16" 11.25 Bend with Cathodic Protection	Each	1	3,350.00	3,350.00
1-26	16" 45/22.5 Bends with Cathodic Protection	Each	1	3,400.00	3,400.00
1-27	Cathodic Test Station for Steel Pipes	Each	3	22,700.00	68,100.00
				Base Bid / Schedule 1 - Subtotal	1,281,158.00

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ADDITIVE ALTERNATIVE NO. 1					
2-1	2-Million Gallon Concrete Water Tank - Cast-in-Place Concrete Tank	L.S.	1	XXX	1,737,712.00
				Additive Alternate No. 1 - Subtotal	1,737,712.00
				Total Bid Price (Base + Alt No 1)	3,018,870.00
ADDITIVE ALTERNATIVE NO. 2					
2-2	Xypex Admixture for a Cast-in-Place Concrete Tank	L.S.	1	XXX	42,000.00
				Additive Alternate No. 2 - Subtotal	42,000.00
				Total Bid Price (Base + Alt No 1 & 2)	3,060,870.00
ADDITIVE ALTERNATIVE NO. 3					
3-1	2-Million Gallon Concrete Water Tank - AWWA D110 Type III Pretensioned Concrete Tank	L.S.	1	XXX	
				Additive Alternate No. 3 - Subtotal	
				Total Bid Price (Base + Alt No 3)	
ADDITIVE ALTERNATIVE NO. 4					
4-1	2-Million Gallon Concrete Water Tank - AWWA D115 Posttensioned Concrete Tank	L.S.	1	XXX	1,968,690.00
				Additive Alternate No. 4 - Subtotal	1,968,690.00
				Total Bid Price (Base + Alt No 4)	3,249,848.00

Change Order No. 2	($5,000.00)
Design	$110,375.88
Construction Management	$32,000.00
Project Total	**$3,387,223.88**

B. Bidder acknowledges that:

1. each Bid Unit Price includes an amou Contractor's overhead and profit for each separately identified item, and

2. estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 4—BASIS OF BID—COST-PLUS FEE - DELETED

ARTICLE 5—PRICE-PLUS-TIME BID - DELETED

ARTICLE 6—TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Deleted.

Appendix E Drinking Water Calculations

Single Family 5 Bed, 3 Bath = 1 ERC			
Fixture	**Fixture Count**	**Water Supply Fixture Units**	**Total Fixture Units**
Kitchen sink, Private, Faucet	1	1.4	1.4
Dishwashing machine, Private, Automatic	1	1.4	1.4
Washing machine (8 lb), Private, Automatic	1	1.4	1.4
Exterior hose bib	3	2.2	6.6
Shower head, Private, Mixing valve	3	1.4	4.2
Lavatory, Private, Faucet	3	0.7	2.1
Water closet, Private, Flushtank	3	2.2	6.6
Total			**24**

MEMORANDUM

Structural Engineering
Municipal Services
Civil Engineering
Land Surveying

Date: March 21, 2025

To: Chris Martin and Mike Newberry
Utah Division of Drinking Water
195 N 1950 W
Salt Lake City, Utah 84116
Transmitted Via Email: cmartin@utah.gov, mnewberry@utah.gov
CC: cmontierth@grantsvilleut.gov, mseat@grantsvilleut.gov

From: Conor Dunkel, PE
Robert Rousselle, PE

RE: Grantsville Engineering Report to Evaluate Minimum Sizing Standards
Grantsville, Utah
Ensign Engineering Project No.: 11637

Ensign Engineering and Land Surveying has prepared this engineering report to assess Grantsville City's System-Specific Minimum Water Sizing Standards set by the Utah Department of Environmental Quality Division of Drinking Water (DDW). Calculations for current demands, methodology, data used, and assumptions are included.

1 - Current Standards

The current Grantsville City System-Specific Minimum Water Sizing Standards set in 2022 are:

Peak Day Source (Indoor and Outdoor) Demand (gal/day/ERC) – 1,416 gal/day/ERC
Average Annual (Indoor and Outdoor) Demand (gal/yr/ERC) – 201,531 gal/yr/ERC
Equalization Storage (gal/ERC) – 807 gal/ERC
Fire Storage (gal) – 492,000 gal

The current standards were calculated based on source production for indoor water usage and state standards for outdoor irrigation assuming 0.12-acres per ERC. Calculations for outdoor peak day demand and equalization storage assume irrigation will be supplied by City municipal water and not secondary water due to Grantsville Irrigation Company's reservoir being drawn down during drought years and users switching to municipal water provided by the City for irrigation.

2 – Number of Equivalent Residential Connections (ERCs)

The number of ERCs previously submitted to the Division of Drinking Water for 2016, 2017, 2018, 2019, 2020, and 2021 were 5,028; 5,340; 5,345, 5,206, 5,559, and 5,975 respectively. Tables 2-1 through 2-3 show the calculations for number of ERCs in 2022, 2023, and 2024 where demographics and water usage were calculated from monthly water meter use reports.

Table 2-1: 2022 ERCs

Service Connection Type	Service Connections	Units	Usage (kgal)	ERCs	Annual Unit Demand (kgal/ERC)
Residential	4,121	4,123	399,293	4,123	96.85
Multi-Unit	47	276	12,904	152	
Trailer	10	223	25,428	252	
Commercial	106	144	97,571	1,140	
Church	10	11	4,773	102	
School	7	12	4,455	63	
Construction Water	17	17	9,211	82	
City Rate	5	34	34,251	292	
Totals	**4,323**	**4,840**	**587,886**	**6,206**	

Table 2-2: 2023 ERCs

Service Connection Type	Service Connections	Units	Usage (kgal)	ERCs	Annual Unit Demand (kgal/ERC)
Residential	4,267	4,274	384,155	4,274	89.88
Multi-Unit	47	291	12,335	160	
Trailer	9	216	20,591	245	
Commercial	107	146	91,529	1,156	
Church	10	11	6,145	102	
School	7	10	4,332	52	
Construction Water	13	13	5,703	63	
City Rate	5	34	28,808	292	
Totals	**4,465**	**4,995**	**553,598**	**6,344**	

Table 2-3: 2024 ERCs

Service Connection Type	Service Connections	Units	Usage (kgal)	ERCs	Annual Unit Demand (kgal/ERC)
Residential	4,495	4,503	461,244	4,503	102.43
Multi-Unit	46	290	12,698	142	
Trailer	9	212	26,256	240	
Commercial	109	152	109,186	1,117	
Church	10	11	6,525	50	
School	7	12	4,866	49	
Construction Water	18	18	6,813	121	
City Rate	5	33	46,394	349	
Totals	**4,699**	**5,231**	**673,982**	**6,571**	

Table 2-4 summarizes the number of ERCs from 2016 through 2024.

Table 2-4: Summary of ERCs

Year	ERCs
2016	5,028
2017	5,340
2018	5,345
2019	5,206
2020	5,559
2021	5,975
2022	6,206
2023	6,344
2024	6,571

3 – Average Day Demand

The average day demand for indoor use was calculated using the City's monthly water source data for November through March of 2016 to 2024 and shown in Appendix B. The mean indoor average day demand is 176 gpd per ERC and the maximum is 193 as shown in Table 3-1.

Table 3-1 Indoor Average Day Demand

Year	ERCs	Calculated November-March Average Day Indoor Demand (gpd)	Average Day Indoor Demand (gpd/ERC)
2016	5,028	923,673	183.7
2017	5,340	868,378	162.6
2018	5,345	894,044	167.3
2019	5,206	915,276	175.8
2020	5,559	1,015,736	182.7
2021	5,975	965,278	161.6
2022	6,206	1,092,774	176.1
2023	**6,344**	**1,225,890**	**193.2**
2024	6,571	1,108,958	168.8
			(Maximum 193.2)
			(Mean 175.7)

The current level of service set in 2022 is 195 gpd per ERC. The maximum average day demand is 193.2 gpd per ERC so the average day indoor demand of 195 gpd per ERC will continue to be used and will be adjusted in the future if future trends indicate an increase.

The average day demand for outdoor use was not calculated using the City's monthly water source data due to the variability of secondary water supplied by the Grantsville Irrigation Company. Instead, the outdoor demand was determined using the State Engineer's irrigation duty and assumptions about the City.

The State Engineer's irrigation duty of 4.0 acre-feet per irrigated acre per year with an irrigation efficiency of 50% was converted to 3.33 acre-feet per irrigated acre when considering an efficiency of 60% for sprinkler and drip irrigation systems. The previously determined average irrigated area of 0.12 acres per ERC with the irrigation season of 213 days per Utah Administrative Code R309-510-7 was used resulting in an outdoor average day demand of 612 gpd per ERC.

Table 3-2 Outdoor Average Day Demand

Irrigation Demand (ac-ft/irr. ac/yr)	Average Irrigated Area (ac/ERC)	Irrigated Days per Year	Outdoor Demand (gpd/ERC)
3.33	0.12	213	**612**

The average day indoor and outdoor demand, is 195 gpd/ERC + 612 gpd/ERC = 807 gpd/ERC, and is also the equalization storage. Assuming 213 days of outdoor water use and 365 days of indoor water use equates to an average annual demand of 201,531 gallons per year per ERC (195 gpd/ERC x 365 + 612 gpd/ERC x 213 = 71,175 gal/yr/ERC + 130,356 gal/yr/ERC = 201,531 gal/yr/ERC = 0.218 AF/yr/ERC + 0.400 AF/yr/ERC = 0.618 AF/yr/ERC).

4 – Peak Day Demand

The peak day demand for indoor use was calculated using the City's daily source water data for 2020 through 2024 and is not available earlier than 2020. Outlier data points for 2024 were excluded from the calculations when meter readings exceeded pump capacity or indicated unusually high water usage. Data for the months of November through March was analyzed to represent indoor usage when it is expected there is no irrigation and is shown in Appendix C. Table 4-1 shows the maximum indoor peak day demand of 281 gpd per ERC and a mean of 256 gpd per ERC.

Table 4-1 Indoor Peak Day Demand

Year	ERCs	Calculated November-March Peak Day Indoor Demand (gpd)	Peak Day Indoor Demand (gpd/ERC)
2020	5,559	1,212,300	218.1
2021	5,975	1,530,200	256.1
2022	**6,206**	**1,745,300**	**281.2**
2023	6,343	1,718,700	271.0
2024	6,571	1,657,400	252.2
			(Maximum 281.2)
			(Mean 255.7)

The current level of service set in 2022 is 275 gpd per ERC peak day indoor demand will continue to be used for the City. Year 2022 had greater peak day demand than 275 gpd, but the preceding 2 years were closer to 275 gpd. The City will continue to use 275 gpd for indoor peak day demand and will adjust if future trends indicate an increase.

The outdoor peak day demand was calculated using a net irrigation demand of 3.96 gpm per irrigated acre per Utah Administrative Code R309-510-7 for Map Zone 4. A 60% irrigation efficiency and 0.12 irrigated acres per ERC were assumed, which were the same assumptions utilized for the average day demand calculations. A 60% efficiency equates to a gross irrigation demand of 6.6 gpm per irrigated acre.

Table 4-2 Outdoor Peak Day Demand

Irrigation Demand (gpm/irr. ac)	Average Irrigated Area (ac/ERC)	Outdoor Demand (gpd/ERC)
6.6	0.12	**1,141**

The peak day indoor and outdoor demand is 275 gpd/ERC + 1,141 gpd/ERC = 1,416 gpd per ERC.

5 – Fire Storage

As Grantsville City continues to grow including commercial development with larger buildings, the fire flow of 2,050 gpm for 4 hours (492,000 gallons) set in 2022 remains the required level of service. Discussions with Grantsville's Fire Chief Jason Smith confirmed that this is an adequate requirement to set for commercial buildings in other areas of the City as well.

Appendix A – References

1. Grantsville City Source and Water Usage Data, Grantsville City.
2. Grantsville Engineering Report to Update Minimum Sizing Standards Memo, Ensign Engineering and Land Surveying, dated March 8, 2022.
3. Utah Administrative Code Title R309-510-7. https://casetext.com
4. Lakeview Business Park Culinary Water and Wastewater Master Plan. AQUA Engineering, dated August 6, 2020.

Appendix B – Average Day Source Production Data

Month, Year	Total Water Use (gal)	Average Daily Water Use (gpd)
January, 2016	24,429,000	788,032
February, 2016	40,080,000	1,382,069
March, 2016	25,100,000	809,677
November, 2016	25,025,000	834,167
December, 2016	24,937,000	804,419
5-month avg:	**27,914,200**	**923,673**
January, 2017	27,183,000	876,871
February, 2017	24,723,000	882,964
March, 2017	27,304,000	880,774
November, 2017	26,452,000	881,733
December, 2017	25,406,000	819,548
5-month avg:	**26,213,600**	**868,378**
January, 2018	29,591,000	954,548
February, 2018	24,087,000	860,250
March, 2018	25,668,000	828,000
November, 2018	27,631,000	921,033
December, 2018	28,098,000	906,387
5-month avg:	**27,015,000**	**894,044**
January, 2019	29,771,000	960,355
February, 2019	26,596,000	949,857
March, 2019	27,769,000	895,774
November, 2019	23,413,000	780,433
December, 2019	30,688,783	989,961
5-month avg:	**27,647,557**	**915,276**
January, 2020	31,354,190	1,011,425
February, 2020	25,775,376	888,806
March, 2020	34,882,618	1,125,246
November, 2020	33,982,520	1,132,751
December, 2020	28,534,024	920,452
5-month avg:	**30,905,746**	**1,015,736**
January, 2021	27,393,864	883,673
February, 2021	25,298,272	903,510
March, 2021	32,604,168	1,051,747
November, 2021	30,671,000	1,022,367
December, 2021	29,917,904	965,094
5-month avg:	**29,177,042**	**965,278**
January, 2022	30,531,200	984,877
February, 2022	27,935,400	997,693
March, 2022	33,147,700	1,069,281

Month, Year	Total Water Use (gal)	Average Daily Water Use (gpd)
November, 2022	37,594,300	1,253,143
December, 2022	35,925,100	1,158,874
5-month avg:	**33,026,740**	**1,092,774**
January, 2023	39,636,700	1,278,603
February, 2023	38,866,000	1,388,071
March, 2023	41,480,700	1,338,087
November, 2023	31,693,500	1,056,450
December, 2023	33,115,400	1,068,239
5-month avg:	**36,958,460**	**1,225,890**
January, 2024	31,407,800	1,013,155
February, 2024	28,658,800	988,234
March, 2024	33,240,000	1,072,258
November, 2024	38,989,700	1,299,657
December, 2024	36,316,000	1,171,484
5-month avg:	**33,722,460**	**1,108,958**

Appendix C – Peak Day Source Production Data

Month, Year	Peak Day Total Use (kgal)
January, 2020	N/A
February, 2020	N/A
March, 2020	1,023.9
November, 2020	1,212.3
December, 2020	1,125.4
Max, 2020:	**1,212.3**
January, 2021	1,147.7
February, 2021	1,065.1
March, 2021	1,394.6
November, 2021	1,171.7
December, 2021	1,530.2
Max, 2021:	**1,530.2**
January, 2022	1,094.2
February, 2022	1,123.1
March, 2022	1,518.6
November, 2022	1,623.7
December, 2022	1,745.3
Max, 2022:	**1,745.3**
January, 2023	1,543.1
February, 2023	1,610.8
March, 2023	1,718.7
November, 2023	1,229.4
December, 2023	1,269.7
Max, 2023:	**1,718.7**
January, 2024	1,413.9
February, 2024	1,257.9
March, 2024	1,382.4
November, 2024	1,657.4
December, 2024	1,368.2
Max, 2024:	**1,657.4**

Appendix F Public Safety Calculations and Police Department Multiyear Plan

Grantsville City Police Department
Chief Robert Sager
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Multiyear plan

Summary

This guide was developed to assist in identifying and achieving departmental goals and objectives over the next five years 2024-2029. We looked at the police department facilities, current staffing levels for both civilian and sworn officers, studied the anticipated workload, population trend, personnel levels, capital improvements and equipment needs. This plan should be fluid and adjusted as needed to best serve our community and operational objectives.

Police Department Facilities Overview

Grantsville City contracted with Ensign Engineering to develop a Capital Facilities Plan. In that plan dated May of 2022, they provided an accurate summary of the Grantsville Justice Center. That plan is summarized as follows;

The Grantsville City Police Department operates from the Grantsville City Justice Center located at 50 North Bowery Street. The building is shared with the Grantsville City Justice Court (constructed in 2017) and consists of 12,947 square feet. The Police Department portion of the building occupies approximately 8,450 square feet and includes a one-vehicle sally port, two holding cell/interview rooms, a patrol operations room, two patrol supervisor offices, an evidence room, an evidence packaging room, a kitchen, a briefing room, locker room with two bathrooms/showers, an exercise room, an investigations area with three cubicles, two interview rooms, and two supervisor offices, a front desk reception area with four cubicles and a Chief's office, a records area, a lobby with an interview room and a multi-purpose room used for training. There is also a detached two-bay garage for vehicle and equipment storage and maintenance.

The Police Department is also tasked with operating, maintaining and staffing the Grantsville City Animal Shelter. There are current capital improvement plans for the design of a new Animal Shelter.

The Police Department operates a firearms range off the Mormon Trail, which consists of a pistol range, rifle range, competition shooting range, pavilion with picnic tables, and a storage compartment. Several law enforcement agencies use the range. However, recent construction of residential homes surrounding the range will soon render it unsafe to use. Outside agencies have been denied access to the range because of the encroaching residential homes.

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Police Department Staffing Overview

As of June 2024, the Police Department is staffed as follows;

- 20 full-time officers, 1 full-time Administrative Assistant, 1 full-time and 1-part time Record Clerk, 1 full-time Victim Advocate, 1 part-time Animal Control Officer, 9-part time Crossing Guards and 4 Victim Advocate Volunteers.

The hierarchy of the sworn officer division of the police department consists of the following; Chief of Police, (1) Investigations Lieutenant, (1) Patrol Lieutenant, (1) Investigations Sergeant, (2) Patrol Sergeants, (3) Detectives including the School Resource Officer, 12 Patrol Officers and (1) K-9.

Foundational Goals and operational objectives

Training.

As a department we need to continue to provide continued education opportunities for our sworn and non-sworn staff while maintaining all Federal and State certificates. We will continually evaluate and improve department training programs and promote our staff to attend specialized training. Our training committee is dedicated to identifying, developing and implementing the tools needed for our staff to be safe and successful while providing quality service to the community that we serve. The Training Committee will be responsible for updating and maintaining all department lesson plans to adhere with current legislation, policy and best practice. The department has existing policy that account for at minimum an annual evaluation of the training program. The training committee will meet quarterly at minimum.

Professional Development.

Professional development, we will improve and develop clear career paths for all sworn and non-sworn staff at every level. The leaders today will mentor their subordinates, promote training, and support growth and advancement among staff.

Accountability

Our professional standards division will be fair, firm and consistent while ensuing integrity and adherence to ethical and policy standards.

Recruitment, hiring and retention.

First and foremost, Chief Sager believes we need to continue to invest in our people. Retaining staff has been a major hurdle over the years and is not unique to this department. Leadership coupled with competitive benefits and pay will be paramount in the years to come. Over the next five years we should strive to improve attrition. Under the leadership of Chief Sager appointed in March of 2023 the attrition has slowed.

The last fiscal Year July 1, 2023 to July 1, 2024 there were two people who left the department, but they were terminated for cause. Prior to that, from 2017 to July 1, 2023, the department attrition averaged was 3.16 officers annually with an overall 95% turnover rate. It is imperative to build and constantly work to maintain a fully staffed police department.

The department needs to focus on continued recruitment efforts to attract qualified candidates for future and vacant roles. Recruitment correlates with improving benefits and pay, but deserves dedication from staff. Over the next year the department should develop and implement a recruitment committee while administrators strive to improve benefits and pay to remain competitive.

Community outreach and programs.

The department should focus on community oriented projects and partnerships. It is imperative that all staff engage the community to solve problems and improve trust. The department does not currently have a community outreach committee. Within the next year, the department should develop and implement a community outreach team.

There are two programs that have been partially implemented, RAD Women and NOVA Principals. The department should strive to fully implement these programs by July 1, 2025. Other programs such as a Citizen Police Academy and public education classes related to police use of force and other topics should be developed and offered to the public.

Transparency

Our police department will be dedicated to providing prompt and accurate information to the public. To do this we should proactively release month reports to include summaries of use of force incidents, citizen complaints, internal investigations, and the department budget. The department website and social media accounts should be revamped with updated information, links to state crime dashboards, crime mapping and prevention information.

Accreditation

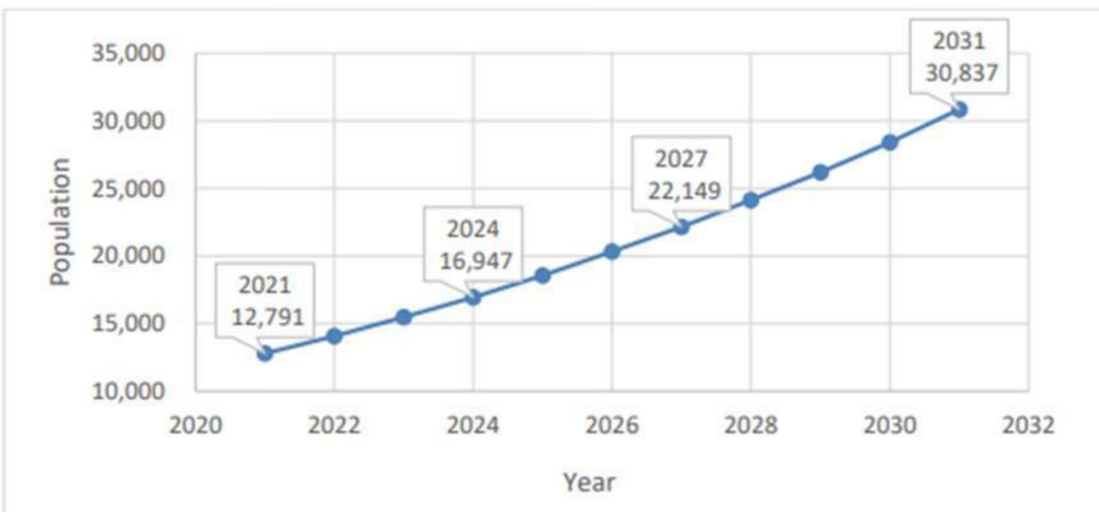
The Grantsville City Police Department achieved accreditation from the Utah Chiefs of Police Association July of 2022. Our department is dedicated to maintaining accreditation by complying will all standards required of the department by The Utah Chiefs of Police Association.

Anticipated workload and population trends

Grantsville City is projected to experience steady and consistent growth over the next ten years. As part of Ensign Engineering's Capital Facility Plan (2022) they provided a ten-year population estimate. The graph provided by Ensign Engineering is included below (Figure E1).

In addition to population there are multiple warehouses and businesses projected to come into the city as part of the Twenty Wells Inland Port Projects. These businesses can increase the daytime population above the residential population.

Figure E1: Grantsville 10-Year Population Projection



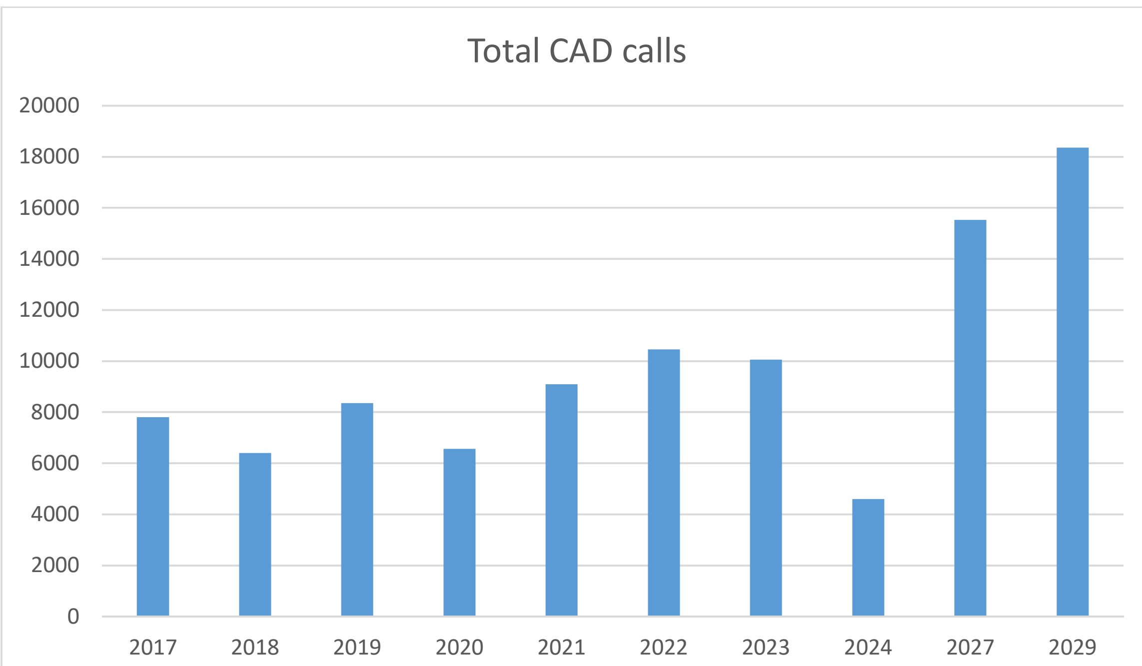
Anticipated Workload

Year over year we have had an increased number of CAD calls. A CAD call includes everything that is populated, by dispatch, in Grantsville jurisdiction through our record management system. Generally, all CAD calls are handled by the Patrol Division and include officers' proactive workload.

From 2017 to 2020 the average CAD calls per year was 7419. The average CAD calls per year from 2021 to 2023 is 9873 or a 33% increase from the previous three-year average. Over the next three years we anticipate steady population growth from 16,947 to 22,149 or a 31% increase. From year 2021 to 2023 we experienced 21% increase in population.

The average ratio of CAD call to population per 1000 between 2021 and 2023 is 701 CAD/1000 population. If this average remains consistent we can average the number of CAD calls per year based on the projected growth chart.

In 2027, the population estimate is 22,149. Using the ratio above the department has the potential to handle 15,526 CAD calls. In 2029, the population estimate is 26,195, the department has the potential to handle 18,362 CAD calls. The average number of CAD calls in 2023 is 9873, within five years of this report or 2029 the estimated number of CAD calls is 18,362 or an approximate 86% increase in service.



There are cases that do not generate a CAD call, but will generate a law incident or case number. Typically, these cases are internally generated by the Investigation Division. The number of case numbers without CAD calls minimally impact the above listed estimates, but the numbers would be slightly increased.

The Investigation Division has averaged 150 active cases each month over the last two years. Working these cases include an Investigation Sergeant and three Detectives that includes the School Resource Officer.

In 2023, there were 757 new cases assigned to investigators and 661 cases closed by investigators. This is approximately 189.25 cases per Investigator a year including the Sergeant. Most of the Sergeants time is devoted to working a case load, the department should strive to primarily shift the Sergeants responsibility from working cases to supervising. This would require one new Detective position to free up the Sergeant to allow more time for supervisor tasks. However, shifting the Sergeant's case workload to a detective will maintain the status quo outlined below.

As of June 30, 2024, there have been 332 new cases assigned to Detectives and they have closed 419 cases. We should expect the level of service to increase for the investigation division as population increases.

Investigators are scheduled to work 2080 hours a year or 208 days a year on a 4-10 schedule. After deducting the 13 paid holidays, investigators are scheduled to work 195 days a year. The 195 days do not account for any vacation, sick, or other time off. In 2023, Investigators averaged being assigned .97 cases a day, they also averaged closing 3.38 cases per day. As of June 30, 2024, the investigators have been scheduled to work 99 days. They are assigned an average of .83 new cases a day and have averaged closing 4.23 cases a day.

The number of cases closed per day has improved, but we maintain a backlog. We should expect the level of service to increase for the investigation division as population increases.

Anticipated sworn officer personnel Levels

As part of Ensign Engineering's capital facility assessment they provided a population estimate compared to the number of sworn officers needed at a ratio of 1.49 offers per 1000 population (Table 39 listed below). The number of officers estimated within the table below appears to be an accurate representation of the future need of sworn officers needed for this department at least over the next 3 years. These ratios, should be evaluated at least annually and compared to not only population, but other factors such as crime trends and staffing needs.

Currently at 20 full time officers we are operating at a ratio of approximately 1.18 offers per 1000 population, increasing at this rate over the next few years will maintain minimal staffing levels in patrol leaving little room for any vacancy and the investigation division active case load is currently 150. There is a need to follow the 1.49 ratio for at least a few years to maintain and start preparing for increased level of service.

Since 2021, the police department has been operating with 19 full time officer positions. As of July 2024 there will be 20 sworn officer positions so we will use 20 sworn officers for analysis.

Table 39: Future Police Department Requirements

Year	Population	Rate of Police Officers per 1,000 Population	Police Officers Required	Building Area per Officer (sq ft)	Building Area Requirement (sq ft)
2021	12,791	1.49	19	118.6	2,260
2022	14,070	1.49	21	118.6	2,486
2023	15,477	1.49	23	118.6	2,735
2024	16,947	1.49	25	118.6	2,995
2025	18,557	1.49	28	118.6	3,279
2026	20,320	1.49	30	118.6	3,591
2027	22,149	1.49	33	118.6	3,914
2028	24,143	1.49	36	118.6	4,266
2029	26,195	1.49	39	118.6	4,629
2030	28,421	1.49	42	118.6	5,022
2031	30,837	1.49	46	118.6	5,449

Using the data from the chart above and discussions between command staff and first line supervisors, within 2-3 years the hierarchy of the police department will need to be adjusted. A need for an administrative supervisor and first line supervisors will be needed as both sworn and non-sworn staff increases. To accomplish this the department should look to create an Assistant Chief Position, (3) additional Sergeant positions and then change the Administrative Assistant to the Chief of Police into a supervisor position to help manage civilian staff to minimize the responsibility of sworn staff to non-sworn staff.

Currently, the Chief of Police, two Lieutenants, and three Sergeants make up the supervisory roles of the department. The total number of positions within the department including non-sworn staff (5), seasonal crossing guards (9), and volunteers (4) totals 37 people. Supervisors account for approximately 16% of the total department workforce. When including only sworn and non-sworn staff, supervisors make up approximately 24% of the workforce. When including only sworn staff supervisors make up approximately 30% of the department workforce. Currently, the percentage of supervision to sworn staff seems to be efficient and effective and should be a reference to gauge potential future supervisor positions.

In three years the population estimate is 22,149 people in year 2027. With that population we are projected to need 33 sworn staff to operate. If the supervisors make up 30% we would need an additional 4 supervisor positions, these positions would be an Assistant Chief and three Sergeants mentioned above.

In the next year, 2025, we will need to adjust the Administrative Assistant position to a supervisor position to help mitigate the responsibilities of sworn personnel that manage non-sworn staff. This will allow the department to prepare for future growth and expansion within the non-sworn staff.

The future non-sworn staff increase over the next three years include; (1) full time records clerk, change the current part time record clerk to a full time position, (1) full time victim advocate and (1) part time evidence technician/record clerk.

Over the next 2-3 years we will need to add a full time Animal Control Officer in addition to keeping the current part-time position. These positions will also be responsible for code enforcement. Currently Officers are responsible for all code enforcement issues taking them away from other policing duties.

We do not believe an increase in crossing guards will be needed over the next three years. Currently there are no plans for any new schools and construction of a new school within three years without any current plans does not seem likely. However, the pay for crossing guards will need to be adjusted. Currently Grantsville is one of the lowest paid. Retention and dependability have been a major issue causing on duty officers to man many of the crossing guard shifts taking them from responding to other policing duties.

In years four and five it is suggested that we maintain as close to a 30% of the workforce as supervisors. And continue to evaluate if the ratio of 1.49 officers per 1000 population is sufficient or too many. We believe increasing the workforce at 1.49 ratio over the next three years is needed and will ready the department for the anticipated level of service increase and fulfill current staff shortages.

As a comparison to a local municipality, Tooele City Police Department (TCPD) provides service to an estimated population of 36,000 with 42 sworn officers and 11 non-sworn staff excluding seasonal crossing guards. The officer to 1000 population for TCPD is approximately 1.17.

Supervisor roles include; Chief of Police, (1) Capitan, (3) Lieutenants and (7) Sergeants totaling 12 supervisor positions. TCPD operates with 53 staff including sworn and non-sworn members making approximately 23% of the total staff supervisors. This is comparable to Grantsville Police Department at 24%. When you look at supervisor to sworn staff TCPD's workforce is approximately 29% supervisors. Again this is comparable to Grantsville Police Department at 30%.

Anticipated Capital improvement and equipment needs

The currently capital facility plans by Ensign Engineering indicate that our current space is sufficient to operate 46 officers. However, that plan does not account for non-sworn support staff, investigators, or administrative office space. There is limited room to expand office space or workstations without dissolving other functional rooms that are used for other purposes. These rooms would include eliminating the briefing room, soft interview room, medium security interview room, locker room, gym, storage space, and the community room.

A meeting between the Chief of Police and Ensign Engineering occurred in June of 2024, to discuss the potential need for Capital Facility Improvements and expansion for the Justice Center. After the discussion and walk through, it was determined that a capital facility plan to add supervisor, detective, support staff, and storage space is likely needed. A plan was made so that Ensign Engineering will research and evaluate these needs and include them in the upcoming Capital Facility Plan.

The Police Department currently operates its own shooting range. However, the range is starting to be surrounded by residential homes and will soon render it unsafe to discharge firearms. There are firearm ranges in the County that can be utilized for training. Thus, the city has time to decide if we desire to maintain and operate our own range. Possible agreements in future annexation or developmental agreements could create opportunities for a new range.

Equipment

Over the next two years we will upgrade our duty pistols. As of June 2024 we have discussed and will be testing the Glock 45 with an optic for standard issue. Tooele County Sherriff Office recently switched to this platform and the firearm qualification score average improved. The current duty pistols are aging and we should consider replacing them. The department will also need to retire some of the rifles and replace them with a new system.

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(435)884.6881 Fax (435)884.0237

Technology is ever evolving and can be utilized to enhance community safety and help the department be more efficient. The department should continually research products and equipment that helps to improve and enhance our level of service. Within the next five years the department should look to expand the Flock Safety System, implement a drone program, implement a server for digital evidence, purchase pole cameras, and evaluate data storage for body worn cameras. Along with body worn cameras the department should explore dash cameras for patrol vehicles.

The department should expand the less lethal weapon systems. Currently the department owns two pepper ball guns, one 40mm multi-launcher, one 37mm single launcher and shotguns that can be repurposed to less lethal platforms. Over the next two years the department should repurpose the shotguns and purchase at least one more pepper ball gun and multi-launcher to replace the single shot launcher. This would allow for each crew and the Investigations Division to always have access to a less lethal platform. The weapon systems are currently stored in the armory offering little access to patrol. The department should purchase a safe for the Sergeants office so that the weapons can be available for each shift.

The department should look to implement a mobile command center in all vehicles for Sergeants and command staff. The Investigation Division vehicles need lock boxes for equipment and weapon storage.

In conclusion we should evaluate this guide annually. The plan should remain fluid and adjust with the needs of the department, city, and most importantly maintaining quality service to our community.

Chief of Police
Robert Sager

Grantsville City Police Department

Year	Single Family			Multi-Unit			Non-Resdidential			Single Family Residential Calls Increase	Multi-Family Residential Calls Increase	Non-Residential Calls Increase	Total Calls Increase
	Units	Annual Unit Increase	Calls Increase	Units	Annual Unit Increase	Calls Increase	Units	Annual Unit Increase	Calls Increase				
2025	4,618	-	-	290	-	-	178	-	-	-	-	-	-
2026	4,780	162	94	300	10	20	179	1	3	94	20	3	117
2027	4,947	167	97	311	11	22	180	1	3	97	22	3	122
2028	5,145	198	114	323	12	24	184	4	10	114	24	10	148
2029	5,351	206	119	336	13	26	186	2	5	119	26	5	150
2030	5,565	214	124	349	13	26	190	4	10	124	26	10	160
2031	5,788	223	129	363	14	27	192	2	5	129	27	5	161
2032	6,020	232	134	378	15	29	196	4	10	134	29	10	173
2033	6,261	241	139	393	15	29	199	3	8	139	29	8	176
2034	6,511	250	144	409	16	31	202	3	8	144	31	8	183
2035	6,771	260	150	425	16	31	205	3	8	150	31	8	189
Total										**1,244**	**265**	**70**	**1,579**

Animal Shelter Required Physical Holding Capacity Calculation

Year 2021	Intake	Outake	Monthly Intake Avg	Daily Intake Avg
Dogs	146	136	12.17	0.400
Cats	79	76	6.58	0.216

	Avg Holding Period	RPHC
Dogs	16.8	6.7
Cats	21.2	4.6

Sept. 2021	Intake	Outake	Avg Holding Period	Daily Intake Avg
Dogs	15	15	21.60	0.500
Cats	10	10	15.11	0.333

Oct. 2021	Intake	Outake	Avg Holding Period	Daily Intake Avg
Dogs	9	9	25.56	0.290
Cats	9	9	22.33	0.290

Nov. 2021	Intake	Outake	Avg Holding Period	Daily Intake Avg
Dogs	7	7	1.14	0.233
Cats	12	12	26.17	0.400

Dec. 2021	Intake	Outake	Avg Holding Period	Daily Intake Avg
Dogs	8	8	19.00	0.258
Cats	1	0	N/A	0.032

Appendix G Public Safety Cost Estimates

ENGINEERS ESTIMATE OF PROBABLE COSTS

These costs are opinions only and should not be considered as a formal construction estimate. These quantites and costs are based on information derived from the master plan and are therefore subject to change. Ensign has no control over costs of labor, materials, bidding procedures, unidentified field conditions, or other factors. Ensign cannot and does not make any warranty, promise, or guarantee as to the accuracy of this estimate.

ENSIGN
THE STANDARD IN ENGINEERING

Project: Grantsville City CFP, IFFP, and IFA
By: Dylan Cooper
Date: 3/16/2026

Project No.: 11637
Checked By: Robert Rousselle

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	COST
Satellite Fire Station East					
1	Mobilization	LS	1	$145,000.00	$145,000.00
2	Station Cost	SF	6,000	$481.96 [1]	$2,891,736.00
				Subtotal	**$3,036,736.00**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)				$303,673.60
	Total Satellite Fire Station East Cost				**$3,340,409.60**
Fire Vehicles					
1	Aerial Truck	EA	1	$1,500,000.00 [2]	$1,500,000.00
2	Pumper Truck	EA	1	$800,000.00 [2]	$800,000.00
3	Brush Truck	EA	1	$170,000.00 [2]	$170,000.00
	Total Fire Vehicles Cost				**$2,470,000.00**
Animal Control Shelter					
1	Mobilization	LS	1	$136,000.00	$136,000.00
2	Shelter Cost	SF	4,500	$603.14 [1]	$2,714,148.00
				Subtotal	**$2,850,148.00**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)				$285,014.80
	Total Animal Control Shelter Cost				**$1,567,581.40**
Justice Center Renovations					
1	Mobilization	LS	1	$1,000.00	$1,000.00
2	Renovation Cost	SF	280	$60.00	$16,800.00
3	Cubicles	EA	5	$3,600.00	$18,000.00
				Subtotal	**$17,800.00**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)				$1,780.00
	Total Justice Center Renovations Cost				**$19,580.00**
Justice Center Police Expansion					
1	Mobilization	LS	1	$54,000.00	$54,000.00
2	Renovation Cost	SF	4,497	$240.00	$1,079,280.00
				Subtotal	**$1,133,280.00**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)				$113,328.00
	Total Justice Center Police Expansion Cost				**$1,246,608.00**
New City Hall Building					
1	Mobilization	LS	1	$419,000.00	$419,000.00
2	Building Cost	SF	20,000	$413.11 [1]	$8,262,240.00
3	Land Acquistion	AC	1	$119,801.40 [1]	$119,801.40
				Subtotal	**$8,801,041.40**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)				$880,104.14
	Total New City Hall Building Cost				**$9,681,145.54**
Existing City Hall Renovations					
1	Mobilization	LS	1	$105,000.00	$105,000.00
2	Renovation Cost	SF	7,000	$300.00	$2,100,000.00
				Subtotal	**$2,205,000.00**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)				$220,500.00
	Total Existing City Hall Renovations Cost				**$2,425,500.00**

[1] Unit costs are from the 2022 Grantsville CFP/IFA and inflated to current year (2025).
[2] Costs provided by Fire Chief Smith.

Appendix H Parks Cost Estimates

ENGINEERS ESTIMATE OF PROBABLE COSTS

These costs are opinions only and should not be considered as a formal construction estimate. These quantites and costs are based on information derived from the master plan and are therefore subject to change. Ensign has no control over costs of labor, materials, bidding procedures, unidentified field conditions, or other factors. Ensign cannot and does not make any warranty, promise, or guarantee as to the accuracy of this estimate.

ENSIGN
THE STANDARD IN ENGINEERING

Project: Grantsville City CFP, IFFP, and IFA
By: Matthew Sanford
Date: 4/2/2026

Project No.: 11637
Checked By: Robert Rousselle

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST [1]	COST
West Street Park					
1	Mobilization	LS	1	$13,000.00	$13,000.00
2	Earthwork	CY	654	$10.33	$6,758.12
3	Erosion Control and Revegetation	LS	1	$6,000.00	$6,000.00
4	Fine Grading	SY	1,300	$2.07	$2,691.00
5	Gravel Parking Lot	SF	11,800	$3.00	$35,400.00
6	RV Dump Station	LS	1	$110,000.00	$110,000.00
7	Disc Golf	LS	1	$18,000.00	$18,000.00
8	Existing Trail Improvements	LF	6,581	$12.00	$78,972.00
9	Land Acquistion [4]	AC	0	$137,702.76	$0.00
				Subtotal	**$270,821.12**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)				$27,082.11
				Total West Street Park Cost	**$297,903.23**
Scenic Slopes Park, Utilities, Pump Track, Site Improvements					
1	Mobilization	LS	1	$65,000.00	$65,000.00
2	Earthwork	CY	46,996	$10.33	$485,472.81
3	Erosion Control and Revegetation	LS	1	$32,000.00	$32,000.00
4	Fine Grading	SY	31,331	$2.07	$64,855.03
5	Hydroseed	SF	592,000	$0.14	$82,880.00
6	Gravel Parking Lot	SF	11,800	$3.00	$35,400.00
7	Lights	EA	8	$8,124.46	$64,995.68
8	Bike Pump Track	LS	1	$528,602.40	$528,602.40
9	Land Acquistion [4]	AC	0	$137,702.76	$0.00
				Subtotal	**$ 3,096,673.72**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)				$ 74,295.61
				Total Scenic Slopes Park, Utilities, Pump Track, Site Improvements Cost	**$ 3,170,969.33**
Scenic Slopes Parking, Park Amenities, Ball Courts					
1	Mobilization	LS	1	$106,000.00	$106,000.00
2	Erosion Control and Revegetation	LS	1	$52,000.00	$52,000.00
3	Fine Grading	SY	9,680	$2.07	$20,037.60
4	Turf	SF	10,890	$12.00	$130,680.00
5	Irrigation System	SF	10,890	$0.28	$3,049.20
6	Restroom	LS	1	$285,044.71	$285,044.71
7	Paved Parking Lot	SF	11,800	$6.20	$73,160.00
8	Concrete (Sidewalk)	LF	1,500	$11.61	$17,419.35
9	Lights	EA	12	$8,124.46	$97,493.52
10	Amenities [2]	LS	1	$1,440,000.00	$1,440,000.00
11	Land Acquistion [4]	AC	0	$137,702.76	$0.00
				Subtotal	**$2,224,884.38**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)				$222,488.44
				Total Scenic Slopes Parking, Park Amenities, Ball Courts Cost	**$2,447,372.82**

Scenic Slopes Park Baseball and Soccer Field					
1	Mobilization	LS	1	$138,000.00	$138,000.00
2	Erosion Control and Revegetation	LS	1	$68,000.00	$68,000.00
3	Fine Grading	SY	52,982	$2.07	$109,672.46
4	Turf	SF	98,692	$6.00	$592,154.64
5	Irrigation System	SF	98,692	$0.28	$27,633.88
6	Baseball Park	LS	1	$450,000.00	$450,000.00
7	Dugouts	LS	1	$144,000.00	$144,000.00
8	Lights	LS	1	$144,000.00	$144,000.00
9	Stands	LS	1	$14,400.00	$14,400.00
10	Basketball Courts	LS	1	$288,000.00	$288,000.00
11	Soccer Goals	LS	1	$90,000.00	$90,000.00
12	Trails	LF	3,640	$24.00	$87,360.00
13	Lights	LS	1	$165,000.00	$165,000.00
14	Stands	LS	1	$45,000.00	$45,000.00
15	Paved Parking Lot	SF	80,000	$6.20	$496,000.00
16	Trees	EA	47	$1,032.77	$48,540.19
17	Land Acquistion [4]	AC	0	$137,702.76	$0.00
				Subtotal	**$2,907,761.18**
				Engineering, Surveying, and Construction Management and Inspection Costs (10%)	$290,776.12
				Total Scenic Slopes Park Baseball and Soccer Field Cost	**$3,198,537.29**
Desert Edge Park					
1	Mobilization	LS	1	$115,000.00	$115,000.00
2	Earthwork	CY	12,100	$10.33	$124,993.00
3	Erosion Control and Revegetation	LS	1	$56,000.00	$56,000.00
4	Fine Grading	SY	24,200	$2.07	$50,094.00
5	Hydroseed	SF	152,000	$0.14	$21,280.00
6	Irrigation System	SF	152,000	$0.28	$42,560.00
7	Restroom	LS	1	$285,044.71	$285,044.71
8	Group Pavilion	LS	1	$240,000.00	$240,000.00
9	Asphalt Trail	SF	22,211	$4.13	$91,805.47
10	Paved Parking Lot	SF	12,100	$6.20	$75,020.00
11	Trees	EA	52	$1,032.77	$53,704.04
12	Lights	EA	15	$8,124.46	$121,866.90
13	Hoseshot Pits	LS	1	$36,000.00	$36,000.00
14	Basketball Courts	LS	1	$420,000.00	$420,000.00
15	Land Acquistion	AC	5	$137,702.76	$688,513.80
				Subtotal	**$2,421,881.92**
				Engineering, Surveying, and Construction Management and Inspection Costs (10%)	$242,188.19
				Total Desert Edge Park Cost	**$2,664,070.11**
President's Park					
1	Mobilization	LS	1	$73,000.00	$73,000.00
2	Earthwork	CY	24,200	$10.33	$249,986.00
3	Erosion Control and Revegetation	LS	1	$36,000.00	$36,000.00
4	Fine Grading	SY	48,400	$2.07	$100,188.00
5	Hydroseed	SF	305,000	$0.14	$42,700.00
6	Irrigation System	SF	305,000	$0.28	$85,400.00
7	Restroom	LS	1	$285,044.71	$285,044.71
8	Paved Parking Lot	SF	11,800	$6.20	$73,160.00
9	Trees	EA	50	$1,032.77	$51,638.50
10	Lights	EA	30	$8,124.46	$243,733.80
11	Amenities [2]	LS	1	$300,880.50	$300,880.50
12	Land Acquistion [4]	AC	0	$137,702.76	$0.00
				Subtotal	**$1,541,731.51**
				Engineering, Surveying, and Construction Management and Inspection Costs (10%)	$154,173.15
				Total President's Park Cost	**$1,695,904.66**

Twenty Wells Park [3]					
1	Land Acquisition	LS	1	$1,050,000.00	$1,050,000.00
2	Landscaping / Scrapping / Haul Off-On	LS	1	$1,700,000.00	$1,700,000.00
3	Irrigation Lines	LS	1	$600,000.00	$600,000.00
4	Water Lines	LF	1,850	$70.00	$129,500.00
5	Sewer	LF	500	$110.00	$55,000.00
6	Storm Drain	LS	1	$175,000.00	$175,000.00
7	Buildings	LS	1	$1,250,000.00	$1,250,000.00
8	Pickle Ball Courts	LS	1	$350,000.00	$350,000.00
9	Baseball / Softball Fields	LS	1	$750,000.00	$750,000.00
10	Dugouts	LS	1	$240,000.00	$240,000.00
11	Fire Hydrants	LS	1	$24,000.00	$24,000.00
12	Fencing	LS	1	$210,000.00	$210,000.00
13	Concrete (Sidewalk)	LF	3,100	$9.68	$30,000.00
14	Concrete (C&G)	LF	4,350	$25.29	$110,000.00
15	Lights	LS	1	$275,000.00	$275,000.00
16	Stands	LS	1	$75,000.00	$75,000.00
17	Additional Sports Fields	LS	1	$110,000.00	$110,000.00
18	Goal Posts for Football	LS	1	$200,000.00	$200,000.00
19	Soccer Goals	LS	1	$75,000.00	$75,000.00
20	Score Board	LS	1	$125,000.00	$125,000.00
21	Parking Lot	SF	110,530	$2.94	$325,000.00
22	Parking Lot Lights	LS	1	$45,000.00	$45,000.00
23	Power	LS	1	$125,000.00	$125,000.00
24	Gas	LS	1	$75,000.00	$75,000.00
25	Materials	LS	1	$525,000.00	$525,000.00
				Total Twenty Wells Park Cost	**$8,628,500.00**
Highlands Park					
1	Mobilization	LS	1	$147,000.00	$147,000.00
2	Earthwork	CY	24,200	$10.33	$249,986.00
3	Erosion Control and Revegetation	LS	1	$72,000.00	$72,000.00
4	Fine Grading	SY	48,400	$2.07	$100,188.00
5	Hydroseed	SF	305,000	$0.14	$42,700.00
6	Irrigation System	SF	305,000	$0.28	$85,400.00
7	Restroom	LS	1	$285,044.71	$285,044.71
8	Paved Parking Lot	SF	11,800	$6.20	$73,160.00
9	Trees	EA	50	$1,032.77	$51,638.50
10	Lights	EA	30	$8,124.46	$243,733.80
11	Amenities [2]	LS	1	$356,374.72	$356,374.72
12	Land Acquistion	AC	10	$137,702.76	$1,377,027.60
				Subtotal	**$3,084,253.33**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)				$308,425.33
				Total Highlands Park Cost	**$3,392,678.66**
Clark Farm Park					
1	Mobilization	LS	1	$147,000.00	$147,000.00
2	Earthwork	CY	72,600	$10.33	$749,958.00
3	Erosion Control and Revegetation	LS	1	$72,000.00	$72,000.00
4	Fine Grading	SY	145,200	$2.07	$300,564.00
5	Hydroseed	SF	915,000	$0.14	$128,100.00
6	Irrigation System	SF	915,000	$0.28	$256,200.00
7	Restroom	LS	1	$285,044.71	$285,044.71
8	Paved Parking Lot	SF	11,800	$6.20	$73,160.00
9	Trees	EA	150	$1,032.77	$154,915.50
10	Lights	EA	90	$8,124.46	$731,201.40
11	Amenities [2]	LS	1	$197,465.69	$197,465.69
12	Land Acquistion [4]	AC	0	$137,702.76	$0.00
				Subtotal	**$3,095,609.30**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)				$309,560.93
				Total Clark Farm Park Cost	**$3,405,170.23**

[1] Unit costs are generally from the 2022 Grantsville CFP/IFA and inflated to current year (2025).
[2] Amenities vary by park but generally include benches, playground equipment, sports fields, pavillions, etc.
[3] Cost estimate provided by developer.
[4] Land acquisition is not included because the City already owns the land or the land will be dedicated to the City.

Appendix I Wastewater Calculations

Single Family 5 Bed, 3 Bath = 1 ERC			
Fixture	Fixture Count	Water Supply Fixture Units	Total Fixture Units
Kitchen sink, Private, Faucet	1	1.4	1.4
Dishwashing machine, Private, Automatic	1	1.4	1.4
Washing machine (8 lb), Private, Automatic	1	1.4	1.4
Exterior hose bib	3	2.2	6.6
Shower head, Private, Mixing valve	3	1.4	4.2
Lavatory, Private, Faucet	3	0.7	2.1
Water closet, Private, Flushtank	3	2.2	6.6
Total			**24**

Summary

Year	ERCs	Peak Instantaneous Flow (gpm/ERC)	Peak Day Flow (gpd/ERC)	Average Day Flow (gpd/ERC)	Sewer Units	Average Day Flow (gpd/Unit)
2021	5,975	0.397	163	136	4,082	199
2022	6,206	0.383	164	140	4,326	201
2023	6,344	0.374	163	143	4,592	197
2024	6,571	0.361	184	146	4,789	200
2025	6,717	0.354	203	147	4,958	199
	Maximum	**0.397**	**203**	**147**		**201**
	Average	**0.374**	**175**	**142**		**199**

Years 2021 Through 2025

Year 2021

Year	Peak Instantaneous Flow (gpm)	Peak Day Flow (MGD)	Peak Day Flow (gallons)	Average Day Flow (MGD)	Average Day Flow (gallons)
2021	2,375	0.971	971,000	0.811	811,025
Dec-21	1,943	0.922	922,000	0.846	846,032

ERCs	Peak Instantaneous Flow (gpm/ERC)	Peak Day Flow (gpd/ERC)	Average Day Flow (gpd/ERC)
5,975	0.397	163	136

Year 2022

Year	Peak Instantaneous Flow (gpm)	Peak Day Flow (MGD)	Peak Day Flow (gallons)	Average Day Flow (MGD)	Average Day Flow (gallons)
2022	2,375	1.017	1,017,000	0.871	870,995
Dec-22	1,699	0.969	969,000	0.876	876,258

ERCs	Peak Instantaneous Flow (gpm/ERC)	Peak Day Flow (gpd/ERC)	Average Day Flow (gpd/ERC)
6,206	0.383	164	140

Years 2021 Through 2025

Year 2023

Year	Peak Instantaneous Flow (gpm)	Peak Day Flow (MGD)	Peak Day Flow (gallons)	Average Day Flow (MGD)	Average Day Flow (gallons)
2023	2,375	1.037	1,037,000	0.906	906,438
Dec-23	2,118	1.022	1,022,000	0.921	921,226

ERCs	Peak Instantaneous Flow (gpm/ERC)	Peak Day Flow (gpd/ERC)	Average Day Flow (gpd/ERC)
6,344	0.374	163	143

Year 2024

Year	Peak Instantaneous Flow (gpm)	Peak Day Flow (MGD)	Peak Day Flow (gallons)	Average Day Flow (MGD)	Average Day Flow (gallons)
2024	2,375	1.206	1,206,000	0.960	959,579
Dec-24	1,872	1.059	1,059,000	0.975	975,484

ERCs	Peak Instantaneous Flow (gpm/ERC)	Peak Day Flow (gpd/ERC)	Average Day Flow (gpd/ERC)
6,571	0.361	184	146

Year 2025

Year	Peak Instantaneous Flow (gpm)	Peak Day Flow (MGD)	Peak Day Flow (gallons)	Average Day Flow (MGD)	Average Day Flow (gallons)
2025	2,375	1.366	1,366,000	0.988	987,929
Dec-25	1,759	1.095	1,095,000	0.999	999,323

ERCs	Peak Instantaneous Flow (gpm/ERC)	Peak Day Flow (gpd/ERC)	Average Day Flow (gpd/ERC)
6,717	0.354	203	147

Appendix J Wastewater Cost Estimates

ENGINEERS ESTIMATE OF PROBABLE COSTS

These costs are opinions only and should not be considered as a formal construction estimate. These quantites and costs are based on information derived from the master plan and are therefore subject to change. Ensign has no control over costs of labor, materials, bidding procedures, unidentified field conditions, or other factors. Ensign cannot and does not make any warranty, promise, or guarantee as to the accuracy of this estimate.

ENSIGN
THE STANDARD IN ENGINEERING

Project: Grantsville City CFP, IFFP, and IFA
Project No.: 11637
By: Dylan Cooper
Checked By: Robert Rousselle
Date: 4/2/2026

ITEM	DESCRIPTION	UNIT	QUANTITY	COST PER LF
8-inch Diameter Sewer				
1	Mobilization and permits	LS/LF	1	$18.36
2	Traffic control and flagging	LS/LF	1	$9.35
3	De-watering	LS/LF	1	$4.85
4	Saw cut, remove, and dispose of existing asphalt	LF	1	$3.53
5	Remove and dispose of excavated material	CY/LF	8.43	$59.18
6	Trench box 10'Hx16'L	LF	1	$0.74
7	8-inch diameter sewer	LF	1	$52.94
8	Bedding sand	CY/LF	1.19	$2.08
9	Granular borrow	CY/LF	6.11	$87.45
10	5-foot diameter concrete manhole on 6-foot x 6-foot concrete base (manhole spacing every 400-feet)	LF	0.0025	$35.00
11	Untreated base course	CY/LF	0.50	$28.27
12	Asphalt road (3-inch)	SY/LF	0.63	$36.82
			Subtotal	**$338.58**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)			$33.86
	Total 8-inch Diameter Sewer Cost per LF			**$372.43**
10-inch Diameter Sewer				
1	Mobilization and permits	LS/LF	1	$19.28
2	Traffic control and flagging	LS/LF	1	$9.82
3	De-watering	LS/LF	1	$5.09
4	Saw cut, remove, and dispose of existing asphalt	LF	1	$3.53
5	Remove and dispose of excavated material	CY/LF	8.43	$59.13
6	Trench box 10'Hx16'L	LF	1	$0.78
7	10-inch diameter sewer	LF	1	$59.59
8	Bedding sand	CY/LF	1.28	$2.23
9	Granular borrow	CY/LF	6.02	$86.13
10	5-foot diameter concrete manhole on 6-foot x 6-foot concrete base (manhole spacing every 400-feet)	LF	0.0025	$34.65
11	Untreated base course	CY/LF	0.50	$28.27
12	Asphalt road (3-inch)	SY/LF	0.63	$36.82
			Subtotal	**$345.32**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)			$34.53
	Total 10-inch Diameter Sewer Cost per LF			**$379.85**

12-inch Diameter Sewer				
1	Mobilization and permits	LS/LF	1	$20.24
2	Traffic control and flagging	LS/LF	1	$10.31
3	De-watering	LS/LF	1	$5.35
4	Saw cut, remove, and dispose of existing asphalt	LF	1	$3.53
5	Remove and dispose of excavated material	CY/LF	8.42	$59.07
6	Trench box 10'Hx16'L	LF	1	$0.82
7	12-inch diameter sewer	LF	1	$66.27
8	Bedding sand	CY/LF	1.36	$2.38
9	Granular borrow	CY/LF	5.93	$84.80
10	5-foot diameter concrete manhole on 6-foot x 6-foot concrete base (manhole spacing every 400-feet)	LF	0.0025	$34.65
11	Untreated base course	CY/LF	0.50	$28.27
12	Asphalt road (3-inch)	SY/LF	0.63	$36.82
			Subtotal	**$352.51**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)			$35.25
			Total 12-inch Diameter Sewer Cost per LF	**$387.76**
15-inch Diameter Sewer				
1	Mobilization and permits	LS/LF	1	$21.25
2	Traffic control and flagging	LS/LF	1	$10.82
3	De-watering	LS/LF	1	$5.61
4	Saw cut, remove, and dispose of existing asphalt	LF	1	$3.53
5	Remove and dispose of excavated material	CY/LF	8.40	$58.96
6	Trench box 10'Hx16'L	LF	1	$0.86
7	15-inch diameter sewer	LF	1	$104.98
8	Bedding sand	CY/LF	1.48	$2.59
9	Granular borrow	CY/LF	5.79	$82.81
10	5-foot diameter concrete manhole on 6-foot x 6-foot concrete base (manhole spacing every 400-feet)	LF	0.0025	$34.65
11	Untreated base course	CY/LF	0.50	$28.27
12	Asphalt road (3-inch)	SY/LF	0.63	$36.82
			Subtotal	**$391.17**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)			$39.12
			Total 15-inch Diameter Sewer Cost per LF	**$430.29**
18-inch Diameter Sewer				
1	Mobilization and permits	LS/LF	1	$22.32
2	Traffic control and flagging	LS/LF	1	$11.36
3	De-watering	LS/LF	1	$5.90
4	Saw cut, remove, and dispose of existing asphalt	LF	1	$3.53
5	Remove and dispose of excavated material	CY/LF	8.38	$58.83
6	Trench box 10'Hx16'L	LF	1	$0.90
7	18-inch diameter sewer	LF	1	$112.47
8	Bedding sand	CY/LF	1.60	$2.80
9	Granular borrow	CY/LF	5.65	$80.83
10	5-foot diameter concrete manhole on 6-foot x 6-foot concrete base (manhole spacing every 400-feet)	LF	0.0025	$34.65
11	Untreated base course	CY/LF	0.50	$28.27

12	Asphalt road (3-inch)	SY/LF	0.63	$36.82
			Subtotal	**$398.68**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)			$39.87
	Total 18-inch Diameter Sewer Cost per LF			**$438.54**
21-inch Diameter Sewer				
1	Mobilization and permits	LS/LF	1	$22.32
2	Traffic control and flagging	LS/LF	1	$11.36
3	De-watering	LS/LF	1	$5.90
4	Saw cut, remove, and dispose of existing asphalt	LF	1	$3.53
5	Remove and dispose of excavated material	CY/LF	9.91	$69.58
6	Trench box 10'Hx16'L	LF	1	$0.90
7	21-inch Diameter Sewer	LF	1	$127.50
8	Bedding sand	CY/LF	2.08	$3.63
9	Granular borrow	CY/LF	6.61	$94.61
10	5-foot diameter concrete manhole on 6-foot x 6-foot concrete base (manhole spacing every 400-feet)	LF	0.0025	$34.65
11	Untreated base course	CY/LF	0.56	$31.41
12	Asphalt road (3-inch)	SY/LF	0.67	$38.99
			Subtotal	**$444.38**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)			$44.44
	Total 21-inch Diameter Sewer Cost per LF			**$488.82**
24-inch Diameter Sewer				
1	Mobilization and permits	LS/LF	1	$23.43
2	Traffic control and flagging	LS/LF	1	$11.93
3	De-watering	LS/LF	1	$6.19
4	Saw cut, remove, and dispose of existing asphalt	LF	1	$3.53
5	Remove and dispose of excavated material	CY/LF	8.33	$58.48
6	Trench box 10'Hx16'L	LF	1	$0.95
7	24-inch diameter sewer	LF	1	$127.50
8	Bedding sand	CY/LF	1.83	$3.20
9	Granular borrow	CY/LF	5.37	$76.85
10	5-foot diameter concrete manhole on 6-foot x 6-foot concrete base (manhole spacing every 400-feet)	LF	0.0025	$34.65
11	Untreated base course	CY/LF	0.50	$28.27
12	Asphalt road (3-inch)	SY/LF	0.63	$36.82
			Subtotal	**$411.81**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)			$41.18
	Total 24-inch Diameter Sewer Cost per LF			**$452.99**
27-inch Diameter Sewer				
1	Mobilization and permits	LS/LF	1	$24.60
2	Traffic control and flagging	LS/LF	1	$12.53
3	De-watering	LS/LF	1	$6.50
4	Saw cut, remove, and dispose of existing asphalt	LF	1	$3.53
5	Remove and dispose of excavated material	CY/LF	9.86	$69.19
6	Trench box 10'Hx16'L	LF	1	$1.00
7	27-inch Diameter Sewer	LF	1	$131.66
8	Bedding sand	CY/LF	2.36	$4.12

9	Granular borrow	CY/LF	6.28	$89.84
10	5-foot diameter concrete manhole on 6-foot x 6-foot concrete base (manhole spacing every 400-feet)	LF	0.0025	$34.65
11	Untreated base course	CY/LF	0.56	$31.41
12	Asphalt road (3-inch)	SY/LF	0.67	$38.99
			Subtotal	**$448.02**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)			$44.80
	Total 27-inch Diameter Sewer Cost per LF			**$492.82**
30-inch Diameter Sewer				
1	Mobilization and permits	LS/LF	1	$25.83
2	Traffic control and flagging	LS/LF	1	$13.16
3	De-watering	LS/LF	1	$6.82
4	Saw cut, remove, and dispose of existing asphalt	LF	1	$3.53
5	Remove and dispose of excavated material	CY/LF	9.83	$68.96
6	Trench box 10'Hx16'L	LF	1	$1.05
7	30-inch Diameter Sewer	LF	1	$135.82
8	Bedding sand	CY/LF	2.49	$4.35
9	Granular borrow	CY/LF	6.11	$87.45
10	5-foot diameter concrete manhole on 6-foot x 6-foot concrete base (manhole spacing every 400-feet)	LF	0.0025	$34.65
11	Untreated base course	CY/LF	0.56	$31.41
12	Asphalt road (3-inch)	SY/LF	0.67	$38.99
			Subtotal	**$452.03**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)			$45.20
	Total 30-inch Diameter Sewer Cost per LF			**$497.23**
36-inch Diameter Sewer				
1	Mobilization and permits	LS/LF	1	$27.13
2	Traffic control and flagging	LS/LF	1	$13.81
3	De-watering	LS/LF	1	$7.17
4	Saw cut, remove, and dispose of existing asphalt	LF	1	$3.53
5	Remove and dispose of excavated material	CY/LF	9.75	$68.43
6	Trench box 10'Hx16'L	LF	1	$1.10
7	36-inch Diameter Sewer	LF	1	$144.13
8	Bedding sand	CY/LF	2.75	$4.80
9	Granular borrow	CY/LF	5.78	$82.68
10	5-foot diameter concrete manhole on 6-foot x 6-foot concrete base (manhole spacing every 400-feet)	LF	0.0025	$34.65
11	Untreated base course	CY/LF	0.56	$31.41
12	Asphalt road (3-inch)	SY/LF	0.67	$38.99
			Subtotal	**$457.82**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)			$45.78
	Total 36-inch Diameter Sewer Cost per LF			**$503.60**
42-inch Diameter Sewer				
1	Mobilization and permits	LS/LF	1	$28.48
2	Traffic control and flagging	LS/LF	1	$14.50
3	De-watering	LS/LF	1	$7.52
4	Saw cut, remove, and dispose of existing asphalt	LF	1	$3.53

5	Remove and dispose of excavated material	CY/LF	11.22	$78.71
6	Trench box 10'Hx16'L	LF	1	$1.15
7	42-inch diameter sewer	LF	1	$152.45
8	Bedding sand	CY/LF	3.55	$6.19
9	Granular borrow	CY/LF	6.35	$90.90
10	5-foot diameter concrete manhole on 6-foot x 6-foot concrete base (manhole spacing every 400-feet)	LF	0.0025	$34.65
11	Untreated base course	CY/LF	0.61	$34.56
12	Asphalt road (3-inch)	SY/LF	0.70	$41.16
			Subtotal	**$493.80**
	Engineering, Surveying, and Construction Management and Inspection Costs (10%)			$49.38
	Total 42-inch Diameter Sewer Cost per LF			**$543.18**

Appendix K Water Rights Calculations

Change	WR#	Owner	Diversion (AF)	Use
	15-1699	Grantsville City Corporation	10.86	Municipal
	15-1989	Grantsville City		Recreation
a37143	15-1060	Grantsville City	12	Municipal
a52141	15-376 15-516	Grantsville City	4488.6	Municipal
a21720a	15-4511	Grantsville City	513.5	Municipal
a26331	15-293 15-775 15-776 15-1139	Grantsville City	142	Municipal
a29351	15-4454	Grantsville City	20	Municipal
a29673	15-635 15-636	Grantsville City	112.88	Municipal
a30058	15-4524	Grantsville City Corporation	21.92	Municipal
a30059	15-4525	Grantsville City Corporation	18.98	Municipal
a30060	15-4528	Grantsville City Corporation	20	Municipal
a30879	15-829	Granstville City	1.4	Municipal
a31746	15-4654	Grantsville City	10	Municipal
a31931	15-4668	Grantsville City	600	Municipal
a32189	15-4628	Grantsville City	2	Municipal
a33658	15-4890	Grantsville City	102.75	Municipal
a35140	15-381 15-638 15-639	Grantsville City	312.16	Municipal
a35295	15-5072	Grantsville City	50	Municipal
a36121	15-5099	Grantsville City	48.64	Municipal
a36121a	15-5571	Grantsville City	260	Municipal
a36647	15-814 15-815 15-1199 15-1201 15-1390 15-1391 15-1392 15-1393	Grantsville City Corporation	177.652	Municipal
a37143	15-1382 15-1383 15-1384 15-1385 15-5148 15-5149	Grantsville City	85	Municipal
a37829	15-5173	Grantsville City	10	Municipal
a39241	15-5228	Grantsville City	150	Municipal
a39288	15-5232	Grantsville City	100	Municipal
a39758	15-2625 15-4431 15-5246	Grantsville City	74.65	Municipal

Change	WR#	Owner	Diversion (AF)	Use
a42163	15-1033 15-4918	Grantsville City	3.84	Municipal
a42847	15-787 15-1053 15-1153 55-1154 55-1155 55-1156 55-1308 55-1309	Grantsville City	240.96	Municipal
a42849	15-5402	Grantsville City	65	Municipal
a43320	15-1292 15-2770 15-4656 15-4927	Grantsville City	139.556	Municipal
a44008	15-5345	Grantsville City	16.35	Municipal
a45179	15-965 15-1228 15-5535	Grantsville City	4.25	Municipal
a45190	15-5548	Grantsville City	42.65	Municipal
a45496	15-5573	Grantsville City	87.12	Municipal
a47317	15-938 15-940	Grantsville City	6.77	Municipal
a47419	15-505	Grantsville City	202	Municipal
a47802	15-91 15-477 15-506	Grantsville City	794.8023	Municipal
a47899	15-5668	Grantsville City	80.54	Municipal
a47904	15-1389 15-5689	Grantsville City	12.4275	Municipal
a47906	15-1388 15-4170 15-4201 15-5690	Grantsville City	93.34	Municipal
a47907	15-4526 15-5691	Grantsville City	55.788	Municipal
a47914	15-5701	Grantsville City	25	Municipal
a47959	15-399	Grantsville City	161.68	Municipal
a48032	15-5697	Grantsville City	40	Municipal
a48474	15-5436	Grantsville City	134	Municipal
a48683	15-5101	Grantsville City	24.6	Municipal
a48957	15-5393	Grantsville City	27.162	Municipal
a49085	15-4254	Grantsville City	15	Municipal
a49157	15-481	Grantsville City	294.56	Municipal
a49383	15-1938	Grantsville City	320	Municipal
a49832	15-5517	Grantsville City	49.64	Municipal
a50000	15-916 15-2791	Grantsville City	4.82	Municipal
TOTAL			10,286.8478	

GRANTSVILLE CITY

WATERWISE IRRIGATION DEMANDS (60% EFF)

AVERAGE GROWING SEASON: (@ Elevation 4800 +/- feet average)			213	Days (Conservative)
UTAH IRRIGATION ZONE:			4	UDDW (moderately high)
UTAH WATER RIGHTS DUTY ZONE (AF/ACRE)			4	
* PEAK DAY CONSUMPTIVE USE (C.U./ET) (NWS station at Tooele using data from Grantsville)	Turf	peak month July	5.08	in/month
(115% * ave day of peak month)	Turf grass =	$0.16 \frac{in}{day} * 1.15 =$	0.19	in/day
* SEASONAL CONSUMPTIVE USE (C.U.)	Turf grass =	$24.3 \frac{in}{yr} * 1.00 =$	24.28	in/yr

SEASONAL GROSS REQUIREMENTS

SEASONAL CONSUMPTIVE USE (C.U.) =		24.28	in/yr
Less soil moisture (fine sands 0.75 in/ft*1ft effective root zone)	-	0.75	in/yr
Less rainfall average (during Irrigation season) 80% of rain during irrig season	-	8.472	in/yr
NET SEASONAL CONSUMPTIVE USE (C.U.)/ET	=	15.06	in/yr

GROSS IRRIGATION REQUIREMENTS

Assumed Efficiency = 60.0%

Seasonal:

Net C.U./Efficiency	$15.06 \frac{in}{yr} \div 60.0\% =$	25.10	in/yr
IF NO RAIN OCCURS AND NO SOIL MOISTURE (SEASONAL CONSUMPTIVE USE (C.U.))	$24.3 \frac{in}{yr} \div 60.0\% =$	40.47	in/yr

AC-FT/ACRE Conversion

$$40.47 \quad \frac{in}{yr} * 43{,}560 \frac{ft^2}{acre} * 7.48 \frac{gal}{ft^3} \Big/ 12 \frac{in}{ft} * 325{,}851 \frac{gal}{acre \cdot ft} = \mathbf{3.37} \text{ ac-ft/acre}$$

If conservation is practiced				
	Turf	35%	3.37	ac-ft/acre
	Xeriscape	65%	1.69	ac-ft/acre (assumed 3
	Weighted Average	**100%**	**2.28**	**ac-ft/acre**
			0.68351	
			0.31649	

Peak Day

Peak C.U. / Efficiency

$$0.188 \frac{in}{day} \div 60.0\% = 0.314 \text{ in/day}$$

gpm/ac Conversion

$$0.314 \quad \frac{in}{day} * 43{,}560 \frac{ft^2}{acre} * 7.48 \frac{gal}{ft^3} \Big/ 12 \frac{in}{ft} * 1{,}440 \frac{min}{day} = \mathbf{5.92} \text{ gpm/ac}$$

If conservation is practiced				
	Turf	35%	5.92	gpm/acre
	Xeriscape	65%	2.96	gpm/acre (assumed 3
	Weighted Average	**100%**	**4.00**	**gpm/acre**

gpd/ac Conversion with no conservation

$$5.92 \frac{gpm}{acre} * 1{,}440 \frac{min}{day} = \mathbf{8{,}530} \text{ gpd/ac}$$

gpd/ac (Peak Day Demand)

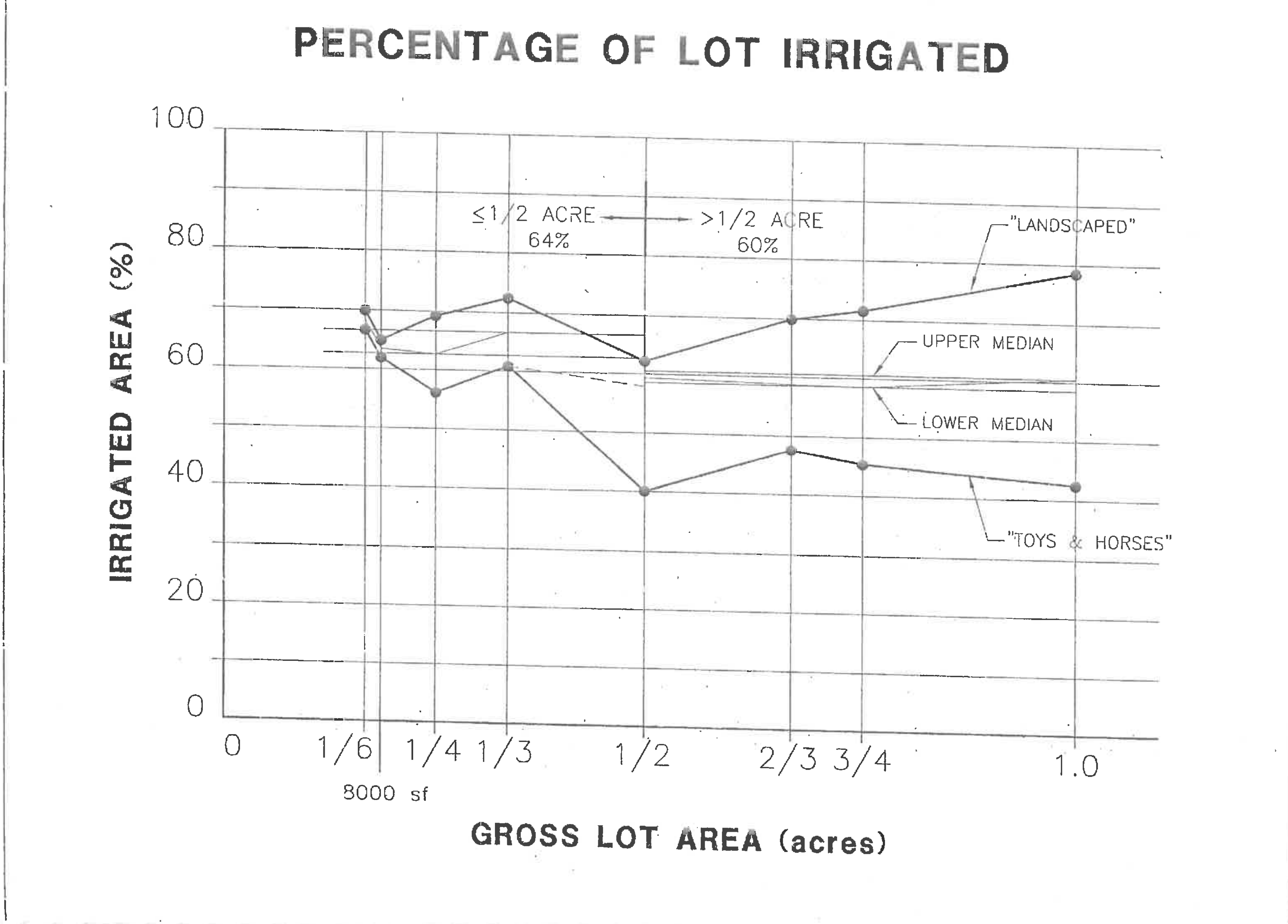
gpd/acre conversion if conservation practiced

$$4.00 \frac{gpm}{acre} * 1{,}440 \frac{min}{day} = \mathbf{5{,}760} \text{ gpd/ac}$$

gpd/ac (Peak Day Demand)

* Data taken from the Utah Division of Water Rights Consumptive Use Tables (http://nrwrt1.nr.state.ut.us/techinfo/consumpt/default.htm).

Ref: Ames Irrigation Handbook Third Edition 1967



PERCENTAGE OF LOT IRRIGATED
100
80
60
40
20
0
IRRIGATED AREA (%)
≤1/2 ACRE
64%
>1/2 ACRE
60%
"LANDSCAPED"
UPPER MEDIAN
LOWER MEDIAN
"TOYS & HORSES"
0
1/6
1/4
1/3
1/2
2/3
3/4
1.0
8000 sf
GROSS LOT AREA (acres)

IRRIGATED ACREAGE WORKSHEET - 1/6 ACRE LAWN

LOT AREA (square feet)	7,200	80'x90' average lot size for very high density development
HOME FOOTPRINT	(1,200)	Assumes garage (25' x 25'), split level home (30' x 40')
DRIVEWAY	(600)	20' x 30'
PATIO	(225)	15' x 15'
SIDEWALK	(120)	4' by 30'
RV PAD	0	none
PLAY ITEMS	(100)	10' x 10' sand box
OUTBUILDINGS	(80)	8' x 10' tuff shed
ANIMAL CONTAINMENT	(72)	6' x 12' dog run
PARK STRIP (length of frontage - drive width)	240	4' x (80' - 20')
TOTAL IRRIGATED AREA (square feet)	**5,043**	**70.0%**

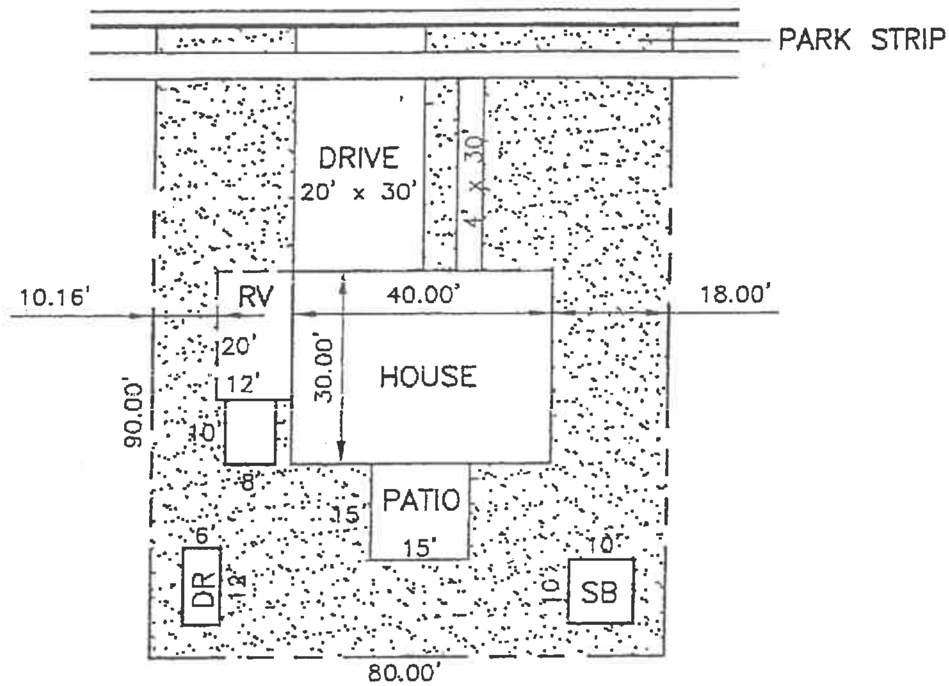
NOTE: Actual irrigated acreage will vary from lot to lot. This worksheet is intended to be an average only. Where actual data exists, it should be used.

IRRIGATED ACREAGE WORKSHEET - 1/6 ACRE RV

LOT AREA (square feet)	7,200	80'x90' average lot size for very high density development
HOME FOOTPRINT	(1,200)	Assumes garage (25' x 25'), split level home (30' x 40')
DRIVEWAY	(600)	20' x 30'
PATIO	(225)	15' x 15'
SIDEWALK	(120)	4' by 30'
RV PAD	(240)	12' x 20'
PLAY ITEMS	(100)	10' x 10' sand box
OUTBUILDINGS	(80)	8' x 10' tuff shed
ANIMAL CONTAINMENT	(72)	6' x 12' dog run
PARK STRIP (length of frontage - drive width)	240	4' x (80' - 20')
TOTAL IRRIGATED AREA (square feet)	**4,803**	**66.7%**

NOTE: Actual irrigated acreage will vary from lot to lot. This worksheet is intended to be an average only. Where actual data exists, it should be used.

1/6 ACRE - RV


PARK STRIP
DRIVE
20' x 30'
4' x 30'
10.16'
RV
40.00'
18.00'
20'
12'
30.00'
HOUSE
90.00'
10'
8'
PATIO
15'
15'
6'
10'
DR
12'
10'
SB
80.00'

IRRIGATED ACREAGE WORKSHEET - 8,000 SF LAWN

LOT AREA (square feet)	8,000	80' x 100' lot size for high density development
HOME FOOTPRINT	(1,600)	Assumes garage (25' x 25'), split level home (35' x 45.7')
DRIVEWAY	(750)	25' x30'
PATIO	(300)	15' x 20'
SIDEWALK	(120)	4' by 30'
RV PAD	0	none
PLAY ITEMS	(100)	10' x 10' sandbox
OUTBUILDINGS	(80)	8' x 10' tuff shed
ANIMAL CONTAINMENT	(72)	6' x 12' dog run
PARK STRIP (length of frontage - drive width)	220	4' x (80' - 25')
TOTAL IRRIGATED AREA (square feet)	**5,198**	**65.0%**

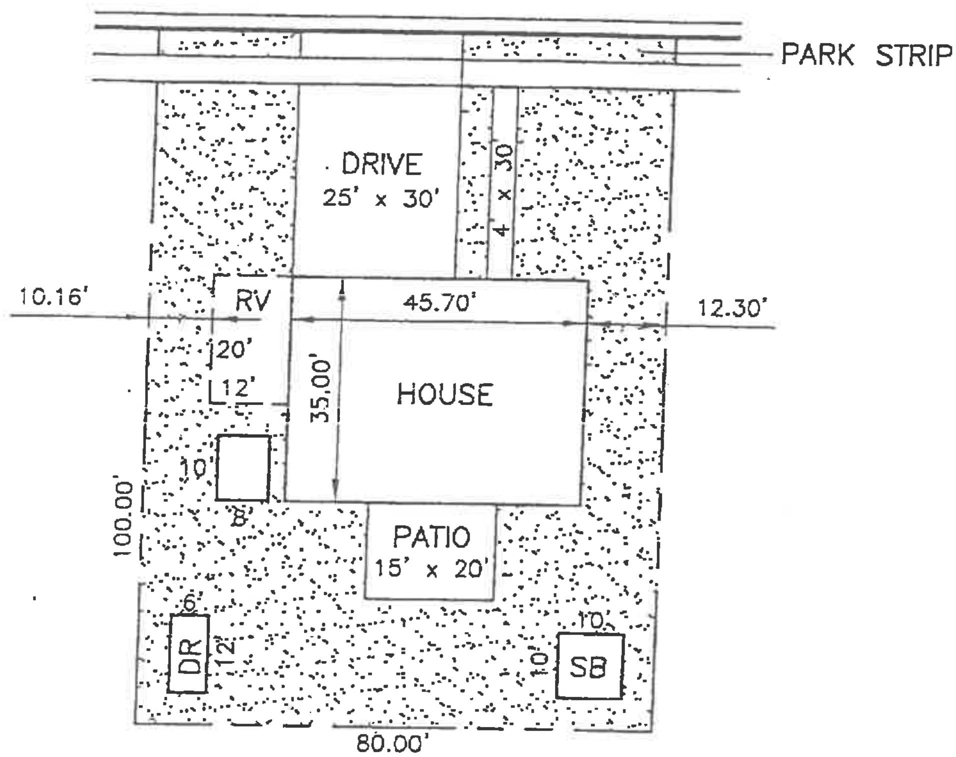
NOTE: Actual irrigated acreage will vary from lot to lot. This worksheet is intended to be an average only. Where actual data exists, it should be used.

IRRIGATED ACREAGE WORKSHEET - 8,000 SF RV

LOT AREA (square feet)	8,000	80' x 100' lot size for high density development
HOME FOOTPRINT	(1,600)	Assumes garage (25' x 25'), split level home (35' x 45.7')
DRIVEWAY	(750)	25' x30'
PATIO	(300)	15' x 20'
SIDEWALK	(120)	4' by 30'
RV PAD	(240)	12' x 20'
PLAY ITEMS	(100)	10' x 10' sandbox
OUTBUILDINGS	(80)	8' x 10' tuff shed
ANIMAL CONTAINMENT	(72)	6' x 12' dog run
PARK STRIP (length of frontage - drive width)	220	4' x (80' - 25')
TOTAL IRRIGATED AREA (square feet)	**4,958**	**62.0%**

NOTE: Actual irrigated acreage will vary from lot to lot. This worksheet is intended to be an average only. Where actual data exists, it should be used.

8,000 SF - RV



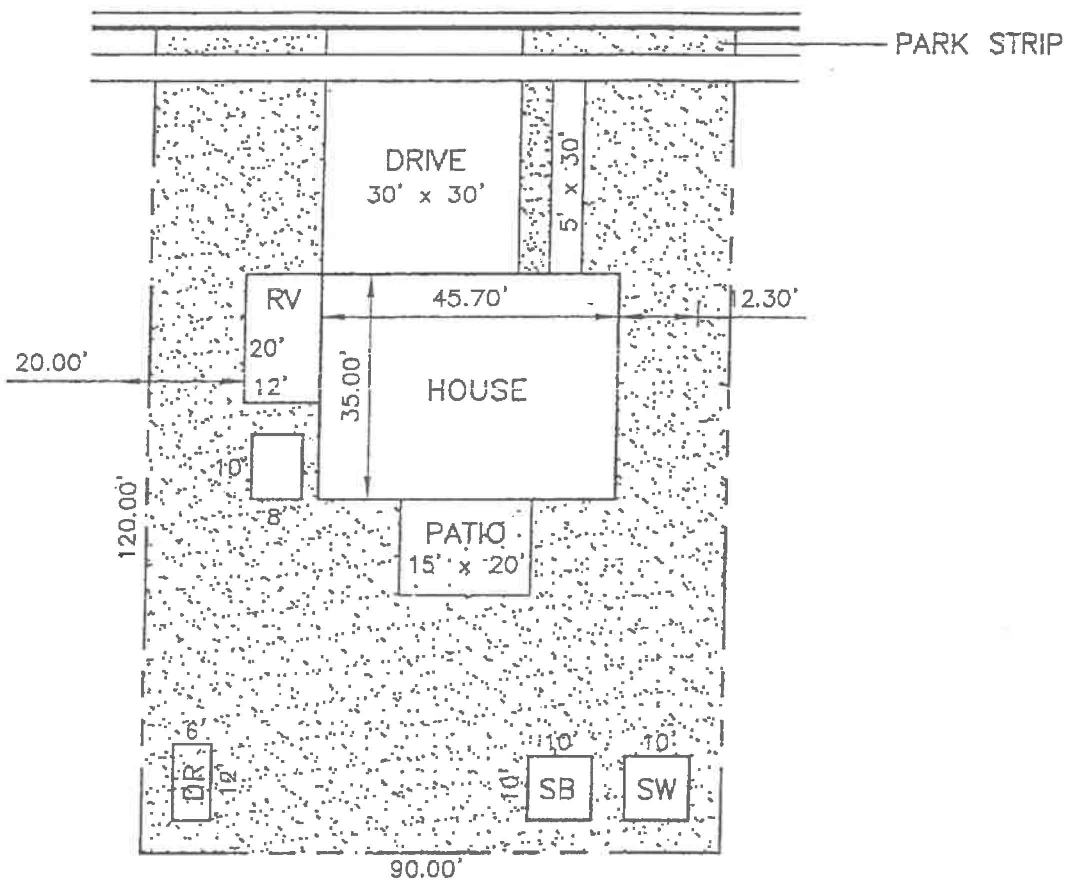
PARK STRIP
DRIVE
25' x 30'
4 x 30
10.16'
RV
45.70'
12.30'
20'
12'
35.00'
HOUSE
10'
8'
100.00'
PATIO
15' x 20'
6'
DR
12'
10'
10'
SB
80.00'

IRRIGATED ACREAGE WORKSHEET - 1/4 ACRE LAWN

LOT AREA (square feet)	10,800	90' x 120' average lot size for high density development
HOME FOOTPRINT	(1,600)	Assumes garage (25' x 35'), split level home (35' x 45.7')
DRIVEWAY	(900)	30' x30'
PATIO	(300)	15' x 20'
SIDEWALK	(150)	5' by 30'
RV PAD	(240)	12' x 20'
PLAY ITEMS	(200)	10' x 10' sandbox, 10' x 10' swing set
OUTBUILDINGS	(80)	8' x 10' tuff shed
ANIMAL CONTAINMENT	(72)	6' x 12' dog run
PARK STRIP (length of frontage - drive width)	240	4' x (90' - 30')
TOTAL IRRIGATED AREA (square feet)	**7,498**	**69.4%**

NOTE: Actual irrigated acreage will vary from lot to lot. This worksheet is intended to be an average only. Where actual data exists, it should be used.

1/4 ACRE LOT - LAWN

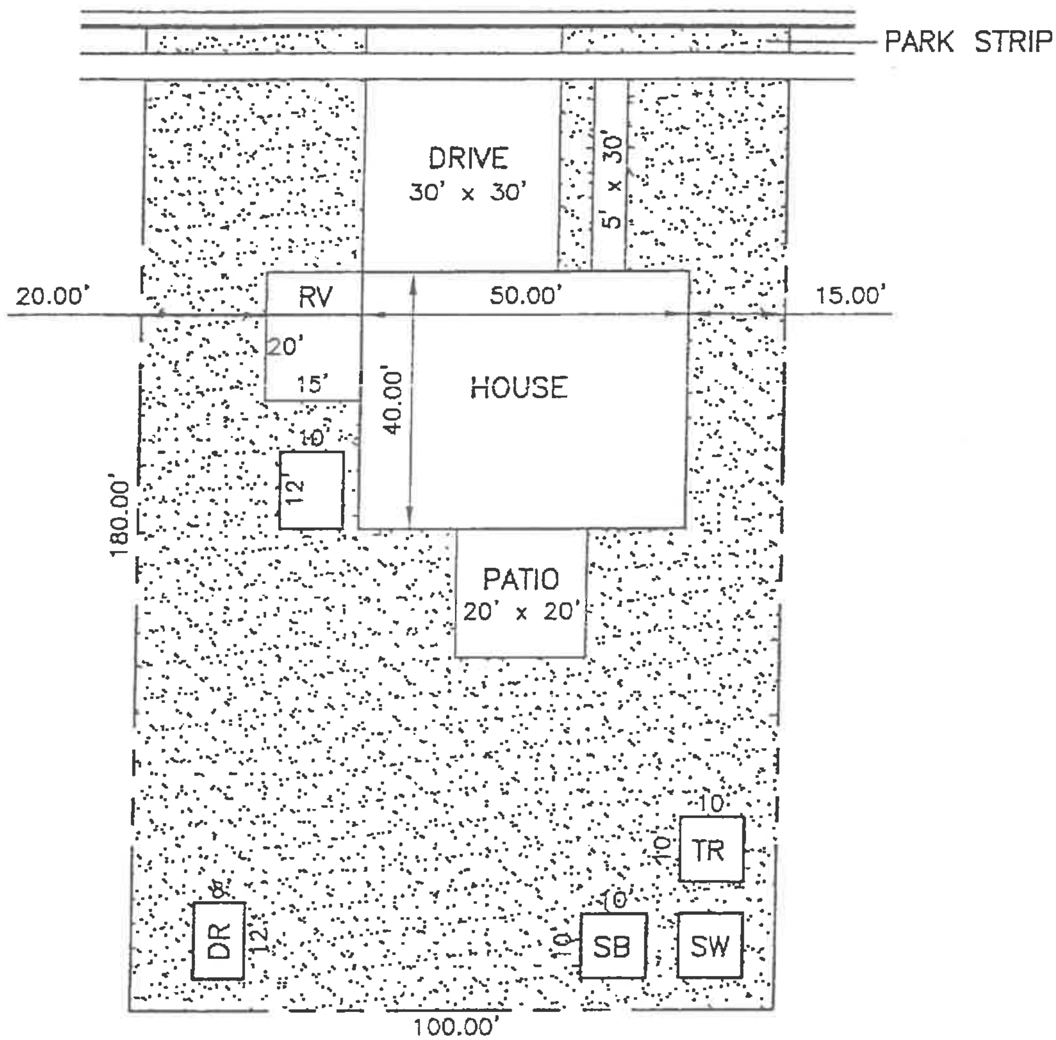


IRRIGATED ACREAGE WORKSHEET - 1/4 ACRE SHOP

LOT AREA (square feet)	10,800	90' x 120' average lot size for high density development
HOME FOOTPRINT	(1,600)	Assumes garage (25' x 35'), split level home (35' x 45.7')
DRIVEWAY	(900)	30' x30'
PATIO	(300)	15' x 20'
SIDEWALK	(150)	5' by 30'
RV PAD	(240)	12' x 20'
PLAY ITEMS	(200)	10' x 10' sandbox, 10' x 10' swing set
OUTBUILDINGS	(1,500)	20' x 30' shop, 90' x 10' gravel access drive
ANIMAL CONTAINMENT	(72)	6' x 12' dog run
PARK STRIP (length of frontage - drive width)	240	4' x (90' - 30')
TOTAL IRRIGATED AREA (square feet)	**6,078**	**56.3%**

NOTE: Actual irrigated acreage will vary from lot to lot. This worksheet is intended to be an average only. Where actual data exists, it should be used.

1/3 ACRE LOT - LAWN

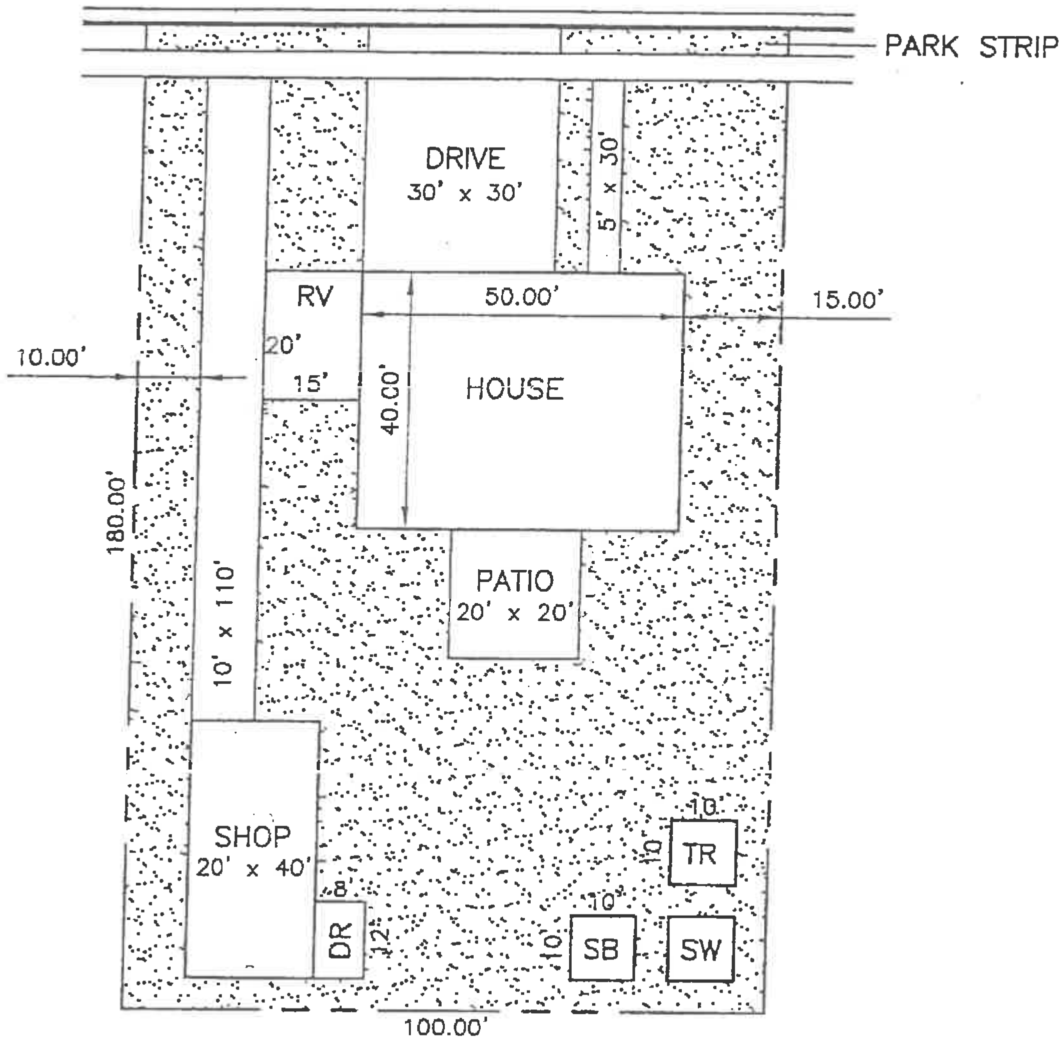


IRRIGATED ACREAGE WORKSHEET - 1/3 ACRE SHOP

LOT AREA (square feet)	14,500	100' x 145' average lot size for medium density development
HOME FOOTPRINT	(2,000)	Assumes garage (25' x 35'), split level home (40' x 50')
DRIVEWAY	(900)	30' x30'
PATIO	(400)	20' x 20'
SIDEWALK	(150)	5' x 30'
RV PAD	(300)	15' x 20'
PLAY ITEMS	(300)	10' x 10' sandbox, 10' x 10' swing set, 10' x 10' trampoline
OUTBUILDINGS	(1,800)	20' x 40' shop 100' x 10' gravel access drive
ANIMAL CONTAINMENT	(96)	8' x 12' dog run
PARK STRIP (length of frontage - drive width)	280	4' x (100' - 30')
TOTAL IRRIGATED AREA (square feet)	**8,834**	**60.9%**

NOTE: Actual irrigated acreage will vary from lot to lot. This worksheet is intended to be an average only. Where actual data exists, it should be used.

1/3 ACRE LOT - SHOP



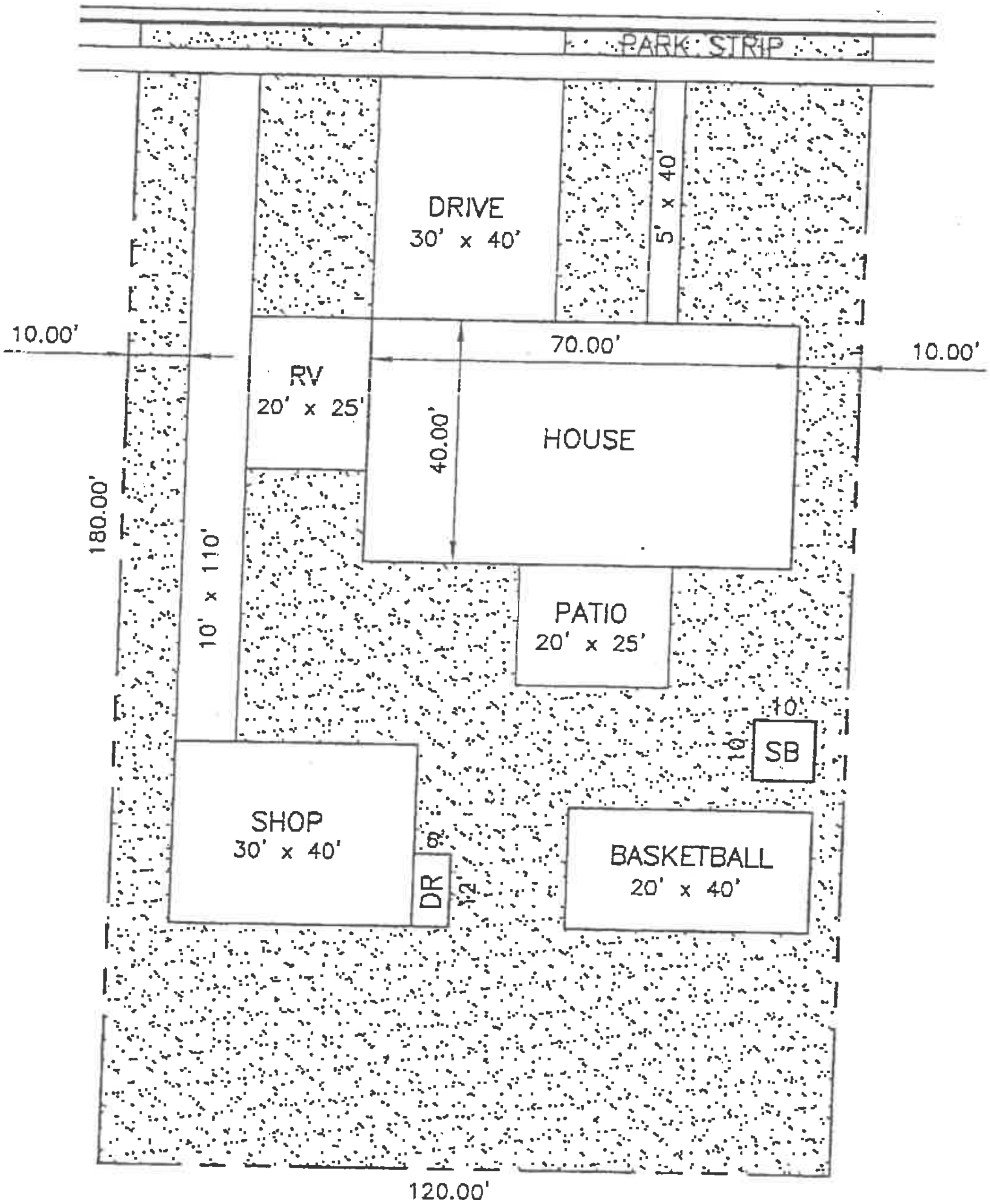
IRRIGATED ACREAGE WORKSHEET - 1/2 ACRE LAWN

LOT AREA (square feet)	21,600	120' x 180' average lot size for medium density development
HOME FOOTPRINT	(2,800)	Assumes garage (25' x 35'), split level home (40' x 70')
DRIVEWAY	(1,200)	30' x 40'
PATIO	(500)	25' x 20'
SIDEWALK	(200)	5' x 40'
RV PAD	(500)	20' x 25'
PLAY ITEMS	(900)	10' x 10' sandbox, 20' x 40' basketball court
OUTBUILDINGS	(2,300)	30' x 40' shop, 110' x 10' gravel access drive
ANIMAL CONTAINMENT	(72)	6' x 12' dog run
PARK STRIP (length of frontage - drive width)	360	4' x (120' - 30')
TOTAL IRRIGATED AREA (square feet)	**13,488**	**62.4%**

NOTE: Actual irrigated acreage will vary from lot to lot. This worksheet is intended to be an average only. Where actual data exists, it should be used.

Assumes that large animals are kept on property, along with feed storage for the animal.

1/2 ACRE LOT - LAWN



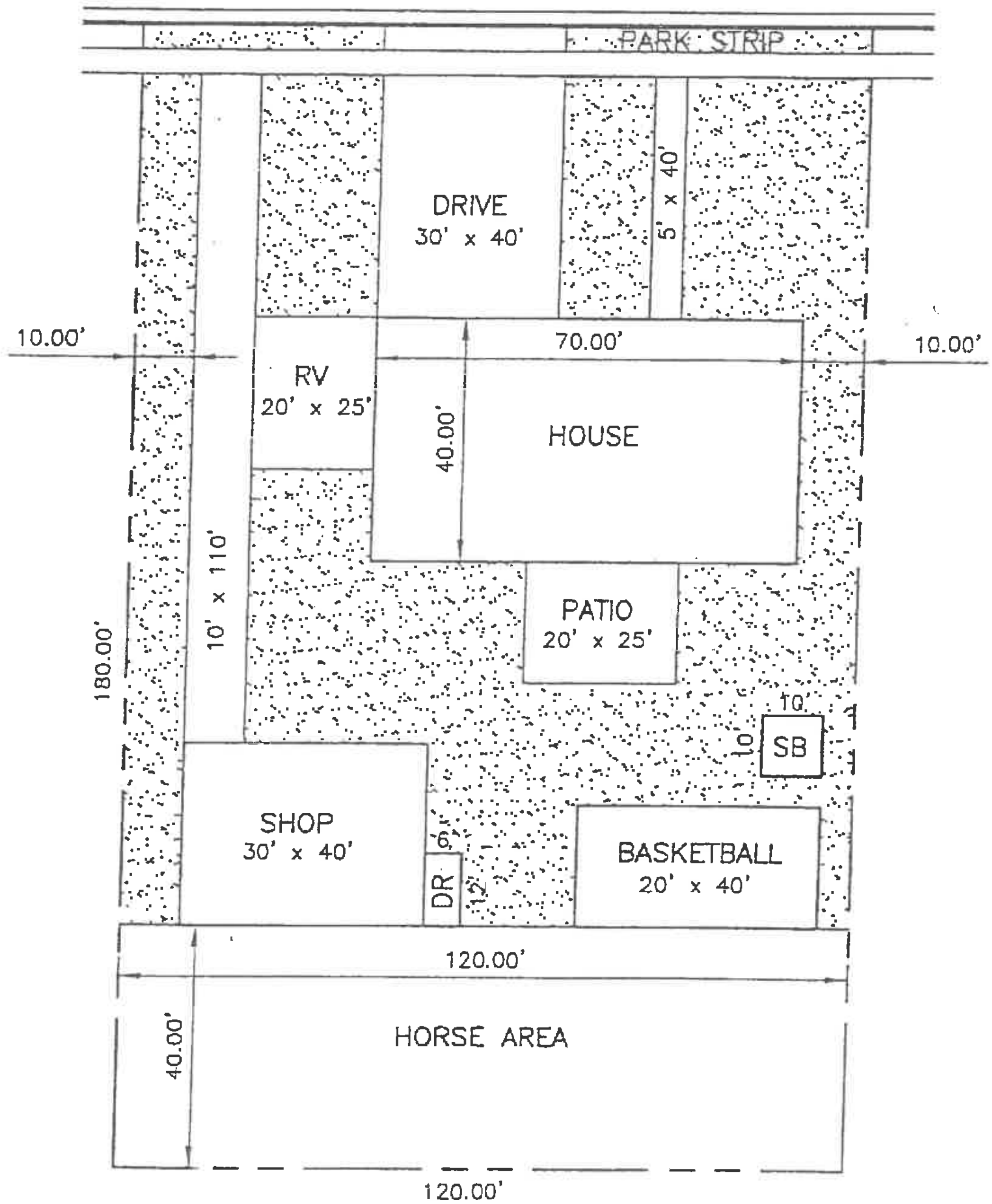
IRRIGATED ACREAGE WORKSHEET - 1/2 ACRE HORSE

LOT AREA (square feet)	21,600	120' x 180' average lot size for medium density development
HOME FOOTPRINT	(2,800)	Assumes garage (25' x 35'), split level home (40' x 70')
DRIVEWAY	(1,200)	30' x 40'
PATIO	(500)	25' x 20'
SIDEWALK	(200)	5' by 40'
RV PAD	(500)	20' x 25'
PLAY ITEMS	(900)	10' x 10' sandbox, 20' x 40' basketball court
OUTBUILDINGS	(2,300)	30' x 40' shop, 110' x 10' gravel access drive
ANIMAL CONTAINMENT	(4,872)	6' x 12' dog run, 40' x 120' large animal corral & support area
PARK STRIP (length of frontage - drive width)	360	4' x (120' - 30')
TOTAL IRRIGATED AREA (square feet)	8,688	40.2%

NOTE: Actual irrigated acreage will vary from lot to lot. This worksheet is intended to be an average only. Where actual data exists, it should be used.

Assumes that large animals are kept on property, along with feed storage for the animal, and no animal containment area (pasture) is irrigated.

1/2 ACRE LOT - HORSE

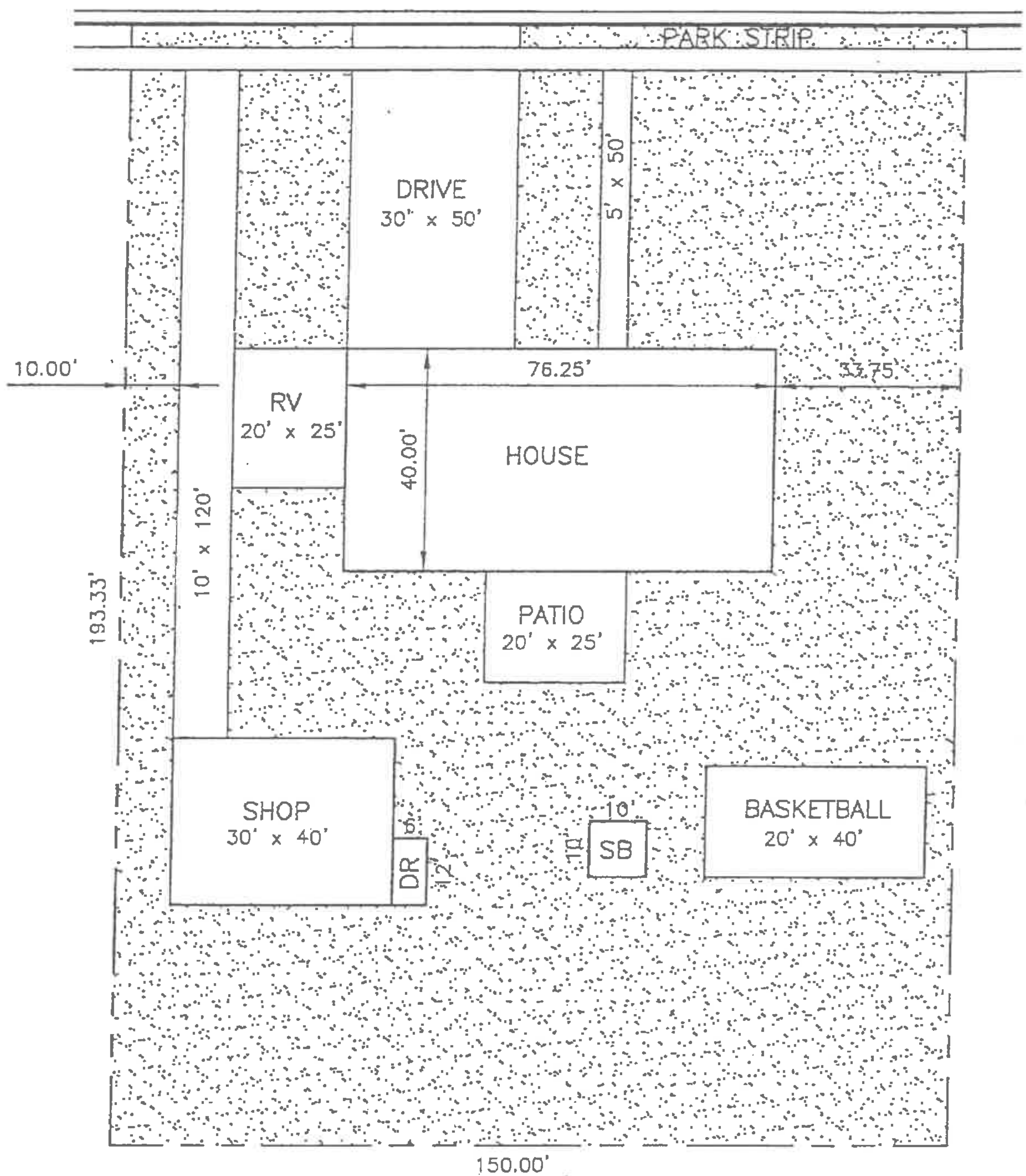


IRRIGATED ACREAGE WORKSHEET - 2/3 ACRE LAWN

LOT AREA (square feet)	29,000	150' x 193.33' average lot size for medium density developme
HOME FOOTPRINT	(3,050)	Assumes garage (25' x 35'), split level home (40' x 76.25')
DRIVEWAY	(1,500)	30' x 50'
PATIO	(500)	20' x 25'
SIDEWALK	(250)	5' by 50'
RV PAD	(500)	20' x 25'
PLAY ITEMS	(900)	10' x 10' sandbox, 20' x 40' basketball court
OUTBUILDINGS	(2,400)	30' x 40' shop, 120' x 10' gravel access drive
ANIMAL CONTAINMENT	(72)	6' x 12' dog run
PARK STRIP (length of frontage - drive width)	480	4' x (150' - 30')
TOTAL IRRIGATED AREA (square feet)	**20,308**	**70.0%**

NOTE: Actual irrigated acreage will vary from lot to lot. This worksheet is intended to be an average only. Where actual data exists, it should be used.

2/3 ACRE LOT - LAWN



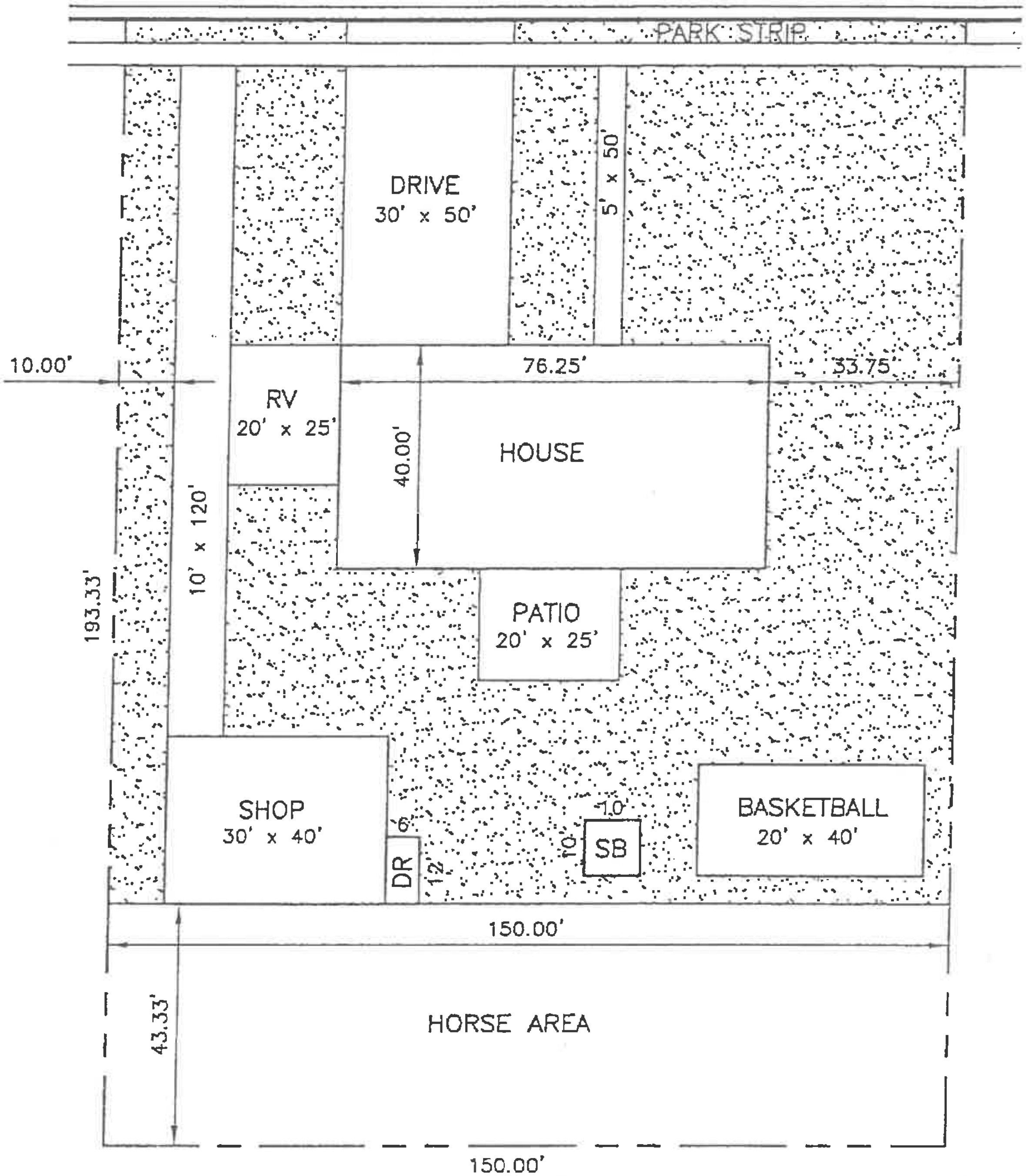
IRRIGATED ACREAGE WORKSHEET - 2/3 ACRE HORSE

LOT AREA (square feet)	29,000	150' x 193.33' average lot size for medium density developme
HOME FOOTPRINT	(3,050)	Assumes garage (25' x 35'), split level home (40' x 76.25')
DRIVEWAY	(1,500)	30' x 50'
PATIO	(500)	20' x 25'
SIDEWALK	(250)	5' by 50'
RV PAD	(500)	20' x 25'
PLAY ITEMS	(900)	10' x 10' sandbox, 20' x 40' basketball court
OUTBUILDINGS	(2,400)	30' x 40' shop, 120' x 10' gravel access drive
ANIMAL CONTAINMENT	(6,572)	6' x 12' dog run, 40' x 120' large animal corral & support area
PARK STRIP (length of frontage - drive width)	480	4' x (150' - 30')
TOTAL IRRIGATED AREA (square feet)	**13,809**	**47.6%**

NOTE: Actual irrigated acreage will vary from lot to lot. This worksheet is intended to be an average only. Where actual data exists, it should be used.

Assumes that large animals are kept on property, along with feed storage for the animal, and no animal containment area (pasture) is irrigated.

2/3 ACRE LOT - HORSE

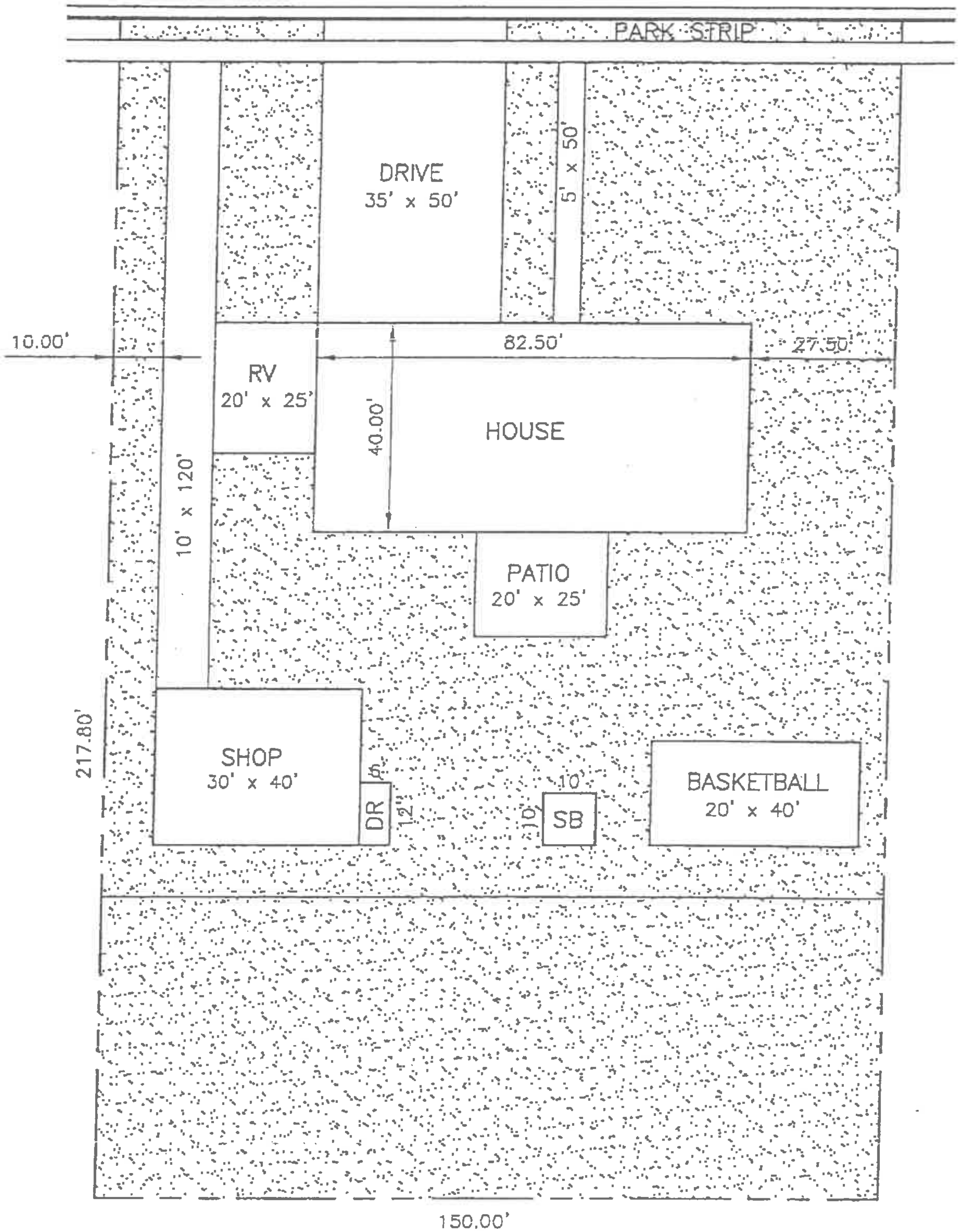


IRRIGATED ACREAGE WORKSHEET - 3/4 ACRE LAWN

LOT AREA (square feet)	32,670	150' x 217.8' average lot size for medium density development
HOME FOOTPRINT	(3,300)	Assumes garage (25' x 35'), split level home (40' x 82.5')
DRIVEWAY	(1,750)	35' x 50'
PATIO	(500)	20' x 25'
SIDEWALK	(250)	5' by 50'
RV PAD	(500)	20' x 25'
PLAY ITEMS	(900)	10' x 10' sandbox, 20' x 40' basketball court
OUTBUILDINGS	(2,400)	30' x 40' shop, 120' x 10' gravel access drive
ANIMAL CONTAINMENT	(72)	6' x 12' dog run
PARK STRIP (length of frontage - drive width)	460	4' x (150' - 35')
TOTAL IRRIGATED AREA (square feet)	**23,458**	**71.8%**

NOTE: Actual irrigated acreage will vary from lot to lot. This worksheet is intended to be an average only. Where actual data exists, it should be used.

3/4 ACRE LOT - LAWN



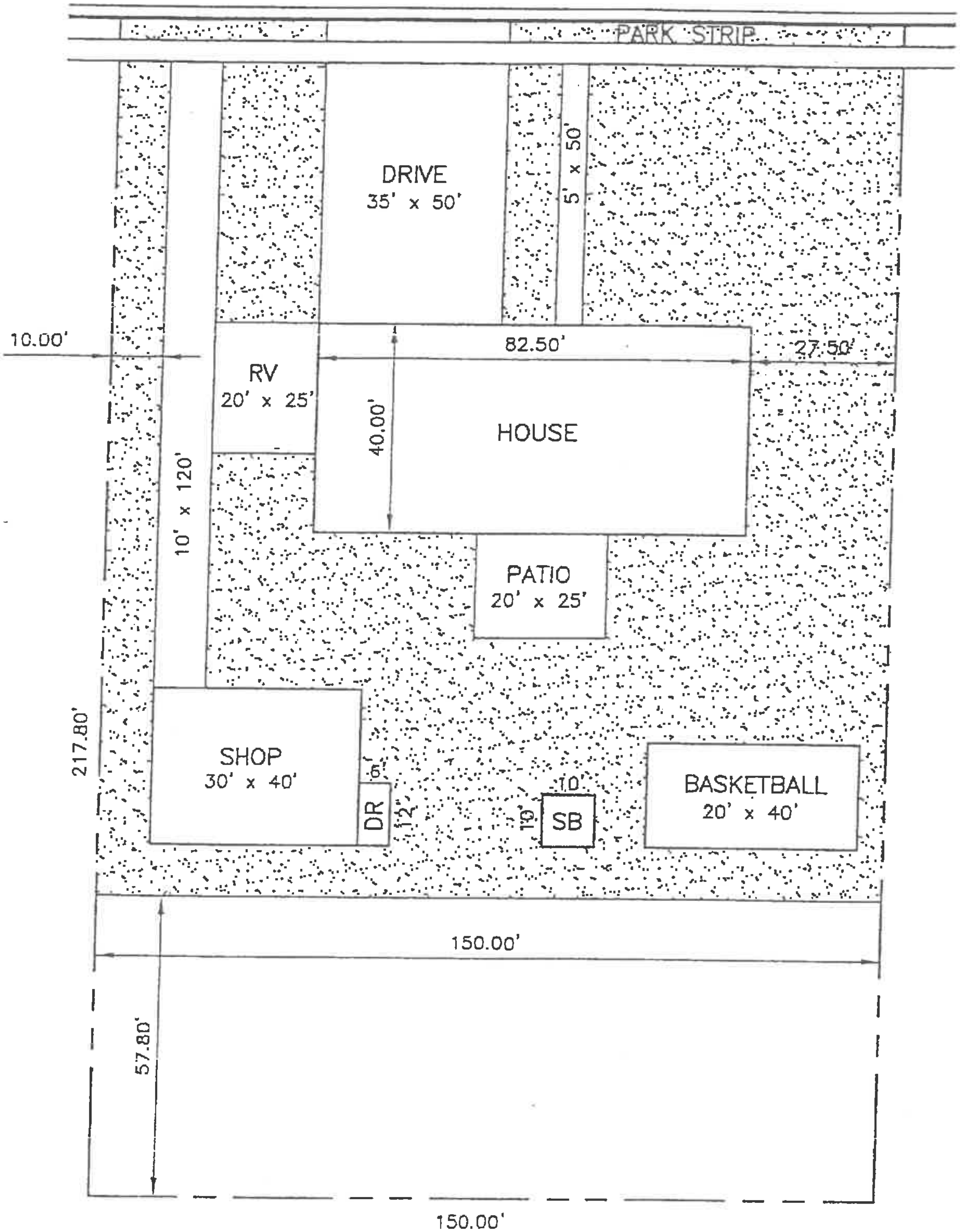
IRRIGATED ACREAGE WORKSHEET - 3/4 ACRE HORSE

LOT AREA (square feet)	32,670	150' x 217.8' average lot size for medium density development
HOME FOOTPRINT	(3,300)	Assumes garage (25' x 35'), split level home (40' x 82.5')
DRIVEWAY	(1,750)	35' x 50'
PATIO	(500)	20' x 25'
SIDEWALK	(250)	5' by 50'
RV PAD	(500)	20' x 25'
PLAY ITEMS	(900)	10' x 10' sandbox, 20' x 40' basketball court
OUTBUILDINGS	(2,400)	30' x 40' shop, 120' x 10' gravel access drive
ANIMAL CONTAINMENT	(8,742)	6' x 12' dog run, 57.5' x 150' large animal corral/support area
PARK STRIP (length of frontage - drive width)	460	4' x (150' - 35')
TOTAL IRRIGATED AREA (square feet)	**14,788**	**45.3%**

NOTE: Actual irrigated acreage will vary from lot to lot. This worksheet is intended to be an average only. Where actual data exists, it should be used.

Assumes that large animals are kept on property, along with feed storage for the animal, and no animal containment area (pasture) is irrigated.

3/4 ACRE LOT - HORSE

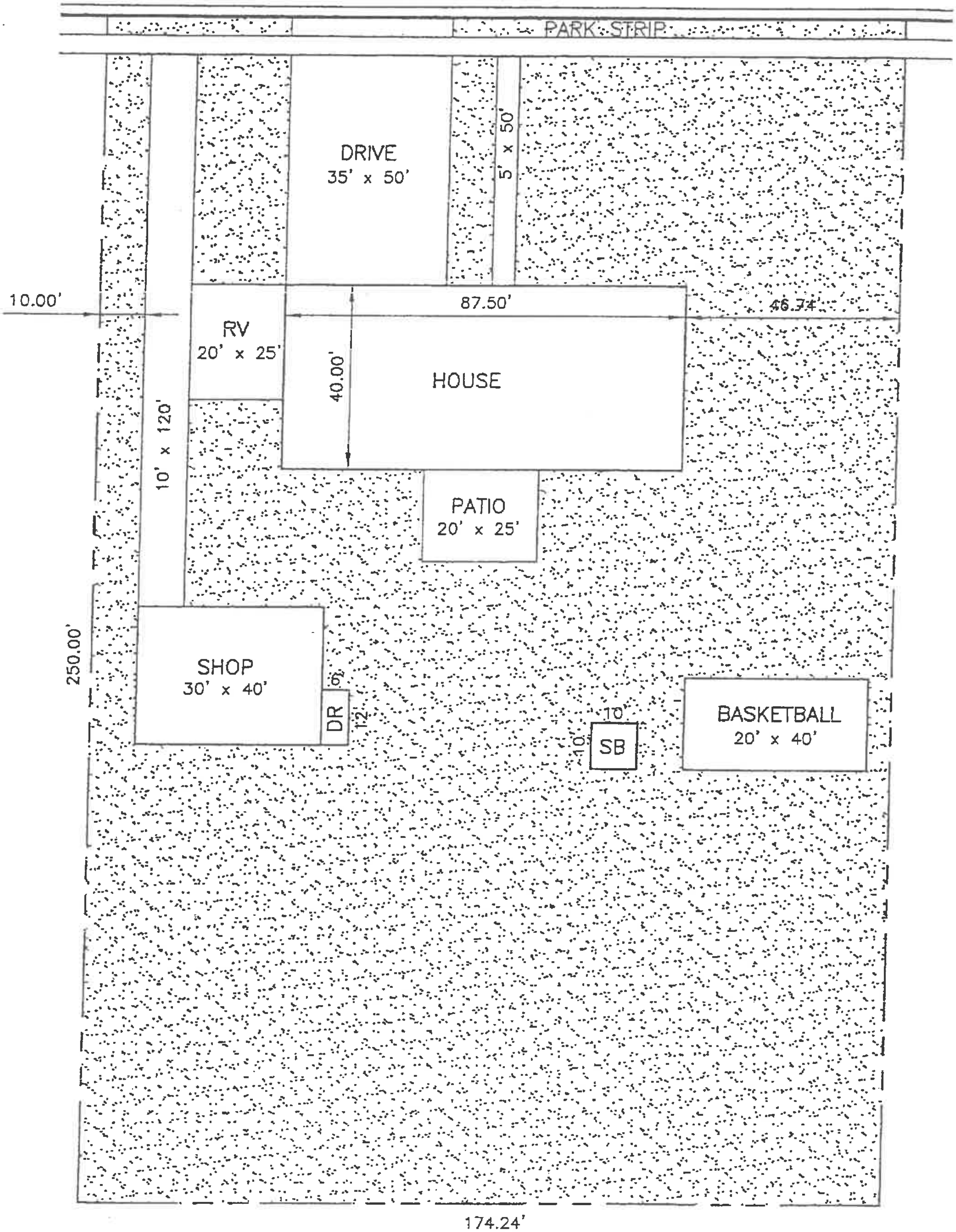


IRRIGATED ACREAGE WORKSHEET - 1 ACRE LAWN

LOT AREA (square feet)	43,560	174.24' x 250' average lot size for low density development
HOME FOOTPRINT	(3,500)	Assumes garage (25' x 35'), split level home (40' x 87.5')
DRIVEWAY	(1,750)	35' x 50'
PATIO	(500)	20' x 25'
SIDEWALK	(250)	5' by 50'
RV PAD	(500)	20' x 25'
PLAY ITEMS	(900)	10' x 10' sandbox, 20' x 40' basketball court
OUTBUILDINGS	(2,400)	30' x 40' shop, 120' x 10' gravel access drive
ANIMAL CONTAINMENT	(72)	6' x 12' dog run
PARK STRIP (length of frontage - drive width)	557	4' x (174.24' - 35')
TOTAL IRRIGATED AREA (square feet)	**34,245**	**78.6%**

NOTE: Actual irrigated acreage will vary from lot to lot. This worksheet is intended to be an average only. Where actual data exists, it should be used.

1 ACRE LOT - LAWN



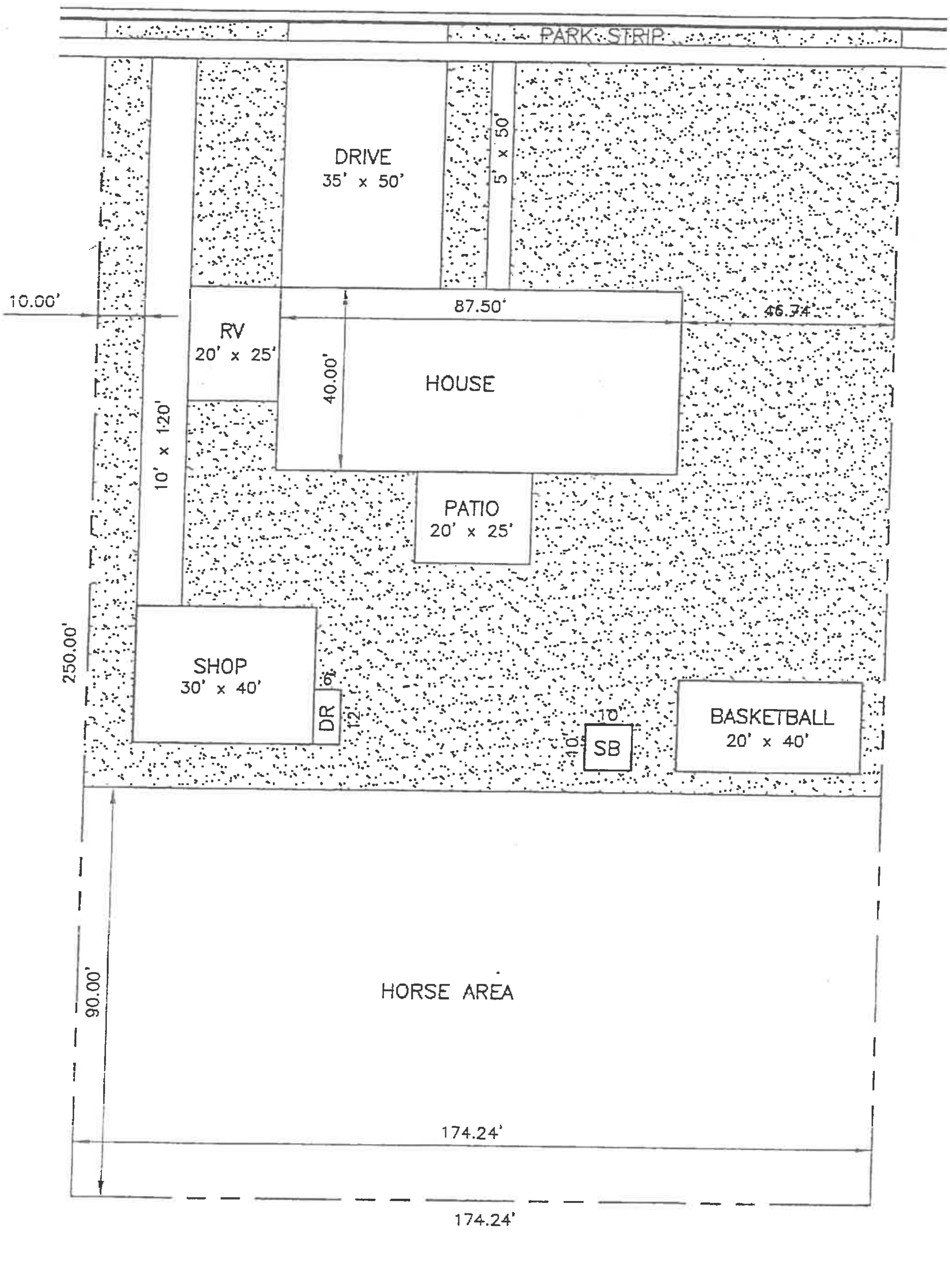
IRRIGATED ACREAGE WORKSHEET - 1 ACRE HORSE

LOT AREA (square feet)	43,560	174.24' x 250' average lot size for low density development
HOME FOOTPRINT	(3,500)	Assumes garage (25' x 35'), split level home (40' x 87.5')
DRIVEWAY	(1,750)	35' x 50'
PATIO	(500)	20' x 25'
SIDEWALK	(250)	5' by 50'
RV PAD	(500)	20' x 25'
PLAY ITEMS	(900)	10' x 10' sandbox, 20' x 40' basketball court
OUTBUILDINGS	(2,400)	30' x 40' shop, 120' x 10' gravel access drive
ANIMAL CONTAINMENT	(15,754)	6' x 12' dog run, 90' x 174.24' large animal corral/support area
PARK STRIP (length of frontage - drive width)	557	4' x (174.24' - 35')
TOTAL IRRIGATED AREA (square feet)	**18,563**	**42.6%**

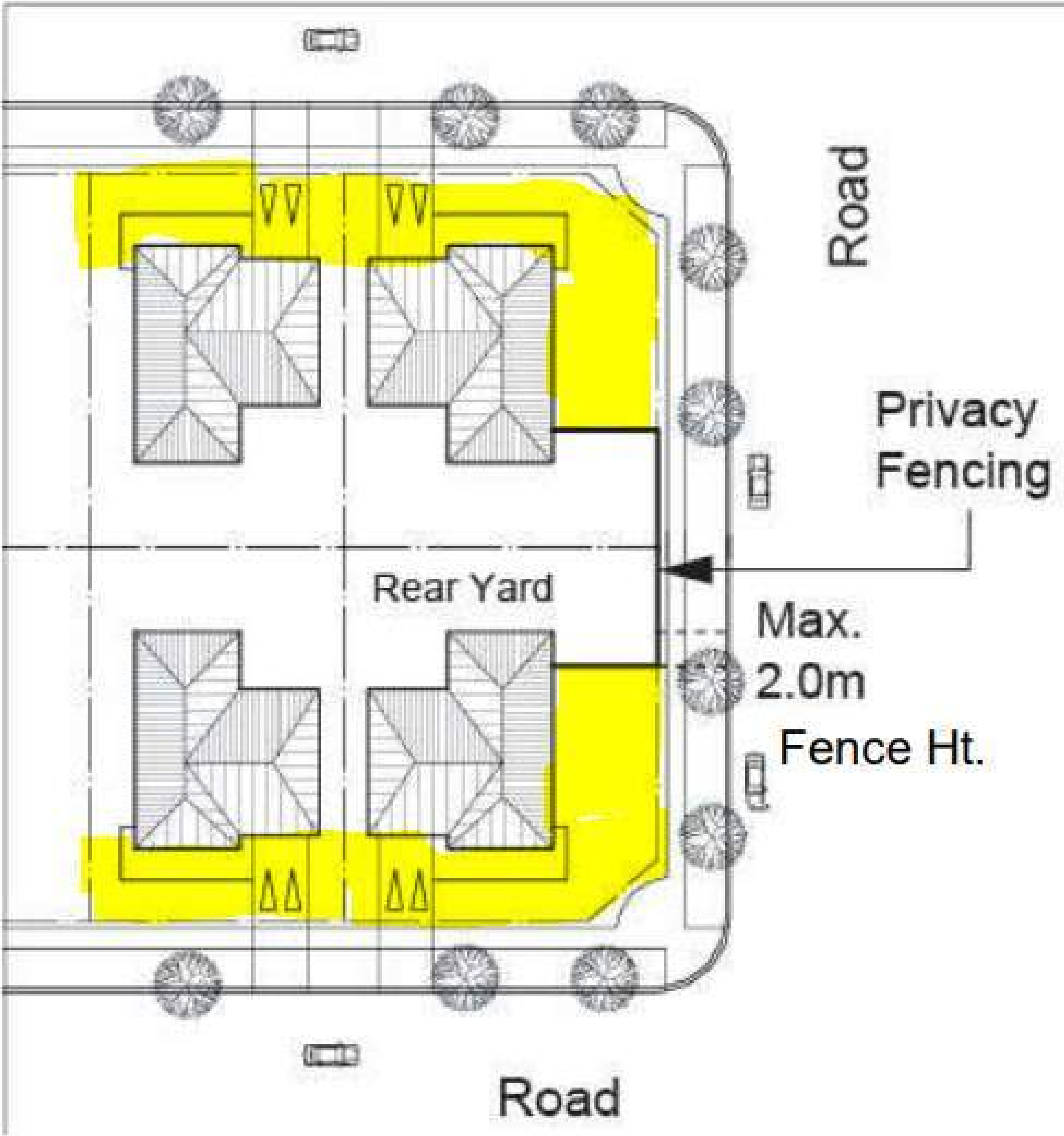
NOTE: Actual irrigated acreage will vary from lot to lot. This worksheet is intended to be an average only. Where actual data exists, it should be used.

Assumes that large animals are kept on property, along with feed storage for the animal, and no animal containment area (pasture) is irrigated.

1 ACRE LOT - HORSE



Front Yard Definition for Waterwise Landscaping



Appendix L Grantsville City Storm Drainage Design Guidelines

GRANTSVILLE CITY
STORM DRAINAGE DESIGN REQUIREMENTS

1. **Storm Water Collection System Requirements:**
   a) **Design Storms:**
   The storm water pipe collection system shall be designed to convey the 24-hour duration – Annual Exceedance Probability (AEP) 10-percent (10%) storm, 24-hour duration event if there is a continuous pathway to the Great Salt Lake. Collection systems for basin and street shall be sized for the AEP 1-percent (1%) storm, 24-hour duration event when discharging to an approved City release point.

   Note: The AEP 10-percent (10%) storm is equivalent to a 10-year recurrence interval storm and an AEP 1-percent (1%) storm is equivalent to a 100-year recurrence interval storm. The 10-year and 100-year terms are not used by Grantsville City to reduce confusion and accurately convey such storms have a 10-percent or 1-percent chance of occurring in any given year, rather than implying these events happen once every 10-years or 100-years.

   b) **Storm Water Runoff into Street Encroachment Requirements:**
      i. Flow from the AEP 10-percent (10%) storm shall not extend more than halfway into the travel lane adjacent to the curb and a minimum 12-foot wide travel lane shall be maintained for emergency vehicles. If there is a curb then total spread must be no more than 8-feet from the curb face.

   c) **Easement and Access Requirements:**
      i. Easement widths and access for drainage channels, detention/ retention basins, lots line swales, and public storm drainage lines shall be reviewed and approved by the City Engineer. Access easements shall be a minimum width of 15-feet.

   d) **Acceptable Pipe Materials:**
      i. Refer to the current City's preconstruction notes for acceptable pipe materials.

   e) **Minimum Pipe Diameter and Slope:**
      i. The minimum pipe diameter for any public storm water collection system pipe is 15-inches with a minimum slope of 0.50 percent. If pipe diameter and slope is below the minimum standards then approval from the City Engineer is required.

   f) **Manhole Spacing:**
      i. Minimum manhole spacing is 400-feet, unless otherwise approved by the City Engineer.

   g) **Storm Drain Structure Drops:**
      i. Where changes in pipe sizes occur in a manhole, the inlet pipe crown must match or be higher than the larger outlet pipe crown.

   h) **Cover:**
      i. Minimum cover is 18-inches or 6 inches below the pavement section whichever is greater, unless approved by City Engineer. Pipe cover must comply with pipe manufacturer's recommendations.

   i) **Catch Basin Requirements:**
      i. Catch basins will not be allowed on the radius of curves at intersections.
      ii. Flow through catch basins shall not be allowed unless designed as a combination box with manhole lid access. Locked gate access with keys for designate basin maintenance personnel and for City emergency access shall be provided.
      iii. A manufactured snout or similar oil/debris/water separator is required prior to a detention basin, retention basin, or any other discharges from a development into a public drainage. Sump depth in

catch basin with snout shall be sized as recommended by snout manufacturer.

iv. Catch basins shall be installed at maximum intervals of 400-feet where channelized flow is occurring.

j) Detention/Retention Basin Requirements:

i. Public, private, or HOA detention/retention basins shall have 6-foot tall (finish grade to top of sign) telespar, or City approved, post with the following signs:

a. “Stormwater Basin” 12-inch x 18-inch Sign
b. “No Trespassing” 12-inch x 18-inch Sign
c. Each sign shall be RA Type I Engineering Grade Prismatic Reflective Sheeting on 0.080 aluminum.

ii. Public detention/retention basins with amenities shall have 6-foot tall (finish grade to top of sign) telespar, or City approved, post with the following signs:

a. “No Dumping” 12-inch x 18-inch Sign
b. “Stormwater Basin
Designed to collect runoff from the local storm sewer system following either a rainfall or snowmelt event.
Basins temporarily hold this stormwater, provides treatment to remove pollutants, and then slowly release the water back to our waterways.
No swimming, use at your own risk.” 18-inch x 24-inch Sign
c. Each sign shall be RA Type I Engineering Grade Prismatic Reflective Sheeting on 0.080 aluminum.

iii. Storm water drainage areas need to include front yards and rear yards in the developments calculations if they do not include individual lots detention/ retention basins.

iv. Retention and detention basins shall completely infiltrate and drain within 72-hours from the beginning of a storm event for vector control. Infiltration tests shall be performed using the double ring infiltrometer test in accordance with ASTM D 3385 for all retention and detention basins. The test shall be completed at the elevation of the bottom of the basin where infiltration will occur. A factor of safety of two (2) shall be used for design and a minimum of two (2) tests shall be completed with a minimum of one (1) test per 10,000 square feet of infiltration area. These tests shall be submitted with drainage calculations to the City for review. If the retention or detention basin is constructed in gravel soils then a percolation test may be used to determine the infiltration rate. The infiltration rate shall be calculated as follows:

Infiltration Rate = (Percolation Rate) / (Reduction Factor)

Where the Reduction Factor is given by**:

$$\boxed{R_f = \frac{2d_1 - \Delta d}{DIA} + 1}$$

With:

d_1	=	Initial Water Depth (in.)
Δd	=	Average/Final Water Level Drop (in.)
DIA	=	Diameter of the Percolation Hole (in.)

*** The area Reduction Factor accounts for the exfiltration occurring through the sides of percolation hole. It assumes that the percolation rate is affected by the depth of water in the hole and that the percolating surface of the hole is in uniform soil. If there are significant problems with either of these assumptions then other adjustments may be necessary.*

v. Storm water dry wells, injections wells, or any underground storm water discharge structure is acceptable in the City, but shall comply with the Utah Department of Environmental Quality (UDEQ) Underground Injection Control (UIC) program requirements. Proof of an application pertaining to the development has been submitted under the UIC program shall be provided to the City for their records. Special consideration shall be given to water quality, groundwater depth, and other factors. Individual or single-family homes may be exempt from these requirements. Please contact the Utah Department of Environmental Quality - Water Quality for clarification. Developments may use percolation tests for underground systems which infiltrate in the horizontal and vertical planes.

vi. 1-foot freeboard minimum above the AEP 1-percent (1%) storm, 24-hour duration event when discharging water level through spillway is required. Spillway shall be reinforced with concrete per City Detail.

vii. Detention/retention basin minimum of top berm width shall be 3-feet.

viii. Maximum water depths shall be 30-inches with a maximum slope of 5:1 for small detention/retention basins serving single lots or less than 5-lots unless approved by the City Engineer. Large basins serving 5-lots or more shall have a maximum slope of 3:1 and, if deeper than 3-feet, shall be provided with ingress and egress at least 12-feet wide at less than 15% grade with a 15% grade all weather surface ramp into the basin.

ix. Vegetate basins with turf, if irrigated, or native seeded grass for maintenance purposes. If turf is installed, turf soil shall be free draining, not include clay soils, and not impact stormwater infiltration.

x. Rocks or gravel surfacing of detention/retention basins are not allowed without City approval.

xi. Detention/retention basins with amenities shall have accessible path to amenity which is a concrete sidewalk meeting ADA standard. Interior slope of detention/retention basin at ramp shall be between 8 Horizontal:1 Vertical to 12 Horizontal:1 Vertical slope.

xii. Detention/Retention basins with amenities shall have a sediment forebay and be able to pass the AEO 50-percent (50%) storm, 24-hour duration event through the basin without stormwater impacting amenities.

k) Manning's n Values:

i. n value for linings shall be determined per an approved Engineers Manual based on size and placement of materials. Calculations shall include the reference used for the n value for review by the City Engineer.

Manning's Roughness n for Open Channels			
Channel Type	**Manning n**		
	Minimum	Normal	Maximum
1. Lined or Constructed Channels			
a. Cement:			
1. Neat, surface	0.01	0.011	0.013
2. Mortar	0.011	0.013	0.015
b. Concrete:			
1. Trowel finish	0.011	0.013	0.015
2. Float finish	0.013	0.015	0.016

Channel Type	Manning n		
	Minimum	Normal	Maximum
3. Finished, with gravel on bottom	0.015	0.017	0.02
4. Unfinished	0.014	0.017	0.02
5. Gunite, good section	0.016	0.019	0.023
6. Gunite, wavy section	0.018	0.022	0.025
7. On good excavated rock	0.017	0.02	-
8. On irregular excavated rock	0.022	0.027	-
c. Concrete Bottom Float Finish with sides of:			
1. Dressed stone in mortar	0.015	0.017	0.02
2. Random stone in mortar	0.017	0.02	0.024
3. Cement rubble masonry, plastered	0.016	0.02	0.024
4. Cement rubble masonry	0.02	0.025	0.03
5. Dry rubble or riprap	0.02	0.03	0.035
d. Gravel Bottom with sides of:			
1. Formed concrete	0.017	0.02	0.025
2. Random stone mortar	0.02	0.023	0.026
3. Dry rubble or riprap	0.023	0.033	0.036
e. Brick:			
1. Glazed	0.011	0.013	0.015
2. In cement mortar	0.012	0.015	0.018
f. Masonry:			
1. Cemented rubble	0.017	0.025	0.03
2. Dry rubble	0.023	0.032	0.035
g. Dressed Ashlar / Stone Paving	0.013	0.015	0.017
h. Asphalt:			
1. Smooth	0.013	0.013	0.017
2. Rough	0.016	0.016	0.017
i. Vegetal Lining	0.03	-	0.5
j. Wood:			
1. Planed, untreated	0.01	0.012	0.014
2. Planed, creosoted	0.011	0.012	0.015
3. Unplanned	0.011	0.013	0.015
4. Plank with battens	0.012	0.015	0.018
5. Lined with roofing paper	0.01	0.014	0.017

Channel Type	Manning n		
	Minimum	Normal	Maximum
2. Excavated or Dredged Channels			
a. Earth, Straight, and Uniform:			
1. Clean, recently completed	0.016	0.018	0.02
2. Clean, after weathering	0.018	0.022	0.025
3. Gravel, uniform section, clean	0.022	0.025	0.03
4. With short grass, few weeds	0.022	0.027	0.033
b. Earth Winding and Sluggish:			
1. No vegetation	0.023	0.025	0.03
2. Grass, some weeds	0.025	0.03	0.033
3. Dense weeds or aquatic plants in deep channels	0.03	0.035	0.04
4. Earth bottom and rubble sides	0.028	0.03	0.035
5. Stony bottom and weedy banks	0.025	0.035	0.04
6. Cobble bottom and clean sides	0.03	0.04	0.05
c. Dragline-Excavated or Dredged:			
1. No vegetation	0.025	0.028	0.033
2. Light brush on banks	0.035	0.05	0.06
d. Rock Cuts:			
1.Smooth and Uniform	0.025	0.035	0.04
2. Jagged and irregular	0.035	0.04	0.05
e. Channels not Maintained, Weeds and Brush Uncut:			
1. Dense weeds, high as flow depth	0.05	0.08	0.12
2. Clean bottom, brush on sides	0.04	0.05	0.08
3. Same as above, highest stage of flow	0.045	0.07	0.11
4. Dense brush, high stage	0.08	0.1	0.14
3. Main Channels			
a. Clean, straight, full stage, no rifts or deep pools	0.025	0.03	0.033
b. Same as above, but more stones and weeds	0.03	0.035	0.04
c. Clean, winding, some pools and shoals	0.033	0.04	0.045
d. Same as above, but some weeds and stones	0.035	0.045	0.05
e. Same as above, lower stages, more ineffective	0.04	0.048	0.055
f. Same as (d) with more stones	0.045	0.05	0.06
g. Sluggish reaches, weedy, deep pools	0.05	0.07	0.08
h. Very weedy reaches, deep pools, or floodways with heavy stand of timber and underbrush	0.075	0.1	0.15

Channel Type	Manning n		
	Minimum	Normal	Maximum
4. Mountain Streams, No Vegetation in Channel, Banks usually Steep, Trees and Brush along Banks Submerged at High Stages			
a. Bottom: gravels, cobbles, and few boulders	0.03	0.04	0.05
b. Bottom: cobbles with large boulders	0.04	0.05	0.07

Source:

(1) ASCE, (1982), Gravity Sanitary Sewer Design and Construction, ASCE Manual of Practice No. 60, New York, NY.

(2) Chow, V.T., (1959), Open Channel Hydraulics, McGraw-Hill, New York, NY.

l) Riprap Sizing:

i. Channel Riprap sizing calculation shall utilize Federal Highway Administration (FHWA) Hydraulic Engineering Circular (HEC) No. 14, Current Edition, Chapter 10 or equivalent standard.

m) Erosion Control:

i. The developer shall provide a copy of their Fugitive Dust Mitigation Plan, Erosion Control Plans, SWPPP, Notice of Intent (NOI), and Notice of Termination (NOT) with the State if their construction project is greater than 1 acre. The SWPPP sign shall be posted on site and visible to adjacent public right-of-way.

2. **Hydrology Requirements:**

a) Rainfall Data:

i. NOAA Atlas 14 shall be used for rainfall in the City of Grantsville (see https://hdsc.nws.noaa.gov/hdsc/pfds_map_cont.html)

b) Design Storms:

i. To reduce post-development storm water runoff, developments must retain and treat the 80th percentile rainfall event. The 80th percentile rainfall event for Grantsville City is 0.50 inches. The Reese method, as shown below, shall be used to calculate the volumetric runoff coefficient used for determining the 80th percentile volume. For developments larger than 10 acres use the SCS Method to determine the 80th percentile volume.

a. Sedimentation basin shall be provided for first flush/80th percentile rainfall events in retention/detention basins and shall be designed to be easily accessed and maintained.

i. Method 1- Reese Method:

1. Comparing the imperviousness of 44 nationwide sites to their respective calculated volumetric runoff coefficient, a simple linear regression equation was created to estimate the volumetric runoff coefficient for small urban catchments. Land uses for these sites were classified as residential, mixed, commercial, industrial, and urban open and nonurban (Schueler, Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs, 1987). Outliers were removed from this dataset by Reese to derive the equation below. Removing outliers from the dataset reduces the impact of erroneous measurements (Reese, 2006). $RV=0.91i-0.0204$

Source: A Guide to Low Impact Development within Utah. Revised August 2020 by Michael Baker International.

ii. Retain/Detain the AEP 1-percent (1%) storm, 24-hour duration event for project site.

iii. Developments may detain the AEP 10-percent (10%) storm event, 24-hour duration if there is a continuous pathway to the Great Salt Lake.

iv. For West Bank drainage areas, developed drainage may discharge at the following rates if there is a continuous path to the Great Salt Lake:

Table 1: Unit Discharge Requirement for West Bank Watersheds

24-hour Duration Storm Event	Watershed's Peak Unit Discharge (cfs/acre)	All Other Watersheds Peak Unit Discharge (cfs/acre)
10 years	0.003	0.05
100 years	0.01	0.15

Source: Table 17 in Section 5 from the Storm Water Management Study for Baker and Pope Watersheds dated *April 2015 by AQUA Engineering.*

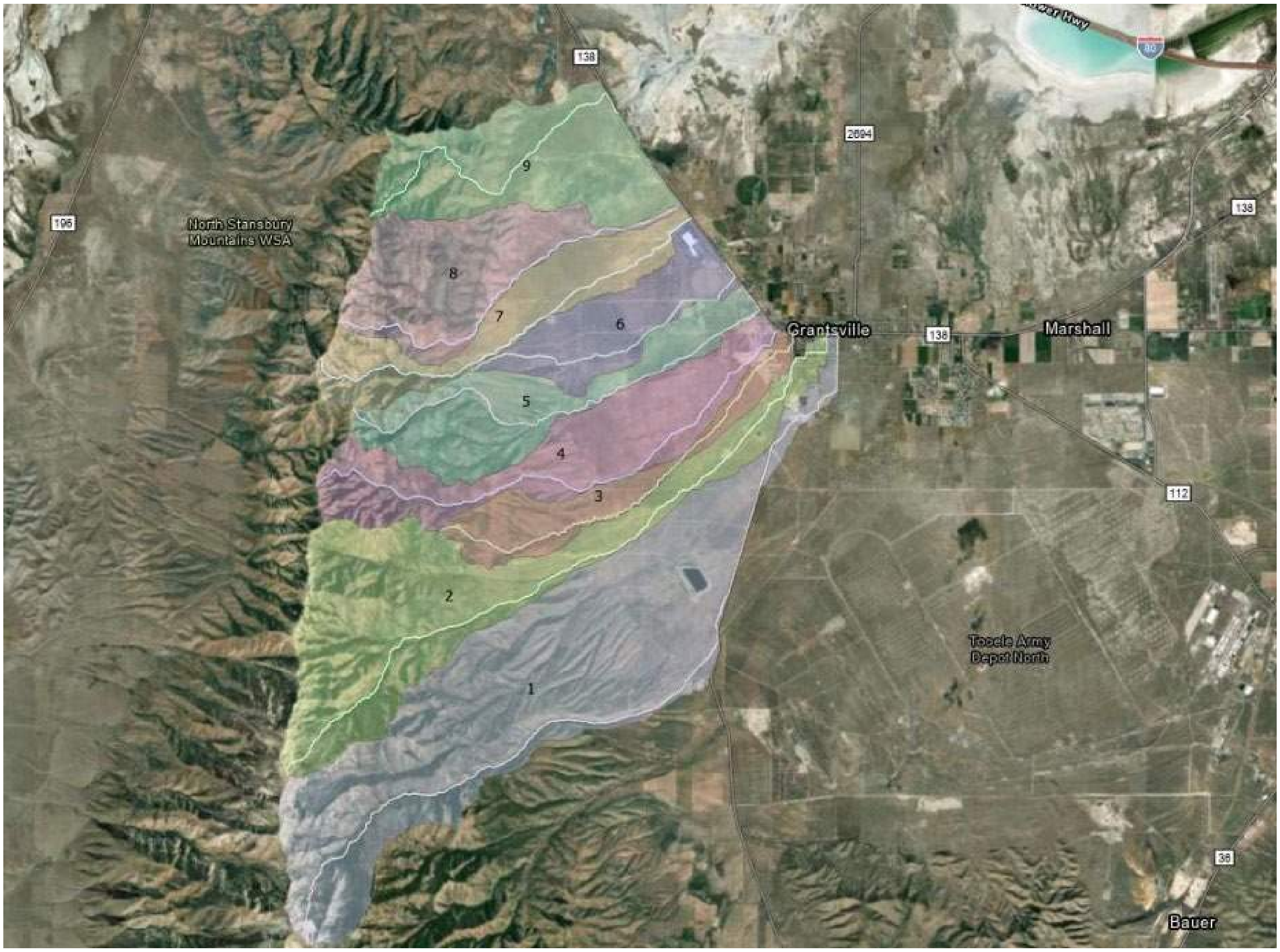
v. Refer to Table 2 and Figure 1 for a map of West Bank Watersheds.

Table 2: West Bank Sub-basin Number and Name

Subbasin	Subbasin Name
1	South Willow and Coal Pit Canyon
2	North Willow Canyon
3	White Rocks
4	Baker Canyon
5	Pope Canyon
6	West Canyon 1
7	West Canyon 2
8	Dry Canyon
9	Unnamed

Source: Grantsville West Bank Development Stormwater Master Plan Report by Jones & DeMille Engineering

Figure 1: Map of West Bank Watersheds



Source: Grantsville West Bank Development Stormwater Master Plan Report by Jones & DeMille Engineering

vi. The West Bank area consists of alluvial fans which are an accumulation of sediments fanning outwards from a concentrated source of sediments. Alluvial fans are typically formed where flow emerges from a confined channel and is free to spread and infiltrate. Due to these sediments, deposits in an alluvial fan can cause the defined channels to shift courses which is why it is important to construct sedimentation basins at the top of the alluvial fan and reinforce and define channels throughout the fan to discharge safely through existing and proposed development avoiding riverine flooding. Recently the West Bank Area has been identified as an alluvial fan Zone A based on a Base Level Engineering (BLE) analysis. This area is currently being studied by the State in more detail, but the results are currently not available. Channelization through the alluvial fan and sedimentation basins above the alluvial fan are improvements to allow storm water to flow through developments or mitigate alluvial fan hazards. Mitigation measures within the alluvial fan will need to be constructed to remove hazards either regionally or localized. Developers should coordinate with the State and FEMA MT-2 team (LOMR reviewers) along with the City and County to work through development in the alluvial fan.

3. **Drainage Calculations or Report Requirements:**

a) If discharge will be above the allowed discharge per area rates shown on Table 1 then a pre and post development hydrologic analysis will be required showing flows will not cause a negative affect downstream. The Rational Method (Q=CiA) may be used in computations for the rate of runoff for urban and small watershed 100 acres or less.

i. Q = peak rate of runoff, cubic feet per second

ii. C = runoff coefficient

iii. i= average rainfall intensity, inches per hour

b) The SCS method, SCS TR-55 "Urban Hydrology for Small Watershed", HEC-1/HEC-HMS, or other methods shall be used for larger watersheds.

c) Table 2 shall be used for runoff coefficients unless approved by the City Engineer.

Table 2: Runoff Coefficients

Land Use Type	Runoff Coefficients "C"
Rural	0.25-0.35
Single Family Residential	0.45-0.60
Multi-Residential	0.60-0.70
Neighborhood Commercial	0.85
Community Commercial	0.85
Tourist Commercial	0.85
Office	0.85
Manufacturing	0.85-0.90
Distribution and Warehousing	0.85-0.90
Public Facility	0.50-0.85
Pavement and Concrete Surfaces	0.90-0.95
Park	0.25
Open Space (0-5% grade – vegetated)	0.20-.030
Open Space (0-5% grade – no vegetation)	0.30-0.40
Open Space (5-15% grade – vegetated or unvegetated)	0.40-0.50
Open Space (Over 15% grade – sparsely vegetated, rock or clay soils	0.40-0.60

i. Weighted values of the runoff coefficient "C" may be required where land use is most accurately described as a mixture of the land uses listed above or where it is a mixture of pervious and impervious areas and not represented by a single entry in Table 2.

d) Intensity-Duration-Frequency curves for NOAA Atlas 14 shall be used for determining the applicable intensity. (see https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ut)

e) Definition for Time of Concentration

i. $t_c = 10$ or $\dfrac{L}{V \times 60}$ whichever is greater

t_c = initial time of concentration at inlet, minutes
L = Flow line length from uppermost point of watershed to the discharge point, feet
V = channel or overland velocity, feet per second

* Velocity shall be calculated using NRCS Urban Hydrology for Small Watersheds, current edition, or equivalent standards.

ii. Given the time of concentration at a design point, the time of concentration at the next design point is determined by adding travel time, expressed as:

iii. $$t = \frac{L}{V \times 60}$$

t = travel time, minutes
L = length of channel or conduit between design points, feet
V = channel or conduit, feet per second

4. <u>**Submittal Requirements for Drainage Drawings and Report**</u>
   a) **Project Drawings:**
      i. Hydraulic grade line (HGL) profiles, (see sample sheet).
      ii. Location and size of all existing and proposed structures.
      iii. Proposed materials.
      iv. Pertinent elevations and slopes.
      v. Pipe capacity, and the AEP 10-percent (10%) storm, and the AEP 1-percent (1%) storm, 24-hour flows, and velocities.
   b) **Drainage Report or Calculations: (Shown on Drawings)** – The following standards apply to the Drainage Report or Calculations (public and private).
      1. **Title Page:**
         a. Project name.
         b. Preparer's name, firm, date.
         c. Professional engineer's seal of preparer and signature.
      2. **Introduction:**
         a. **Site location:**
            i. Street location, parcel number(s), and section reference.
            ii. Adjacent developments.
         b. **Site Description:**
            i. Topography, ground cover, etc.
            ii. Existing drainage facilities, major drainage facilities, flood hazard areas, irrigation ditches, other site conditions that must be considered.
         c. Proposed project description.
         d. Other previous studies relevant to site.
      3. Historic drainage system (discuss the following):
         a. Major basins and offsite contributions:
            i. Relationship to major drainage facilities.
            ii. Major basin drainage characteristics (topography, runoff, cover, use, erosion, etc.).
         b. Sub-basin and site drainage (i and ii may be tabulated on map):
            i. Minor AEP 10-percent (10%) storm and major AEP 1-percent (1%) storm, 24-hour storm flows for each sub-basin affecting the site.
            ii. Existing drainage patterns: channelized or overland flow, point of discharge, etc.
            iii. Effect of historic flows on adjacent properties.
      4. **Proposed (developed) drainage system:** (discuss each of the following)
         a. **Criteria:**
            i. Size of major basins, tributary sub-basins, and other offsite contributions.
            ii. Hydrologic method to be used for analysis (Rational, SCS, etc.).

iii. Design storm intensities (minor AEP 10-percent (10%) storm, major the AEP 1-percent (1%) storm, 24-hour duration event,) or as required by the City Engineer.

b. **Runoff And Other Contributions:**

i. Historic storm flow rates and paths.

ii. Developed storm flow rates and paths for minor and major storms.

iii. Contributions from open joined system.

iv. Demonstrate flows are routed to a public system with adequate capacity when/ if available.

c. **Piping:**

i. Demonstrate the capacity of the storm drain system, including all downstream improvements.

ii. Verify storm flows and capacity from inlets to ultimate outlets of the drainage system.

d. **Detention/Retention System Including:**

i. Volume required to hold the AEP 1-percent (1%) storm, 24-hour storm with 1-foot freeboard minimum above the AEP 1-percent (1%) storm, 24-hour event flowing water level through spillway.

ii. Show the overflow location for volumes over the AEP1-percent (1%) storm, 24-hour duration event when discharging to an approved City release point..

iii. Passage of storms exceeding the AEP 10-percent (10%) storm up to the AEP 1-percent (1%) storm, 24-hour duration event when discharging to an approved City release point..

iv. Engineer to provide detailed description of downstream constraints (or none) and design calculations on how to mitigate the problem.

v. Need for detention/retention shall be clearly identified in the preliminary or schematic report and the necessary detention/retention area shall be identified on preliminary plans.

e. **Streets:** (This information may be shown on the plans.)

i. Depth and velocity of flow for major and minor storms. Demonstrate a 12-foot clear lane exists for emergency vehicles at all times.

ii. Drainage system.

f. **Open Channel Flow:** (This information may be shown on the plans.)

i. Type.

ii. Depth and velocity.

iii. Freeboard.

iv. HEC-RAS analysis when required by the City Engineer.

g. Storm drains and culverts (Show all data on plans.)

5. **<u>Areas within flood hazard zone when applicable:</u>**

a) Impacts.

b) Protection.

c) Compliance with Federal Emergency Management Administration (FEMA) requirements, RMC 18.12 “Flood Hazard Areas”, and critical flood zones. Show existing and proposed CLOMR and LOMR information, and show status of submittal and review process.

d) Provide elevation certificate for occupied structures within current BLE floodway determination. Coordinate with Utah Flood Hazards and Floodplain management for 2-D HEC-RAS model for BFE.

e) Comply with Grantsville City Code, Chapter 5-3, Flood Damage Prevention Regulations.

6. **<u>Conclusions:</u>**

a) Benefits.

b) Adverse effects with solutions for mitigation of impacts.

7. **Appendices:**

a) Hydrologic and hydraulic computations:

i. List and explain basin assumptions and input factors used.

1) Tabularized and/or discussed as necessary.
2) Indicate any sensitivity analysis performed.
3) Include source tables and references for parameters, such as soil groups, SCS curve numbers, C values, n values, etc.

ii. Historic Runoff:

1) Off-site.
2) On-site.

iii. Developed Runoff:

1) Off-site – Flows that have been concentrated into one area from the project shall not flow higher than the project flow in that area.
2) On-site.

iv. Detention for up to the AEP 1-percent (1%) storm, 24-hour duration event when discharging to an approved City release point:

v. Hydraulic Computations:

1) Hydraulic grade line (HGL) minor storm.
2) Hydraulic grade line (HGL) major storm.
3) Inlet/outlet calculations.

vi. Rip-rap sizing:

b) Drainage Plan:

i. Site Drainage Plan:

1) Show the existing and proposed contours for the property.
2) The site drainage plan may be at the same scale as the grading plan but must meet legibility requirements for scanned documents. Show all sub-drainage areas per catch basin or channel and tabulate existing and proposed drainage showing length, calculated velocity and time of concentration on various runs of grass, gutters, etc., cumulative time of concentration, average rainfall intensity, area, runoff coefficient (weighted if necessary), and peak flows for the AEP 10-percent (10%) storm and the AEP 1-percent (1%) storm, 24-hour duration event when discharging to an approved City release point.
3) All inlets and manholes shall be labeled to correspond to tabular numbering system used in drainage report. Pipe sizes, grades, velocities, peak flows and hydraulic grade lines shall be shown for all parts of the system in a tabular form on the plans.
4) Both location plan (overall drainage) and sub-drainage plan shall be signed and sealed by a Utah Registered Civil Engineer and shall be included in the construction plans for the subdivision/development.
5) On grading plans show peak flows for the AEP 10-percent (10%) storm and the AEP 10-percent (10%) storm at inlets and other sub-basin points of concentration, at discharge points and in channels. Show peak flows entering and leaving the site; trace path leaving site to nearest major drainage facility without adverse impact to downstream owners.
6) On plan and profile sheets, show peak flows for the AEP 10-percent (10%) storm and the AEP 1-percent (1%) storm, 24-hour duration event when discharging to an approved City release point at all inlets and in pipes as per above, and in pipes show slope, velocity, and capacity, and hydraulic grade line if surcharged.
7) If the lot cannot drain the yard to the street, then a basin shall be located in the rear yard to

prevent storm runoff from draining to the neighbors from the back of the property.

ii. Benchmarks – To be shown on plans with benchmarks to match the existing state approved benchmarks.

iii. Existing and proposed property lines.

iv. Existing and proposed drainage easements.

v. Street names, grades, widths and rights-of-way or easements.

vi. Routing and peak flow rate or volume at the upstream and downstream ends of the site and at various critical points on-site for both minor and major runoff. Depth and hydrograph for both storms for all sub basins.

vii. Street cross sections showing the AEP 1-percent (1%) storm, 24-hour duration event when discharging to an approved City release point flood level, no more than one-half way into the outside travel lane for emergency vehicle clear lane.

viii. Existing and proposed major drainage facilities.

ix. Open channel flow in major channels shall be provided with the following information on plans:

1) Channel and hydraulic grade line (HGL) profiles.
2) Cross sections and required rights-of-way or easements at the AEP 1-percent (1%) storm, 24-hour duration event intervals or changes from the typical section.
3) Location and size of all existing and proposed structures.
4) Channel section and lining details.
5) Freeboard for the AEP 1-percent (1%) storm, 24-hour duration event when discharging to an approved City release point.
6) Channel capacity and storm flows, the AEP 10-percent (10%) storm and the AEP 1-percent (1%) storm, 24-hour duration event when discharging to an approved City release point flows and velocities.

Appendix M Storm Drainage Cost Estimates

Owner: Granstville City
Project: West Bank Stormwater Master Plan
Project #: 2205-048
PM: Matt Laurendeau
Date: 1/4/2024

Jones & DeMille Engineering
1-800-748-5275
www.jonesanddemille.com

Alternative 4

ENGINEER'S OPINION OF PROBABLE COST					
Item No.	Item Description	Unit	Estimated Quantity	Unit Price	Price
Construction					
1	Mobilization and Survey	LS	1	$ 7,500,000	$ 7,500,000
2	Channel Excavation	CY	530,000	$ 10	$ 5,300,000
3	Channel Riprap (9" D50 1.5' thick)	CY	225,000	$ 90	$ 20,250,000
4	Road Crossings	LS	1	$ 2,000,000	$ 2,000,000
5	Settlement Canyon Debris Basin	LS	1	$ 18,517,000	$ 18,517,000
6	Army Creek Debris Basin	LS	1	$ 21,415,000	$ 21,415,000
7	South Willow Debris Basin	LS	1	$ 4,616,000	$ 4,616,000
8	North Willow Debris Basin	LS	1	$ 4,445,000	$ 4,445,000
9	North Willow Div Debris Basin	LS	1	$ 1,357,000	$ 1,357,000
10	Baker Canyon Debris Basin	LS	1	$ 1,428,000	$ 1,428,000
11	Pope Canyon Debris Basin	LS	1	$ 1,428,000	$ 1,428,000
12	Dry Canyon Debris Basin	LS	1	$ 2,856,000	$ 2,856,000
13	Acquire Additional Channel ROW	Acre	340	$ 10,000	$ 3,400,000
14	General Site Improvements	LS	1	$ 1,000,000	$ 1,000,000
				Construction Subtotal =	**$ 94,512,000**
Professional Services and Permitting					
1	Engineering Design	LS	1	$ 4,726,000	$ 4,726,000
2	Construction Management	LS	1	$ 5,671,000	$ 5,671,000
3	Environmental Permitting	LS	1	$ 500,000	$ 500,000
				Professional Services and Permitting Subtotal =	**$ 10,897,000**
Contingency					
1	Construction Contingency (30%)	LS	1	$ 28,354,000	$ 28,354,000
2	Uncosted Items (10)%)	LS	1	$ 9,452,000	$ 9,452,000
				Contingencies Subtotal =	**$ 37,806,000**
				Total Probable Construction Cost	**$ 143,215,000**

Figure 16. Stormwater Alternative 4 Cost Estimate

AGENDA ITEM #3

Adjourn.