Impact Fee Summary

	Existing	**Proposed**	Increase +
Population	-----	-----	
Transportation	$2,750.00	$2,810.00	$60.00
Culinary Water System	$2,300.00	$2,353.00	$53.00
Trail System	$802.00	$1,228.00	$426.00
Park Facility	$1,000.00	$1,991.00	$991.00
Total	**$6,852.00**	**$8,382.00**	**$1,530.00**

Chapter 1

Projected Population Growth

A pleasant living environment and a high growth rate along the Wasatch Front have been factors influencing Midway City's population growth over the past several years. This growing population places additional burdens on the City's infrastructure.

The projected conditions of Midway City's infrastructure and facilities are based upon several assumptions such as: present growth rates, economic stimuli, environmental and recreational development, and residential development. As these factors change, the projected conditions made in this master plan study also change. To help minimize the effect of changing conditions, the recommendations made in this master plan study will be based upon the projected population served by Midway City.

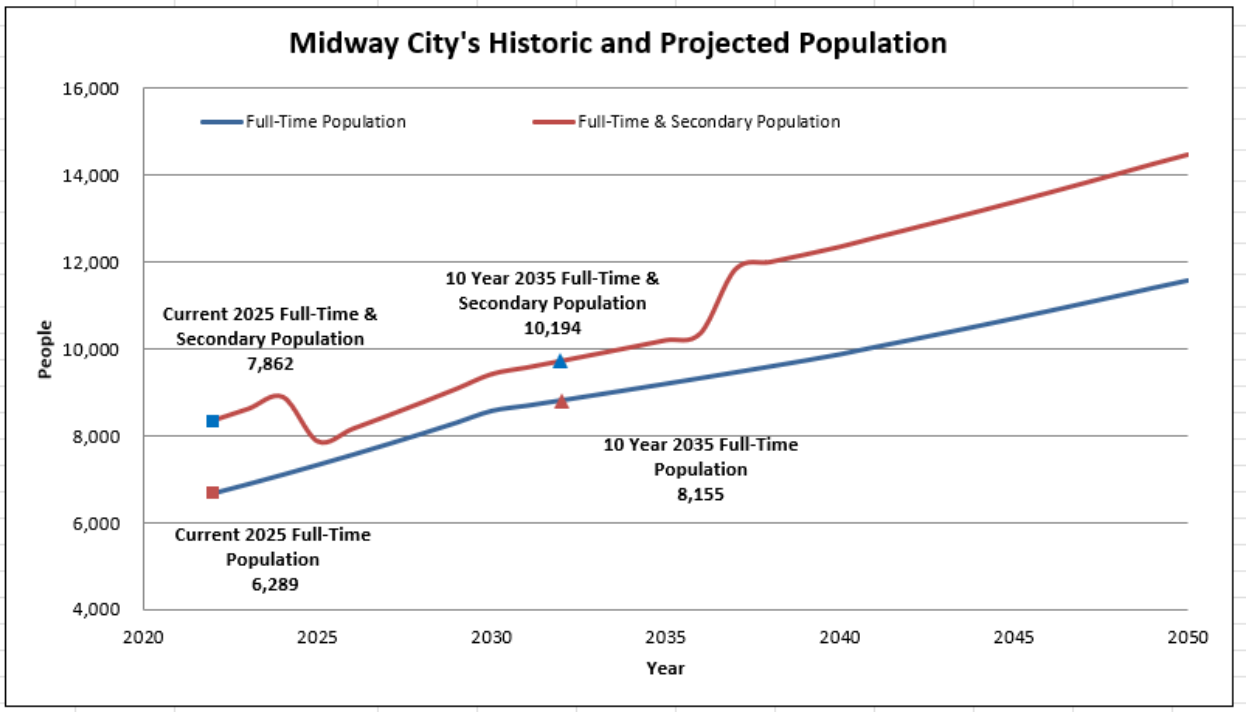
Methodology for Determining Projected Population

The method for projecting the population for Midway City is compiled in this chapter. The method used in this document took the projected population as determined by Mountainland Association of Governments (MAG) and interpolated between the projected years. The Governor's Office of Planning and Budget was also used as a reference. The 2015-2019 American Community Survey (ACS), 5-Year Estimates from the census data stated that approximately 75-percent of the total housing units within Midway City were occupied full-time. This number indicates a component of Midway ERU's are not full time residents.

Generally, MAG's population projections only include full-time residents. Because the city infrastructure needs to meet the demands of both the full-time and secondary homes the population projections used within the capital facility plan combines the full-time and secondary population. The population projections falling between MAG's projected years were established using interpolation.

Figure 1-1 graphically shows Midway City's historical full-time resident growth since 2022 and the population projection of the full-time residents to the year 2050. The current 2025 full-time population of 6,289 is shown on the graph, as well as the end of the 10-year planning period population of 8,155 for the year 2035. The current 2025 full-time plus secondary population of 7,862 and the end of the 10-year planning period population of 10,194 for the year 2035 are also shown.

Figure 1-1: Midway City's Projected Full-Time Residents



Results of Calculation

Even though the impact fee analysis is for a 10-year period, it is useful to determine the Midway City population as the city reaches the projected build-out. The method used to project the population build-out was to look at the area of undeveloped land within each separate zone within the proposed City annexation boundary. Midway City's General Plan (May 2023) looked at the current zoning within the proposed future annexation boundary. From aerial mapping, the total undeveloped land within the future annexation boundary was established. An estimate of the percent of roadways, parks, and open space was established. It is projected that the total amount of housing units at build-out will be 4,652. From the 2015-2019 ACS five-year census estimate, it was determined that there is an average of 2.83 people per household. Multiplying the number of build-out housing units by the average household size 2.83 predicts a build-out population of approximately 13,165 people. This build-out population is a combination of full-time and secondary residents.

The 2015-2095 ACS five-year census estimate stated that approximately 75-percent of the total housing units within Midway City were occupied full-time. 75-percent of the 4,652 total build-out housing units reduce the full-time occupied housing units to 3,489. Multiplying the number of full-time households by the average household size predicts a full-time resident build-out

population of 9,874 people. The MAG projections, as shown in Figure 1-1, shows the build-out population will be reached by the year 2050.

Table 1-1: Population and Housing Unit Projections for Midway City through 10-Year Planning Period

Population Projection			
Year	Full-Time Population	Full-Time & Secondary Population	Total Housing Units
2024	6,064	7,580	2,678
2025	6,289	7,862	2,778
2026	6,522	8,152	2,881
2027	6,761	8,452	2,987
2028	7,009	8,761	3,096
2029	7,264	9,080	3,208
2030	7,532	9,415	3,327
2031	7,651	9,564	3,380
2032	7,774	9,718	3,434
2033	7,900	9,875	3,489
2034	8,027	10,033	3,545
2035	8,155	10,194	3,602
2036	8,286	10,358	3,660
2050	10,532	13,165	4,652

The 10-year planning period of 2035 statistics shown in Table 1-1 will be the basis of analysis for the city's impact fees and required upgrades to the transportation, culinary water, trail, and park systems within the city.

Chapter 2

Transportation System

2.1 Summary and Recommendations

Introduction

Midway City's streets comprise of five typical roadway functional classifications: historic local, local street, local collector, minor collector, and collector. Each roadway has a specific cross-section and right-of-way. The street system master plan designates each future street as one of the five types listed above. Developers are required to provide local streets unless the developer's specific traffic study requires a larger functional classification to accommodate the traffic which is generated by the proposed development.

Although residents of the county and outside the county also impact Midway City's Street system, the purposes of this study are only to address the ten-year development and improvements that will occur within the city and development that will occur within the proposed annexation boundary.

The Transportation Impact Fee is:

Transportation Impact Fee = $2,810.00/ERU

Projected Population

Midway City's full-time and secondary population is expected to increase to 10,194 people by the end of the 10-year design period in the year 2035. An increase of 824 housing units is expected to occur during this period. When build-out occurs in the year 2050, the full-time and secondary population is expected to be 13,165 people and the total housing units is expected to be 4,652.

See Chapter 1 for more details.

Street System Master Plan

Figure 2-1 shows the street system master planned roads. The existing and future streets shown in the Capital Facilities Master Plan reflect the major network of streets, transportation needs, and improvements of the fully developed city under the present existing city limit and proposed annexation boundary. Future streets are those that should be constructed to meet the needs of the projected population. Generally future local streets are not shown within the master plan except for those which are critical to the transportation model.

Development Standards

Midway City's streets comprise of five typical roadway functional classifications: historic local, local street, local collector, minor collector, and collector. Each roadway has a specific cross-section and right-of-way requirement. A description of the pavement widths and right-of-way for the respective streets is shown in Table 2-1 and on Figure 2-1. The street system master plan designates each existing and future street as one of the five classifications listed above. Developers are required to construct local streets, unless the street master plan recommends a larger street be constructed. If a higher street classification is constructed as indicated in the master plan, the developer is credited for the upgraded street construction costs.

Table 2-1: Street Classification

Street Classification	Pavement Width (Feet)	Right-of-Way Width (Feet)
Collector	48	76
Minor Collector	44	70
Local Collector	34	60
Local Street	26	56
Historic Local	Varies 20 to 24	Existing, as Determined by City Council

Driveway and Access Management

Access management is the regulation and design of driveway access. The goal is to reduce accidents while increasing the roadway capacity. Several key components of good access management include corner sight distance and clearances, street and driveway spacing, corridor signal spacing, and roadway median control. The design recommendations listed in Table 2-2 should be observed.

Table 2-2: Access Management Guidelines

Street Classification	Street Spacing (Feet)	Driveway Spacing (Feet)
Collector	300	Note 1
Minor Collector	250	200
Local Collector	200	150
Local Street	150	100
Historic Local	150	80
Note 1: New driveways are not allowed on collector streets unless approved by City Council.		

Upkeep and Maintenance

It is recommended that all streets receive proper maintenance. The life of a street can be increased by installing the proper crack seal, slurry seal, or chip seal approximately every five years or as needed. By applying a two-inch asphalt overlay every 10 to 15 years, the design life of the street

can also be extended. Depending upon the change in loading conditions, such as an increase in large truck or heavy equipment traffic, part or all the sub-base material may need to be replaced every 20 to 25 years. Based on the existing condition of the roadway, and/or the problems found, a decision should be made as to what types of specific improvements are needed.

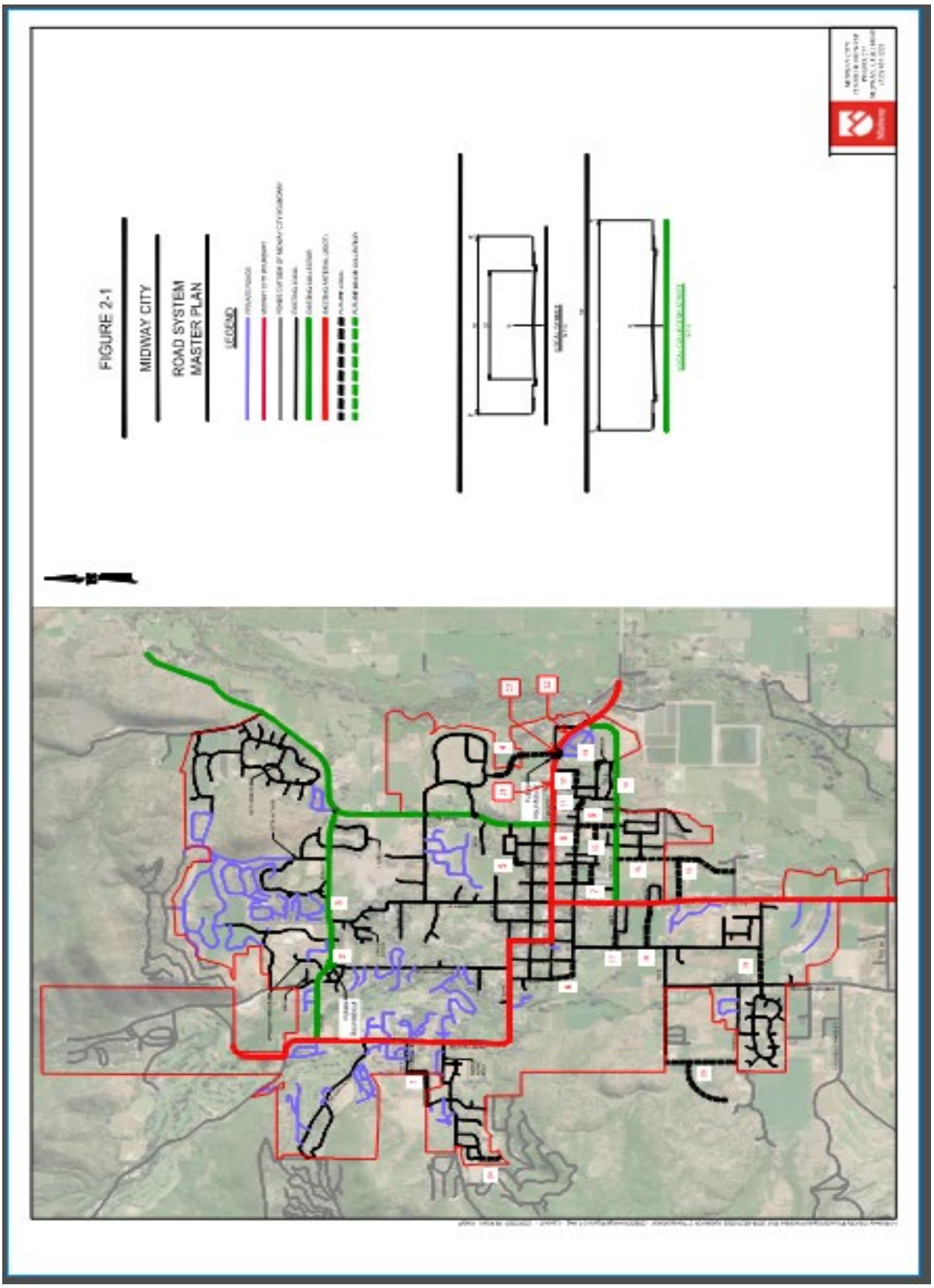


FIGURE 2-1
MIDWAY CITY
ROAD SYSTEM
MASTER PLAN
LEGEND

The original design and construction of the street will also be a major factor in the life of the street.

Street systems offer a wide range of choices in terms of traffic volumes provided. The characteristics of streets are often evaluated in terms of following: volume of traffic, travel time, travel frequency, comfort, reliability, convenience, and safety. The term level-of-service is used to describe the relative value of these attributes.

State standards require all streets to maintain a level-of-service "C". At level-of-service "C", stable operation is provided but flows approach the range at which an increase in volume immediately results in traffic delays and a deterioration of service.

Recommended Street System Improvements

Capital improvements recommended to meet the needs of the projected build-out population are shown in Figure 2-1. A detailed listing of the recommended improvements is given in the following paragraphs.

Street Improvements

1 - **Bigler Lane to Olympic Way**: A new two lane local road should be constructed to accommodate two points of ingress and egress out of Lime Canyon.
2 - **Pine Canyon Road / Burgi Lane Roud-a-bou**t: To accommodate the increased traffic and maintain the current level of service at the Burgi Lane Pine Canyon intersection a roundabout should be constructed.
3 - **Burgi Lane Traffic Calming**: To increase the safety of the existing pedestrian traffic, and accommodate the increased traffic flow, calming devices should be installed.
4 - **Whitaker Farm Way to Main Street**: To accommodate the new growth in the area a two lane roadway should be constructed. Impact fees will fund 25-percent of the roadway costs.
5 - **200 East, 150 North to 180 North:** To accommodate the new growth in the area a two lane roadway should be constructed. This will be funded through impact fees.
6 - **400 West Main to 100 South:** To accommodate the new growth in the area a two lane local roadway should be constructed. Impact fees will fund 50-percent of the roadway costs.
7 - **185 South, 100 East to 200 East:** To accommodate at the elementary school and new growth in the area, this road should be widened with curb & gutter and sidewalks installed. This road will not be funded with impact fees.
8 - **100 South, 275 East to 400 East**: This road will be installed and paid for by developers.
9 - **400 East, 110 South to Michie**: This road will be installed and paid for by developers.

10 - **200 South, 325 East to 400 East;** This road will be installed and paid for by developers.
11 - **100 South, Fox Den Road to 550 East;** This road will be installed and paid for by developers.
12 - **100 South, 600 East to 700 East;** This road will be installed and paid for by developers.
13 - **200 South, 700 East to 740 East;** This road will be installed and paid for by developers.
14 - **Michie Lane, 500 East to 750 East;** This road will be installed and paid for by developers.
15 - **222 East, Michie to 550 South;** This road will be installed and paid for by developers.
16 - **225 East, to 850 South and Center Street;** This road will be installed and paid for by developers.
17 - **300 South, 175 West to 250 West;** This new road will be installed and funded using 50-percent CIP funds and 50 percent using impact fees funds.
18 - **450 South, Center Street to 250 West;** This new road will be installed and funded using 50-percent CIP funds and 50 percent using impact fees funds.
19 - **970 South, 250 West to Stringtown Road;** This roadway should be constructed and funded using impact fees.
20 - **500 South to Wards Lane:** This roadway will be installed and paid for as the property is annexed into Midway City.
21 - **Main Street improvements.** Main Street should be continued from 500 East to 700 East as UDOT funds are available. Because this section of road is a state highway, 20 percent of the impact fee funds for this section have been allotted for Midway City upgrades.
22 - **Main Street improvements.** Main Street should be continued from 700 East to Michie Lane as UDOT funds are available. Because this section of road is a state highway, 10-percent of the impact fee funds have been allotted for Midway City upgrades.
23 - **Main Street and 800 E, Roundabout.** To accommodate several roads entering the intersection at different angles, a roundabout should be constructed. Because this section of road is a state highway, 40 percent of the impact fee funds for this section have been allotted to account for Midway City upgrades.

2.2 Future Conditions

Introduction

Future conditions in Midway City will affect the street conditions and the improvements needed to meet the increased population. Some of the assumptions used to determine the future conditions are:

- Present growth rates
- Future growth rates
- Economic stimuli
- Environmental and recreational development
- Residential development

As the factors and conditions change, the projected future conditions made in this study could be affected. In this chapter the 10-year projected population is used to determine where the new streets should be constructed and what roadway classification the street should be constructed to based on the potential for development within each portion of the City.

Street Impact Fees Administration

An impact fee is a one-time fee with the purpose of raising revenue for new or expanded public facilities which have deteriorated due to new development, or as required by the new development. Impact fees cannot be used to correct existing roadway sub-grade deficiencies or for routine maintenance activities. The premise behind impact fees is based on the critical assumption that if no new development were to occur, the existing street system would adequately serve the existing needs of the city. Therefore, the recommended roadway improvements outlined in the street system master plan are used in the development of the impact fees. These improvements are growth related and are needed to accommodate the 10-year projected growth within the city to maintain a minimum level-of-service ("C").

Trip Generation Rates

The Midway City Planning Area Map was converted to potential vehicle trips through applying specific trip generation rates required for each land use category as established in the Institute of Transportation Engineers (ITE) Trip Generation Manual 11th Edition. Trip generation rates established for each of the land uses were derived by selecting the most appropriate type and amount of development as determined from the City's Zoning Map. Selected trip generation rates for residential land uses are summarized in Table 2-3.

Table 2-3: Trip Generation Rates

Dwelling Unit Type	ITE Average Trips/Unit
Residential (Single Family Detached Housing 210)	9.55

Because of the wide range of different types of commercial and light industrial development that occurs in Midway, these impact fees are determined on an individual basis. The impact is based on the number of new trips generated by the individual business.

Impact Fees

The calculation for street impact fees consists of dividing the total cost of the recommended improvements during the 10-year planning period by the total number of projected trips, based on future zoning and the 10-year population increases. The improvements and associated costs for the planning period are shown in Table 2-4.

Impact Fee Fund

Street improvements must be made to provide safety and access to property as future growth occurs. Revenue must be generated to fund the needed street improvements. This Capital Facility Transportation Master Plan recommends that Midway City adopt $2,318 as the new street impact fee of $295 per trip generated. This fee equals $2,818 per ERU. The revenue collected will generate the funds required to update the necessary improvements caused by growth and to maintain a minimum level-of-service "C".

To keep abreast of increasing inflation and construction costs, the transportation impact fees should be analyzed periodically to make sure funding is available for improvements and capital expenditures.

Table 2-4: 10 - Year Recommended Street Improvements

Project #	Location	Improvement	Classification	Unit	Length	Unit Cost Per Mile	Project Cost	CIP / Operating		Developer		Impact Fee	
								Percent	Cost	Percent	Cost	Percent	Cost
1	Bigler Lane to Olympic Way	New Construction	Local	Mile	0.29	$1,030,000	$298,700	0%	$0	0%	$0	100%	$298,700
2	Pine Canyon Rd. / Burgi Lane	Roundabout	Capacity Increase	Each	1.00	$1,800,000	$1,500,000	80%	$1,200,000	0%	$0	20%	$300,000
3	Burgi Lane Traffic Calming	Traffic Calming	Capacity Increase	Each	2.00	$30,000	$60,000	75%	$45,000	0%	$0	25%	$15,000
4	Whitaker Farm Way, Main Street	New Construction	Local	Mile	0.31	$1,030,000	$319,300	0%	$0	80%	$255,440	20%	$63,860
5	200 East, 150 N to 180 N (Ind Summer)	New Construction	Local	Mile	0.06	$1,030,000	$61,800	0%	$0	0%	$0	100%	$61,800
6	400 West Main to 100 S	New Construction	Local	Mile	0.21	$1,030,000	$216,300	0%	$0	60%	$129,780	40%	$86,520
7	185 S, 100 E to 200 E	Reconstruction	Local	Mile	0.09	$590,000	$53,100	100%	$53,100	0%	$0	0%	$0
8	100 South, 275 E to 400 E	New Construction	Local	Mile	0.15	$1,030,000	$154,500	0%	$0	100%	$154,500	0%	$0
9	400 East, 110 S to Michie	New Construction	Local	Mile	0.20	$1,030,000	$206,000	0%	$0	100%	$206,000	0%	$0
10	200 South, 325 E - 400 E	New Construction	Local	Mile	0.07	$1,030,000	$72,100	0%	$0	100%	$72,100	0%	$0
11	100 South, Fox Den Rd to 550 E	New Construction	Local	Mile	0.06	$1,030,000	$61,800	0%	$0	100%	$61,800	0%	$0
12	100 South, 600 E to 700 E	New Construction	Local	Mile	0.06	$1,030,000	$61,800	0%	$0	100%	$61,800	0%	$0
13	200 South, 700 E to 740 E (edelwise)	New Construction	Local	Mile	0.05	$1,030,000	$51,500	0%	$0	100%	$51,500	0%	$0
14	Michie Ln, 500 E to 750 E	Widen	Historic Local to Minor Collecto	Mile	0.31	$890,000	$275,900	0%	$0	100%	$275,900	0%	$0
15	225 East, Michie to 550 S	New Construction	Local	Mile	0.25	$1,030,000	$257,500	25%	$64,375	75%	$193,125	0%	$0
16	225 East, to 850 S & Center St	New Construction	Local, will be annexet	Mile	0.60	$1,030,000	$0	0%	$0	0%	$0	0%	$0
17	300 South, 175 W to 250 W	New Construction	Local	Mile	0.07	$1,030,000	$72,100	0%	$0	50%	$36,050	50%	$36,050
18	450 South, Center St to 250 W	New Construction	Local	Mile	0.25	$1,030,000	$257,500	0%	$0	100%	$257,500	0%	$0
19	970 S, 250 W to Stringtown	New Construction	Local	Mile	0.25	$1,030,000	$257,500	0%	$0	0%	$0	100%	$257,500
20	500 South to Wards Lane	New Construction	Local, will be annexet	Mile	0.62	$1,030,000	$638,600	0%	$0	0%	$0	0%	$0
21	*Main Street Imp, 500 E to 700 E	Widen	UDOT Main Street	Mile	0.27	$1,100,000	$297,000	0%	$0	0%	$0	20%	$59,400
22	*Main Street Imp, 700 E to Michie Ln.	Widen	UDOT Main Street	Mile	0.36	$1,100,000	$396,000	0%	$0	0%	$0	10%	$39,600
23	Main Street / 800 East	Roundabout		Each	1.00	$2,750,000	$2,750,000	60%	$1,650,000	0%	$0	40%	$1,100,000
24	1400 W, 310 N to End	Widen	Historic Local to Local	Mile	0.11	$220,000	$24,200	100%	$24,200	0%	$0	0%	$0
	Updating Capital Facilities Plan	Plan Update		Each	3.00	$45	$135	0%	$0	0%	$0	100%	$135
	TOTAL						**$8,343,335**		**$3,036,675**		**$1,755,495**		**$2,318,565**

Number ERU's	824
ITE Avg Trips/Unit (See Notes 1 & 2)	9.55
Trips per day	7,869
Total Midway Impact Fee Project Costs	$2,318,565
Impact Fee Cost/Trip	$295
Calculated Impact Fee Cost / ERU	**$2,814**
10 Year Revenue	$2,318,565

10 Year Period

2025 ERUs (Residential & Commercial) ERU's	2,778
2035 ERUs (Residential & Commercial) ERU's	3,602
New ERUs During Planning Period	824
Total Midway City Impact Fee Project Costs	$2,318,565
Calculated Street Impact Fee per ERU	**$2,813.79**

Table 2-4: 10 - Year Recommended Street Improvements

Project #	Location	Improvement	Classification	Unit	Length	Unit Cost Per Mile	Project Cost	CIP / Operating		Developer		Impact Fee	
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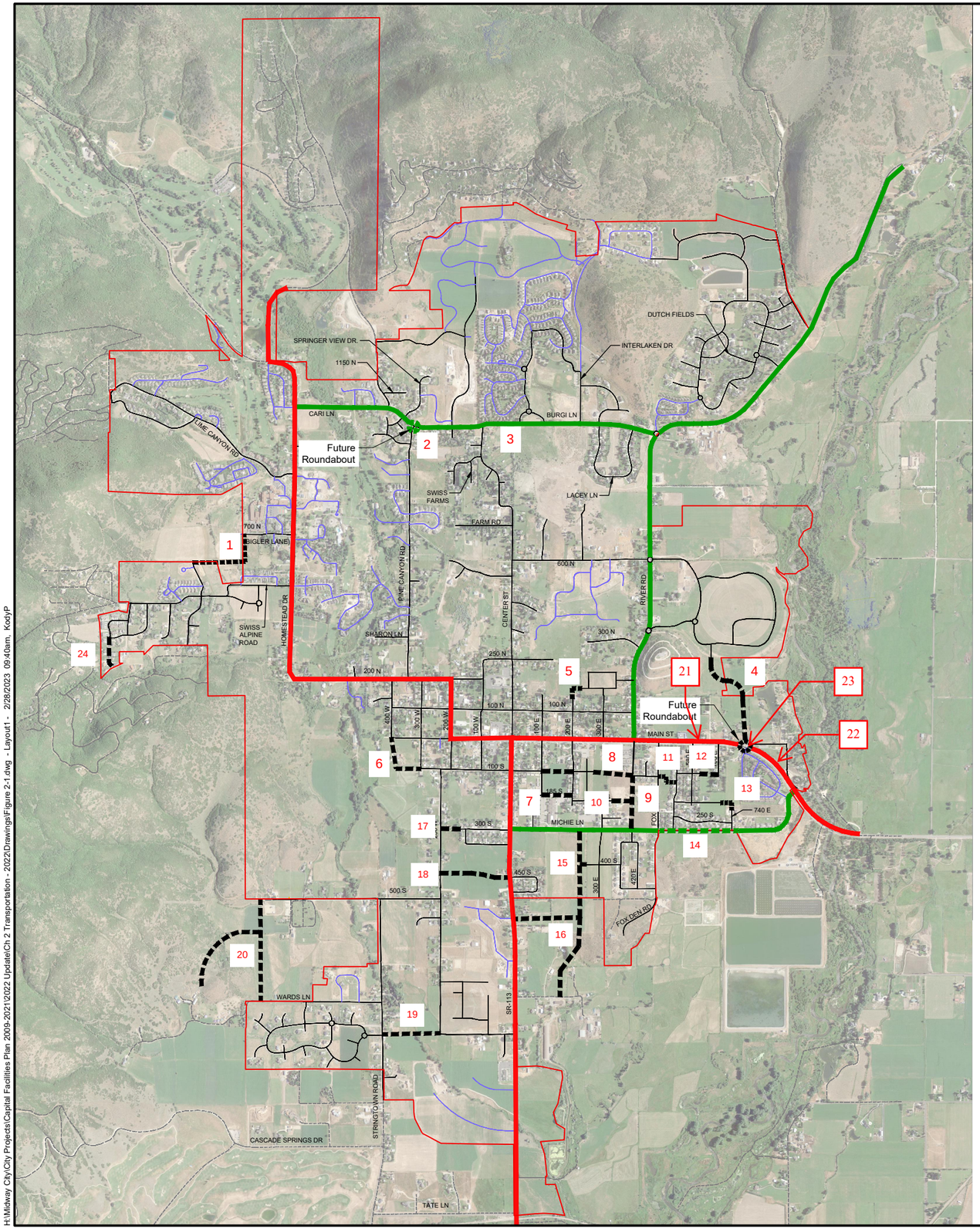


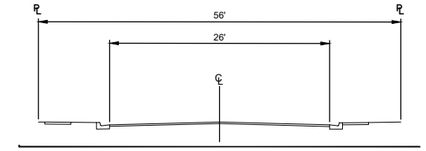
FIGURE 2-1

MIDWAY CITY

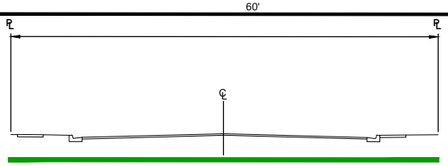
ROAD SYSTEM MASTER PLAN

LEGEND

- PRIVATE ROADS
- MIDWAY CITY BOUNDARY
- ROADS OUTSIDE OF MIDWAY CITY BOUNDARY
- EXISTING LOCAL
- EXISTING COLLECTOR
- EXISTING ARTERIAL (UDOT)
- FUTURE LOCAL
- FUTURE MINOR COLLECTOR



LOCAL STREET
N.T.S.



LOCAL COLLECTOR STREET
N.T.S.

MIDWAY CITY
75 NORTH 100 WEST
PO BOX 277
MIDWAY, UTAH 84049
(435) 654-3223

Chapter 3

Culinary Water System

3.1 Summary & Recommendations

Introduction

This chapter addresses the culinary water system of Midway City. The chapter will identify the criteria used in establishing the level of service that the culinary system provides as well as identify the deficiencies and recommended improvements to meet the projected 10-year planning period demands. Impact fees were analyzed to determine the feasibility of implementing the recommended improvements.

Future conditions in Midway City were analyzed by projecting both the 10-year planning period population and the approximate build-out population, which is anticipated by the year 2050. Rather than try to predict which development will occur during the 10-year planning period, the build-out conditions have been addressed. However, the impact fee calculation is based on the predicted 10-year improvements. It is important to know when new culinary sources and storage will be required so it can be planned for accordingly. From the population projections, the number of future equivalent residential units (ERUs) was calculated. Based upon the projected average yearly, peak daily, and peak instantaneous demands, the culinary flows were projected through the planning period. These flows were used to determine the required capacities of the culinary water source, storage, and distribution system. Recommendations are made to provide the needed capacity for the projected population in the three categories.

Upon evaluation to update the culinary water system impact fee, it was calculated that the fee should be. This will meet the culinary need of the City

Culinary Water Impact Fee = $2,353.00/ERU

The criteria used in this study are summarized below:

- Average Yearly Indoor Demand (400 gpd/ERU)
- Peak Day Indoor Demand (Average Yearly Demand x 2.0, 800 gpd/ERU)
- Outdoor demand (2.8 gpm/acre outdoor)
- Storage (400 gpd indoor, 1,873 gal/acre outdoor)
- Storage – Fire: 1,500 gpm for 2 hr; or 180,000 gallons
- Minimum static pressure of 50 psi
- Maximum static pressure of 120 psi

- Peak day demand pressure of 40 psi
- Peak day demand with fire flow pressure of 20 psi.
- Pipe Sizes: Minimum 8-inch
- Velocity: Design velocity - 5 fps, Peak Flow velocity 10 fps.

Projected Population
Midway City's full time and secondary population is expected to increase to approximately 13,165 people by the build-out year 2050. At the end of the 10-year planning period, 2035, the full time and secondary population is expected to increase to 10,194 people. See Chapter 1 for more details.

Projected Culinary Water Use
Using 3,602 equivalent residential units in the year 2035, it is calculated that 2,067 gallons per minute (gpm) will be required to meet the peak day demand. It is also projected that an average yearly demand of 1,667 acre-feet (ac/ft) will be used for indoor and outdoor water usage.

Recommended Culinary Water System Improvements
Capital improvements recommended to meet the projected population demands are shown in Figure 3-2. These recommendations were determined using a computer model of Midway City's culinary water system, projected culinary water flows, and input from City officials.

Source Protection
Midway City has submitted the Drinking Water Source Protection plans for each of its sources as defined in section R309-113-3(2) of the Utah Administrative Code. Midway City also submits an Annual Water Quality Report.

Water Rights
A water right assessment was performed by Loughlin Water in December 2016. The assessment shows the City owns fee title rights of approximately 1,743 ac-ft of depletion and 1,812 ac-ft of diversion and also changed 300 MIC shares for municipal use permitting 621 ac-ft for depletion and 900 ac-ft for diversion. The actual number of shares is on-going based on the number of developments and the last change applications performed by Midway City.

All the water within the Midway area has been judicated. Therefore, additional water rights cannot be obtained for new wells unless it is obtained from agriculture or through land development and converted to a culinary use. Because of this, it is recommended that the City continue requiring developed land to provide the required paper and wet water for each new development.

The installation of the pressurized irrigation system reserves potable culinary water for indoor purposes and postpones the burden of finding new potable sources.

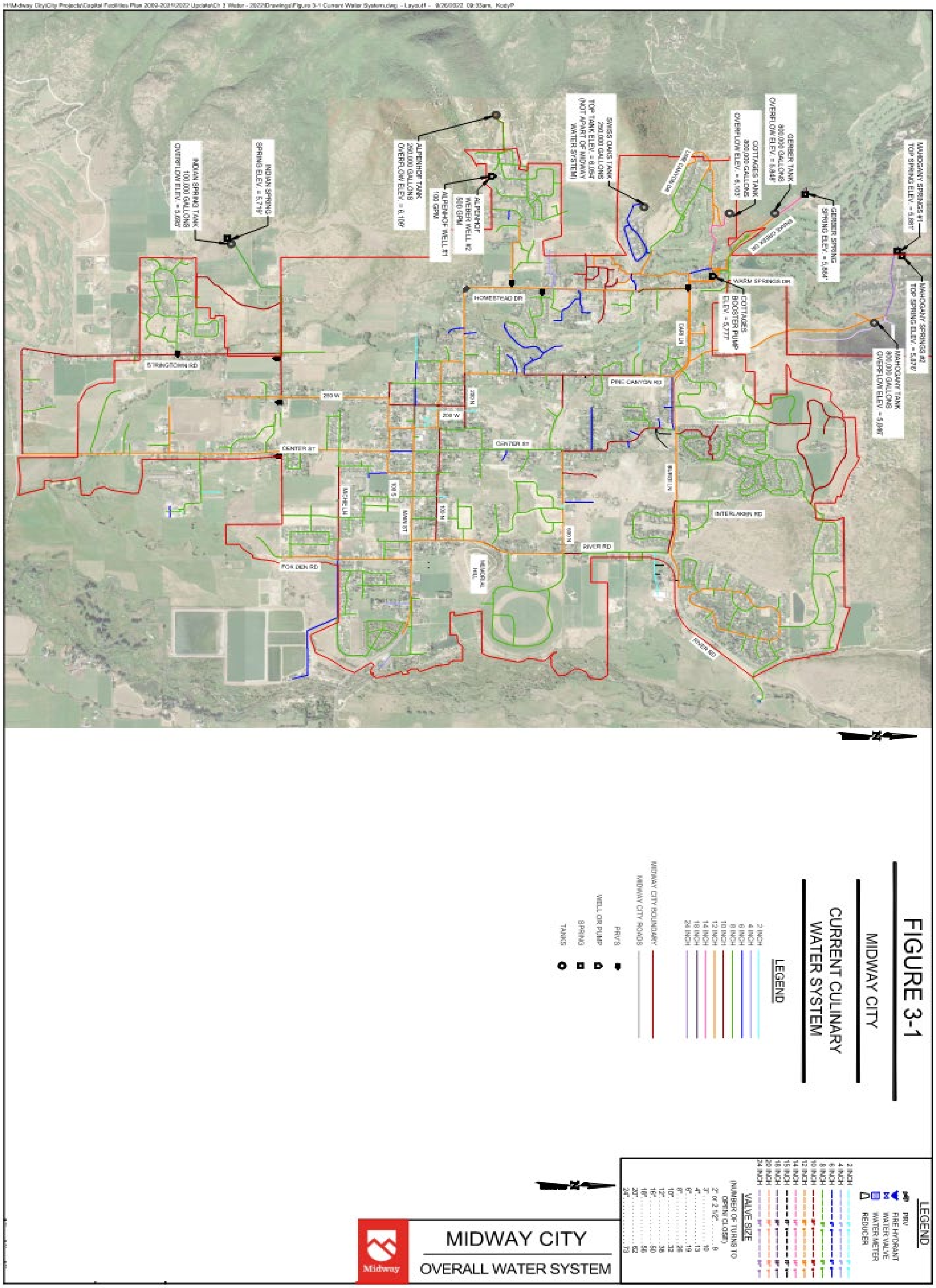


FIGURE 3-1
MIDWAY CITY
CURRENT CULINARY WATER SYSTEM
LEGEND
2 INCH
4 INCH
6 INCH
8 INCH
10 INCH
12 INCH
14 INCH
16 INCH
18 INCH
24 INCH
MIDWAY CITY BOUNDARY
MIDWAY CITY ROADS
PRVS
WELL OR PUMP
SPRING
TANKS
STRINGTOWN RD
CENTER ST
HOMESTEAD DR
WARM SPRINGS DR
PINE CANYON RD
INTERLAKEN RD
RIVER RD
FOX DEN RD
MEMORIAL HILL
MIDWAY CITY
OVERALL WATER SYSTEM

Operation

Midway City has converted its water meters to be read remotely. This conversion has decreased operating costs and enhanced the accuracy and water billing process by allowing monthly water billings to be based on actual flows instead of estimated flows. Meters are currently read during the months of April through September of each year.

3.2 Future Conditions

The culinary water demand can be projected through the planning period using the projected number of ERUs based on population growth, historical culinary demands, and Utah State regulations. Projected capacities of the average yearly, average daily, peak daily and the peak instantaneous flows can also affect the overall performance of a culinary water system.

Midway City's future conditions will affect the amount of water used and the storage capacity required of the present culinary water system. By identifying these conditions, projected flows can be determined so the inadequacies of the existing system can be found.

From the projected population, the increased number of culinary connections is determined along with the increased number of ERU's. Using State design regulations, the future water demands, including the average yearly, average daily, peak daily, and the peak instantaneous demands, are projected through the planning period. The existing system uses the same State design regulations.

The number of future culinary water connections within a city is dependent upon the projected population and their proximity to lines within the culinary water system. It will be assumed that all new growth in Midway will be connected to the culinary water system. Therefore, the projected number of culinary water connections within Midway City is expected to increase at the same rate as the projected population and ERU's.

Indoor and Outdoor Water Use

Culinary water used by city connections can be separated into two categories, indoor and outdoor water use. The amount of water used indoors and outdoors depends on the type of connection. For example, a commercial restaurant may use the same amount of water in the summer as the winter. However, an office building with a large amount of grass or other types of vegetation may use up to three times more water in the summer than in the winter. However a pressurized irrigation system helps to reduce the outdoor water.

Indoor Water Use

The State of Utah Public Drinking Water Rules (R309-510) requires that sources provide sufficient supply to meet Peak Day and Average Yearly indoor water demands. The rules recommend the use of 800 gpd per ERU for Peak Day, and 400 gpd per ERU (146,000 gallons per year) for Average Yearly demands for indoor water use. Storage is required to provide 400 gallons per ERU for indoor water use. Due to leaks within the system and un-metered watering, Midway City's

yearly peak indoor water demand may not be calculated completely accurately. Therefore, the State requirements will be used for this document.

Outdoor Water Use

If culinary water is used for outside irrigation the Department of Drinking Water requires source and storage systems to provide that outdoor water. Water used outdoors should be in addition to the indoor water demands. The combined capacity must be provided by the sources and storage. The procedure for determining the water used outdoors consists of the following:

- Determine the consumptive water use zone in which Midway City resides (Zone 2).
- Determining the amount of land which will be irrigated
- Determine the average peak flows and the required storage using Table 3 and Table 5 found in the State of Utah Public Drinking Water Rules, R309-510

Midway City is in a "low consumptive use and precipitation zone". Therefore, with respect to the rest of the State, the consumptive use of the vegetation and average annual precipitation is low. Using Table 3 and 5 in the Drinking Water Rules, the peak daily demand for sources is 2.8 gpm per irrigated acre of land. The average yearly demand for sources is 1.23 acre-feet per irrigable acre. The average daily demand for storage is 1,873 gallons per irrigable acre of land.

With the installation of a pressurized irrigation system throughout Midway, the demand on the culinary water system was no longer depended upon to provide water for outdoor use. The culinary water system was modeled assuming that a minimal amount of culinary water is used for outdoor watering. This should account for areas that are not feasible to connect to pressurized irrigation and other individuals that don't utilize the pressurized irrigation system.

The irrigable land in Midway City is related to the ERU's by estimating that 80 percent of the ERU lot is irrigated. It is also assumed that there are 3 ERUs per acre of land. Therefore, the State requirements for Midway City's outdoor water use would be a peak daily demand of 0.74 gpm per ERU utilizing culinary water for outdoor use, and an average yearly demand of 105,810 gallons per year per ERU utilizing culinary for outdoor use. Since the majority of new growth within the City will fall under this criteria, all new development will utilize pressurized irrigation.

Equivalent Residential Units (ERU)

The ERUs are found by using the state requirements of the respective types of connections. The usage demands of the different connections are then divided by the average residential usage demand. For example, the average commercial water usage is 0.357 million gallons/year and the residential State requirement usage is 0.146 million gallons/year. Therefore, the average commercial connection is equal to 0.357/0.146 = 2.42 residential connections.

The total number of projected residential, church, government, and commercial culinary water connections and the calculated ERU's are shown in Table 3-1. These Equivalent Residential Connections will be used to calculate the projected culinary water flows.

Table 3-1: Total ERUs through 10-Year Planning Period

Year	Residential ERUs	Commercial ERUs	Total ERUs
2025	2,778	77	2,855
2026	2,881	84	2,965
2027	2,987	89	3,076
2028	3,096	94	3,190
2029	3,208	99	3,307
2030	3,327	104	3,431
2031	3,380	108	3,488
2032	3,434	111	3,545
2033	3,489	113	3,602
2034	3,545	116	3,661
2035	3,602	**118**	**3,720**

Projected Number of Culinary Water Connections

The projected number of new culinary water connections was determined using the growth numbers in Chapter 1. To evaluate the commercial, agricultural, and residential connections on an equal basis, the equivalent residential unit (ERU) was used.

Historical growth trends were used along with the population projections to determine the projected growth of the respective connections. The residential connections are assumed to increase at the same rate as the population growth. However, commercial, and agricultural connections are assumed to increase at a percentage rate equal to the ratio of historical commercial growth.

Agricultural connections are used primarily to water livestock. With the conversion to pressurized irrigation and progressive zoning regulations, the number of livestock watering connections has decreased considerably. Due to the minimal amount of water used, this study will maintain the present agricultural demand throughout the planning period.

Projected Areas of Development

To relate the projected population to the improvements needed to serve them, the areas expected to be developed need to be determined. The areas projected to be developed by the increased population are determined based upon the existing zoning regulations, available land within city limits, and land presently being annexed.

City officials have anticipated where and how future development will occur through the proposed annexation boundary and zoning map. This study uses the proposed annexation boundary and build-out in the year 2050 for the planning area.

Projected Culinary Water Use

Utah State regulations require sources to be capable of meeting peak daily demands and average yearly demands; storage to meet average daily demands; and distribution systems to meet peak instantaneous demands while maintaining minimum pressures. The projected flows were determined by using State regulations and the projected indoor and outdoor ERUs.

A definition of the flows required by the City's culinary water system will be given in the following paragraphs. These flows will be used to determine culinary water improvements needed to meet the projected demands of the population.

Average Daily Demand

The average daily demand is found by dividing the total annual flow by 365 days. Due to leaks and inaccuracies in measuring the total annual flow, the state requirements will be used in calculating the average daily demands.

Peak Daily Demand

Peak daily demand is found by determining the maximum daily flow throughout the year. Meters are read only once per month, so it is impossible to calculate Midway's historical peak daily demand. Therefore, the state indoor required flow of 800 gallons per day (gpd) will be used. This is equivalent to 0.56 gallons per minute (gpm). Outdoor flow will be modeled using 2% of new growth at the state requirement of 2.8 gallons per minute per irrigated acre. These peaking flow rates were used in the determination of required sources for Midway City and when new sources will need to be established.

Peak Instantaneous Demand

Peak instantaneous demand is the maximum flow on any given day. The Department of Drinking Water recommends using Equation (1) to determine the peak instantaneous flows for indoor use within the system.

$$Q=10.8*N^{.64} \qquad \text{Equation (1)}$$

The variable N in the equation is the total number of ERUs in the system and varies with time. The variable Q in the equation is the flow in gpm. Variable Q plus the maximum fire flow is equal to the peak instantaneous flow for indoor use. Peak instantaneous demand for outdoor use is calculated using Table 7 from the Drinking Water Rules and the total number of irrigable acres. The number of irrigable acres is calculated using 2% of Total ERUs watering 80% of 1/3 acre lots. This is equivalent to 1.48 gpm per ERU utilizing culinary water for outdoor use.

Fire Flow

Midway City has adopted the Uniform Fire Code to determine the fire flows required for buildings within the city. The fire code determines the size and duration of flow that will be required. The amount of fire flow required for a building is based on the type of construction, square footage, and distance from other buildings.

For the purpose of this study, fire flows will be calculated using a minimum of 1,500 gpm for 2 hours for residential. This criterion was implemented based on recommendations from the Wasatch County Fire Marshall. In cases where fire flows requirements for buildings exceed this criteria, fire sprinkling will be required.

Summary of Projected Culinary Water Flows

Determining the projected flows includes projecting the indoor and outdoor flows along with the fire flow and the inherent system losses. Required indoor water use was calculated using an average yearly demand of 0.45 ac-ft/ERU for sources, a peak day demand of 800 gpd/ERUs for sources, and a storage requirement of 400 gallons/ERU. Required outdoor water sources and storage capacity was calculated by taking 2% of the total ERUs and using 0.74 gpm/Outdoor ERU for peak day demand, 0.32 ac-ft/yr per Outdoor ERU for the average yearly demand, and 800 gallons/ERU plus 180,000 fire flow for the storage requirement. By combining the required indoor, outdoor, and fire demands, the source and storage requirements were calculated as seen in Table 3-2. The end of the planning period is in bold.

Table 3-2: Culinary Water Demands

Year	Number of ERUs	Average Yearly Source Demand (ac-ft)	Peak Day Source Demand (gpm)	Storage Volume Required (MG)
2025	2,778	1,279	1,605	1.33
2030	3,327	1,537	1,917	1.56
2035	3,602	1,667	2,070	1.67
2040	3,901	1,806	2,243	1.79
2050	4,266	1,975	2,453	1.95

3.3 Culinary Water System Analysis

Midway City's present culinary water system's capacity is determined by analyzing the source, storage, and distribution systems. Improvements are then recommended to increase the capacity to meet the projected population's demands. The present system will be discussed, design parameters introduced, and recommendations for needed improvements will be made.

SOURCE

Midway City's culinary water system is presently served by three springs and two wells. The source capacity will be determined based upon the amount of water the City has available through water rights, amount of water physically provided, and the peak daily and average yearly flow requirements. Improvements needed by Midway City's sources will then be determined along with a discussion of the Division of Drinking Water's Drinking Water Source Protection Rule.

Water Rights

Water used by Midway City is obtained from springs and wells that have municipal water rights. The City owns both culinary and irrigation water rights. Some of the irrigation water rights are from land that was annexed into the City. In this portion of the chapter, both the municipal and irrigation water rights will be discussed.

Water rights state the legal amount of water the City owns and has access to. State regulations require that the City's water sources be legally and physically capable of meeting peak daily flows and average yearly flows. Midway City has both culinary water rights and shares in irrigation companies. These rights are summarized in Loughlin Water Report in 2016.

Irrigation Shares

Midway City currently requires new development to turn in irrigation shares or some other equivalent water right sufficient to provide for that development. Midway City should continue to require these water rights and appropriate these rights to the City.

State Source Requirements and Regulations

Regulations are placed on the city’s culinary water sources by the State of Utah Department of Health. These regulations attempt to require sufficient water to meet the needs of cities and protect the sources themselves from environment and development.

Source Capacity

Culinary water source capabilities are required to meet the cities peak daily and average yearly flows as shown in Table 3-2 Section 3.2 of this chapter. The State requires sources to be able to provide 800 gpd per ERU for indoor use and 146,000 gallons per year (0.45 acre foot) for indoor use for each ERU. For outdoor water use an additional 1,064 gpd per Outdoor ERU for peak daily flows and 0.32 ac-ft. per Outdoor ERU for average yearly flow are required. As previously mentioned, only 5% of ERUs will utilize the system for outdoor demand, the remainder will utilize the pressurized irrigation system for their outdoor needs.

The amount of source that Midway City culinary water system is physically capable of producing is shown in Table 3-3. Note that Indian Springs is currently inactive.

Culinary Water Source Improvement Recommendations

Although the City has sufficient water rights to meet peak day demands, the existing springs and wells will not be capable of providing the needed peak day demand. Since the peak flow may occur any time during the day, storage can help meet the demand during the peak times, and our sources can replenish the storage tanks at night. It is estimated by 2042 additional source capacity

Table 3-3: Midway City Culinary Water Sources

Description	Approximate Capacity (gpm)
Mahogany Spring #1 & #2	750
Gerber Spring	1,000
Alpenhof Well	100
Alpenhof Weber Well	500
Indian Springs	0
TOTAL	**2,350**

will be required. However, it is anticipated that as the agricultural land converts to homes, our current source of Gerber and Mahogany spring flow will increase, delaying the need for additional. Capacity.

Table 3-4: Culinary Water Flows

Year	Peak Day Demand (gpm)	Available Flow (gpm)	Reserve Flow (gpm)
2025	1,605	2,350	745
2026	1,658	2,350	692
2027	1,720	2,350	630
2028	1,783	2,350	567
2029	1,848	2,350	502
2030	1,917	2,350	433
2031	1,949	2,350	401
2032	1,973	**2,350**	**377**
2033	2,005	**2,350**	**345**
2034	2,037	**2,350**	**313**
2035	2,070	**2,350**	**280**
2050	2,674	2,350	(324)

The peak source demand can be reduced by implementing several items. First, the City could investigate for leaks within the system. This would make the system more efficient and place fewer

burdens on the sources. Secondly, an educational program could be started to inform the citizens to be more aware of the indoor culinary usage. Reducing our indoor usage will postpone our need to increase our culinary sources. Again, as the agricultural land develops our share of the Mahogany or Gerber Springs source should increase helping to protect our peak demand.

STORAGE

Midway City presently has five storage reservoirs in the culinary water system. Midway City is required by the State of Utah to provide sufficient storage for average daily flows. In addition, reservoirs provide capacity for fire flows and operating reserve.

Available Storage

The Gerber and Mahogany tanks are the backbone of Midway's culinary water system with a capacity of 800,000 gallons each. The Cottages on the Green Tank also has an 800,000 gallons capacity. The Alpenhof Tank feed the upper zone with 250,000 gallons. The Indian Springs Tank is a 100,000 gallons tank that supplements the Lower Zone but is currently inactive.

Table 3-5: Midway Storage Tanks

Description	Storage Capacity (MG)
Gerber Tank	0.80
Mahogany Tank	0.80
Cottages on the Green Tank	0.80
Alpenhof Tank	0.25
Indian Spring Tank (Currently Not in Use)	0.00
TOTAL STORAGE	**2.65**

Capacity Requirements

The State of Utah Department of Drinking Water requires cities to provide 400 gallons per ERU per day for indoor water use. Since Midway City is in a low consumptive use and precipitation zone, approximately 494 gallons of storage per Outdoor ERU is required for outdoor use. In addition to outdoor and indoor water demands, it is recommended that the City provide storage for the maximum city fire flow. It will be assumed that 95% of the ERUs will require 400 gallons due to the installation of the pressurized irrigation system and 5% of the ERUs will require 894 gallons since outdoor watering will be provided through the culinary system.

Recommendations

Table 3-6 shows the summary of the storage capacities needed for Midway City through the proposed build-out year of 2050. The total storage includes indoor and outdoor water use and the required fire flow. Midway City has adequate storage throughout the 10-year planning period and the buildout in 2050.

Table 3-6: Summary of Required Storage Capacity

Year	Required ERU Storage (MG)	Available Storage (MG)	Reserve Storage (MG)
2025	1.52	2.65	1.13
2030	1.75	2.65	0.90
2035	1.86	2.65	0.79
2040	1.98	2.65	0.67
2045	2.13	2.65	0.52
2050	2.29	2.65	0.36

DISTRIBUTION SYSTEM

Midway City's water system was analyzed using peak instantaneous demand, peak day demand, and peak day demand with a fire demand in a water distribution computer modeling program called Bentley WaterGEMS. The capacity of the existing distribution system will be discussed in this section. Improvements will then be recommended to meet the projected water demands and areas of development.

Distribution Requirements and Regulations

The distribution system needs to be able to maintain specified minimum pressures given three specific demands. First, it must maintain a minimum pressure of 20 psi at all connections while experiencing a fire demand during peak day demand. Second, it must maintain a minimum pressure of 30 psi at all connection during peak instantaneous demand. Third, it must maintain a minimum pressure of 40 psi at all connections during peak day demand.

Distribution System Recommendations

The current system was modeled using the three different demand scenarios. Additionally, the build-out system was modeled using the build-out demand scenarios. Different distribution system scenarios were also modeled to determine the most efficient system. Figure 3-1 shows the existing distribution system.

Midway City has a telemetry system water system. The telemetry system provides more accurate and frequent data of the water system. Without a telemetry system, a city employee would be required to physically inspect each tank and well daily. The telemetry system allows the operator to monitor the system from a computer. The computer is programmed to automatically call the system operator in the event of a problem. However, the critical items such as pumps and tanks should be inspected at least weekly. All future improvements should be tied into Midway City's telemetry system, and the system should be upgraded on a regular basis as technology evolves.

Computer Model of the Culinary Water System

A computer program called Bentley WaterGEMS was used to model Midway City's water system. The program requires that all pipes, elevations at junctions, wells, tanks, booster pumps, and

pressure reducing valves be entered into the model as they are constructed. System demands are then entered in. The program calculates both static and dynamic pressure throughout the system based on the given elevations. Available fire flows can also be determined. The program determines the available fire flows at various locations based on the user-defined parameters, such as required flow and residual pressure.

After the model is run and problem areas are defined, improvements can be modeled to bring the system up to the minimum level of service (LOS). Determining which improvements in the system will bring the system up to the minimum LOS in the most economical manner is a trial-and-error process. The cost of these system improvements are shown as Capital Improvement Projects (CIP).

The following scenarios were modeled for Midway City's culinary water system:

- **Present conditions**
- **10-year planning period conditions**
- **Build-out conditions**

The existing water system was modeled and the areas that did not meet the minimum LOS were identified. Improvements were determined that would allow minimum fire flows and pressures to be provided throughout the existing system. These improvements are recommended in this section and shown as CIP projects.

Based on the current and anticipated conditions, the projected number of ERUs in undeveloped areas was determined. Twenty percent of the area was assumed to be used in the development of roadways, sidewalks, etc. The additional demand projected for undeveloped areas was added to the present demand. From this information, the future improvements were identified to provide fire flows and pressures.

The following is a description of each scenario that was computer modeled.
Scenario 1: The existing water system was modeled under present conditions. This model was used to determine the recommended improvements for the existing system which did not meet the minimum LOS.

Scenario 2: Recommended improvements were added to provide for future demand. Future storage and source and pumping requirements were also identified to provide water for future demand.

Summary of the Recommended Improvements
The entire culinary water system was modeled for both present and projected populations for instantaneous conditions and a 24-hour extended period simulation. Midway City's existing distribution system is presently adequate for the three different demand scenarios.

Recommended improvements and estimated costs are shown in Figure 3-2 and in Table 3-9. The total estimated cost for the recommended improvements during the 10-year planning period is shown in Table 3-9. These estimated costs and dates will assist in determining the needed connection fees and water rates.

3.4 ECONOMIC FEASIBILITY ANALYSIS

The capital improvements required to bring the existing system up to the minimum LOS are referred to as operating costs or expenses. Other items included in operating expenses are personnel and contractual services, materials, supplies, depreciation, and other miscellaneous expenses. These improvements cannot be funded through impact fees but could be funded through general funds, revenue from water sales, and bonds.

Improvements that are required for future development are called non-operating expenses. These improvements should be funded through impact fees and bonds. Independently, sufficient revenue should be generated to fund the respective operating and non-operating expenses.

In this section, the two types of expenses are discussed individually. Projected revenue and expenditures have been analyzed to determine if the present rates and fees are sufficient to fund the recommended improvements and other expenditures.

The impact fee will be calculated to provide revenue for future improvements.

Impact Fee Fund

The Impact Fee Fund or capital project fund is used to fund improvements needed to meet the increased demands due to the growth. Revenue is currently generated from the "impact fee" charged to new developments. This revenue is used for capital improvement projects and debt service.

The impact fee can be used to fund capital improvements including construction costs, land acquisition, material costs, planning, surveying, and engineering fees provided for and related directly to the construction of the system improvements, and debt service charges to the principal and interest on bonds, notes or other obligations issued to pay the cost of the system improvements. This revenue can also be used to fund periodic master plan reviews and master plan updates.

The money generated from the current impact fees and the projected numbers of connections should generate sufficient revenue to fund the recommended capital improvements.

To keep abreast of inflation and increasing construction costs, the water rates and impact fees should be reviewed periodically to ensure that the required funding will be available.

In addition to the impact fees, a hook-up fee may also be charged for the average cost of services provided for and directly attributable to utility services. Specific city service would include meter installation and inspection of developer's connection to the system.

Table 3-7: Impact Fees Cost per Meter Size

Meter Size (inches)	Flow Capacity (gpm)	ERUs	Impact Fee
0.75	30	1	$2,350
1	50	1.67	$3,917
1.5	100	3.33	$7,833
2	160	5.33	$12,533
3	350	11.67	$27,417
4	1,000	33.33	$78,333

This table will be updated as the impact fee is adopted

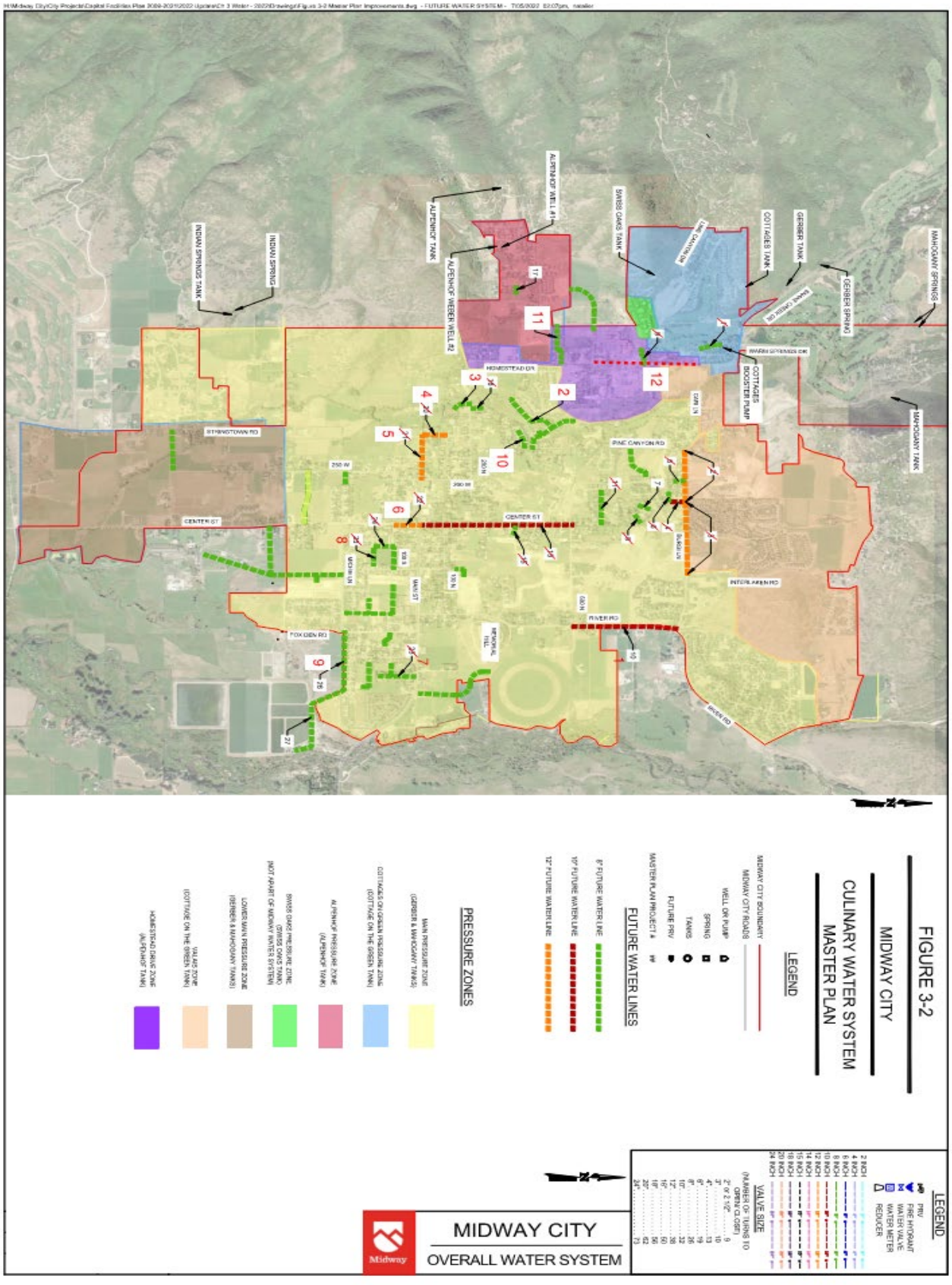


FIGURE 3-2
MIDWAY CITY
CULINARY WATER SYSTEM
MASTER PLAN
LEGEND
MIDWAY CITY BOUNDARY
MIDWAY CITY ROADS
WELL OR PUMP
SPRING
TANKS
FUTURE PRV
MASTER PLAN PROJECT # ##
FUTURE WATER LINES
8" FUTURE WATER LINE
10" FUTURE WATER LINE
12" FUTURE WATER LINE
PRESSURE ZONES
MAIN PRESSURE ZONE (GERBER & MAHOGANY TANKS)
COTTAGES ON GREEN PRESSURE ZONE (COTTAGE ON THE GREEN TANK)
ALPENHOF PRESSURE ZONE (ALPENHOF TANK)
SWISS OAKS PRESSURE ZONE (SWISS OAKS TANK) (NOT APART OF MIDWAY WATER SYSTEM)
LOWER MAIN PRESSURE ZONE (GERBER & MAHOGANY TANKS)
VILLAGE ZONE (COTTAGE ON THE GREEN TANK)
HOMESTEAD DRIVE ZONE (ALPENHOF TANK)
LEGEND
PRV
FIRE HYDRANT
WATER VALVE
WATER METER
REDUCER
VALVE SIZE
(NUMBER OF TURNS TO OPEN/CLOSE)
MIDWAY CITY
OVERALL WATER SYSTEM
ALPENHOF TANK
ALPENHOF WELL #1
ALPENHOF WEBER WELL #2
INDIAN SPRINGS TANK
INDIAN SPRINGS
SWISS OAKS TANK
COTTAGES TANK
GERBER TANK
GERBER SPRING
MAHOGANY SPRINGS
MAHOGANY TANK
COTTAGES BOOSTER PUMP
STRINGTOWN RD
CENTER ST
PINE CANYON RD
INTERLAKEN RD
RIVER RD
FOX DEN RD
HOMESTEAD DR
MEMORIAL FIELD
SNAKE RD

Table 3-9: 10 Year Cost Summary of Recommended Improvements

Master Plan Project #	Project Location (Road)	Location To and From	Approximate Pipe Length (ft)	Existing Diameter Inches	Proposed Diameter Inches	Project Cost	CIP / Operating		Developer		Impact Fee	
							Percent	Cost	Percent	Cost	Percent	Cost
1	River Road	600 North to Burgi Lane	2,500	8	10	$475,000	59.08%	$280,615	0.00%	$0	40.92%	$194,385
2	Rainbow Lane	Complete Development	3,080	6	8	$508,200	37.50%	$190,575	0.00%	$0	62.50%	$317,625
3	Creek Side	200 North to Entrance	450	6	8	$74,250	37.50%	$27,844	0.00%	$0	62.50%	$46,406
4	400 West	Main Street to 100 North	670	8	12	$157,450	38.10%	$59,981	0.00%	$0	61.90%	$97,469
5	Main Street	200 West to 400 West	1,250	6	12	$293,750	14.29%	$41,964	0.00%	$0	85.71%	$251,786
6	Center Street	100 South to Main St.	675	6	12	$158,625	14.29%	$22,661	0.00%	$0	85.71%	$135,964
7	700 East	Main Street to end of Cul-de-sac	750	4	8	$123,750	16.67%	$20,625	0.00%	$0	83.33%	$103,125
8	185 South	100 East to 200 East	650	0	10	$123,500	0.00%	$0	100.00%	$123,500	100.00%	$123,500
9	Michie Lane	500 East to 740 East	1,500	6	10	$247,500	22.15%	$54,831	0.00%	$0	77.85%	$192,669
10	Cottage Creek Ct.	Pine Canyon Rd. to End of Cul-de-Sac	650	6	8	$139,750	37.50%	$52,406	0.00%	$0	62.50%	$87,344
11	Trailer Court	Homestead Dr. to end of Trailer Court	1,175	4	8	$193,875	16.67%	$32,313	0.00%	$0	83.33%	$161,563
12	Lime Canyon Road	Homestead Dr. to Zermatt North Entrance	520	6	8	$85,800	37.50%	$32,175	0.00%	$0	62.50%	$53,625
13	330 North (Off Alpenhof Court)	Alpenhof Court to Stub East	230	6	8	$37,950	37.50%	$14,231	0.00%	$0	62.50%	$23,719
14	Update Capital Facilities Plan		3			$150,000	0.00%	$0	0.00%	$0	100.00%	$150,000
	TOTAL 10 Year Period		**11,525**	LF		**$1,924,275**		**$553,690**		**$123,500**		**$1,939,179**
	REVENUE FROM IMPACT FEES TO 2035 (10 year period)											**$2,051,600**
	DIFFERENCE (Project Costs - Revenue)											**$112,421**

10 Year Period	
2025 ERUs (Residential & Commercial)	2,778
2035 ERUs (Residential & Commercial)	3,602
New ERUs During Planning Period	824
Total Midway City Impact Fee Project Costs	$1,939,179
Calculated Water Impact Fee per ERU	**$2,353.37**

Table 3-9: 10 Year Cost Summary of Recommended Improvements

Master Plan Project #	Project Location (Road)	Location To and From	Approximate Pipe Length (ft)	Existing Diameter Inches	Proposed Diameter Inches	Project Cost	CIP / Operating Percent	CIP / Operating Cost	Developer Percent	Developer Cost	Impact Fee Percent	Impact Fee Cost
1	River Road	600 North to Burgi Lane	2,500	8	10	$475,000	59.08%	$280,615	0.00%	$0	40.92%	$194,385
2	Rainbow Lane	Complete Development	3,080	6	8	$508,200	37.50%	$190,575	0.00%	$0	62.50%	$317,625
3	Creek Side	200 North to Entrance	450	6	8	$74,250	37.50%	$27,844	0.00%	$0	62.50%	$46,406
4	400 West	Main Street to 100 North	670	8	12	$157,450	38.10%	$59,981	0.00%	$0	61.90%	$97,469
5	Main Street	200 West to 400 West	1,250	6	12	$293,750	14.29%	$41,964	0.00%	$0	85.71%	$251,786
6	Center Street	100 South to Main St.	675	6	12	$158,625	14.29%	$22,661	0.00%	$0	85.71%	$135,964
7	700 East	Main Street to end of Cul-de-sac	750	4	8	$123,750	16.67%	$20,625	0.00%	$0	83.33%	$103,125
8	185 South	100 East to 200 East	650	0	10	$123,500	0.00%	$0	100.00%	$123,500	100.00%	$123,500
9	Michie Lane	500 East to 740 East	1,500	6	10	$247,500	22.15%	$54,831	0.00%	$0	77.85%	$192,669
10	Cottage Creek Ct.	Pine Canyon Rd. to End of Cul-de-Sac	650	6	8	$139,750	37.50%	$52,406	0.00%	$0	62.50%	$87,344
11	Trailer Court	Homestead Dr. to end of Trailer Court	1,175	4	8	$193,875	16.67%	$32,313	0.00%	$0	83.33%	$161,563
12	Lime Canyon Road	Homestead Dr. to Zermatt North Entrance	520	6	8	$85,800	37.50%	$32,175	0.00%	$0	62.50%	$53,625
13	330 North (Off Alpenhof Court	Alpenhof Court to Stub East	230	6	8	$37,950	37.50%	$14,231	0.00%	$0	62.50%	$23,719
14	Update Capital Facilities Plan		3			$150,000	0.00%	$0	0.00%	$0	100.00%	$150,000
	TOTAL 10 Year Period		**11,525**	LF		**$1,924,275**		**$553,690**		**$123,500**		**$1,939,179**
	REVENUE FROM IMPACT FEES TO 2035 (10 year period)											**$2,051,600**
	DIFFERENCE (Project Costs - Revenue)											**$112,421**

10 Year Period	2025 ERUs (Residential & Commercial)	2,778
	2035 ERUs (Residential & Commercial)	3,602
	New ERUs During Planning Period	824
	Total Midway City Impact Fee Project Costs	$1,939,179
	Calculated Water Impact Fee per ERU	**$2,353.37**

FIGURE 3-1

MIDWAY CITY

CURRENT CULINARY WATER SYSTEM

MAHOGANY SPRINGS #1
TOP SPRING ELEV. = 5,881'

MAHOGANY SPRINGS #2
TOP SPRING ELEV. = 5,876'

MAHOGANY TANK
800,000 GALLONS
OVERFLOW ELEV. = 5,846'

GERBER SPRING
SPRING ELEV. = 5,864'

GERBER TANK
800,000 GALLONS
OVERFLOW ELEV. = 5,848'

COTTAGES TANK
800,000 GALLONS
OVERFLOW ELEV. = 6,103'

COTTAGES
BOOSTER PUMP
ELEV. = 5,777'

SWISS OAKS TANK
250,000 GALLONS
TOP TANK ELEV. = 6,054'
(NOT APART OF MIDWAY
WATER SYSTEM)

ALPENHOF
WEBER WELL #2
500 GPM

ALPENHOF WELL #1
100 GPM

ALPENHOF TANK
250,000 GALLONS
OVERFLOW ELEV. = 6,109'

INDIAN SPRING
SPRING ELEV. = 5,719'

INDIAN SPRING TANK
100,000 GALLONS
OVERFLOW ELEV. = 5,695'

SNAKE CREEK DR
WARM SPRINGS DR
LIME CANYON DR
CARI LN
BURGI LN
INTERLAKEN RD
RIVER RD
PINE CANYON RD
HOMESTEAD DR
CENTER ST
600 N
200 N
200 W
100 N
MEMORIAL HILL
MAIN ST
100 S
MICHIE LN
250 W
FOX DEN RD
STRINGTOWN RD

N

LEGEND

- 2 INCH
- 4 INCH
- 6 INCH
- 8 INCH
- 10 INCH
- 12 INCH
- 14 INCH
- 18 INCH
- 24 INCH

- MIDWAY CITY BOUNDARY
- MIDWAY CITY ROADS

- PRV'S
- WELL OR PUMP
- SPRING
- TANKS

LEGEND

- PRV
- FIRE HYDRANT
- WATER VALVE
- WATER METER
- REDUCER

- 2 INCH
- 4 INCH
- 6 INCH
- 8 INCH
- 10 INCH
- 12 INCH
- 14 INCH
- 15 INCH
- 18 INCH
- 20 INCH
- 24 INCH

VALVE SIZE

(NUMBER OF TURNS TO OPEN/ CLOSE)

2" or 2 1/2"	9
3"	10
4"	13
6"	19
8"	26
10"	32
12"	38
16"	50
18"	56
20"	62
24"	73

N

MIDWAY CITY

OVERALL WATER SYSTEM

Midway

H:\Midway City\City Projects\Capital Facilities Plan 2009-2021\2022 Update\Ch 3 Water - 2022\Drawings\Figure 3-1 Current Water System.dwg - Layout1 - 9/26/2022 09:33am, KodyP

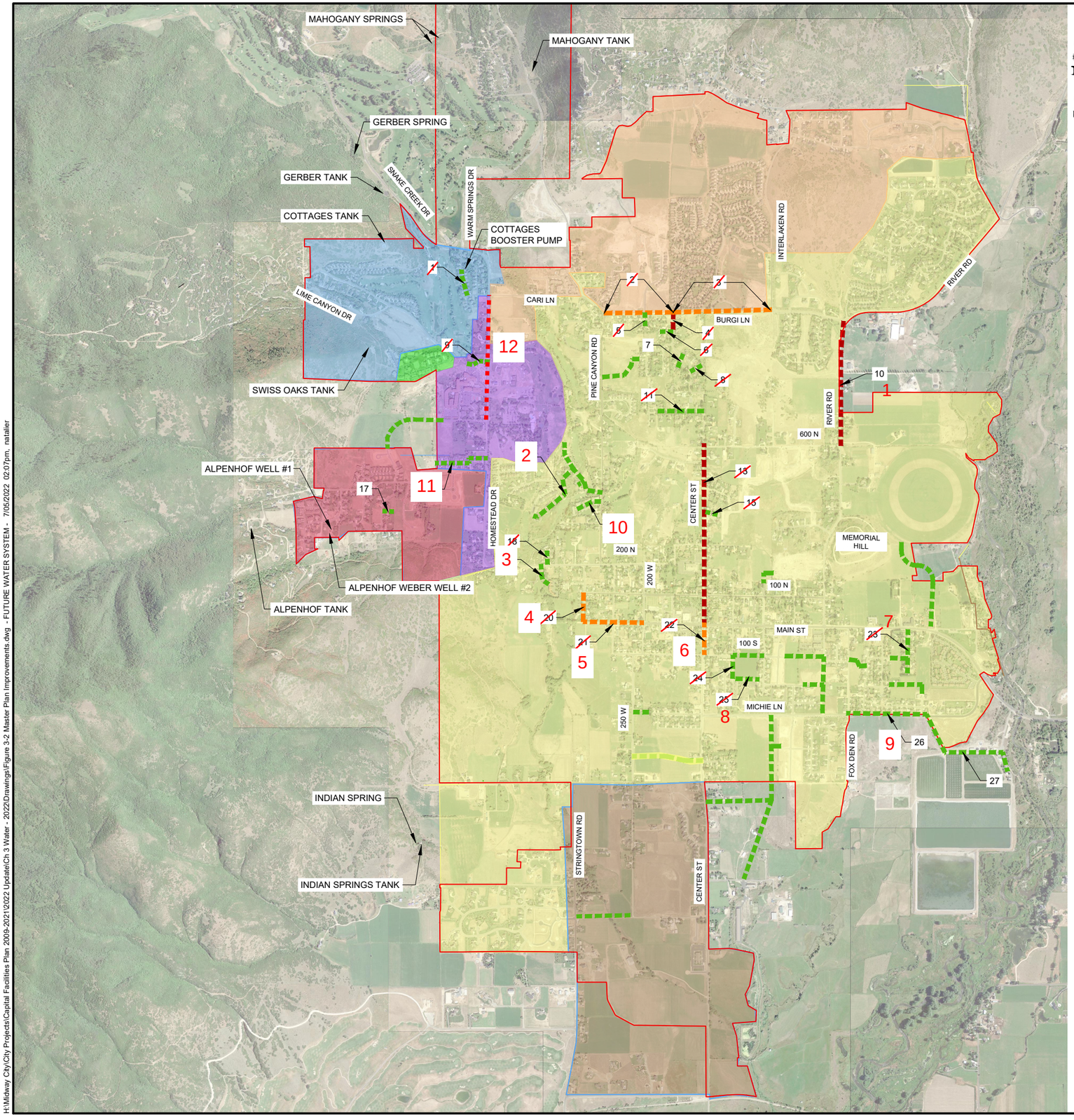


FIGURE 3-2

MIDWAY CITY

CULINARY WATER SYSTEM MASTER PLAN

LEGEND

- MIDWAY CITY BOUNDARY
- MIDWAY CITY ROADS
- WELL OR PUMP
- SPRING
- TANKS
- FUTURE PRV
- MASTER PLAN PROJECT # ##

FUTURE WATER LINES

- 8" FUTURE WATER LINE
- 10" FUTURE WATER LINE
- 12" FUTURE WATER LINE

PRESSURE ZONES

- MAIN PRESSURE ZONE (GERBER & MAHOGANY TANKS)
- COTTAGES ON GREEN PRESSURE ZONE (COTTAGE ON THE GREEN TANK)
- ALPENHOF PRESSURE ZONE (ALPENHOF TANK)
- SWISS OAKS PRESSURE ZONE (SWISS OAKS TANK) (NOT APART OF MIDWAY WATER SYSTEM)
- LOWER MAIN PRESSURE ZONE (GERBER & MAHOGANY TANKS)
- VALAIS ZONE (COTTAGE ON THE GREEN TANK)
- HOMESTEAD DRIVE ZONE (ALPENHOF TANK)

LEGEND

- PRV
- FIRE HYDRANT
- WATER VALVE
- WATER METER
- REDUCER

2 INCH	2"
4 INCH	4"
6 INCH	6"
8 INCH	8"
10 INCH	10"
12 INCH	12"
14 INCH	14"
15 INCH	15"
18 INCH	18"
20 INCH	20"
24 INCH	24"

VALVE SIZE

(NUMBER OF TURNS TO OPEN/ CLOSE)

2" or 2 1/2"	9
3"	10
4"	13
6"	19
8"	26
10"	32
12"	38
16"	50
18"	56
20"	62
24"	73

MIDWAY CITY

OVERALL WATER SYSTEM

Midway

H:\Midway City\City Projects\Capital Facilities Plan 2009-2021\2022 Update\Ch 3 Water - 2022\Drawings\Figure 3-2 Master Plan Improvements.dwg - FUTURE WATER SYSTEM - 7/05/2022 02:07pm, natalier

Chapter 4

Trail System

4.1 Summary and Recommendations

Introduction

The trails within this master plan are comprised of three typical trail types: 6 – 8 foot paved hard surface, 5 – 6 foot hard surface bike lane, and 4-foot back country natural surface trails. The Trail System Capital Facility Plan designates each trail as one of these three types. Developers are required to provide these master planned trails and are encouraged to provide an internal development trail system that connects into the city trail system as often as possible. For the purpose of calculating the trail's impact fee, the City Council, trails committee, and staff estimated which trails are likely to be installed by development and which trails the City's trails impact fee will be required to build.

Although residents of the county use the Midway City trail system, for the purposes of this study only developments that occur within the city will be considered.

Trails Impact Fee = $1,228/ERU

Projected Population

Midway City's full-time and secondary population is expected to increase to approximately 13,165 people by the build-out year 2050. At the end of the 10-year planning period, 2035, the full-time and secondary population is expected to increase to 10,194 people. See Chapter 1 for more details.

Trail System Master Plan

Figure 1 shows the Trail System Master Plan. The existing and future trails shown reflect the major network of trails, transportation needs, and improvements of the fully developed city within the proposed future annexation boundary. Future trails are those that should be constructed to meet the needs of the projected population. The cost of trails which are anticipated to be installed by future developments were not used to calculate the trails impact fee. Because these are the minimum required trails, no trails reimbursement will be made for the construction of any master plan trails that were anticipated to be constructed by developers.

Development Standards

Midway City trails are comprised of three typical trail types: hard surface multi use trails, hard surface bike lanes, and natural surface trails. Due to the small length of back country trails within

the city limit they have not been included in this evaluation. A description of the widths of the respective trails are shown in Table 4-1 and shown on Figure 4-1. The Trail system plan designates each existing and future trail as an 8-foot hard surface trail, or a 5-foot bike lane. Developers are required to construct the size and type of trail the Trail Capital Facility Plan and Trails Committee recommends. All improved surface trails are to be constructed as shown in the construction standards. Midway City plans to continue in-town shared use of trails and back country trails for equestrian users.

With the construction of trails throughout Midway City, many trail bridges will need to be constructed. Bridges should be designed to adequately allow the passing of a 100-year flood; the bridges should also require minimal maintenance and accommodate the typical maintenance equipment which an 8-foot width.

Table 4-1: Midway City's Trail Size Requirements

Type	Right-of-Way Width (Feet)	Surface Width (Feet)
8-foot Hard Surface	10 - 20	6 - 8
4-foot Natural Surface	5 - 10	4
5-foot Hard Bike Surface	10	5 - 6

Trail design should be ADA compliant where possible (slope < 5%). When the slope of the trail is above 5%, all other requirements of an ADA trail should still be followed, and grades should follow the requirements of Table 4-2. For all other design criteria (stopping distances, curve radius, intersections, etc.) refer to the AASHTO Guide for Development of Bicycle Facilities.

Table 4-2: Length of Trail for Grades Above 5%

Grade	Limit of Length at that Grade (Feet)
<5%	None
5-6%	800
6-7%	400
7-8%	200
8-9%	100
9-10%	50
>10%	0

Upkeep and Maintenance

Midway City has established a trail maintenance plan and is evaluating trails that need to be repaired or replaced on a year-by-year basis. This plan increases the design life of the trail by placing trail seal-coat and/or crack seal approximately every five years or as needed. By

applying an asphalt overlay, or seal-coat every 5 to 10 years, the design life of the trail can also be extended. Based on the maintenance issues and use of the trail, a decision should be made as to what types of improvements are needed. The original design of the trail and sub-grade will also be a factor in the trail's life.

Midway City should continue to follow the yearly trail maintenance plan to ensure that the trails continually have adequate drainage, shoulders are kept free of weeds and debris, and patching is completed to minimize the effects of the city's intense freeze thaw cycles.

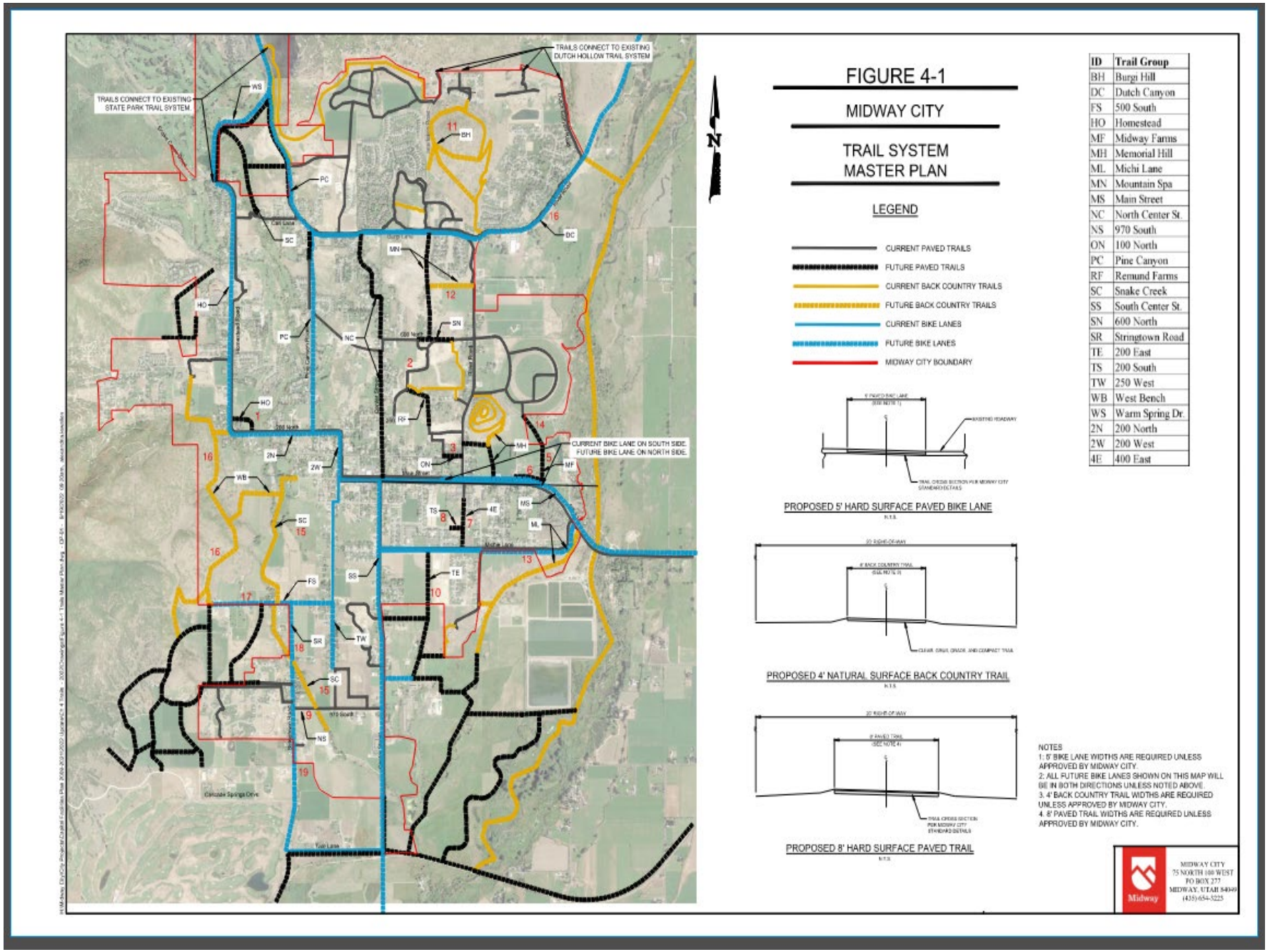
Recommended Trail System Improvements

Capital improvements recommended to meet the projected population are shown in Figure 4-1 and listed in Table 4-3. These recommendations were determined by projecting the future areas of development, the Midway City Master Trail Plan developed by the Trails Committee, and input from City Officials.

Feasibility Recommendations

The trail impact fee is calculated based on an equivalent residential unit (ERU). These funds should generate sufficient revenue to fund the recommended capital improvements shown on Table 4-3. However, to keep abreast of increasing inflation and construction costs, the trail impact fees should be analyzed periodically to make sure funding is available for improvements and capital expenditures. Developers can be reimbursed for master plan trails only if the trail they construct is used in calculating the trails impact fee cost.

Commercial developments also impact Midway City's trail master plan. Trails can provide a way for employees to exercise during lunch, or breaks, and provide access to work. Since a large portion of the commercial property located within the C2 & C3 zones are currently connected to an existing trail, bicycle path, or widened sidewalk, Midway City herby designates these zones as service areas in which a trails impact fee will not be imposed on commercial development unless extraordinary circumstances warrant.



ID	Trail Group
BH	Burgi Hill
DC	Dutch Canyon
FS	500 South
HO	Homestead
MF	Midway Farms
MH	Memorial Hill
ML	Michi Lane
MN	Mountain Spa
MS	Main Street
NC	North Center St.
NS	970 South
ON	100 North
PC	Pine Canyon
RF	Remund Farms
SC	Snake Creek
SS	South Center St.
SN	600 North
SR	Stringtown Road
TE	200 East
TS	200 South
TW	250 West
WB	West Bench
WS	Warm Spring Dr.
2N	200 North
2W	200 West
4E	400 East

4.2 Future Conditions

Introduction

Future conditions in Midway City will affect the trail conditions and the improvements needed to meet the increased population. Some of the assumptions used to determine the future conditions are:

- Present growth rates
- Economic stimuli
- Environmental and recreational development
- Residential development

As the factors change, the projected future conditions made in this study may also change. To help minimize the effect of the changing future conditions, the recommendations made in this study will be based upon the ten-year growth period.

Trails shall be installed along the frontage of each proposed development. Developers shall be reimbursed for the frontage of each existing home prior to the development receiving final entitlement.

Projected Population

The projected population for Midway City from 2025 to 2035 is discussed in Chapter 1. The current 2025 full-time and secondary population is estimated to be 7,862. The existing number of equivalent residential units (ERUs) is estimated to be 2,778. At the end of the 10-year planning period the population is projected to be 10,194 full-time and secondary residents which is equivalent to 3,602 ERUs. This will be an increase in ERUs of 824.

4.3 Trail System Analysis

Trail Impact Fees Administration

An impact fee is a one-time fee with the purpose of raising revenue for new or expanded public facilities required by new development. Impact fees cannot be used to correct existing trail corridor deficiencies or for routine maintenance activities. The premise behind an impact fee is based on the assumption that if no new development was allowed, the existing trail system would adequately serve the existing level of development within the city.

Due to an increase in Midway City's population, traffic and congestion on Midway City's roadways will increase. Getting pedestrians, cyclists, and equestrian users off the roadways and away from traffic creates the need for an adequate trail system within Midway City. The recommended trail improvements outlined in the Trail System Master Plan are used in the development of impact fees. These improvements are growth related and are needed to accommodate the projected growth.

Impact Fees

The calculations for trail impact fees consist of dividing the total cost of the trails Midway City anticipates constructing within the 10-year planning period by the total increase in ERUs. Also included in the impact fee is the cost to update the capital facility plan and impact fee analysis costs. Table 4-3 has a detailed cost of the anticipated improvements.

Impact Fee Fund

Trail improvements must be made to provide safety and access to property as future growth occurs. Revenue must be generated to fund the needed trail improvements. It is calculated that the revenue collected from the trails impact fee will generate the funds required to update the necessary improvements the City anticipates. Each of the trail impact fee improvements are related to growth.

Table 4-3 Cost Summary of Recommended Trail Improvements

10-YEAR PLANNING PERIOD										
No.	**ID**	**Location**	**Total Length (Miles)**	**(Feet)**	**Width (Feet)**	**Surface Type**	**Developer Percent**	**Impact Fee Percent**	**Impact Fee Cost**	
1	HO	Corner of 200 N & Homestead Dr.	0.16	823	8	Bd Walk		100%	$30,945	
2	RF	Indian Summer to Remund Farms Phase 5	0.25	1,335	8	Paved		100%	$50,196	
3	ON	300 E to River Rd.	0.11	560	8	Paved		100%	$21,056	
4	MH	Main St. to ~150 N	0.30	1,600	8	Paved	100%	0%	$0	
5	MF	Main St. to ~250 N	0.36	1,884	8	Paved	100%	0%	$0	
6	MS	~665 E to ~750 E	0.15	780	8	Paved		100%	$0	
7	4E	Michie Ln. to ~50 S	0.23	1,231	8	Paved		100%	$46,286	
8	TS	~350 E to 400 E	0.07	361	8	Paved	100%		$0	
9	NS	Stringtown Rd. to 250 W, **Complete**	0.21	1,104	8	Paved	100%	0%		
10	TE	500 S to Michie Ln. (below will be Annex.)	0.32	1,668	8	Paved	100%	0%	$0	
11	BH	Dutch Fields to Burgi Hills Area	1.01	5,342	4	UBC		100%	$26,708	
12	MN	Mountain Spa to River Rd., **Complete**	0.25	1,336	4	UBC		100%		
13	ML	~740 E to Main St.	0.29	1,513	8	Paved		100%	$15,130	
14	MH	~150 N to ~250 N	0.17	903	4	UBC	100%	0%	$0	
15	SC	~1000 S to Main St.	1.09	5,770	4	UBC		100%	$28,850	
16	DC	Burgi Ln. to Dutch Canyon Rd.	1.51	7,976	5	Bike		100%	$215,352	
17	FS	~800 W to 250 W	1.31	6,896	5	Bike		100%	$186,192	
18	TW	500 S to 750 S	0.63	3,316	5	Bike		100%	$89,532	
19	SR	500 S ~1120 S	1.52	8,024	5	Bike	16%	84%	$181,984	
	Updating Capital Facilites Plan			3	Each	$40,000.00		100%	$120,000	
		TOTAL	**9.9**	**52,421**					**$1,012,230**	

10-Year Period 2025 ERU's	2,778
2035 ERU's	3,602
New ERUs During Planning Period	824
Total Midway City Impact Fees Project Costs	$1,012,230
Calculated Trail Impact Fee per ERU	**$1,228**

ID	Trail Group
BH	Burgi Hill
DC	Dutch Canyon
FS	500 South
HO	Homestead
MF	Midway Farms
MH	Memorial Hill
ML	Michi Lane
MN	Mountain Spa
MS	Main Street
NC	North Center St.
NS	970 South
ON	100 North
PC	Pine Canyon
RF	Remund Farms
SR	Stringtown Road
TW	250 West
2W	200 West
4E	400 East

Table 4-3 Cost Summary of Recommended Trail Improvements

10-YEAR PLANNING PERIOD										
No.	ID	Location	Total Length (Miles)	(Feet)	Width (Feet)	Surface Type	Developer Percent	Impact Fee Percent	Impact Fee Cost	
1	HO	Corner of 200 N & Homestead Dr.	0.16	823	8	Bd Walk		100%	$30,945	**ID**
2	RF	Indian Summer to Remund Farms Phase 5	0.25	1,335	8	Paved		100%	$50,196	BH
3	ON	300 E to River Rd.	0.11	560	8	Paved		100%	$21,056	DC
4	MH	Main St. to ~150 N	0.30	1,600	8	Paved	100%	0%	$0	FS
5	MF	Main St. to ~250 N	0.36	1,884	8	Paved	100%	0%	$0	HO
6	MS	~665 E to ~750 E	0.15	780	8	Paved		100%	$0	MF
7	4E	Michie Ln. to ~50 S	0.23	1,231	8	Paved		100%	$46,286	MH
8	TS	~350 E to 400 E	0.07	361	8	Paved	100%		$0	ML
9	NS	Stringtown Rd. to 250 W, **Complete**	0.21	1,104	8	Paved	100%	0%		MN
10	TE	500 S to Michie Ln. (below will be Annex.)	0.32	1,668	8	Paved	100%	0%	$0	MS
11	BH	Dutch Fields to Burgi Hills Area	1.01	5,342	4	UBC		100%	$26,708	NC
12	MN	Mountain Spa to River Rd., **Complete**	0.25	1,336	4	UBC		100%		NS
13	ML	~740 E to Main St.	0.29	1,513	8	Paved		100%	$15,130	ON
14	MH	~150 N to ~250 N	0.17	903	4	UBC	100%	0%	$0	PC
15	SC	~1000 S to Main St.	1.09	5,770	4	UBC		100%	$28,850	RF
16	DC	Burgi Ln. to Dutch Canyon Rd.	1.51	7,976	5	Bike		100%	$215,352	SR
17	FS	~800 W to 250 W	1.31	6,896	5	Bike		100%	$186,192	TW
18	TW	500 S to 750 S	0.63	3,316	5	Bike		100%	$89,532	2W
19	SR	500 S ~1120 S	1.52	8,024	5	Bike	16%	84%	$181,984	4E
	Updating Capital Facilites Plan			3	Each	$40,000.00		100%	$120,000	
		TOTAL	**9.9**	**52,421**					**$1,012,230**	

10-Year Period 2025 ERU's	2,778
2035 ERU's	3,602
New ERUs During Planning Period	824
Total Midway City Impact Fees Project Costs	$1,012,230
Calculated Trail Impact Fee per ERU	**$1,228**

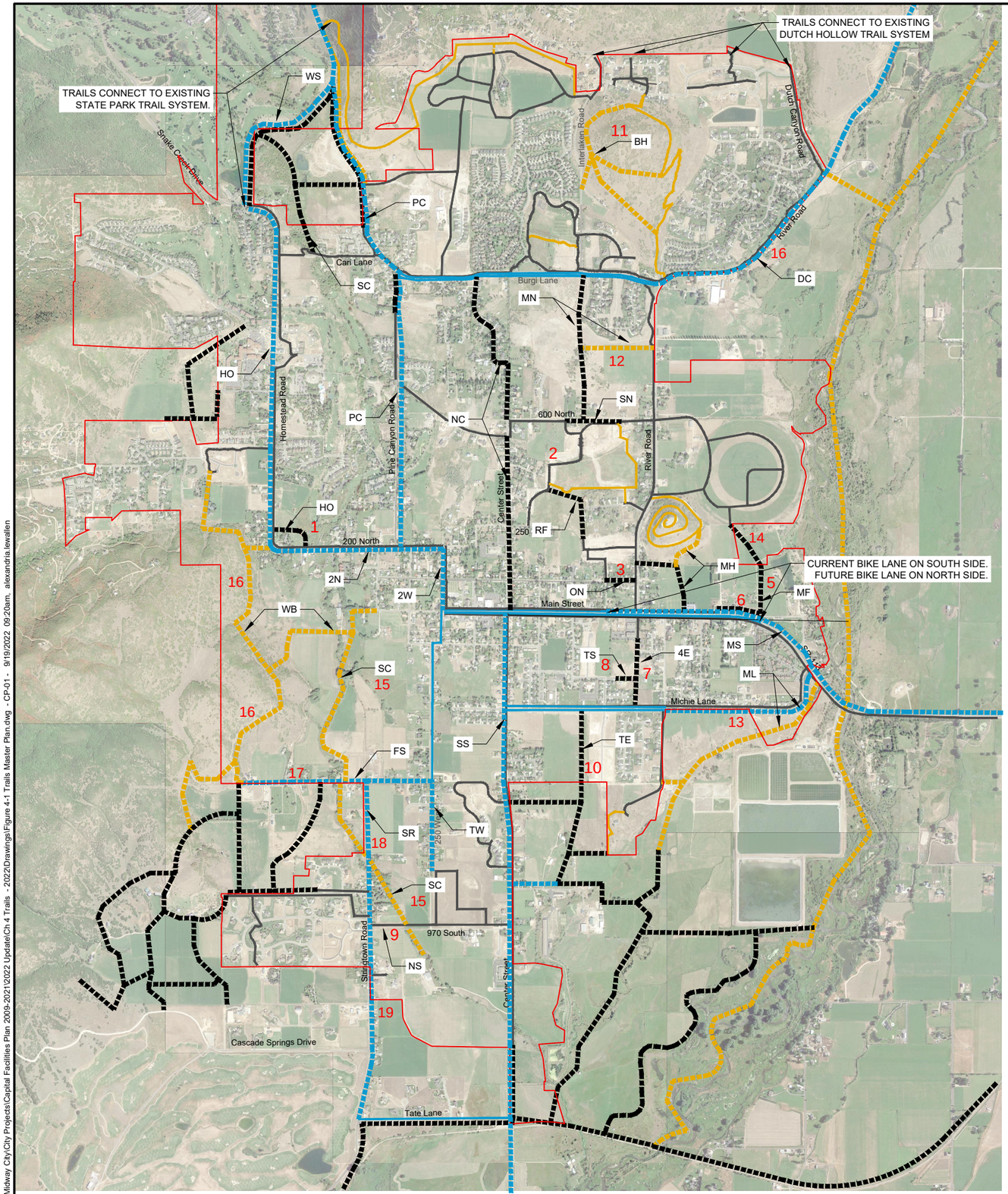


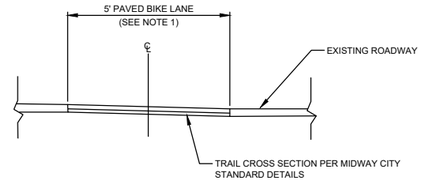
FIGURE 4-1

MIDWAY CITY

TRAIL SYSTEM MASTER PLAN

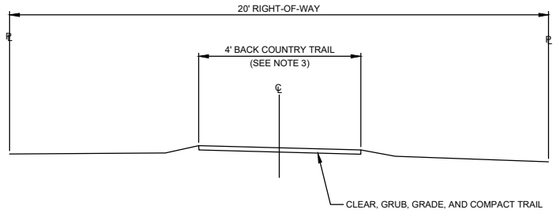
LEGEND

- CURRENT PAVED TRAILS
- FUTURE PAVED TRAILS
- CURRENT BACK COUNTRY TRAILS
- FUTURE BACK COUNTRY TRAILS
- CURRENT BIKE LANES
- FUTURE BIKE LANES
- MIDWAY CITY BOUNDARY



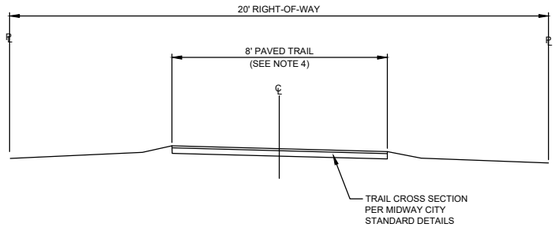
PROPOSED 5' HARD SURFACE PAVED BIKE LANE

N.T.S.



PROPOSED 4' NATURAL SURFACE BACK COUNTRY TRAIL

N.T.S.



PROPOSED 8' HARD SURFACE PAVED TRAIL

N.T.S.

ID	Trail Group
BH	Burgi Hill
DC	Dutch Canyon
FS	500 South
HO	Homestead
MF	Midway Farms
MH	Memorial Hill
ML	Michi Lane
MN	Mountain Spa
MS	Main Street
NC	North Center St.
NS	970 South
ON	100 North
PC	Pine Canyon
RF	Remund Farms
SC	Snake Creek
SS	South Center St.
SN	600 North
SR	Stringtown Road
TE	200 East
TS	200 South
TW	250 West
WB	West Bench
WS	Warm Spring Dr.
2N	200 North
2W	200 West
4E	400 East

NOTES
1: 5' BIKE LANE WIDTHS ARE REQUIRED UNLESS APPROVED BY MIDWAY CITY.
2: ALL FUTURE BIKE LANES SHOWN ON THIS MAP WILL BE IN BOTH DIRECTIONS UNLESS NOTED ABOVE.
3. 4' BACK COUNTRY TRAIL WIDTHS ARE REQUIRED UNLESS APPROVED BY MIDWAY CITY.
4. 8' PAVED TRAIL WIDTHS ARE REQUIRED UNLESS APPROVED BY MIDWAY CITY.

MIDWAY CITY
75 NORTH 100 WEST
PO BOX 277
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Chapter 5

Parks Facilities Master Plan

5.1 Summary and Recommendations

Introduction

The number of parks and size of parks, or park acres, that are required by a city is based largely on the population. Over the 10-year planning period the City's full-time and secondary population is projected to increase to 10,194 people. During this period the number of park acres that the city will need to acquire and develop will also need to increase. This park facilities master plan consists of a plan to develop and improve some of the existing city parks with landscaping and public facilities, and to acquire new land for a proposed multi-purpose dual use park site. The criteria used in this study are summarized below:

- Park Ratio: 5 acres of park per 1,000 people

Recommended Park Impact Fee = $1,991.00/ERU

Capital Improvements Plan

Midway City currently has approximately 32.3 acres of improved park space and 82.9 acres of total park acres. The total population of Midway City is anticipated to be 10,194 people by the end of the ten-year planning period. The current full time and secondary populations of 7,862 enjoy 32.3 acres of park. This is a ratio of roughly four acres of park per 1,000 people. Additionally, The National Recreation and Park Association in conjunction with the American Academy for Park and Recreation Administration has published the 1996, Park, Recreation, Open Space and Greenway Guidelines. This guideline states that up to ten acres per 1,000 people is a commonly accepted standard used by a majority of communities. Because of the surrounding mountains and the existing Wasatch Mountain State Park, Midway City has adopted four to five acres of parks per 1,000 people as the standard for this parks capital facility plan.

To achieve five acres of park per one-thousand people during the planning period, an additional 18.7 acres of parks will need to be developed. Midway City currently owns unimproved park property that has the potential to be developed into city parks.

In addition to improving parks throughout Midway City, bike and walking trails have been placed as a priority by the city. Additional information about the city wide trail system can be found in Chapter Four of the master plan.

Impact fees are necessary to maintain the current ratio of parks and recreation facilities to the number of residents of Midway City. The Park Impact Fee is assessed on new building permits to develop existing parks and provide recreation benefits to the new residents. The Park and Recreation Impact Fee is determined in part by the value of existing city parks.

Reasoning for Park Impact Fees

As the population of Midway City grows, there will be a need for the existing parks to be further improved and additional parks and recreational areas to be developed. The required amount of parks and recreation area is based on a predetermined amount of acreage per thousand residents. Midway City has established a standard of five acres of park per one thousand residents. To maintain this ratio throughout the planning period, Midway City must develop its existing park acrage, improve existing parks, and improve existing lands to park status. Impact fees are charged for new developments in order to develop the existing parks and fund these new Midway City parks.

Contributors to Park Impact Fees

A park impact fee is the most reasonable method of obtaining funding for improving existing parks and developing new parks by obtaining the money from those who create the need. When population increases, so does the demand for residential housing. As residential developments fill with occupants, the new residents place a demand on the existing city infrastructure including parks and recreation areas. As the population density of a development increases, the demand for open spaces increases per capita. By levying fees on building permits, Midway City can fund the new demand on the infrastructure in a fair and rational method, and maintain the existing level of service.

Commercial developments also impact Midway City's parks and recreation facilities. Parks can provide an area for employees to go during lunch and business hours for breaks or relaxation. Parks also furnish a place for people to rest who come from out of town to conduct business. Since a large portion of the commercial property located within the C2 & C3 zones are currently connected to an existing park, Midway City hereby designates these zones as service areas in which a parks impact fee will not be imposed on commercial development unless extraordinary circumstances warrant.

Current Value of Existing Facilities and Acreage

The current acreage of improved city parks is approximately 32.3 acres and the estimated amount of unimproved potential city park is estimated at 50.6 acres. A short description of the existing city parks included in this study is given in the following paragraphs.

Town Square Park: The Town Square Park is located in the center of town adjacent to the City building and town hall. The park has an area of 2.5 acres. The park includes a tennis court and an ice skating rink with summer activities. The city wide trail system is

connected to this park. Improvements will not be used in the calculation of the park impact fees. This park is the center of Swiss Days.

Centennial Park: The Centennial Park is between Center Street and 100 West adjacent to 100 North. The park has an area of 2.3 acres. The park provides a playground and a pavilion with barbecues and picnic tables. Because the park is currently improved, funds were not used in calculating the City wide park impact fee.

Hamlet City Park: The Hamlet City Park is located on the east entrance of town adjacent to Main Street. The 4.5 acres park provides a playground, a small restroom, and two pavilions with barbecues and picnic tables. This park also accommodates a storm water retention pond. The city wide trail system is planned to connect to this park.

Burgi Hill Park: The Burgi Hill Park is located North of Burgi Lane, between Interlaken Road and the Valais Development. The park has an area of 25 acres, with 5 acres of open grass hay that is cut and bailed each year. The park was donated to the City by the Valais developer as part of the developments open space. The park includes two concrete tennis/pickleball courts with a basketball court, playground, restrooms, sports field, and a dog park. The Park also contains several areas of open space with wetlands and a trail system. A section of the city wide trail system is currently connected to this park. Proposed improvements will include playground equipment, landscaping restrooms and some miscellaneous fencing.

Alpenhof City Park: The Alpenhof City Park is located in the west portion of the City in the southwest corner of the Alpenhof development. The 2.6 acres park provides a playground and a pavilion with barbecues and picnic tables. Because the park is currently improved, funds were not used in calculating the City wide park impact fee.

Michie Lane Park: The Michie Lane Park is located on Michie Lane (300 South) and 300 East in the northwest corner of the Deer Creek Estates development. The 2.05 acres park provides a playground, trails, and sleighing hill. Because the park is currently improved, funds were not used in calculating the City wide park impact fee.

Gardner Midway Legacy Preserve: The Gardner Preserve park is located Southern end of the City, on the East side of SR-113 near Tate Lane. The park has an area of 45 acres. The City recently obtained the land and it is currently being farmed, raising hay. A section of the city wide trail system will be connected to the park. With the park located just North of the Heber Valley Railroad, it is anticipated a train stop will be a component of the park. The proposed improvements will include a small playground equipment area, landscaping, a botanical garden, trails, restrooms, a train depot stop, a parking lot, and some miscellaneous fencing.

Hamlet Open Space: The Hamlet open space park is located just South of SR-113 and East of Michi Lane. This area is currently the open space for the Hamlet development. The City and the Hamlet have agreed on a preputial easement. A section of the city wide trail system will be connected to the park. The proposed improvements will include a bike pump track, landscaping, restrooms, a dog park, a parking lot, and some miscellaneous fencing.

Mt Spaa Park: The Mt Spaa park is located on the South-east corner of the Ameyalli resort development. Through the development process the City has a perpetual easement of the area. The Ameyalli resort is centered around the natural thermal warm springs of the area. The proposed improvements will include a bathroom changing area, a concession building, sidewalks, thermal pool and pumps, several shade stations, and entrance feature, and miscellaneous fencing.

Bike Rest Stop: Two possible locations have been identified. The corner of Stringtown Road and Cascade Springs Drive and the intersection of River Road and Burgi Lane. Each rest area would benefit both pedestrians and bicyclists. The proposed improvements will include a small covered picnic area, and a small bike repair station.

The parks and recreation responsibilities in the Heber Valley have been shared by both Midway City and Wasatch County. The County has provided the large community-type recreation parks and Midway City provides the smaller, community-type parks within the city limits. The planning of city parks and recreation facilities should be in line with the planning of the County's larger recreational facilities. Meetings between the two governing bodies do occur to ensure the recommended open space, trails, parks, and recreational facilities are being fulfilled.

Recommended Park Improvements

To accommodate the projected population, an additional 18.8 acres of park area will be developed. This will bring the total Midway City Park acreage to approximately 51.1 acres. This additional acreage can be met by developing the existing City park property.

Although the total build-out will probably not come for many decades, proper planning to obtain adequate park improvements should occur now. The collection of impact fees for park development is one way to help plan for and benefit future generations.

Since population growth, property values, inflation, zoning, and other variables affecting park values change from year to year, along with changes to state and county codes may also affect how the City assesses impact fees; for these reasons, it is recommended that Midway City have a review performed on the parks impact fee periodically.

Table 5-1

Midway City's Park Improvements Cost

10 Year Planning Period Projects

Bergi Hill Park

Description	Units	Quantity	Unit Cost	Total Cost
Playground equipment	Lump Sum	1	$25,000.00	$25,000.00
Landscaping	Acres	15	$3,000.00	$45,000.00
Trails	Lump Sum	0	$10,000.00	$0.00
Restrooms	Lump Sum	1	$75,000.00	$75,000.00
Fencing and Miscellaneous	Lump Sum	1	$25,000.00	$25,000.00
Total				*******

Gardner Midway Legacy Preserve

Description	Units	Quantity	Unit Cost	Total Cost
Playground equipment	Lump Sum	1	$25,000.00	$25,000.00
Landscaping	Acres	4	$7,000.00	$28,000.00
Botanical Garden	Lump Sum	1	$65,000.00	$65,000.00
Trails	Linear Ft	4,500	$27.00	$121,500.00
Restrooms	Lump Sum	1	$120,000.00	$120,000.00
Fencing and Miscellaneous	Lump Sum	1	$25,000.00	$25,000.00
Entrance Monument	Lump Sum	1	$15,000.00	$15,000.00
Train Depot Stop	Lump Sum	1	$250,000.00	$250,000.00
Parking Lot	Lump Sum	1	$200,000.00	$200,000.00
Total				*******

Hamlet Open Space

Description	Units	Quantity	Unit Cost	Total Cost
Bike Pump Track	Lump Sum	1	$35,000.00	$35,000.00
Landscaping	Acres	3	$8,000.00	$24,000.00
Restrooms	Lump Sum	1	$75,000.00	$75,000.00
Dog Park	Lump Sum	1	$65,000.00	$65,000.00
Parking Lot	Lump Sum	1	$25,000.00	$25,000.00
Fencing, Signs & Miscellan	Lump Sum	1	$15,000.00	$15,000.00
Total				*******

Mt Spas Park

Description	Units	Quantity	Unit Cost	Total Cost
Bathroom Changing Room	Lump Sum	1	$125,000.00	$125,000.00
Concession Building	Lump Sum	1	$75,000.00	$75,000.00
Sidewalks	Lump Sum	1	$12,000.00	$12,000.00
Thermal Pools & Pumps Sys	Linear Ft	4	$15,000.00	$60,000.00
Restrooms	Lump Sum	0	$75,000.00	$0.00
Gazebo and Shade Station	Lump Sum	2	$15,000.00	$30,000.00
Fencing and Miscellaneous	Lump Sum	1	$15,000.00	$15,000.00
Entrance Feature	Lump Sum	1	$10,000.00	$10,000.00
Total				*******

Bike Rest Stop, Shoulder Hollow, River Road & Bergi Lane

Description	Units	Quantity	Unit Cost	Total Cost
Covered Picnic Table	Lump Sum	1	$15,000.00	$15,000.00
Bike Repair Station	Lump Sum	1	$10,000.00	$10,000.00
Total				*******

Update Capital Facilities Plan

Description	Units	Quantity	Unit Cost	Total Cost
Update Capital Facilities P	Each	3	$10,000.00	$30,000.00
Overall Total Cost				*******

10-Year Period 2025 ERU's	2,778
2035 ERU's	3,602
New ERUs During Planning Period	824
Total Midway City Impact Fee Project Costs	$1,640,500
Calculated Trail Impact Fee per ERU	**$1,991**

Table 5-1

Midway City's Park Improvements Cost

10 Year Planning Period Projects

Burgi Hill Park

Description	Units	Quantity	Unit Cost	Total Cost
Playground equipment	Lump Sum	1	$25,000.00	$25,000.00
Landscaping	Acres	15	$3,000.00	$45,000.00
Trails	Lump Sum	0	$10,000.00	$0.00
Restrooms	Lump Sum	1	$75,000.00	$75,000.00
Fencing and Miscellaneous	Lump Sum	1	$25,000.00	$25,000.00
Total				**$170,000.00**

Gardner Midway Legacy Preserve

Description	Units	Quantity	Unit Cost	Total Cost
Playground equipment	Lump Sum	1	$25,000.00	$25,000.00
Landscaping	Acres	4	$7,000.00	$28,000.00
Botanical Garden	Lump Sum	1	$65,000.00	$65,000.00
Trails	Linear Ft	4,500	$27.00	$121,500.00
Restrooms	Lump Sum	1	$120,000.00	$120,000.00
Fencing and Miscellaneous	Lump Sum	1	$25,000.00	$25,000.00
Entrance Monument	Lump Sum	1	$15,000.00	$15,000.00
Train Depot Stop	Lump Sum	1	$250,000.00	$250,000.00
Parking Lot	Lump Sum	1	$200,000.00	$200,000.00
Total				**$849,500.00**

Hamlet Open Space

Description	Units	Quantity	Unit Cost	Total Cost
Bike Pump Track	Lump Sum	1	$35,000.00	$35,000.00
Landscaping	Acres	3	$8,000.00	$24,000.00
Restrooms	Lump Sum	1	$75,000.00	$75,000.00
Dog Park	Lump Sum	1	$65,000.00	$65,000.00
Parking Lot	Lump Sum	1	$25,000.00	$25,000.00
Fencing, Signs & Miscellaneous	Lump Sum	1	$15,000.00	$15,000.00
Total				**$239,000.00**

Mt Spaa Park

Description	Units	Quantity	Unit Cost	Total Cost
Bathroom Changing Room	Lump Sum	1	$125,000.00	$125,000.00
Concession Building	Lump Sum	1	$75,000.00	$75,000.00
Sidewalks	Lump Sum	1	$12,000.00	$12,000.00
Thermal Pools & Pumps System	Linear Ft	4	$15,000.00	$60,000.00
Restrooms	Lump Sum	0	$75,000.00	$0.00
Gazabo and Shade Stations	Lump Sum	2	$15,000.00	$30,000.00
Fencing and Miscellaneous	Lump Sum	1	$15,000.00	$15,000.00
Entrance Feature	Lump Sum	1	$10,000.00	$10,000.00
Total				**$327,000.00**

Bike Rest Stop, Shoulder Hollow, River Road & Burgi Lane

Description	Units	Quantity	Unit Cost	Total Cost
Covered Picnic Table	Lump Sum	1	$15,000.00	$15,000.00
Bike Repair Station	Lump Sum	1	$10,000.00	$10,000.00
Total				**$25,000.00**

Update Capital Facilities Plan

Description	Units	Quantity	Unit Cost	Total Cost
Update Capital Facilities Plan	Each	3	$10,000.00	$30,000.00

Overall Total Cost	**$1,640,500.00**

10-Year Period	2025 ERU's	2,778
	2035 ERU's	3,602
	New ERUs During Planning Period	824
	Total Midway City Impact Fees Project Costs	$1,640,500
	Calculated Trail Impact Fee per ERU	**$1,991**

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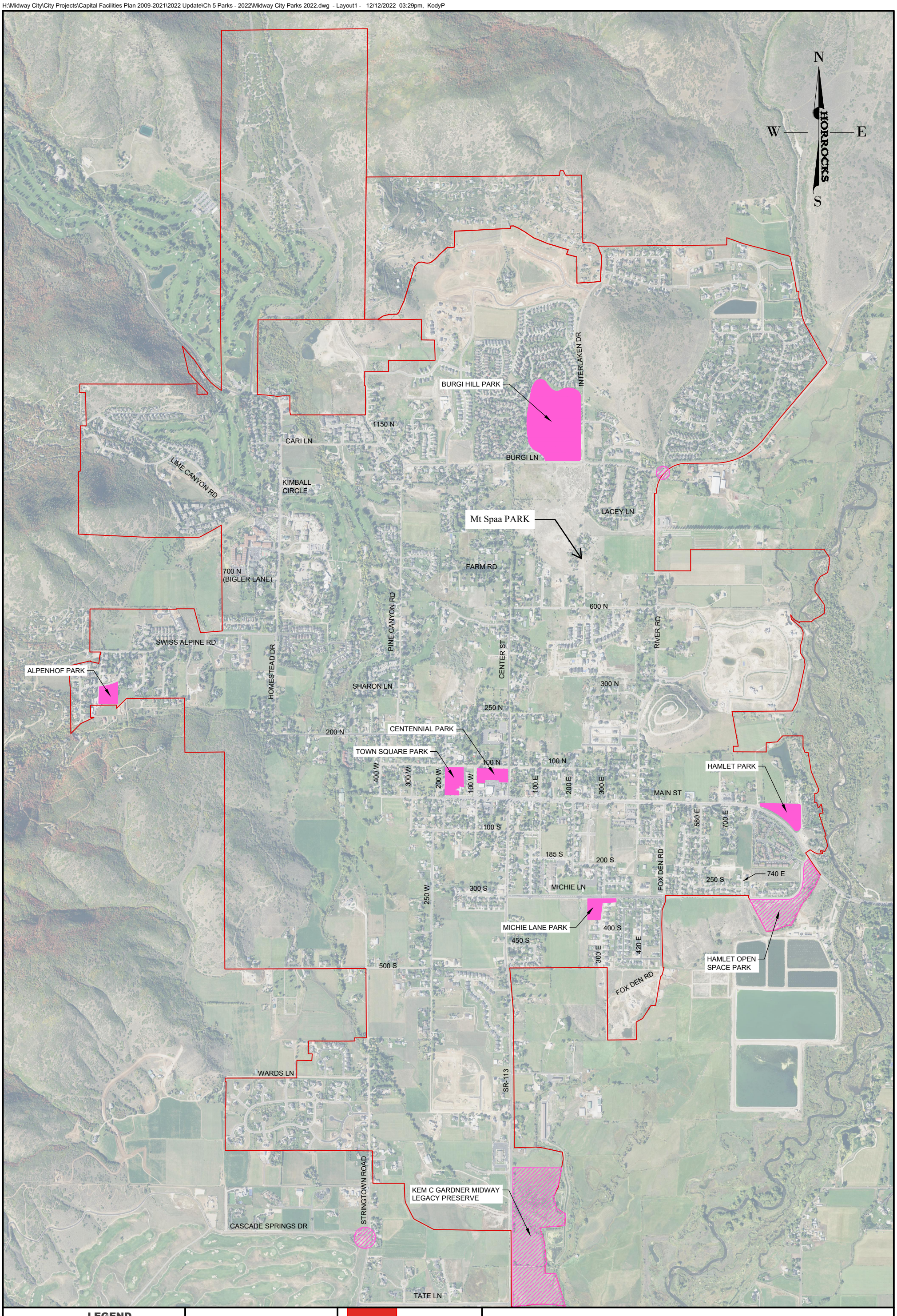

LEGEND

- EXISTING PARKS
- POTENTIAL AREA FOR A PARK
- MIDWAY CITY BOUNDARY

Midway

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MIDWAY CITY - Park Plan